Call for inputs on actions undertaken by accredited observer organizations relevant to the Technology Executive Committee in performing its functions

18 June – 31 July 2012

Background

The COP, by its decision 1/CP.16, requested the Technology Executive Committee (TEC), as one of its functions, to seek cooperation with relevant international technology initiatives, stakeholders and organizations, and to promote coherence and cooperation across technology activities, including activities under and outside the Convention.

The rolling work plan of the TEC for 2012-2013 includes the preparation of an inventory of relevant work of institutions that are active in the area of technology collaboration with a view to informing the work of the TEC.

Call for inputs

The TEC, at its third meeting, agreed to launch a call for inputs on actions undertaken by accredited observer organizations relevant to the TEC in performing its functions. The inventory of actions undertaken by these organizations would provide a basis for the TEC to identify relevant organizations for cooperation.

Observer organizations accredited by the UNFCCC are invited to provide their inputs on actions undertaken by these organizations which are relevant to the TEC in performing its functions by using this template and send it to: tec@unfccc.int.

The call for inputs will be open from 18 June - 31 July 2012 (24:00 GMT). The inputs from this call will be considered at the fourth meeting of the TEC.

Inputs received

Date received	Submission
30 July 2012	Climate Alliance
30 July 2012	UNEP
31 July 2012	World Intellectual Property Organization
31 July 2012	Energy Research Centre of the Netherlands
31 July 2012	Global Environment Facility
31 July 2012	Business Council for Sustainable Energy
31 July 2012	JIV International
31 July 2012	South Centre

31 July 2012	Tsinghua University
1 August 2012	Asian Development Bank
1 August 2012	International Centre for Trade and Sustainable Development
1 August 2012	International Energy Agency
1 August 2012	Third World Network
2 August 2012	International Telecommunication Union
6 August 2012	Global CCS Institute
6 August 2012	World Business Council for Sustainable Development
6 August 2012	International Renewable Energy Agency

Climate Alliance and the Covenant of Mayors initiative:

Providing technical support to local authorities on sustainable energy planning

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Frankfurt, May 2012

CONTENTS

1. GETTING TO KNOW CLIMATE ALLIANCE

Climate Alliance: A strong community for global climate protection

“Climate Alliance of European Cities with Indigenous Rainforest Peoples” is the European network of local authorities committed to the protection of the world's climate. The member cities and municipalities aim to reduce greenhouse gas emissions at their source. Their allies in this endeavour are the Indigenous Peoples of the rainforests in the Amazon Basin.

Climate Alliance members

Founded in 1990, more than 1.600 cities, municipalities and districts in 18 European countries have since joined Climate Alliance. Regional governments, NGOs and other organisations are able to join as associated members.

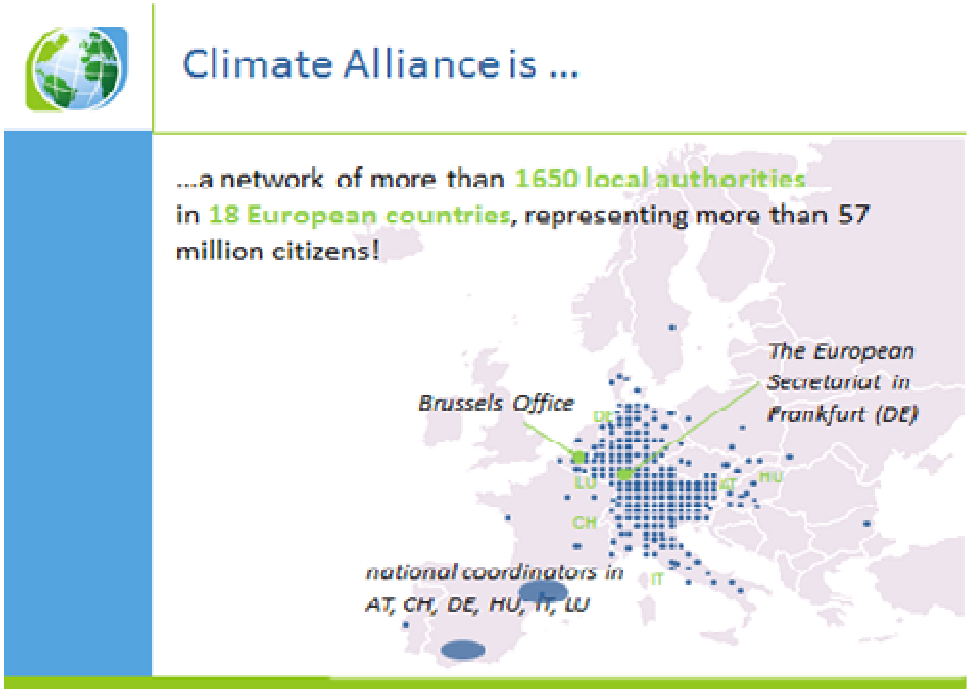


Figure 1 – Members of the Climate Alliance.

The “Climate Alliance of European Cities with Indigenous Rainforest Peoples” has an internationally composed board and its activities are coordinated by the European Secretariat. There are as well additional agencies: an office in Brussels and several national and regional offices.

1.1. Our objetives

The member cities and municipalities of the Climate Alliance are committed to the protection of the global climate. They have set themselves the following goals:

- Reducing their greenhouse gas emissions.

- Supporting indigenous rainforest peoples.
- Conserving the tropical rain forests and their biological diversity.

In 2006, Climate Alliance's General Assembly enacted a new
CO_2 reduction target:
"The members of the Climate Alliance commit themselves to reducing their greenhouse gas emissions continuously. The aim is to cut CO_2 emissions by 10 % every 5 years. The important milestone of halving per capita emissions (baseline year 1990) shall be achieved at the latest in 2030.
In the long-term, Climate Alliance members aim at a sustainable level of 2,5 tons CO_2 equivalent emissions per capita and year by energy saving, energy efficiency and the use of renewable energy sources.
Reaching these goals, however, requires concerted efforts by all decision-making levels (EU, national states, regional/province governments, municipalities), as they cannot be achieved by measures taken by municipalities alone. In order to document their efforts undertaken, Climate Alliance members will draw up a report regularly."

1.2. What we do

Climate Alliance's European Secretariat, its Brussels Office and national coordination offices support the member cities and municipalities in their endeavour to protect the global climate.

We provide advice and services such as:

- Promoting the exchange of experience by conferences, workshops and publications,
- Showcasing the members' achievements (e.g. at the European Climate Star Award and in various databases),
- Providing recommendations, aids and tools for local climate change policies (e.g. local climate plans, individual themes and measures, CO2 monitoring, etc.),
- Lobbying for improved framework conditions for local climate change policies on international, European and national level,
- Developing and coordinating European projects and campaigns.

Together with our indigenous partner organisations, we

- Organise campaigns and political initiatives on the conservation of the tropical rainforests and the defence of indigenous rights
- Raise awareness on the situation and positions of the indigenous peoples in Amazonia
- Inform and educate about the impacts of our action on the rainforests and the indigenous peoples
- Collaborate in practical partnership projects.

1.2.1. Methods and tools

One of the most important tasks of Climate Alliance is the elaboration of methods and tools for the member cities and municipalities, which support the elaboration of climate action plans, the implementation of individual measures and the monitoring of achievements.

1.2.1.1. CO_2 monitoring methodology

Cities and towns committed to climate protection and aiming to reduce greenhouse gas emissions need regular emission inventories to verify and authenticate success in their local climate change and energy policy, and it is for this reason that the "CO2 Monitoring at Climate Alliance" working group works since 1993 about the development of the a Climate Alliance methodology for CO2 monitoring as well as the development of data procurement rules and processing procedures.

The monitoring tool implemented by Climate Alliance is currently used by around 850 cities, municipalities and districts in Germany in addition to 70 municipalities and regions in Italy, 10 municipalities in the Ukraine and 6 in Luxembourg. Several German federal states offer their municipalities support in the preparation of municipal CO2 inventories with the help of the Climate Alliance methodology. In Hesse, Climate Alliance is a partner in the "100 Kommunen für den Klimaschutz" ("100 municipalities for climate protection") project within the scope of Hesse's sustainability strategy, offering training, meetings for experience exchanges, and a CO2 monitoring hotline. The Province of Rome, in collaboration with Climate Alliance, calculated its energy and CO2 inventory for the years 1990-2007 and presented the results during COP15 in Copenhagen

A big milestone was the official recognition by the European Commission as adequate tool for the elaboration of Sustainable Energy Actions Plans in the framework of the Covenant of Mayors.

At the present works the Climate Alliance, in charge of the Environmental Ministries of Austria and Germany, in the development of a CO2-Monitoring methodology available for free for all the municipals in both countries (2,357 and 11,253 respectively), this new CO2-Monitoring tool will be able at 2014.

The Climate Alliance has developed a set of CO2-Monitoring rules especially designed for local authorities, in this methodological document are explain important methodological issues, like CO2-inventory boundaries, the calculation of the transport that implicate always a lot of difficulties or the local energy production

What are the benefits for the local authority using this methodology?

This methodology provides a full calculation of the local energy consumption and CO2 emissions per energy carrier and sector, what makes possible the monitoring of the overall CO2 reduction in a municipality during a certain period of time or the progress within a specific sector. The Climate Alliance tool provides

an inventory that can be used retroactively until 1990 considering the following sectors: public facilities, households, agriculture, industry, services and private, public and freight transport.

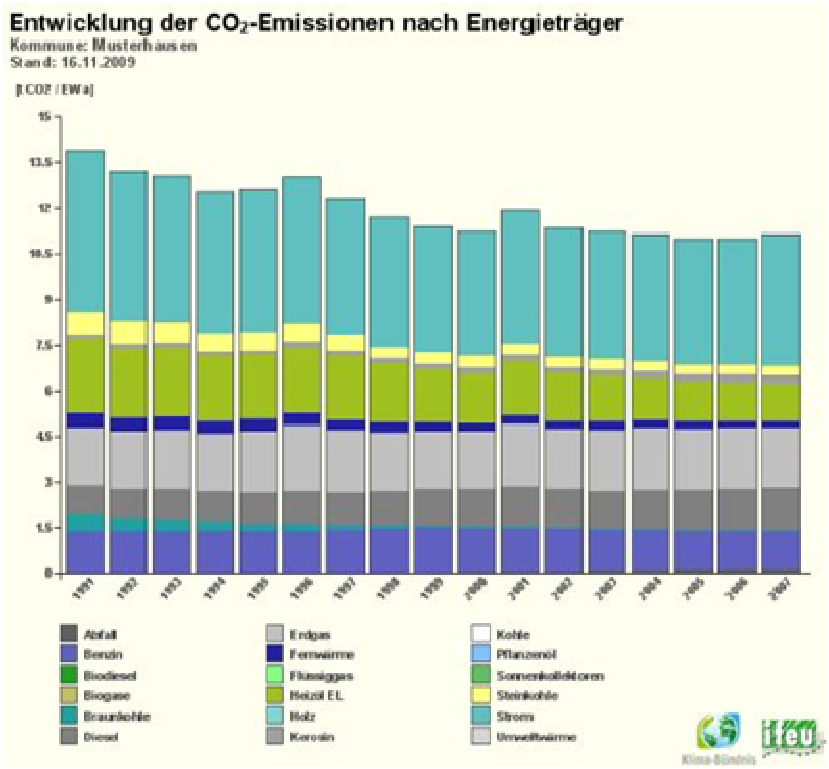
As an internet based tool, no software installations are needed. The country specific and comprehensive data for energy consumption, CO2-Emissions and further environmental factors are updated each year, making the tool easy to handle without oneself having to care about current energy data.

The methodology is standardized, making possible the monitoring of CO2-Emisions for a long period of time, so as the comparison of the local emissions among different municipalities.

A monitoring of different CO2 reduction targets, like Climate Alliance, the Covenant of Mayors target or other individual reduction goals are possible to calculate.

Example of graph

The following graph displays a municipal CO2 balance by energy carriers from 1990 to 2010.



1.2.1.2. Climate Cities Benchmark

Local authorities pursuing an active climate protection policy often care about regular evaluation and improvement of their climate protection activities. Against this background Climate Alliance together with IFEU Institute in the framework of a research project of the German Federal Agency for Environment

developed the Climate Cities Benchmark. This tool is at present only available in Germany.

The internet-based monitoring tool enhances mutual learning of local authorities in sustainable energy policies and climate action, and allows stable conclusions referring to the state and the effects of local endeavours in climate protection. The results of the benchmarking can be incorporated in local climate action plans with indications on the starting position with the specific strengths and weaknesses in comparison to the national mean value and the mean and best value of the "community", i.e. all cities participating in a certain size category. Due to the link to a best practice database, the benchmark can not only be used as a visual output of its cities climate actions, but also as a working tool for municipality employees.

Actually, almost 250 cities in Germany are using the benchmark-tool. Climate Alliance wants to develop the tool further so that counties can participate in the tool.

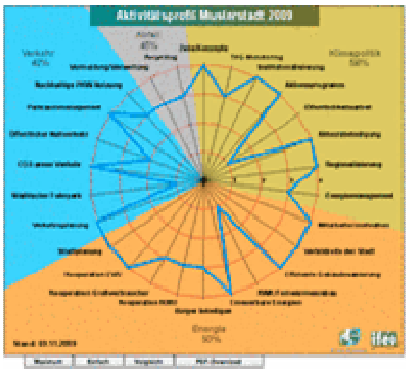
1.2.1.1. **Climate Cities Benchmark**. CO2 emission display

The Climate Cities Benchmark consists of four elements

1. City fact sheets

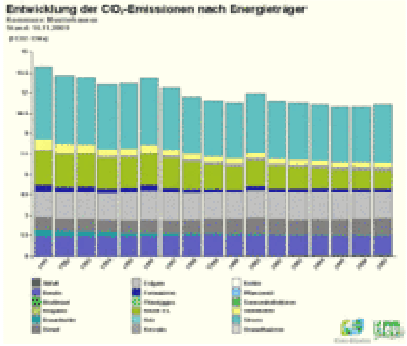
A brief overview of city characteristics defines the cities' capacities and potentials for activities. The evaluation of the city's profiles in terms of achievements in climate protection is carried out taking into consideration these local circumstances. One important input is the size of the city because the comparison is done within 3 different size categories.

2. Activity profiles



Activity profiles are used to show the state of climate protection activities within the city. The matrix of activities includes 26 action fields in the following categories: climate policy, energy, transport and waste. Each activity has been divided into four ambition levels from beginner to leader. The activity profile is linked to a database with best practices, so every user gets specific examples how to improve in any action field.

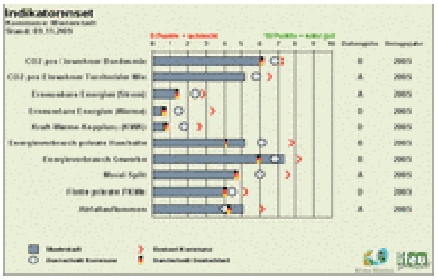
3. CO2 emission display



The historic development of city-wide emissions is a major indicator concerning climate issues. The display allows automatic import from the Climate Alliance`s or inclusion from other CO2 emission inventory tools. These figures are important for the calculation of indicators.

4. Set of indicators

A set of 17 indicators completes the benchmarking system, gathering facts on the climate impact of the city. It reveals the fields in which the city has achieved significant progress and which actions should be enforced. The indicators are divided into two main categories: 10 indicators for the whole city and 7 indicators for municipal buildings.



1.2.1.1. Capacity building: Local Climate Protection Ukraine

A secure energy supply and energy efficiency are the greatest challenges for the Ukraine. However, the municipalities are aware that in most cases, they lack the necessary specialist expertise and financial means. Activities already undertaken within the scope of the project include adaptation and translation of several Climate Alliance tools for use in the Ukraine in addition to training sessions and internships for Ukrainian energy managers within German local authorities. In 2010, a climate protection conference took place in Lviv, and various workshops were held on the Ukrainian version of the Climate Alliance methodology for CO2-Monitoring and to develop ten local energy action plans. The project was funded by the German Federal Environment Ministry's international climate protection initiative. At the present, an implementation of the Benchmarking for Ukrainian municipalities is being planned.

The Climate Alliance assists the GIZ-Partner municipalities for the draft of their SEAP and organizes workshops with different key points to help them to design a SEAP but also to put the commitments into practice.

2. THE COVENANT OF MAYORS INITIATIVE

2.1. The start of the Covenant

The Covenant of Mayors was first mentioned in the EU Action Plan for Energy Efficiency: 'A "Covenant of Mayors" will be created by the Commission in 2007 bringing together in a permanent network the mayors of 20-30 of Europe's largest and most pioneering cities. The aim is to exchange and apply best practices thereby improving energy efficiency significantly in the urban environment, where local policy decisions and initiatives are important, including transport' (EC, 2006).

This initial approach focused on a group of pilot large cities has rapidly evolved into a new approach, open to any European city unilaterally committed to achieve quantitative objectives through the effective implementation of actions. If this was received positively by cities, the Covenant of Mayors would be endorsed by the EU, considered as mainstream policy issue and led by local authorities themselves. For this, it was agreed that the initiative would only be launched if a minimum of 25 cities would express interest to join. By December 2007, 96 cities expressed interest to join. As a result, the Covenant of Mayors was launched in January 2008 (Ballesteros Torres & Doubrava, 2010).

Local authorities willing to join the Covenant of Mayors need a decision by the City Council or equivalent decision-making body. Signatories formal commit to meet and go beyond the EU target of **20% CO_2 emissions reduction by 2020** through the implementation of a **Sustainable Energy Action Plan**, addressing energy conservation, energy efficiency and the use of renewable energy.

2.2. A growing community committed to local sustainable energy

One year after the launch of the Covenant of Mayors in 2008, the initiative has experienced an unprecedented growth (see Figure 2). By **May 2012**, **3,956 cities** have signed the Covenant and this number is expected to continue increasing. Current signatory cities are dispersed in **46 countries** and represent **163 million citizens**. Being an EU initiative the initial target of the initiative were cities from EU countries, but the initiative has expanded far beyond the EU borders due to the interest also shown by cities outside EU. In Figure 3 it is possible to visualize the geographical distribution of signatory cities in Europe.

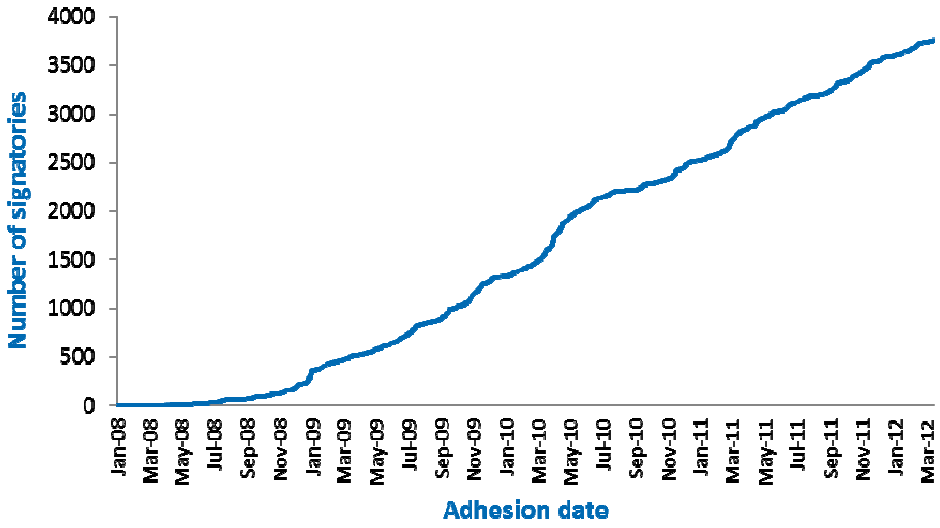


Figure 2 – Evolution of the number of signatories joining the Covenant of Mayors.

Figure 3 – Map of Covenant Signatories.

The evidence that cities are taking their commitments seriously is the growing number of SEAPs submitted to the Covenant of Mayors Office (see Figure 4). By **May 2012**, more than **1 360 SEAPs** were submitted, and this number is expected to continue growing exponentially as observed during the past year. Facing several barriers, such as the collection of data which usually is not readily available at the local level, the lack of staff and financial capacities and/or political instability, cities are making a remarkable effort with the elaboration of their action plans.

According to an analysis of 1 000 submitted SEAPs, signatory cities are responsible **today** for about **6 tonnes CO_2 eq./capita**. Together they commit to reduce **128, 5 million tonnes CO2 eq.**, representing more than the total emissions of Belgium in 2009 (Eurostat, 2012). This represents an overall reduction of **30%** by 2020 which highlights the ambitious level of cities in going beyond the EU CO_2 reduction target.

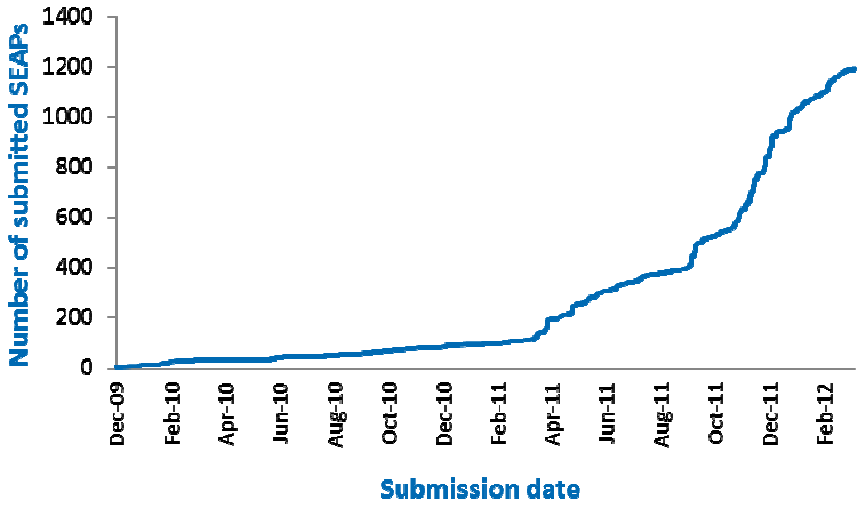


Figure 4 – Evolution of the number of Sustainable Energy Action Plans submitted.

But cities are not the only actors in the Covenant of Mayors. Cities need support in order to face technical and financial difficulties. For this, the Covenant of Mayors recognizes the importance of entities such as provinces, regions, metropolitan areas, national bodies, networks of cities and regions and other institutional structures acting as **Supporting Structures** to the signatory cities. Indeed, the Covenant of Mayors owes a great deal of the soaring number of signatories and SEAPs to the active participation of the supporting structures that put their resources and know-how at the service of signatories. Provincial and regional authorities categorised as **'Territorial Coordinators'**, together with national energy agencies and ministries acting as **'National Coordinators'** have established a close cooperation with signatory cities for the development and implementation of their SEAPs. Also, networks of local and regional authorities categorised as **'Supporters'** have been providing assistance to their members in the administrative and technical processes and organising experience-sharing activities. The participation of Coordinators and Supporters has been rising significantly and by **May 2012**, **170 Coordinators and Supporters** have joined the Covenant (see Figure 5).

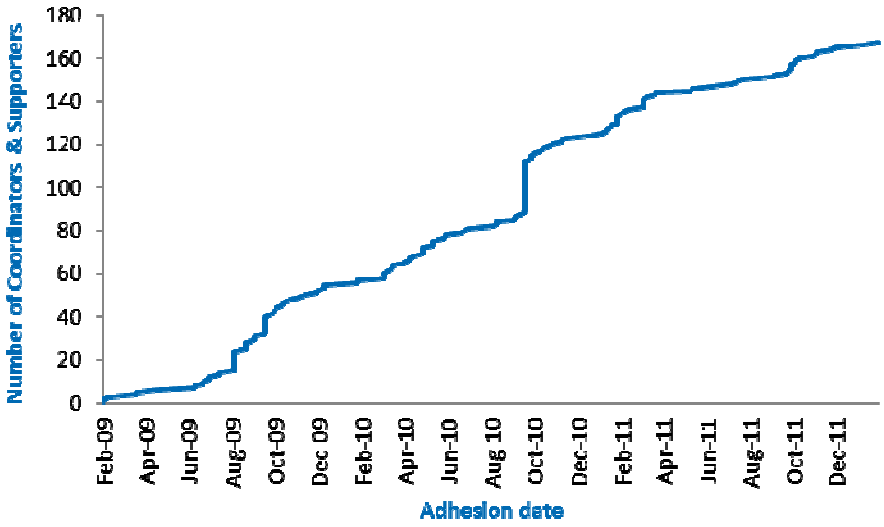


Figure 5 – Evolution of the number of Coordinators & Supporters joining the Covenant of Mayors.

2.3. Overview of the Covenant process

Cities engaging in the Covenant of Mayors, commit to a series of steps (see Figure 6):

- **Step 1 – Signature of the Covenant of Mayors:** The Covenant commitments need a formal decision by the City Council or equivalent decision-making body to ensure sufficient empowerment and support at political level.
- **Step 2 – Development of the Sustainable Energy Action Plan (SEAP):** The SEAP is the outcome of the energy planning stage in which it is strongly recommended to engage the stakeholders and citizens. The SEAP should be submitted one year after official adhesion and should be approved by the City Council or equivalent decision-making body. It should include a Baseline Emission Inventory (BEI), a vision, a clear CO_2 emissions reduction target, and concrete actions to be implemented.
- **Step 3 – Monitoring and reporting:** This phase aims at monitoring the status of implementation of the actions defined in the SEAP as well as changes in energy consumption and CO_2 emissions. The main objective is to verify if the municipality is on the right track to reach the 2020 target. Every two years after SEAP submission, signatories should report on their SEAP implementation.

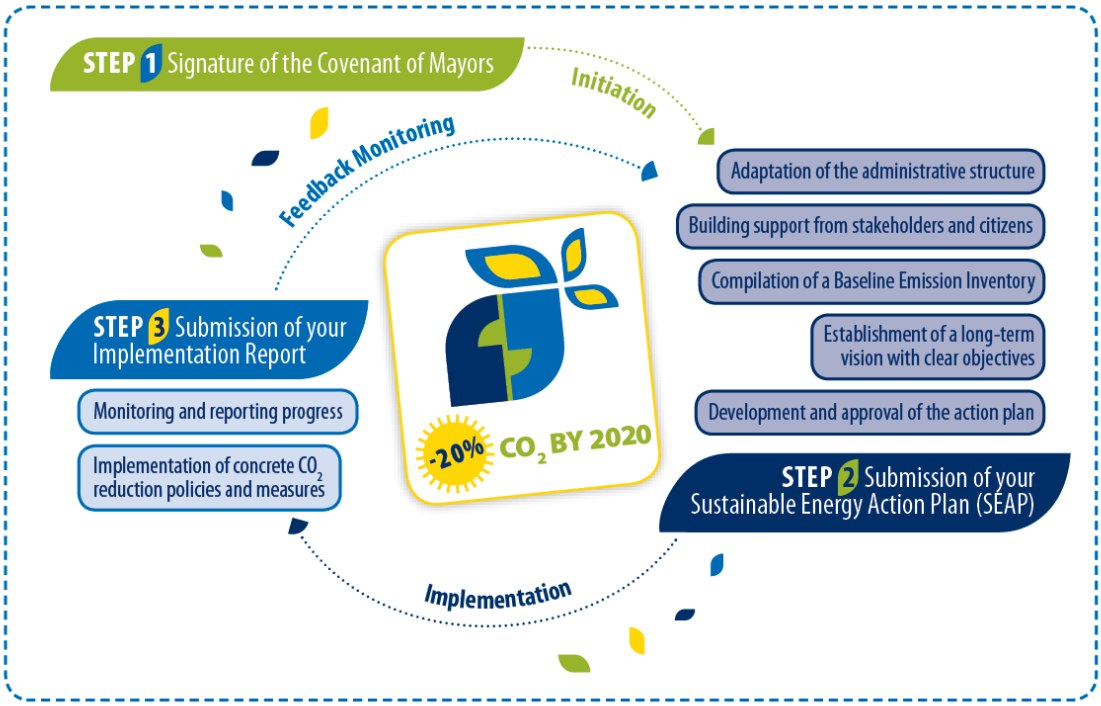


Figure 6 – The Covenant of Mayors process.

2.4. Covenant methodological framework 'snapshot'

The Covenant of Mayors provides a methodological framework on sustainable energy planning. Although Covenant Signatories should adopt the major guidelines outlined in the methodological framework, there is not a standard model, method or tool for the development of action plans.

'The approach to mitigate climate change should be **holistic**, **integrated**, **long-term** and most of all, based on **citizen participation'** (Ballesteros Torres & Doubrava, 2010). The sustainable energy planning methodology endorsed by the Covenant of Mayors relies on the 'umbrella' concepts mentioned above.

When describing the present situation, local authorities should address **all the different consumers in their territory** (see Figure 7). Sectors such as the residential, tertiary (or services), municipal (buildings and facilities) and transport are considered to be the key demand-side sectors in the Covenant of Mayors initiative, where local authorities can implement actions within their fields of competence. The description of the present situation should be comprehensive by addressing the whole energy system: **demand and supply sides**. Energy consumption is satisfied by several energy carriers (e.g. electricity, heat, diesel, solar radiation, etc.) and associated emissions are determined by applying an **emission factor**. While some energy carriers such as diesel or gasoline for transport produce direct emissions in the local authority's territory, there are other energy carriers that are consumed within the territory but are produced

elsewhere. For instance, in the case of grid-supplied electricity, emissions need to be addressed based on a consumption approach.

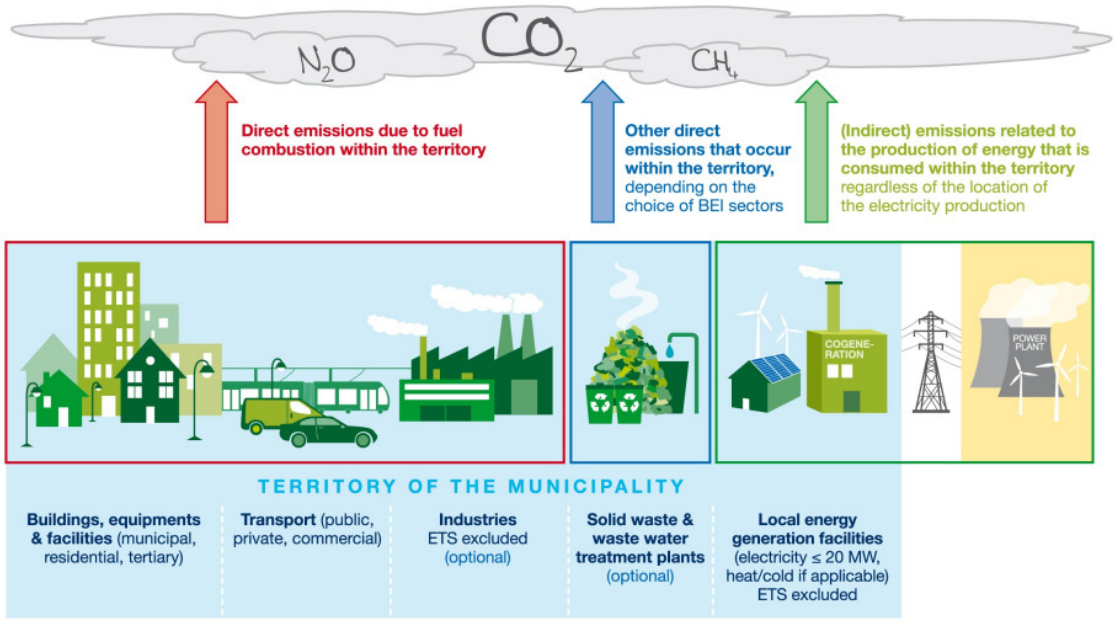


Figure 7 – Scope of an emission inventory, including emission sources and boundaries.

After having a comprehensive view of the current situation, local authorities should define, quantify expected impacts and prioritize **actions** that once implemented, will allow reaching the pre-defined Covenant of Mayors target of at least 20% CO_2 emissions reduction by 2020. When defining actions, the integrated approach should be kept in mind. Actions should target the key demand-side sectors, but also the supply side by promoting the use of local renewable energy resources to match future local energy demand.

2.5. The Covenant of Mayors Office

2.5.1. Who we are

The Covenant of Mayors Office (CoMO) was established in January 2009 and is funded by the European Commission. It is formed by a consortium of local and regional authorities' networks: Energy Cities, Climate Alliance, Council of European Municipalities and Regions (CEMR), Eurocities and Fedarene. CoMO is responsible for the daily management of the initiative. It provides signatories with administrative support and technical guidance, facilitates networking between Covenant stakeholders and ensures the promotion of their activities.

2.5.2. What we do – a focus on the role of Climate Alliance

As a leader of the **Helpdesk** and **Monitoring** work, Climate Alliance works in close cooperation with the Joint Research Centre of the European Commission to equip signatories with clear technical guidelines and templates in order to assist them in the delivery of their Covenant commitments.

The technical experience of Climate Alliance on the fields of local sustainable energy planning and local emission inventories provided significant inputs to design of the overall methodological framework of the Covenant of Mayors initiative. As a bottom-up initiative, the methodology was consulted with experienced municipalities. New methodological developments in the Covenant, such as the current preparation of the monitoring template and guidelines, are made in close collaboration with a group of practitioners (i.e. advanced municipalities) in order to collect their feedback. Climate Alliance also liaises with local and national experts for the design of methodological materials.

The Covenant Technical Helpdesk deals with thousands of scientific / technical questions from signatories – mostly related to emissions inventories and action plans. The Covenant Administrative Helpdesk deals daily with inquiries concerning adhesion procedures, SEAP submission procedures, access to the Covenant website restricted area, and delay requests for SEAP submission.

2.6. Climate Alliance acting as 'Covenant Supporter'

Climate Alliance has committed to support its members and maximise the impact of the initiative. As an official 'Covenant Supporter' since October 2009, we organise promotional activities, develop tailored supporting tools & methods and offer experience-sharing platforms. Reinforcing the assistance provided and consolidating the results on the ground are some of our key commitments.

Climate Alliance has developed a comprehensive methodology to support its members in implementing local energy and climate policies. The methodology includes tools on how to elaborate a GHG emissions inventory, or how to set up an action plan and implement it.

2.7. Covenant on the ground

Birmingham (UK) |Retrofit programme for residential buildings

Estimated CO_2 reduction: **60%** by 2026
Estimated investment: **£1-2b**
Houses to be retrofitted: **200 000**
(20 year programme)

Worms (DE) |Solar energy plant at hospital's car parking

Renewable energy produced: **620 000 kWh/year**
(equivalent of a supply of 160 households)

Cascais (PT) |Energy audits in buildings: 'Wattsbusters'

CO_2 reduction: **27.68 t CO_2 eq./year**
Energy saving: **75 000 kWh/year**
Financial savings: **99.5 €/household/year**
Investment: **55 000€**

Città di Castello (IT) | Cyclepath for home-workplace travels

Estimated CO_2 reduction: **108 t CO_2/year**
Estimated energy saving: **450.1 MWh/year**
Investment: **200 000€**

Sabadell (ES) |Smart-metering in households

Estimated CO_2 reduction: **144.6 kg CO_2/year/household**
Estimated energy saving: **134 kWh/year/person**
Investment: **34 000€**

Figure 8 – Examples of actions from Covenant Signatories.

REFERENCES

Ballesteros Torres, PT & Doubrava, R 2010, 'The Covenant of Mayors: Cities Leading the Fight Against the Climate Change', in Staden, M van & Musco, F (ed.), *Local Governments and Climate Change – Sustainable Energy Planning and Implementation in Small and Medium Sized Communities,* Springer, Dordrecht Heidelberg London New York.

EC 2006, Communication from the Commission - Action Plan for Energy Efficiency: Realising the Potential, COM(2006)545 final, Brussels, 19.10.2006.

Eurostat 2012, 'Total Greenhouse Gas Emissions (source: EEA)', viewed 3 April 2012, <http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=ten00072&plugin=1>

Call for input on

Actions undertaken by accredited observer organizations relevant to the Technology Executive Committee in performing its functions.
Annex: Template for the call for input

Key element 1: Analysis and synthesis

Technology Executive Committee
Key element 1: Analysis and synthesis
Key modalities: a) Producing periodic technology outlooks; collating, collecting and synthesizing a range of information on technology research and development and other technology-related activities from various sources, including, but not limited to, national communications, nationally determined technology needs and technology needs assessments, national adaptation programmes of action, nationally appropriate mitigation actions, national adaptation plans, and technology road maps and action plans; and examining the policy implications and opportunities for advancing technology development and transfer; b) Producing a series of technical papers on specific policies and technical issues, including those arising from technology needs assessments; c) Conducting a regular overview of existing technology development, transfer initiatives, activities and programmes with a view to identifying key achievements and gaps, good practices and lessons learned.

Organization name: UNEP
Key element 1: Analysis and synthesis
Actions undertaken by the organization relevant to the TEC in performing its functions: Over the last year, UNEP produced the following technology specific analysis and synthesis relevant to the TEC: a) Under the TNA project: a. a number of sectoral guidebooks on technologies for climate change adaptation and mitigation have been produced since 2010. One of the latest publications is titled "Overcoming Barriers to the Transfer and Diffusion of Climate Technologies" (2012). A full list of publications produced in the project is available at: http://tech-action.org//guidebooks.asp b. UNEP has started a "Technology Transfer Perspective Series" in November 2011. Two publications have been prepared and are available at: http://tech-action.org//perspectives.asp c. UNEP has produced case studies covering existing technology transfer initiatives, activities and programmes that identify gaps, good practices and lessons. Sample publication covering several case studies are available at: http://tech-action.org//perspectives.asp

b) Under the en.lighten initiative (promoting efficient lighting and the phaseout of general purpose incandescent lamps:
    a. Global Efficient Lighting Policy Map (July 2012), available at: http://www.enlighten-initiative.org/portal/CountrySupport/GlobalPolicyMap/tabid/104292/Default.aspx
    b. Country Lighting Assessments (July 2012) , available at: http://www.enlighten-initiative.org/portal/CountrySupport/CountryLightingAssessments/tabid/104272/Default.aspx
    c. Regional Status Reports on the Transition to Efficient Lighting in Selected Regions (Latin America & Caribbean, Middle East & North Africa, Southeast Asia, Sub-Saharan Africa, 2011-12), available at: http://www.enlighten-initiative.org/portal/CountrySupport/RegionalWorkshops/tabid/79085/Default.aspx

c) Under the Southeast Asia Network of Climate Change Offices (SEAN-CC):
    a. Technical Study Report on "Room and Small Commercial Air Conditioners" (December 2011), available at: http://www.unep.org/climatechange/mitigation/sean-cc/Portals/141/doc_resources/activities/2011%20-%20Technical%20Study%20Report%20-%20Room%20and%20Small%20Commercial%20Ai.pdf
    b. Technical Study Report on "Energy Efficient Transformers" (December 2011), available at: http://www.unep.org/climatechange/mitigation/sean-cc/Portals/141/doc_resources/activities/2011%20-%20Technical%20Study%20Report%20-%20Energy%20Efficient%20Transformer.pdf
    c. Technical Study Report on "Energy Efficiency Improvements for Motors & Drive Systems" (December 2011) , available at: http://www.unep.org/climatechange/mitigation/sean-cc/Portals/141/doc_resources/activities/2011%20-%20Technical%20Study%20Report%20-%20Energy%20Efficiency%20Improvemen.pdf

Key element 2: Policy recommendations

Technology Executive Committee
Key element 2: Policy recommendations
Key modalities: a) Recommending to the COP, or other relevant bodies under the Convention, actions to promote technology development and transfer and to address barriers; b) Recommending guidance on policies and programme priorities related to technology development and transfer, with special consideration given to the least developed country Parties.

Organization name: UNEP
Key element 2: Policy recommendations
Actions undertaken by the organization relevant to the TEC in performing its functions: Over the last year, UNEP produced the following technology specific policy guidance tools for developing countries: a) en.lighten policy Toolkit (August 2012) for the phase-out of inefficient lighting technologies and the diffusion and deployment of efficient lighting technologies, available at: http://www.enlighten-initiative.org b) A Guide for Policy and Framework Conditions for Solar Water Heater market development (2012), available at: http://www.solarthermalworld.org/sites/default/files/policy_framework.pdf c) With the International Copper Association (ICA), a Strategic Framework for the Harmonization of Energy Efficiency Standards for Appliances in ASEAN approved by the ASEAN Energy Efficiency and Conservation Sub-Sector Network (EE&C SSN) during its annual meeting on 27 May 2011 in Singapore ; available at: http://www.unep.org/climatechange/mitigation/sean-cc/Portals/141/doc_resources/activities/strategic%20framework%20v4.ppt EE&C SSN also provided the mandate to UNEP and ICA to support and coordinate the harmonization process for Air Conditioners (ACs) under the lead of the ASEAN Secretariat.

Key element 3: Facilitation and catalysing

Technology Executive Committee
Key element 3: Facilitation and catalysing
Key modalities: a) Promoting and collaborating with relevant organizations, resources permitting, in organizing workshops and forums to increase the opportunities for sharing experience with experts in developing and implementing technology road maps and action plans as well as other technology-related activities; b) Establishing an inventory of existing collaboration activities and a regular review process, with a view to identifying key achievements and gaps, good practices and lessons learned; c) Making recommendations on actions to promote collaboration; d) Making recommendations on best practices and relevant tools to develop technology road maps and action plans; e) Establishing an inventory of technology road maps and action plans; f) Making recommendations on concrete actions, such as an international process for the development of technology road maps and action plans as well as support required to enhance the development of these items, and in particular capacity-building programmes that may be appropriate.

Organization name: UNEP
Key element 3: Facilitation and catalysing
Actions undertaken by the organization relevant to the TEC in performing its functions: a) Under the TNA project: a. Building national capacities and providing direct technical support for the following activities in 36 countries: (1) Technology Needs Assessments (TNA) and prioritization of technologies for mitigation and adaptation; (2) identifying and analyzing barriers to the transfer of prioritized technologies to participating country markets. To date, 18 TNA reports have been submitted out of which nine have been finalized and approved. b. Supporting the preparation of technology action plans (TAPs) in 36 countries encapsulating specific barrier removal policies and other measures to advance technology development and accelerate technology transfer in each participating country under the TNA. To date, seven TAPs have been submitted out of which two TAPs have been finalized and approved. b) Under the en.lighten initiative, UNEP supports 47 countries - partners of the Global Efficient Lighting Partnership programme - to develop sustainable roadmaps to efficient lighting, more information at: http://www.enlighten-initiative.org/portal/CountrySupport/GlobalEfficientLightingPartnershipProgramme/tabid/79081/Default.aspx c) UNEP organizes periodical Regional Network Meetings of Climate Change

offices in Latin America and Caribbean, Southeast Asia, Central Asia, and West Asia to stimulate experience sharing (including on technology-related issues)

d) As part of the services provided by the Networks of CC offices, UNEP conducts capacity building programs on specific technologies and technology transfer issues e.g. REGATTA workshop on developing wind and solar photovoltaic energy projects; SEAN-CC workshop on Energy Efficiency.

Key element 4: Linkages with other relevant institutional arrangements under the Convention

Technology Executive Committee
Key element 4: Linkages with other relevant institutional arrangements under the Convention
Key modalities: a) Cross-participation in the meetings of the relevant bodies, including workshops and events organized by such bodies, or jointly organized, on issues of common interest; b) Inviting inputs to support the implementation of particular activities as specified in the workplan of the TEC; c) Providing inputs into other institutional arrangements under the Convention, in response to requests by the Conference of the Parties and/or invitations by respective institutions, to facilitate the work of those institutions; d) Knowledge and information sharing.

Organization name: UNEP
Key element 4: Linkages with other relevant institutional arrangements under the Convention
Actions undertaken by the organization relevant to the TEC in performing its functions: a) Under the TNA project, UNEP collaborates with the UNFCCC Secretariat on TNA capacity building, experience sharing and dissemination events, including jointly organized workshops and conferences involving participants from beneficiary countries of the TNA project and stakeholders from the technology and finance communities. Latest example: Upcoming Experience-sharing Workshop jointly planned with UNFCCC Secretariat for September 9 – 12, 2012 in Bangkok, Thailand. b) Membership of the TNA Project Steering Committee includes representatives from GEF, UNFCCC, UNDP, UNIDO.

Key element 5: Linkages with other relevant institutional arrangements outside the Convention

Technology Executive Committee
Key element 5: Linkages with other relevant institutional arrangements outside the Convention
Key modalities: a) Offering participation in the TEC meetings as observers or expert advisers; b) Technical task forces, stakeholder forums and/or consultative groups; c) Bilateral cooperative arrangements; d) Web-based communication channels, including through the technology information clearing house (TT:CLEAR);

Organization name: UNEP
Key element 5: Linkages with other relevant institutional arrangements outside the Convention
Actions undertaken by the organization relevant to the TEC in performing its functions: a) Under the TNA project, ongoing collaboration with: a. The Climate Technology Initiative – Private Financing Advisory Network (CTI-PFAN) to identify, further develop and present the most promising technology transfer project concepts emerging from the TNA-TAP process for funding consideration. b. UNDP on development of Handbook for Technology Needs Assessment. b) As part of its Climate Change Networking initiatives in the LAC and Asia-Pacific, UNEP supports networking and collaboration between specialized centres and existing climate change networks, by means of online platforms and dedicated meetings/workshops.

Key element 6: Information and knowledge sharing

Technology Executive Committee
Key element 6: Information and knowledge sharing
Key modalities: a) The TEC should disseminate its outputs and facilitate knowledge sharing through a well-functioning information platform that responds to the information and knowledge service requirements of its potential users, including Parties and a wide range of technology actors, experts and stakeholders. b) The platform would be a tool used to promote the collaboration between various actors and to seek cooperation with relevant international organizations and initiatives. It would support the efforts of the TEC in the following ways: exploring opportunities for information sharing, establishing links with existing knowledge platforms and implementing joint initiatives and programmes. c) The TEC should consider upgrading TT:CLEAR with an expanded and more strategic focus, tailored to the functions of the TEC, and building on existing technology information networks.

Organization name: UNEP
Key element 6: Information and knowledge sharing
Actions undertaken by the organization relevant to the TEC in performing its functions: a) Under the TNA project, development of ClimateTechWiki (http://climatetechwiki.org/), a platform offering detailed information on a broad set of mitigation and adaptation technologies for a wide range of stakeholders in developed and developing countries who are involved in technology transfer and the wider context of low emission and low vulnerability development. Part of an ongoing collaboration with the Energy Research Center of Netherlands (ECN), Dutch Ministry of Economic Affairs, REEEP and UNDP. a) Under the en.lighten initiative: a. Established four global Taskforces composed of top international experts from governments, civil society, academia, research organizations, international agencies and the private sector. The members come from countries around the world and meet at various times throughout the year, in person or virtually, to take stock and provide recommendations to accelerate the transition to efficient lighting. More information available at: http://www.enlighten-initiative.org/portal/Aboutus/GlobalTaskforce/tabid/79116/Default.aspx b. Online Support Center to facilitate efficient lighting policy and technical learning (September 2012). Available at: http://www.enlighten-initiative.org c. Lighting InfoSource, containing efficient lighting publications,

policies, legislation and events relevant to efficient lighting activities around the world, regional and international efficient lighting programs, developments and issues. Available at: http://www.enlighten-initiative.org/portal/Resources/LightingInfosource/tabid/79086/Default.aspx

d. Development of bi-monthly e-newsletters disseminating global and national progress on the transition to energy efficient lighting. Available at: http://www.enlighten-initiative.org/portal/Resources/E-Newsletter/Newsletter5/tabid/102116/Default.aspx

b) Under the Global Solar Water Heaters Market Transformation and strengthening initiative, a new and global knowledge-based web portal for solar thermal professionals has been established providing the latest news and background information on the development of the international solar thermal sector (news and trends, incentive programmes, policies, technological trends and market analyses, newsletter, worldwide forum for experts) http://www.solarthermalworld.org/ - hosted by the Global Solar Thermal Energy Council (GSTEC), a collaborative platform between industry, research institutions and NGOs. Managed by the International Copper Association (ICA), the United Nations Environment Programme (UNEP) and the United Nations Development Programme (UNDP).

c) Online knowledge sharing platforms are being developed in the framework of UNEP's Climate Change Networking initiatives for information and knowledge sharing among climate change stakeholders in the region. These regional platforms are expected to become central connection points for the exchange of information on mitigation and adaptation.

Call for input on

Actions undertaken by accredited observer organizations relevant to the Technology Executive Committee in performing its functions.
Annex: Template for the call for input

Key element 1: Analysis and synthesis

Technology Executive Committee
Key element 1: Analysis and synthesis
Key modalities: a) Producing periodic technology outlooks; collating, collecting and synthesizing a range of information on technology research and development and other technology-related activities from various sources, including, but not limited to, national communications, nationally determined technology needs and technology needs assessments, national adaptation programmes of action, nationally appropriate mitigation actions, national adaptation plans, and technology road maps and action plans; and examining the policy implications and opportunities for advancing technology development and transfer; b) Producing a series of technical papers on specific policies and technical issues, including those arising from technology needs assessments; c) Conducting a regular overview of existing technology development, transfer initiatives, activities and programmes with a view to identifying key achievements and gaps, good practices and lessons learned.

Organization name: WIPO
Key element 1: Analysis and synthesis
Actions undertaken by the organization relevant to the TEC in performing its functions: a) WIPO provides a range of services related to the vast body of technology information contained in patent databases. The WIPO search tool (PATENTSCOPE®) enables access to around 11 million patent documents. The IPC Green Inventory facilitates searches for patent information relating to environmentally sound technologies as listed by the UNFCCC. Linked to PATENTSCOPE® is a patent analysis facility which enables a closer look at recent developments in selected technologies (including alternative energy). WIPO also produces and makes available Patent Landscape Reports which describe the patent situation for a specific technology in a given country, region or globally. These reports begin with a "state of the art" search for the technology of interest. The results of the search are then analysed to answer specific questions e.g. who is doing what? What patents are filed where? These reports can be useful for policy discussions, strategic research planning or technology transfer. A range of such reports are available on the WIPO website on topics that would be of interest to the TEC, such as "Desalination Technologies and the Use of Alternative Energies for Desalination", "Current and Future Trends in Wind Turbine Technology", "Australian Solar Innovation: losing our place in the sun". A full list can be made available. WIPO is also seeking partners to develop new Patent Landscape Reports and would be ready to discuss with the TEC the production

of specific reports to support the work of the TEC. In addition to this, WIPO has a number of partnership initiatives, which support access to scientific literature (ARDI) and to specialised commercial patent information services (ASPI). These services are free of charge to LDCs and at reduced rates to developing countries.

Another important and relevant information tool provided by WIPO is the Global Innovation Index, which provides data and a ranking of countries on a range of metrics related to innovation and technology transfer capacity. See: http://www.wipo.int/econ_stat/en/economics/gii/index.html

b) In the WIPO-UN Agreement establishing WIPO as a specialized agency of the UN, the Organization agrees to *"co-operate within the field of its competence with the United Nations and its organs, particularly the United Nations Conference on Trade and Development, the United Nations Development Programme and the United Nations Industrial Development Organization, as well as the agencies within the United Nations system, in promoting and facilitating the transfer of technology to developing countries in such a manner as to assist these countries in attaining their objectives in the fields of science and technology and trade and development."* In this regard WIPO provides a forum for its Member States to discuss the relationship between intellectual property and technology transfer.

WIPO aims to serve as the leading intergovernmental forum to address the intersection between IP, innovation and global public policy issues, including climate change. Through this Program, WIPO endeavors to facilitate international policy dialogue and therefore cooperates actively with diverse international partners, both within and outside the UN system, in order to contribute to shared solutions to major challenges by: (i) unlocking the potential of innovation and IP for a more equitable world; (ii) analyzing the relationship between innovation, IP and technology transfer (to include, as appropriate, various forms of knowledge sharing, the transfer of R&D and productive capacity, including collaborations, capacity building, licensing and technology adaptation and diffusion); and, (iv) developing practical tools (including WIPO Green). The Program brings together constituencies to explore ideas and options. Both internal and external policy studies are commissioned on topics such as the role of IP and IP management in technology transfer in addressing global challenges. It provides substantive analyses, in the form of reports and briefs, which are intended to lead to a better understanding of the policy and strategic drivers of innovation; demonstrate proactively the use of IP tools; and, support countries' understanding of technology transfer. The most recent and relevant such studies are a report and policy brief on "Intellectual Property and the Transfer of Environmentally Sound Technologies". These policy and technical papers can provide a contribution to discussion in the TEC. Similarly, studies conducted by the Chief Economist may be relevant. WIPO could consider requests for specific studies related to the work of the TEC. Equally, participation by TEC Members in relevant WIPO meetings and workshops would support a sharing of knowledge on the issue of technology transfer and climate change.

c) WIPO's program of work seeks to foster, particularly in developing countries, indigenous and global capacity for technological innovation and dissemination of technology and knowledge. In an age of rapidly shifting technological landscapes, competitiveness through innovation is essential. This competitive edge can be

maintained through innovation springing from openness, connectivity, flexibility and cross-pollination of creative networks. The policies and infrastructures of such innovation ecosystems are necessary to stimulate technological innovation and its commercialization. A well-designed and effective IP system, together with the proper preconditions in place, such as, for example, local technological absorptive capacity, financial incentives and strong scientific research, can be a strategic tool for Member States seeking to support national innovation and technology transfer processes. A major challenge for many developing countries is to strengthen national capacity for protection of domestic creations, innovations and inventions and to support development of national scientific and technological infrastructure. Other challenges include an increasing need for a systemic and sustained approach to innovation policy and practice, including the effective distribution and commercialization of new technologies and the need for better dissemination of technologies through the patent system. WIPO would be happy to share with the TEC its experiences in providing such capacity building work to developing countries and in exchanging views on the lessons learned from its extensive experience in this regard.

Key element 2: Policy recommendations

Technology Executive Committee
Key element 2: Policy recommendations
Key modalities: a) Recommending to the COP, or other relevant bodies under the Convention, actions to promote technology development and transfer and to address barriers; b) Recommending guidance on policies and programme priorities related to technology development and transfer, with special consideration given to the least developed country Parties.

Organization name: WIPO
Key element 2: Policy recommendations
Actions undertaken by the organization relevant to the TEC in performing its functions: a) and b) WIPO participates on a regular basis as an observer at TEC meetings. In this capacity it is happy to provide information to the TEC on its perspective with regard to actions required to promote technology development and transfer. It is also happy to share its programme priorities and its work to promote appropriate policies to support technology development and transfer, in particular as this relates to least developed countries.

Key element 3: Facilitation and catalysing

Technology Executive Committee
Key element 3: Facilitation and catalysing
Key modalities: a) Promoting and collaborating with relevant organizations, resources permitting, in organizing workshops and forums to increase the opportunities for sharing experience with experts in developing and implementing technology road maps and action plans as well as other technology-related activities; b) Establishing an inventory of existing collaboration activities and a regular review process, with a view to identifying key achievements and gaps, good practices and lessons learned; c) Making recommendations on actions to promote collaboration; d) Making recommendations on best practices and relevant tools to develop technology road maps and action plans; e) Establishing an inventory of technology road maps and action plans; f) Making recommendations on concrete actions, such as an international process for the development of technology road maps and action plans as well as support required to enhance the development of these items, and in particular capacity-building programmes that may be appropriate.

Organization name: WIPO
Key element 3: Facilitation and catalysing
Actions undertaken by the organization relevant to the TEC in performing its functions: a) WIPO would be happy to discuss with the TEC opportunities for collaboration with the TEC and with the CTCN on its program of workshops and seminars to provide capacity building support to developing countries on innovation, technology and technology transfer. This would include the work of the WIPO Academy and the roll out of WIPO Technology and Innovation Support Centres which provide access to the technology information described in Key element 1 above, and associated training. b) WIPO would be ready to contribute to an inventory of existing collaboration activities and its experience in capacity building work on technology, innovation and technology transfer. c) WIPO has engaged in a number of projects, which support technology transfer collaboration. The most relevant of these to the TEC is WIPO Green. WIPO Green is a technology marketplace, which responds to the wide recognition that green technologies can significantly contribute to worldwide efforts towards achieving a low-carbon economy. Its key objectives are the accelerated adaptation, adoption and deployment of environmental technologies, particularly in developing countries and emerging economies. WIPO Green provides access to a broad range of technological solutions, in particular those that are less polluting, use resources in a more sustainable manner, recycle waste products, or that handle residual waste in a more acceptable manner. WIPO Green enables owners of proprietary technologies

to make selected technologies and solutions available as packages, including related know-how, services and materials. It serves as a hub connecting various critical partners, with WIPO facilitating policy dialogue and networking. It provides additional services, including training, consulting, tailor-made dispute resolution and assistance in getting financial support.

d), e), f) Given WIPO's experience in this area, we would be happy to contribute to the TEC's work to develop inventories and best practices in relation to technology road maps and action plans. Related to this is WIPO's work with developing countries to prepare National IP and Innovation Strategies which may assist in terms of identifying needs and developing capacity building programmes.

Key element 4: Linkages with other relevant institutional arrangements under the Convention

Technology Executive Committee
Key element 4: Linkages with other relevant institutional arrangements under the Convention
Key modalities: a) Cross-participation in the meetings of the relevant bodies, including workshops and events organized by such bodies, or jointly organized, on issues of common interest; b) Inviting inputs to support the implementation of particular activities as specified in the workplan of the TEC; c) Providing inputs into other institutional arrangements under the Convention, in response to requests by the Conference of the Parties and/or invitations by respective institutions, to facilitate the work of those institutions; d) Knowledge and information sharing.

Organization name: WIPO
Key element 4: Linkages with other relevant institutional arrangements under the Convention
Actions undertaken by the organization relevant to the TEC in performing its functions: a) WIPO participates as an observer at all relevant UNFCCC meetings and would welcome opportunities to participate in specific workshops or other meetings focussed on technology transfer. WIPO will share details of its relevant meetings and workshops with the UNFCCC and TEC and would welcome their participation, where appropriate. b) and c) WIPO has contributed in the past to the work of the UNFCCC and the EGTT in relation to IP and technology transfer and would be ready to consider and discuss with the TEC inputs to support the implementation of the TEC Workplan, in particular by contributing technology information, such as Patent Landscape Reports, or other relevant policy studies. d) WIPO would be happy to discuss with the TEC and the UNFCCC Secretariat a bilateral MoU or exchange of letters to support the exchange of knowledge and information sharing and collaborative activities

Key element 5: Linkages with other relevant institutional arrangements outside the Convention

Technology Executive Committee
Key element 5: Linkages with other relevant institutional arrangements outside the Convention
Key modalities: a) Offering participation in the TEC meetings as observers or expert advisers; b) Technical task forces, stakeholder forums and/or consultative groups; c) Bilateral cooperative arrangements; d) Web-based communication channels, including through the technology information clearing house (TT:CLEAR);

Organization name: WIPO
Key element 5: Linkages with other relevant institutional arrangements outside the Convention
Actions undertaken by the organization relevant to the TEC in performing its functions: a) As previously mentioned, WIPO has participated as an observer at all previous sessions of the TEC and participates in relevant meetings of the UNFCCC. WIPO has also in the past provided experts to participate in meetings of the EGTT and would be happy to provide experts in the future, as may be required by the TEC meetings and workplan. b) WIPO participated in the first thematic stakeholder dialogue and would be happy to consider similar requests in the future. c) Given the role that WIPO plays on the issue of technology transfer and in particular its program of related capacity building work, WIPO would be happy to discuss with the TEC and the UNFCCC Secretariat an exchange of letters or MoU on future cooperative arrangements. d) At the 3rd meeting of the TEC, it was suggested during the stakeholder dialogue that the various resources and activities WIPO engages in which are related to technology transfer should be made available on TT:CLEAR. WIPO would be happy to provide such information.

Key element 6: Information and knowledge sharing

Technology Executive Committee
Key element 6: Information and knowledge sharing
Key modalities: a) The TEC should disseminate its outputs and facilitate knowledge sharing through a well-functioning information platform that responds to the information and knowledge service requirements of its potential users, including Parties and a wide range of technology actors, experts and stakeholders. b) The platform would be a tool used to promote the collaboration between various actors and to seek cooperation with relevant international organizations and initiatives. It would support the efforts of the TEC in the following ways: exploring opportunities for information sharing, establishing links with existing knowledge platforms and implementing joint initiatives and programmes. c) The TEC should consider upgrading TT:CLEAR with an expanded and more strategic focus, tailored to the functions of the TEC, and building on existing technology information networks.

Organization name:
Key element 6: Information and knowledge sharing
Actions undertaken by the organization relevant to the TEC in performing its functions: a), b) and c) As indicated above, WIPO has a significant amount of resources, information and knowledge which it would like to share and is keen to support the efforts of the TEC in assisting developing countries in the transfer of environmentally sound technologies, including through WIPO Green. WIPO is also ready to collaborate in relevant workshops and seminars.

Call for input on

Actions undertaken by accredited observer organizations relevant to the Technology Executive Committee in performing its functions.
Annex: Template for the call for input

Key element 1: Analysis and synthesis

Technology Executive Committee
Key element 1: Analysis and synthesis
Key modalities: a) Producing periodic technology outlooks; collating, collecting and synthesizing a range of information on technology research and development and other technology-related activities from various sources, including, but not limited to, national communications, nationally determined technology needs and technology needs assessments, national adaptation programmes of action, nationally appropriate mitigation actions, national adaptation plans, and technology road maps and action plans; and examining the policy implications and opportunities for advancing technology development and transfer; b) Producing a series of technical papers on specific policies and technical issues, including those arising from technology needs assessments; c) Conducting a regular overview of existing technology development, transfer initiatives, activities and programmes with a view to identifying key achievements and gaps, good practices and lessons learned.

Organization name: ECN
Key element 1: Analysis and synthesis
Actions undertaken by the organization relevant to the TEC in performing its functions: a) Related to technology roadmaps: **Low climate impact scenarios and their implications for strategy (LIMITS)** Implementing an effective response to climate change will require a fundamental restructuring of energy and land management, including related policies. LIMITS (EU-FP7) addresses critical questions in this field, on economic, technical and political feasibility, innovation and investments, and policies recognising regional diversities. The LIMITS consortium comprises the key EU experts in this topic. ECN participates with its TIAM-ECN model. Website: http://www.feem-project.net/limits/index.html Contact: Bob van der Zwaan (vanderzwaan@ecn.nl) **Climate, technology and development** With the Technology Mechanism mechanism to enhance how can developing countries technology collaboration and This project, funded by the University of Sussex, IIT Delhi, aims to improve international in operation since 2011, the UNFCCC has a technology develop-ment and transfer. But benefit? What should be principles of what does scientific literature say about it? CDKN Innovation Fund and with UNICEN in Argentina and Tufts University, technology policies.

Website: http://cdkn.org/project/fostering-low-carbon-technology-innovation-and-transfer-an-in-depth-study/
Contact: Heleen de Coninck (deconinck@ecn.nl)

Human resource implications of a national Reneweable Energy target

For the Kuwait Institute for Scientific Research (KISR), ECN has analysed the consequences that a 10% renewable energy objective could have for human resources needed within the country, and related challenges for its educational system.

Contact: Bob van der Zwaan (vanderzwaan@ecn.nl)

b) Related to technologies and NAMAs:

Mitigation Momentum

The Mitigation Momentum project aims to support the development of Nationally Appropriate Mitigation Actions (NAMAs) by contributing to the development of concrete NAMA proposals, and to foster cooperation and knowledge exchange within the NAMA community. Mitigation Momentum is a collaboration between ECN Policy Studies and Ecofys Germany. The project is part of the International Climate Initiative supported by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.

Website: www.mitigationmomentum.org
Contact: Xander van Tilburg (vantilburg@ecn.nl)

MitigationMomentum

Kenya's Climate Change Action Plan

In April 2010 the Government of Kenya published its National Climate Change Response Strategy. Work is now ongoing on an Action Plan that identifies the intermediate actions that are needed in order to make coordinated and practical progress. ECN and IISD, along with local experts, are currently working with government ministries and the Climate Change Secretariat to undertake a sectoral analysis of different mitigation options. This work is undertaken in close cooperation with local stakeholder groups and includes a broader analysis of the associated development benefits and barriers to implementation. The Action Plan is being developed with support from CDKN, DFID and other donors.

Contact: Laura Würtenburger (wuertenberger@ecn.nl)

National climate policy in Ghana

ECN, in close collaboration with the University of Ghana and other local partners, assisted the Ghanaian Ministry for the Environment, Science and Technology in producing a discussion document that formed the first step in developing a National Climate Change Policy Framework for Ghana. ECN also supported the mapping and analysis of climate and development initiatives in Ghana, as well as producing a series of policy briefs. Funding was provided by CDKN.

Website: http://cdkn.org/project/assisting-ghana-to-deliver-climate-compatible-development/
Contact: Xander van Tilburg (vantilburg@ecn.nl)

Transport NAMAs in Colombia, Indonesia and South Africa

Discussions on existing and future climate instruments are ongoing in the international climate and

development communities. Nationally Appropriate Mitigation Actions (NAMAs) for the transport sector could lead to triple wins around development, economic efficiency and greenhouse gas emissions. The Transfer project, funded by ICI, works on transport NAMAs in Colombia, Indonesia and South Africa. ECN is working with GIZ and the Ministry of Transport in Indonesia on their transport and low-carbon development strategies.

Website: www.transferproject.org
Contact: Marc Londo (londo@ecn.nl)

c) Related to energy planning and technology transfer:

CASINDO: Capacity for energy planning in Indonesia

CASINDO is a capacity development programme that aims to build and strengthen institutional and human capacity for energy policy formulation and development of renewable energy and energy efficiency projects both at the national and regional level. The programme has been developed in close collaboration with the Indonesian partners and SenterNovem. The project ends in May 2012.

Website: www.casindo.info
Contact: Nico van der Linden (n.vanderlinden@ecn.nl)

Key element 2: Policy recommendations

Technology Executive Committee
Key element 2: Policy recommendations
Key modalities: a) Recommending to the COP, or other relevant bodies under the Convention, actions to promote technology development and transfer and to address barriers; b) Recommending guidance on policies and programme priorities related to technology development and transfer, with special consideration given to the least developed country Parties.

Organization name: ECN
Key element 2: Policy recommendations
Actions undertaken by the organization relevant to the TEC in performing its functions: Almost all activities mentioned under Key element 1 include the provision of policy recommendations.

Key element 3: Facilitation and catalysing

Technology Executive Committee
Key element 3: Facilitation and catalysing
Key modalities: a) Promoting and collaborating with relevant organizations, resources permitting, in organizing workshops and forums to increase the opportunities for sharing experience with experts in developing and implementing technology road maps and action plans as well as other technology-related activities; b) Establishing an inventory of existing collaboration activities and a regular review process, with a view to identifying key achievements and gaps, good practices and lessons learned; c) Making recommendations on actions to promote collaboration; d) Making recommendations on best practices and relevant tools to develop technology road maps and action plans; e) Establishing an inventory of technology road maps and action plans; f) Making recommendations on concrete actions, such as an international process for the development of technology road maps and action plans as well as support required to enhance the development of these items, and in particular capacity-building programmes that may be appropriate.

Organization name:
Key element 3: Facilitation and catalysing
Actions undertaken by the organization relevant to the TEC in performing its functions: ## IRENA renewable energy technology cooperation For the International Renewable Energy Agency, ECN is conducting a mapping of renewable energy technology initiatives with a view of identifying the good practices that IRENA could help in implementing globally. The study involved several in-depth case studies in addition to the results of a survey among members, and it looks at the role of technology centres as well as collaborations. Website: www.irena.org Contact: Heleen de Coninck (deconinck@ecn.nl) ## ECN-JRC/IET joint workshop on technology learning Together with JRC-IET, ECN organised a workshop with leading global experts on the use of learning curves in technology assessment. Specific topic was the merits of two-factor learning, an approach that attempts to disentangle learning by research and learning by deployment. The results can also be relevant in the context of technology transfer. Contact: Koen Schoots (schoots@ecn.nl)

Key element 6: Information and knowledge sharing

Technology Executive Committee
Key element 6: Information and knowledge sharing
Key modalities: a) The TEC should disseminate its outputs and facilitate knowledge sharing through a well-functioning information platform that responds to the information and knowledge service requirements of its potential users, including Parties and a wide range of technology actors, experts and stakeholders. b) The platform would be a tool used to promote the collaboration between various actors and to seek cooperation with relevant international organizations and initiatives. It would support the efforts of the TEC in the following ways: exploring opportunities for information sharing, establishing links with existing knowledge platforms and implementing joint initiatives and programmes. c) The TEC should consider upgrading TT:CLEAR with an expanded and more strategic focus, tailored to the functions of the TEC, and building on existing technology information networks.

Organization name: ECN
Key element 6: Information and knowledge sharing
Actions undertaken by the organization relevant to the TEC in performing its functions: **Energy Research Knowledge Centre (ERKC)** The overarching objective of the project is to develop and maintain the Energy Research Knowledge Centre (ERKC) web portal. The ERKC will collect, analyse and organise information on energy research programmes, projects and their results from across the EU and beyond. The goal is that the ERKC should become the leading web portal on energy research in the EU. ERKC is developed as a part of the EC SET-Plan Information System (SETIS). The project is financed under the 7th Framework Programme for Research and Technological Development (FP7). Contact: Koen Schoots (schoots@ecn.nl)

Call for input on

Actions undertaken by accredited observer organizations relevant to the Technology Executive Committee in performing its functions.
Annex: Template for the call for input

Key element 1: Analysis and synthesis

Technology Executive Committee
Key element 1: Analysis and synthesis
Key modalities: a) Producing periodic technology outlooks; collating, collecting and synthesizing a range of information on technology research and development and other technology-related activities from various sources, including, but not limited to, national communications, nationally determined technology needs and technology needs assessments, national adaptation programmes of action, nationally appropriate mitigation actions, national adaptation plans, and technology road maps and action plans; and examining the policy implications and opportunities for advancing technology development and transfer; b) Producing a series of technical papers on specific policies and technical issues, including those arising from technology needs assessments; c) Conducting a regular overview of existing technology development, transfer initiatives, activities and programmes with a view to identifying key achievements and gaps, good practices and lessons learned.

Organization name: Global Environment Facility (GEF)
Key element 1: Analysis and synthesis
Actions undertaken by the organization relevant to the TEC in performing its functions: As an operating entity of the Financial Mechanism of the UNFCCC, the Global Environment Facility (GEF) has been active in supporting technology transfer activities. In the analysis and synthesis field, the GEF undertakes the following: a) Documents summarizing the recent progress on the implementation of the Poznan Strategic Program on Technology Transfer are regularly reported by the GEF to the UNFCCC Subsidiary Body for Implementation (SBI) and the Conference of the Parties (COP). These reports summarize the financial and technical support provided by the GEF to technology transfer and the results and achievements of the supported activities. GEF-supported technology transfer projects and programs may also include analysis and synthesis elements for individual countries. b) Technical papers, policy briefs, sectoral guidelines, and other materials arising from technology needs assessments (TNAs) are produced at the project level, i.e., through individual GEF-supported TNA projects.

c) For each of its four year replenishment, the GEF, in order to define its strategy, consults with its Scientific and Technical Advisory Panel (STAP), its Agencies, countries' focal points and its NGO Network to identify key needs and gaps for the support provided to climate technology transfer. It is such process that led the GEF to identify, within the GEF-5 programming strategy for mitigation and also within the adaptation strategic framework, technology transfer as a longer-term priority in the climate change focal area. The independent Evaluation Office of the GEF regularly evaluates the relevance, effectiveness and efficiency of completed projects, and undertakes thematic evaluations on strategies and policies and impact evaluations, providing insights and lessons including on climate change technology transfer.

Key element 2: Policy recommendations

Technology Executive Committee
Key element 2: Policy recommendations
Key modalities: a) Recommending to the COP, or other relevant bodies under the Convention, actions to promote technology development and transfer and to address barriers; b) Recommending guidance on policies and programme priorities related to technology development and transfer, with special consideration given to the least developed country Parties.

Organization name: Global Environment Facility (GEF)
Key element 2: Policy recommendations
Actions undertaken by the organization relevant to the TEC in performing its functions: a) Based on the preparatory work done by the GEF for its climate change strategy and based on its experience, the GEF may, upon request by the secretariat of the UNFCCC, provide programmatic proposals and recommendations on actions to promote technology development and transfer and to address barriers. b) The COP issues guidance to the GEF, which then responds to the guidance within the GEF instrument.

Key element 3: Facilitation and catalysing

Technology Executive Committee
Key element 3: Facilitation and catalysing
Key modalities: a) Promoting and collaborating with relevant organizations, resources permitting, in organizing workshops and forums to increase the opportunities for sharing experience with experts in developing and implementing technology road maps and action plans as well as other technology-related activities; b) Establishing an inventory of existing collaboration activities and a regular review process, with a view to identifying key achievements and gaps, good practices and lessons learned; c) Making recommendations on actions to promote collaboration; d) Making recommendations on best practices and relevant tools to develop technology road maps and action plans; e) Establishing an inventory of technology road maps and action plans; f) Making recommendations on concrete actions, such as an international process for the development of technology road maps and action plans as well as support required to enhance the development of these items, and in particular capacity-building programmes that may be appropriate.

Organization name: Global Environment Facility (GEF)
Key element 3: Facilitation and catalysing
Actions undertaken by the organization relevant to the TEC in performing its functions: a) Under the Poznan Strategic Program on Technology Transfer, the GEF provides technical and financial support to developing countries in conducting or updating, as appropriate, their technology needs assessments (TNAs). The aim is to assist countries to go beyond identifying technology needs narrowly and develop technology road maps and national technology action plans (TAPs) for prioritized technologies. The technologies supported by these projects include mitigation as well as adaptation elements. Regional capacity building workshops are convened to field-test and to further improve the TNA exercise. Through the workshops, country experts discuss regional challenges and opportunities in assessing technology needs and further encourage technical support and stakeholder engagement in conducting TNAs. Best practices and lessons learned from conducting TNAs are shared to support Parties undertaking TNAs. Handbooks published by UNEP, a GEF Agency, are used and promoted during the whole process, including two finance guidebooks, one for mitigation and one for adaptation projects, are expected to be published during the summer of 2012 and will be widely disseminated at the Experience Sharing Workshop to be held in Bangkok, Thailand in September 2012. The GEF is ready to support additional TNAs focusing on low- and medium-income countries, taking into consideration the lessons learned from the ongoing Poznan-supported TNA project implemented by UNEP.

The GEF is also supporting four regional *Climate Technology Centers and Climate Technology Newtork* projects and a national project in accordance with the GEF climate change strategy and to enhance technology transfer activities under the Convention. All five projects support workshops and forums to increase the opportunities for sharing experience with experts in developing and implementing technology road maps and action plans as well as other technology-related activities.
The four regional projects are:

- Pilot Asia-Pacific Climate Technology Network and Finance Center (Asian Development Bank and United Nations Environment Programme)
- Pilot African Climate Technology Finance Center and Network (African Development Bank)
- Regional Climate Technology Transfer Center (European Bank for Reconstruction and Development)
- Climate Technology Transfer Mechanisms and Networks in Latin America and the Caribbean (Inter-American Development Bank)

These projects have approximately $52 million in funding from the GEF Trust Fund for mitigation and the Special Climate Change Fund (SCCF) Trust Fund for adaptation, and leverage over $300 million in co-financing from multilateral development banks, other GEF Agencies, regional and national entities, and bilateral donors.
At the national level, the *Facility for Low Carbon Technology Deployment* project will facilitate identification and deployment of low carbon technologies in India that can address technology gaps to mitigate climate change and improve the economy's energy efficiency. The project will do so through a Facility for Low Carbon Technology Deployment that will bring together government, industry, consumer, academia, and Civil Society Organization (CSO) representatives. It is proposed to be part of the Climate Technology Centre and Network (CTCN) at the national level.

Thanks to its unique composition and different focal area objectives (climate change, biodiversity, land degradation, chemicals), the GEF is also able to promote and support technology transfer synergies between UNFCCC climate objectives and other conventions' objectives, such as the Montreal Protocol, the Biological Diversity Convention, the Desertification convention and the various Chemical pollution conventions.

b) Progress reports on the implementation of the Poznan Strategic Program on Technology Transfer of the GEF to the UNFCCC Subsidiary Body for Implementation (SBI) allows the establishment of an inventory of the GEF's existing collaboration activities and a regular review process of the key achievements. The report provides information on the activities carried out under the program including 1) TNA project progress update submitted by the Agency, 2) Technology Transfer Pilot Projects, 3) Long term implementation of the Program and 4) the dissemination of the GEF experience and successfully demonstrated environmentally sound technologies.

Besides, the five projects mentioned in response 3.a) above are also expected to generate lessons learned to help inform the ongoing process to operationalize the Technology Mechanism, in particular the CTCN.

c) Partnerships are a key concept in the GEF. Different partners and partnership arrangements exist at individual project and programme levels, and they may be engaged in providing recommendations for collaboration.

d) Individual GEF-supported projects and programs may develop and/or disseminate best practices, policy guidelines, and relevant tools. Besides, for all projects related with its climate change strategy and/or its SFM/REDD+ strategy, the GEF secretariat pays a lot of attention to making sure best practices are used.

e) Please see responses 3.a) to 3.d) above.

Key element 4: Linkages with other relevant institutional arrangements under the Convention

Technology Executive Committee
Key element 4: Linkages with other relevant institutional arrangements under the Convention
Key modalities: a) Cross-participation in the meetings of the relevant bodies, including workshops and events organized by such bodies, or jointly organized, on issues of common interest; b) Inviting inputs to support the implementation of particular activities as specified in the workplan of the TEC; c) Providing inputs into other institutional arrangements under the Convention, in response to requests by the Conference of the Parties and/or invitations by respective institutions, to facilitate the work of those institutions; d) Knowledge and information sharing.

Organization name: Global Environment Facility (GEF)
Key element 4: Linkages with other relevant institutional arrangements under the Convention
Actions undertaken by the organization relevant to the TEC in performing its functions: a) The GEF participates in key international meetings, workshops and events of the relevant UNFCCC bodies including the UNFCCC SBI, and the TEC. The GEF regularly participates (i) to discussions organized with the Least Developed Countries Expert Group (especially on adaptation issues), and (ii) meetings and discussion organized with the UN-REDD Global Programme on REDD+ issues. The GEF also participates in and provides inputs to the steering committee of the GEF-UNEP TNA support project mentioned above. b) The GEF can consider providing inputs as needs and requests arise. c) In response to the requests by the COP, and SBI, the GEF presents summarized documents titled *Report to the Conference of the Parties* and *Implementation of the Poznan Strategic Program on Technology Transfer*, respectively. The GEF also provides inputs responding to inquiries by the TEC in a coordinated manner. d) The GEF presents its technology transfer activities and available financial support means at international meetings and workshops where participants include, among others, GEF national focal points and UNFCCC national focal points. Information on the GEF's activities for technology transfer is updated regularly in the GEF website on a dedicated technology transfer section (please see element 6 entry).

Key element 5: Linkages with other relevant institutional arrangements outside the Convention

Technology Executive Committee
Key element 5: Linkages with other relevant institutional arrangements outside the Convention
Key modalities: a) Offering participation in the TEC meetings as observers or expert advisers; b) Technical task forces, stakeholder forums and/or consultative groups; c) Bilateral cooperative arrangements; d) Web-based communication channels, including through the technology information clearing house (TT:CLEAR);

Organization name: Global Environment Facility (GEF)
Key element 5: Linkages with other relevant institutional arrangements outside the Convention
Actions undertaken by the organization relevant to the TEC in performing its functions: a) The GEF Secretariat has participated in TEC meetings as an observer, and is ready to continue doing so b) The GEF is ready to consider participation as needs and requests arise. c) n/a d) Please see GEF response on key element 6.

Key element 6: Information and knowledge sharing

Technology Executive Committee
Key element 6: Information and knowledge sharing
Key modalities: a) The TEC should disseminate its outputs and facilitate knowledge sharing through a well-functioning information platform that responds to the information and knowledge service requirements of its potential users, including Parties and a wide range of technology actors, experts and stakeholders. b) The platform would be a tool used to promote the collaboration between various actors and to seek cooperation with relevant international organizations and initiatives. It would support the efforts of the TEC in the following ways: exploring opportunities for information sharing, establishing links with existing knowledge platforms and implementing joint initiatives and programmes. c) The TEC should consider upgrading TT:CLEAR with an expanded and more strategic focus, tailored to the functions of the TEC, and building on existing technology information networks.

Organization name: Global Environment Facility (GEF)
Key element 6: Information and knowledge sharing
Actions undertaken by the organization relevant to the TEC in performing its functions: a) The GEF webpage includes a climate technology transfer section (http://www.thegef.org/gef/Technology_Transfer), including descriptions of GEF programming, project updates, COP and SBI reports, as well as downloadable publications on technology transfer. Individual projects and programs may also include knowledge management and information platforms. b) n/a c) When upgrading TT:CLEAR, the TEC may wish to consider a link to the GEF website page on technology transfer including reports the GEF regularly submits to the COP and the SBI (*Report to the Conference of the Parties* and *Implementation of the Poznan Strategic Program on Technology Transfer)* that all include valuable updated information on GEF support to technology transfer.

The Business Council for Sustainable Energy®
1992-2012 celebrating 20 years of industry partnership

Response to Call for Stakeholder Input by the UNFCCC Technology Executive Committee
July 31, 2012

The Business Council for Sustainable Energy (BCSE) represents the broad portfolio of existing clean energy business sectors, including renewable energy, supply-side and demand-side energy efficiency, natural gas and electric utilities in North America. The Council has represented the views of clean energy industries in the United Nations Framework Convention on Climate Change (UNFCCC) process since 1992.

In response to the UNFCCC's Technology Executive Committee's request, the Council would like to offer its comments in response to the following areas:

1) On technology road maps and action plans;
2) On ways to promote enabling environments and to address barriers to technology development and transfer, including on the role that the TEC could possibly play in this area of work; and.
3) On actions undertaken by accredited observer organizations relevant to the TEC in performing its functions

The companies and trade associations within the Council's membership offer their expertise and experience developing clean energy and energy efficiency projects in countries around the world as a resource to the TEC as it moves forward with its 2012-13 work plan.

1) On technology road maps and action plans

The Council would like to offer the following publications and materials as produced by two of its members – Johnson Controls and Center for Environmental Innovation in Roofing - as a resource to inform the process of creating technology road maps for clean energy industry sectors.

Driving Transformation to Energy Efficient Buildings, Version 2.0
http://www.institutebe.com/energy-policy/Driving-Transformation-Energy-Efficient-Buildings2.aspx

This policy toolkit, originally released at COP 17 in Durban, South Africa, was recently updated for the UNCSD Rio+20 Conference. This second-edition report reviews government policy options that can accelerate building energy efficiency improvements. New in this edition is a building efficiency policy assessment tool that provides a practical starting point for accelerating energy efficiency policy development. The tool offers a simple framework to help decision-makers set policy priorities with input from stakeholders. It outlines a workshop designed to support consensus-based, multi-stakeholder collaboration and uses visual tools to build consensus and prioritize building efficiency policy options and strategies.

This edition also includes new content on the private-sector's role and priorities around building energy efficiency, in particular describing how to create market conditions that support investment in energy efficient buildings and leverage private-sector capital, technology and services to scale up the market.

The publication was produced by the Institute for Building Efficiency at Johnson Controls, and in collaboration with the Business Council for Sustainable Energy, Center for Clean Air Policy, U.S. Green Building Council and World Green Building Council.

RoofPoint™ 2012
www.RoofPoint.org

RoofPoint is a voluntary, consensus-based green rating system developed by the Center for Environmental Innovation in Roofing (Center) to provide a means for policy makers, industry practitioners and building owners to select sustainable roofing strategies based on long-term energy and environmental benefits. RoofPoint outlines key, geographically appropriate strategies that address all critical environmental aspects of modern roofing systems and their impact on clean energy production and carbon reduction. Specific strategies include energy efficiency and renewable energy production, materials management, water management, and life-cycle and durability management. In addition to the continual improvement of RoofPoint, the Center is committed to making the program available to policy makers and practitioners in emerging economies.

2) On ways to promote enabling environments and to address barriers to technology development and transfer, including on the role that the TEC could possibly play in this area of work

The Council and its members believe that it is critical to invest resources and expertise into shaping enabling environments that will facilitate sustainable deployment of clean energy technologies. A suite of complementary policies and market structures, including effective and non-discriminatory financing mechanisms for technology transfer and deployment, non-discriminatory government procurement policies with respect to climate-change-related technology, and international trade regimes that promote cleaner, more energy-efficient and lower greenhouse gas emitting technologies, are necessary in order for clean energy technologies, products and services to take root. Furthermore, policies that reduce uncertainty as to potential gains that private business can anticipate from major research will enhance society's ability to achieve significant innovation in pursuit of a green economy.

As the Council represents different sectors within the clean energy industry, the Council recognizes that ultimately each technology often faces unique circumstances when trying to enter a new market. A particular industry may have different modalities for diffusion, as well as different financial needs and incentive structures, infrastructure constraints and end-user behaviors that must be addressed. At the highest level, however, an enabling environment that respects the rule of law, protects financial investments and provides a policy framework that creates an even playing field, is needed by all clean energy technologies.

Capacity building and the identification of technology needs and available solutions are other essential elements. The transition to a low carbon economy can not happen solely by government mandate; it also requires a partnership with the private sector and education of the general public. The Council is encouraged by the increased momentum to engage with the private sector, which today accounts for more than two-thirds of total investments in the research and development of adaptation and mitigation technologies, especially in regard to effective mechanisms for technology deployment, diffusion and transfer.

As the TEC examines through its work the key elements of enabling environments and barriers to technology transfer, the Council offers a fact sheet prepared for the technology discussions at the COP 17/CMP 7 in Durban. While this fact sheet references the Climate Technology Center & Network (CTC&N), its relevance to the TEC's work is that it provides a format through which the perspectives of private sector can be shared to demonstrate technology transfer in action and the necessary enabling environments required to do so.

BCSE Fact Sheet on Supporting Technology Transfer in Durban
http://www.bcse.org/images/2011International/bcse%20cop%2017%20technology%20fact%20sheet.pdf

3) On actions undertaken by accredited observer organizations relevant to the TEC in performing its functions

The Business Council for Sustainable Energy is a business coalition with twenty years of experience of coordinating industry expertise and providing policy input on behalf of the renewable energy, energy efficiency and natural gas sectors in North America. The Council's advocacy work and policy interventions have occurred at the state/regional, federal and international levels of government. As the Council is a coalition of companies and trade associations in these sectors, it can quickly disseminate information and solicit feedback from a broad network of voices from clean energy sectors. This network can also be extended internationally, as the Council is a founding member of the International Council for Sustainable Energy (ICSE), along with the Clean Energy Council of Australia and e5 of Europe. The Council offers the TEC the ability to connect to leading clean energy executives in the U.S. and abroad as needed, to review, comment and provide input on future materials produced by the TEC.

Additional information is provided in the requested templates.

Call for input on

Actions undertaken by accredited observer organizations relevant to the Technology Executive Committee in performing its functions.
Annex: Template for the call for input

Key element 1: Analysis and synthesis

Technology Executive Committee
Key element 1: Analysis and synthesis
Key modalities: a) Producing periodic technology outlooks; collating, collecting and synthesizing a range of information on technology research and development and other technology-related activities from various sources, including, but not limited to, national communications, nationally determined technology needs and technology needs assessments, national adaptation programmes of action, nationally appropriate mitigation actions, national adaptation plans, and technology road maps and action plans; and examining the policy implications and opportunities for advancing technology development and transfer; b) Producing a series of technical papers on specific policies and technical issues, including those arising from technology needs assessments; c) Conducting a regular overview of existing technology development, transfer initiatives, activities and programmes with a view to identifying key achievements and gaps, good practices and lessons learned.

Organization name: JVE International
Key element 1: Analysis and synthesis
Actions undertaken by the organization relevant to the TEC in performing its functions: a) Producing of information on new Technologies and spreading information about the TEC to the communities b) Producing of technical and policy papers for our advocacy activities on Energy c) Promoting the use of some technics as ICS (improved coking stoves), improves charcoal production and solar lamps using.

Key element 2: Policy recommendations

Technology Executive Committee
Key element 2: Policy recommendations
Key modalities: a) Recommending to the COP, or other relevant bodies under the Convention, actions to promote technology development and transfer and to address barriers; b) Recommending guidance on policies and programme priorities related to technology development and transfer, with special consideration given to the least developed country Parties.

Organization name: JVE international
Key element 2: Policy recommendations
Actions undertaken by the organization relevant to the TEC in performing its functions: a) Conducting Energy advocacy, promoting b) Producing policy papers to the policy and decision makers c) Proposing the alternatives to the communities

Key element 6: Information and knowledge sharing

Technology Executive Committee
Key element 6: Information and knowledge sharing
Key modalities: a) The TEC should disseminate its outputs and facilitate knowledge sharing through a well-functioning information platform that responds to the information and knowledge service requirements of its potential users, including Parties and a wide range of technology actors, experts and stakeholders. b) The platform would be a tool used to promote the collaboration between various actors and to seek cooperation with relevant international organizations and initiatives. It would support the efforts of the TEC in the following ways: exploring opportunities for information sharing, establishing links with existing knowledge platforms and implementing joint initiatives and programmes. c) The TEC should consider upgrading TT:CLEAR with an expanded and more strategic focus, tailored to the functions of the TEC, and building on existing technology information networks.

Organization name: JVE international
Key element 6: Information and knowledge sharing
Actions undertaken by the organization relevant to the TEC in performing its functions: a) Training of the stakeholders in the communities about the improved charcoal production, b) Training on solar lamps and cooking stoves producing

South Centre Response
to
Call for input on
Actions undertaken by accredited observer organizations relevant to the Technology Executive Committee in performing its functions.

Call for input

The TEC, at its third meeting, agreed to launch a call for input on actions undertaken by accredited observer organizations relevant to the TEC in performing its functions. The inventory of actions undertaken by these organizations would provide a basis for the TEC to identify relevant organizations for cooperation. The input from this call will be considered at the fourth meeting of the TEC.

Observer organizations accredited by the UNFCCC are invited to provide their input on actions undertaken by these organizations which are relevant to the TEC in performing its functions by using the template in the annex. Kindly send your input through email to tec@unfccc.int by 31 July 2012.

Response to Call

The South Centre, an accredited observer intergovernmental organization to the UNFCCC, hereby submits this response to the call for inputs as above described.

Input from the South Centre

Key element 1: Analysis and synthesis

Technology Executive Committee
Key element 1: Analysis and synthesis
Key modalities: a) Producing periodic technology outlooks; collating, collecting and synthesizing a range of information on technology research and development and other technology-related activities from various sources, including, but not limited to, national communications, nationally determined technology needs and technology needs assessments, national adaptation programmes of action, nationally appropriate mitigation actions, national adaptation plans, and technology road maps and action plans; and examining the policy implications and opportunities for advancing technology development and transfer; b) Producing a series of technical papers on specific policies and technical issues, including those arising from technology needs assessments; c) Conducting a regular overview of existing technology development, transfer initiatives, activities and programmes with a view to identifying key achievements and gaps, good practices and lessons learned.

Organization name: South Centre
Key element 1: Analysis and synthesis
Actions undertaken by the organization relevant to the TEC in performing its functions: a) Preparation and publication of various research papers on policy issues relating to technology transfer and climate change, including but not limited to: i. M. Khor, Climate Change, Technology And Intellectual Property Rights: Context And Recent Negotiations (Research Paper 45, April 2012) ii. C. Correa, Mechanisms for International Cooperation in Research and Development: Lessons for the Context of Climate Change (Research 43, March 2012)

Key element 2: Policy recommendations

Technology Executive Committee
Key element 2: Policy recommendations
Key modalities: a) Recommending to the COP, or other relevant bodies under the Convention, actions to promote technology development and transfer and to address barriers; b) Recommending guidance on policies and programme priorities related to technology development and transfer, with special consideration given to the least developed country Parties.

Organization name: South Centre
Key element 2: Policy recommendations
Actions undertaken by the organization relevant to the TEC in performing its functions: a) Preparation and publication of various research papers on policy issues relating to technology transfer and climate change, including but not limited to: i. M. Khor, Climate Change, Technology And Intellectual Property Rights: Context And Recent Negotiations (Research Paper 45, April 2012) ii. C. Correa, Mechanisms for International Cooperation in Research and Development: Lessons for the Context of Climate Change (Research 43, March 2012) b) Followed and participated in UNFCCC negotiations on technology transfer issues, including putting forward proposals and recommendations on the establishment of effective UNFCCC institutional mechanisms and funding for technology transfer to developing countries c) Advised and provide analytical support to developing country policymakers on technology transfer, development and climate change policy issues and their relationships.

Key element 3: Facilitation and catalysing

Technology Executive Committee
Key element 3: Facilitation and catalysing
Key modalities: a) Promoting and collaborating with relevant organizations, resources permitting, in organizing workshops and forums to increase the opportunities for sharing experience with experts in developing and implementing technology road maps and action plans as well as other technology-related activities; b) Establishing an inventory of existing collaboration activities and a regular review process, with a view to identifying key achievements and gaps, good practices and lessons learned; c) Making recommendations on actions to promote collaboration; d) Making recommendations on best practices and relevant tools to develop technology road maps and action plans; e) Establishing an inventory of technology road maps and action plans; f) Making recommendations on concrete actions, such as an international process for the development of technology road maps and action plans as well as support required to enhance the development of these items, and in particular capacity-building programmes that may be appropriate.

Organization name: South Centre
Key element 3: Facilitation and catalysing
Actions undertaken by the organization relevant to the TEC in performing its functions: a) Conduct of trainings and workshops on climate change-related technology transfer policy issues with developing country policymakers in the context of the UNFCCC and TEC negotiations and discussions b) Provided policy recommendations through its research and analyses to developing country governments and to the TEC on improving policy regimes for technology transfer c) Advised developing country governments on the establishment and role of the UNFCCC's technology-related institutions (including TEC and SBSTA) to improve UNFCCC implementation d) Convened several meetings of developing country policymakers, delegates and NGOs to discuss and put forward proposals on climate technology issues, including in the UNFCCC context e) Co-organized workshop in Beijing on South-South cooperation in the transfer of climate-related technologies

Key element 4: Linkages with other relevant institutional arrangements under the Convention

Technology Executive Committee
Key element 4: Linkages with other relevant institutional arrangements under the Convention
Key modalities: a) Cross-participation in the meetings of the relevant bodies, including workshops and events organized by such bodies, or jointly organized, on issues of common interest; b) Inviting inputs to support the implementation of particular activities as specified in the workplan of the TEC; c) Providing inputs into other institutional arrangements under the Convention, in response to requests by the Conference of the Parties and/or invitations by respective institutions, to facilitate the work of those institutions; d) Knowledge and information sharing.

Organization name: South Centre
Key element 4: Linkages with other relevant institutional arrangements under the Convention
Actions undertaken by the organization relevant to the TEC in performing its functions: a) Participated in all meetings of the TEC, including providing expert speakers for various TEC sessions b) Provision of written and oral comments and submissions during TEC meetings in relation to technology policy issues c) Participated in major meetings of the UNFCCC COP and subsidiary bodies (including SBSTA, SBI, and the Ad-Hoc Working Groups) in which technology transfer policy issues are discussed and are relevant

Key element 5: Linkages with other relevant institutional arrangements outside the Convention

Technology Executive Committee
Key element 5: Linkages with other relevant institutional arrangements outside the Convention
Key modalities: a) Offering participation in the TEC meetings as observers or expert advisers; b) Technical task forces, stakeholder forums and/or consultative groups; c) Bilateral cooperative arrangements; d) Web-based communication channels, including through the technology information clearing house (TT:CLEAR);

Organization name: South Centre
Key element 5: Linkages with other relevant institutional arrangements outside the Convention
Actions undertaken by the organization relevant to the TEC in performing its functions: a) Presented two keynote speeches in UNDP seminar on technology and climate change in Delhi, India, in 2011 b) Presented speeches in high-level technology transfer conferences in Beijing (in 2009 organized by the UN and China) and Delhi (in 2010, organized by the UN and India) c) Participated in climate change and technology transfer-related policy discussions in other international forums such as the World Intellectual Property Organization, World Trade Organization, UNDP, and UNCTAD d) Taking part in the 5th Assessment Report formulation process of the Intergovernmental Panel on Climate Change e) Active engagement with developing country governments to provide cross-forum awareness of related climate change and technology policy issues, so as to ensure more effective and integrated developing country approaches to these issues across forums f) Participated in Rio+20 Summit in Rioo 2012 and all the preparatory meetings, including focusing on technology-related issues and texts in the negotiations

Key element 6: Information and knowledge sharing

Technology Executive Committee
Key element 6: Information and knowledge sharing
Key modalities: a) The TEC should disseminate its outputs and facilitate knowledge sharing through a well-functioning information platform that responds to the information and knowledge service requirements of its potential users, including Parties and a wide range of technology actors, experts and stakeholders. b) The platform would be a tool used to promote the collaboration between various actors and to seek cooperation with relevant international organizations and initiatives. It would support the efforts of the TEC in the following ways: exploring opportunities for information sharing, establishing links with existing knowledge platforms and implementing joint initiatives and programmes. c) The TEC should consider upgrading TT:CLEAR with an expanded and more strategic focus, tailored to the functions of the TEC, and building on existing technology information networks.

Organization name: South Centre
Key element 6: Information and knowledge sharing
Actions undertaken by the organization relevant to the TEC in performing its functions: a) Created good network and linkages with developing country policymakers in relation to climate change and technology policy issues, particularly in the context of South-South cooperation on technology transfer among developing countries, which are useful in information and knowledge sharing on technology transfer issues

Call for input on

Actions undertaken by accredited observer organizations relevant to the Technology Executive Committee in performing its functions.

Annex: Template for the call for input

Key element 1: Analysis and synthesis

Technology Executive Committee
Key element 1: Analysis and synthesis
Key modalities: a) Producing periodic technology outlooks; collating, collecting and synthesizing a range of information on technology research and development and other technology-related activities from various sources, including, but not limited to, national communications, nationally determined technology needs and technology needs assessments, national adaptation programmes of action, nationally appropriate mitigation actions, national adaptation plans, and technology road maps and action plans; and examining the policy implications and opportunities for advancing technology development and transfer; b) Producing a series of technical papers on specific policies and technical issues, including those arising from technology needs assessments; c) Conducting a regular overview of existing technology development, transfer initiatives, activities and programmes with a view to identifying key achievements and gaps, good practices and lessons learned.

Organization name: Tsinghua University
Key element 1: Analysis and synthesis
Actions undertaken by the organization relevant to the TEC in performing its functions: a) In the last 2 years, Tsinghua team has conducted a series of empirical study on China's green sectors, including wind energy, LED ligting, solar PV and electric vehicle. It conducted interviews with individual companies, business association, policy makers and other stakeholders. Meanwhile, the team conducted patent analysis of key technologies in each sector. using this quantative evidence to identify echnology gap. Combing these two completely different sources, we were able to demythfy the status quo of technology strength of Chinese green sectors. For example, we found that China's solar PV sector does not have next generation of technology and IP needed to upgrade its products. Unless the technology need is met, the industry could face a sharp turning point in the coming years. b) During the above mentioned study, we noticed that the innovation efforts in the industry was fragmentic. We identified the key technologies innovation areas, on whicht the industry should focus. In addition, we recommended an innovation plartform and policies to enable this innovation collaboration in key technology areas. c) Each of the above study include some case studies. These cases provides good expereince as well as lessons to learn. For example, we noticed that China's solar PV sector was a successful case, in which technolgies developed by Australian research institutes combined with China's industrial strength, and created a leading Chinese solar company, Suntech Suntech in turn inspired the entire solar PV industry in China. In contrast, technology transfer in wind energy sector is

a mixed one: China experimented 3 models to try to obtain technology from leading foreign wind companies, but none of them was satisfactory. European SMEs, however, filled this gap, by transferring less tested technologies to China. This met the need of industry and benefited both sides of technology transfer. But it was not without some undesirable consequence.

Key element 2: Policy recommendations

Technology Executive Committee
Key element 2: Policy recommendations
Key modalities: a) Recommending to the COP, or other relevant bodies under the Convention, actions to promote technology development and transfer and to address barriers; b) Recommending guidance on policies and programme priorities related to technology development and transfer, with special consideration given to the least developed country Parties.

Organization name: Tsinghua University
Key element 2: Policy recommendations
Actions undertaken by the organization relevant to the TEC in performing its functions: a) In studying green technology transfer our perspective is the role of intellectual property (IP). In other words, we tried to answer if intellectual property is a barrier in technology innovation, technology transfer and technology dissemination. We studied this difficult issue in real life, by observing it in two parallel backgrounds --global competition and climate change. For the first time, we were able to tell exactly what role IP played in each sector, which has different competition dynamic. For example, we found IP is less a barrier in solar PV sector than in wind and solar PV sector. Furthermore, in wind sector, the uncertainty, as result of patent thicket, has been deterring Chinese wind sector from completing the cycle of technology transfer. This is a phenomena never discovered before. We also noticed that some trade measures with IP implication could become de facto barriers. For example, some technology standard and regulations issued by national governments can be such barriers. Accordingly, we made policy recommendation to key stakeholders, particularly UNFCCC, WTO and WIPO and national governments. On the basis of empirical research, we further made recommendation aiming to promote technology development and transfer and to address barriers.

Key element 3: Facilitation and catalysing

Technology Executive Committee
Key element 3: Facilitation and catalysing
Key modalities: a) Promoting and collaborating with relevant organizations, resources permitting, in organizing workshops and forums to increase the opportunities for sharing experience with experts in developing and implementing technology road maps and action plans as well as other technology-related activities; b) Establishing an inventory of existing collaboration activities and a regular review process, with a view to identifying key achievements and gaps, good practices and lessons learned; c) Making recommendations on actions to promote collaboration; d) Making recommendations on best practices and relevant tools to develop technology road maps and action plans; e) Establishing an inventory of technology road maps and action plans; f) Making recommendations on concrete actions, such as an international process for the development of technology road maps and action plans as well as support required to enhance the development of these items, and in particular capacity-building programmes that may be appropriate.

Organization name: Tsinghua University
Key element 3: Facilitation and catalysing
Actions undertaken by the organization relevant to the TEC in performing its functions: a) As mentioned above, we identified gap in essential technologies and platform of consolidating innovation efforts of the green sector. We identified potential international collaborators of the best synergy in wind energy sector. The collaboration partners include North-South, as well as North-South partners. b) We also found that UNFCCC can adopt some orphan projects under its own framework, such as under Climate Technology Centre and Network. Such projects are often too global to be anyone's business, but benefit all. For example, the Center and Network can set up a purpose-specific technology innovation platform, dedicated to providing technology solutions to meet technology standards and regulations--to overcome technology barriers. It can involve SMEs in developed countries and exporting companies from developing countries, among others. c) The Center can also initiate global licensing platform for each green sector. In steading of providing technology solutions by itself, the Center simply initiate and coordinate with stakeholders. In other words, its platform is a catalyst.

Key element 4: Linkages with other relevant institutional arrangements under the Convention

Key element 5: Linkages with other relevant institutional arrangements outside the Convention

Technology Executive Committee
Key element 5: Linkages with other relevant institutional arrangements outside the Convention
Key modalities: a) Offering participation in the TEC meetings as observers or expert advisers; b) Technical task forces, stakeholder forums and/or consultative groups; c) Bilateral cooperative arrangements; d) Web-based communication channels, including through the technology information clearing house (TT:CLEAR);

Organization name: Tsinghua University
Key element 5: Linkages with other relevant institutional arrangements outside the Convention
Actions undertaken by the organization relevant to the TEC in performing its functions: a) Our research has been exploring what kind of measure or mechanism can contribute to the collaboration between international bodies in dealing with climate change. b) We held a side event in Cancun COP16. It was open to other delegations and media. c) We also organized a side event in Durban COP 17, in which a keynote speech on findings of this project and a panel discussion on experience in wind sector were presented. The attendees included European Wind Energy Association, Global Wind Energy Association, European Patent Office, WTO, and other delegations and media. During this event, panel speakers discussed IP's role in green technology innovation and dissemination, as well as how to promote technology development and transfer. d) Our research has made some recommendation on adjustment of international trade rules in order to facilitate the transfer of EST, such as the Subsidies and Countervailing Measures Agreement (SCM Agreement) etc. e) We acknowledged that UNFCCC is not the highest authority in charge of global governance, but we find it has the highest moral authority entrusted by the entire human beings to tackle the biggest challenge to their destiny. We also notice that some issues appears to fall into domain of established institutes , such as WIPO and WTO, but actually fall between multiple disciplines. Usually the supervising institutes of these domains do not communicate or collaborate. Understandably, the established institutes are not used to thinking out of box, as there is division of domains. Therefore, we recommend that UNFCCC fills the vacuum of global government by recommending (rather than issuing legally binding order) joint efforts among institutes. We believe even none-binding inquiry of difficult issues would encourage and inspire collaboration among these institutes and reform of rules supervised by them. We identified several topics UNFCCC could make positive impact by stimulating and inspiring other institutions. The following are two examples:

UNFCCC can send inquiry to WTO, inquiring it to study the phenomena of subsidy policies for green sectors issued by member states, give guidance on subsidy to green technologies and IP application.

UNFCCC can inquire WIPO about if/ho IP system can achieve optimal balance of the interests between the incumbent technology leaders and the technology follower—potential future innovators. These can be as detailed as the terms of patent protection, the impact of quality of patents upon innovation, and so on.

Key element 6: Information and knowledge sharing

Technology Executive Committee
Key element 6: Information and knowledge sharing
Key modalities: a) The TEC should disseminate its outputs and facilitate knowledge sharing through a well-functioning information platform that responds to the information and knowledge service requirements of its potential users, including Parties and a wide range of technology actors, experts and stakeholders. b) The platform would be a tool used to promote the collaboration between various actors and to seek cooperation with relevant international organizations and initiatives. It would support the efforts of the TEC in the following ways: exploring opportunities for information sharing, establishing links with existing knowledge platforms and implementing joint initiatives and programmes. c) The TEC should consider upgrading TT:CLEAR with an expanded and more strategic focus, tailored to the functions of the TEC, and building on existing technology information networks.

Organization name: Tsinghua University
Key element 6: Information and knowledge sharing
Actions undertaken by the organization relevant to the TEC in performing its functions: a) The organization and its collaborators conducted patent analysis and patent mapping for technologies in 3 sectors, including wind energy, LED lighting and solar PV. b) This information can serve as a platform. By accurately identifying global landscape of technology development, and the gap of technology development, this platform can guide innovation, to identify the need for technology transfer, to identify potential licensors of technologies. c) When combined with other information, it also helps to provide global competition dynamic and cooperation potential of the industry.

Submission by Asian Development Bank on Actions undertaken by accredited observer organizations relevant to the Technology Executive Committee in performing its functions

30 July 2012

Technology Executive Committee (TEC) at it third Session made a decision to call for accredited Observer Organizations to provide their inputs on their actions relevant to the TEC in performing its functions, Asian Development Bank (ADB) welcomes this opportunity and is pleased to submit its inputs as attached annex.

Annex
Template for the call for input

Key element 1: Analysis and synthesis

Technology Executive Committee
Key element 1: Analysis and synthesis
Key modalities: a) Producing periodic technology outlooks; collating, collecting and synthesizing a range of information on technology research and development and other technology-related activities from various sources, including, but not limited to, national communications, nationally determined technology needs and technology needs assessments, national adaptation programmes of action, nationally appropriate mitigation actions, national adaptation plans, and technology road maps and action plans; and examining the policy implications and opportunities for advancing technology development and transfer; b) Producing a series of technical papers on specific policies and technical issues, including those arising from technology needs assessments; c) Conducting a regular overview of existing technology development, transfer initiatives, activities and programmes with a view to identifying key achievements and gaps, good practices and lessons learned.

Organization name: Asian Development Bank (ADB)
Key element 1: Analysis and synthesis
Actions undertaken by the organization relevant to the TEC in performing its functions: a) Overview of policies and regulations to promote venture capital investments in ESTs, particularly focusing on PRC, India, and Southeast Asia b) A review of key development finance cooperation documents (e.g. Country Partnership Strategies and Country Operational Business Plans) to identify existing elements relevant to technology development and transfer …… c) ……..

Key element 2: Policy recommendations

Technology Executive Committee
Key element 2: Policy recommendations
Key modalities: a) Recommending to the COP, or other relevant bodies under the Convention, actions to promote technology development and transfer and to address barriers; b) Recommending guidance on policies and programme priorities related to technology development and transfer, with special consideration given to the least developed country Parties.

Organization name:
Key element 2: Policy recommendations
Actions undertaken by the organization relevant to the TEC in performing its functions: a) …… b) …… c) ……

Key element 3: Facilitation and catalysing

Technology Executive Committee
Key element 3: Facilitation and catalysing
Key modalities: a) Promoting and collaborating with relevant organizations, resources permitting, in organizing workshops and forums to increase the opportunities for sharing experience with experts in developing and implementing technology road maps and action plans as well as other technology-related activities; b) Establishing an inventory of existing collaboration activities and a regular review process, with a view to identifying key achievements and gaps, good practices and lessons learned; c) Making recommendations on actions to promote collaboration; d) Making recommendations on best practices and relevant tools to develop technology road maps and action plans; e) Establishing an inventory of technology road maps and action plans; f) Making recommendations on concrete actions, such as an international process for the development of technology road maps and action plans as well as support required to enhance the development of these items, and in particular capacity-building programmes that may be appropriate.

Organization name: Asian Development Bank
Key element 3: Facilitation and catalysing
Actions undertaken by the organization relevant to the TEC in performing its functions: ADB has launched a number of regional initiatives in which sharing of technology-related best practices and experience through organizing forums and workshops, is a key activity. These initiatives are supported by the ADB's Climate Change Fund (CCF) or its Clean Energy Finance Partnership Facility (CEFPF). One of the objectives of the CCF is facilitating knowledge management activities, including regional conferences and workshops. With regard to clean energy development, the CCF prioritizes interventions that help developing member countries (DMCs) achieve energy security and transition to low carbon economies through cost effective investments, especially in pre-commercial clean energy (CE) technologies, that result in greenhouse gas (GHG) mitigation, and financial, policy and institutional reforms, as well as regulatory frameworks that encourage CE development and energy access. Under the CEFPF the deployment of new technologies with strong demonstration effect is facilitated, excluding technologies that are still in the research and development or pilot testing stage. Through regional cooperation activities, ADB is addressing trans-boundary issues, and sharing experience in tackling common challenges in adopting climate technologies. ADB also supported a number of activities involving the formulation of roadmaps. Specific ADB actions relevant for this TEC function are:

1 **The Asia Solar Energy Forum (ASEF)**, a component of the Asia Solar Energy Initiative, is an international knowledge-sharing arena that brings together private sector companies, government representatives, and other stakeholders to share knowledge, develop partnerships, discuss new solar power proposals and incentive mechanisms, and organize major conferences on solar energy. ASEF also provides a regional platform to synthesize and analyze the various technology trends, market breakthroughs, measurement and modelling techniques, and smart grid and storage solutions piloted and scaled up in the region, thereby promoting a more effective and efficient solar development program.

ASEF's primary objectives center on knowledge sharing and consultations, policy and regulatory framework development, and capacity development for local stakeholders. ASEF's first meeting was held on 5–6 July 2010 in Manila, the Philippines, and brought together more than 200 policy makers and solar energy- related professionals from 34 countries resulting in intense engagement between project developers, equipment manufacturers, lenders, and government officials. More than 300 delegates from 38 countries attended the second meeting of the ASEF in Tokyo, Japan, on 1–2 December 2010. Both meetings paved the way for the establishment of ASEF as a nonprofit knowledge society. ASEI could serve as a model for other developing regions with high solar potential.

2 **"Quantum Leap in Wind Power Development in Asia and the Pacific"** is a regional initiative of the ADB launched in 2011, which, among other objectives, supports the drawing up of wind energy development road maps for better planning and facilitating public private partnership, and manages regional knowledge and builds capacity to facilitate the transfer of knowledge and regional cooperation.

Participating DMC governments are expected to achieve their targets for installed wind power capacity through the formulation of road maps, improved knowledge and capacity, better quantification of wind resource potential, and the identification of viable wind projects.

Several in-country, regional, and international workshops, including in the Pacific, to share lessons and examples of successful wind energy strategies and associated policies are planned. The third Quantum Leap workshop took place on 4-5 June 2012, and was co-organized with a number of international and bilateral agencies. The results are shared online and at future Asia Clean Energy Forums and other international events where private companies and government agencies in Asia and from around the world will be invited to disseminate best practices.

3 The annually held **Asia Clean Energy Forum (ACEF).** The first Asia Clean Energy Forum took place in 2006 and was envisaged as a knowledge- sharing event for policymakers and practitioners, to *inter alia* consult on ADB's Energy Efficiency Initiative and its Energy Policy Review, and share lessons learned on energy related technical assistance.

The issue of technology transfer was addressed at the fifth Asia Clean Energy Forum in 2010 themed "Meeting the Technology Transfer Challenge" and brought together policymakers, private sector firms, and non-governmental organizations to explore aspects of technology transfer relating to, amongst other issues, policy and regulation;

technology and program implementation; financing efficiency and renewables.

The Asia Clean Energy Forum (ACEF) 2012, themed "Accelerating Low-Carbon Energy For All," took place from 6-8 June 2011 in Manila, the Philippines, and was attended by approximately 850 participants, representing governments, financial institutions, civil society, academia, international organizations and the private sector. The Forum was framed around four tracks: energy access; technology; policy and regulation; and finance and investment. Key messages from the Forum include the need for better knowledge sharing and technology transfer to move clean energy from the exception to the norm, and with regard to technology innovation the need for concessional financing and a dedicated clean energy fund were highlighted.

4 **Carbon Capture and Storage (CCS) Fund** projects**.** In June 2009, ADB established a CCS Fund to accelerate the demonstration of CCS technologies, including the identification and lowering of barriers for CCS demonstration. One of the projects supported by the CCS Fund is a technical assistance project in the PRC, which aims to formulate a strategy for CCS deployment, including through the development of a road map for CCS and by recommending enabling policies and legal and regulatory framework.

Similarly, another regional CCS project in South East Asia is identifying potential for CCS in target countries, building capacity and disseminating knowledge on technical aspects of CCS and on enabling policies, and will culminate in the development of country-specific road maps for CCS demonstration in Indonesia, Philippines, Thailand and Vietnam.

5 **The Asia Pacific Adaptation Forum (APAN).** APAN, an event organized to share findings, opportunities, innovations and challenges in mainstreaming climate change adaptation into development, is facilitated by ADB together with the United Nations Environment Programme (UNEP), Institute for Global Environment Strategies (IGES), AIT/UNEP RRC.AP and other partners. The second Asia Pacific Adaptation Forum was held on 12 to 13 March 2012 in Bangkok, Thailand.

6 **Enhancing Knowledge on Climate Technology and Financing Mechanisms** (Asian Clean Energy Fund). This project, launched in 2011, will facilitate dialogues for and understanding of Asian countries on interrelated issues on climate change financing and climate technology to increase knowledge and advance their views on the ongoing discussions regarding climate change finance. Specifically, the project will provide a series of workshops and knowledge products focusing on areas of climate finance such as governance, access and modalities; and imparting best country experiences on balancing adaptation and mitigation financing. The increased knowledge and better awareness on climate change finance of national climate institutions of developing member countries (DMCs) would contribute to better participation in global discussions including the development of Green Climate Fund and the operations of the Technology Mechanisms.

7**….To promote climate technology development and transfer through carbon market program of ADB**. ADB launched its Carbon Market Initiative in 2006 (renamed as Carbon Market Program in 2009) which supported the CDM project development in DMCs through technical assistance on developing project design

document, facilitating project validation and verification, and through providing upfront funding for project implementation for contracting projects. During the process, ADB provided advice and support to project owners for the application and deployment of advanced technologies to achieve better GHG emission reduction benefits and demonstrate the requirement of additionality, which help climate technology development, transfer and deployment.

Key element 4: Linkages with other relevant institutional arrangements under the Convention

Technology Executive Committee
Key element 4: Linkages with other relevant institutional arrangements under the Convention
Key modalities: a) Cross-participation in the meetings of the relevant bodies, including workshops and events organized by such bodies, or jointly organized, on issues of common interest; b) Inviting inputs to support the implementation of particular activities as specified in the workplan of the TEC; c) Providing inputs into other institutional arrangements under the Convention, in response to requests by the Conference of the Parties and/or invitations by respective institutions, to facilitate the work of those institutions; d) Knowledge and information sharing.

Organization name: Asian Development Bank
Key element 4: Linkages with other relevant institutional arrangements under the Convention
Actions undertaken by the organization relevant to the TEC in performing its functions: a) ADB is partnering with WRI to explore how the technology and financial mechanisms can work in tandem to make significant advancements in both mitigation and adaptation technologies, and will provide inputs for TEC and GCF for consideration.. b) ADB cooperated with the Secretariat of CDM Executive Board to promote the equitable distribution of CDM projects and knowledge sharing on CDM project development with LDCs and SIDEs, which helped indirectly the technology development and transfer through CDM project development in LDCs and SIDEs. c) ……

Key element 5: Linkages with other relevant institutional arrangements outside the Convention

Technology Executive Committee
Key element 5: Linkages with other relevant institutional arrangements outside the Convention
Key modalities: a) Offering participation in the TEC meetings as observers or expert advisers; b) Technical task forces, stakeholder forums and/or consultative groups; c) Bilateral cooperative arrangements; d) Web-based communication channels, including through the technology information clearing house (TT:CLEAR);

Organization name: Asian Development Bank
Key element 5: Linkages with other relevant institutional arrangements outside the Convention
Actions undertaken by the organization relevant to the TEC in performing its functions: a) ADB is so far the only development finance institution, including multilateral, bilateral, and national banks, actively participating in the TEC meetings. ADB is keen to contribute its views and inputs from the perspective of development and financing so that the TEC's work can be enhanced and bear tangible fruits in many countries. b) ADB has established a pilot Asia-Pacific Climate Technology Finance Center (CTFC) with the view to join the CTCN as a Network member once the CTCN is fully operational. The pilot regional CTFC aims to mobilize investments for technology development and transfer and will coordinate closely with UNEP who has established the pilot Asia-Pacific Climate Technology Network. c) ADB, as an implementing agency of Global Environment Facility (GEF) and Climate Investment Funds (CIF), has been implementing a large of portfolio climate mitigation and adaptation projects, many of which are related to advanced technology development and deployment.

Key element 6: Information and knowledge sharing

Technology Executive Committee
Key element 6: Information and knowledge sharing
Key modalities: a) The TEC should disseminate its outputs and facilitate knowledge sharing through a well-functioning information platform that responds to the information and knowledge service requirements of its potential users, including Parties and a wide range of technology actors, experts and stakeholders. b) The platform would be a tool used to promote the collaboration between various actors and to seek cooperation with relevant international organizations and initiatives. It would support the efforts of the TEC in the following ways: exploring opportunities for information sharing, establishing links with existing knowledge platforms and implementing joint initiatives and programmes. c) The TEC should consider upgrading TT:CLEAR with an expanded and more strategic focus, tailored to the functions of the TEC, and building on existing technology information networks.

Organization name: Asian Development Bank
Key element 6: Information and knowledge sharing
Actions undertaken by the organization relevant to the TEC in performing its functions: As a regional knowledge bank, ADB promotes knowledge management and dissemination of good practices and lessons learned. A number of regional projects have as key objectives the development of knowledge products and services related to climate change, and facilitate a range of knowledge management activities in partnership with other organizations, including regional conferences and workshops. A new ADB center on knowledge sharing and lessons learned is being established, and ADB is seeking to promote increased South-South cooperation on knowledge sharing. ADB will also establish a pilot Clean Energy Technology Marketplace that will allow both sellers and buyers of climate technologies to register their products/needs and receive, on a selective basis, assistance from external advisors on the transaction coupled with financial assistance, where available and applicable.

July, 2012

ICTSD

International Centre for Trade and Sustainable Development

Actions undertaken by accredited observer organizations relevant to the Technology Executive Committee in performing its functions

Submission by
the International Centre
for Trade and Sustainable Development
(ICTSD)

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Key element 1: Analysis and synthesis

Technology Executive Committee
Key element 1: Analysis and synthesis
Key modalities: a) Producing periodic technology outlooks; collating, collecting and synthesizing a range of information on technology research and development and other technology-related activities from various sources, including, but not limited to, national communications, nationally determined technology needs and technology needs assessments, national adaptation programmes of action, nationally appropriate mitigation actions, national adaptation plans, and technology road maps and action plans; and examining the policy implications and opportunities for advancing technology development and transfer; b) Producing a series of technical papers on specific policies and technical issues, including those arising from technology needs assessments;

c) Conducting a regular overview of existing technology development, transfer initiatives, activities and programmes with a view to identifying key achievements and gaps, good practices and lessons learned.

Organization name: ICTSD

Key element 1: Analysis and synthesis

Actions undertaken by the organization relevant to the TEC in performing its functions:

a) A number of ICTSD publications have collected, synthesized and analyzed a range of information on climate change technologies. These include:

- Three technologies mapping studies on climate mitigation technologies and associated goods within the renewable energy supply sector, buildings sector and transport sector. They are respectively available at: http://ictsd.org/i/publications/96550/,http://ictsd.org/i/publications/67954/, http://ictsd.org/i/publications/68008/

- A major study on *Patents and Clean Energy: Bridging the Gap between Evidence and Policy* (2010) by the United Nations Environment Programme (UNEP), the European Patent Office (EPO) and the International Centre for Trade and Sustainable Development (ICTSD). The study aims to fill the knowledge gap that existed on` the relationship between patents and the development and transfer of clean-energy technologies. It yielded important insights, evidence and data which include: the findings from a comprehensive mapping of clean energy technologies, a patent landscape for clean energy generation technologies and the first global survey of clean energy licensing practices. A groundbreaking outcome of the study has been the creation by EPO of a new patent classification scheme for clean energies and a searchable database now available on the EPO's patent information service (**esp@cenet**).The study is available at: http://ictsd.org/i/publications/85887/

b) ICTSD has issued a number of publications on specific policies and technical issues relating to technology development and transfer, and particular the IPRs aspects. These include:

- *Innovation and Technology Transfer to Address Climate Change: Lessons from the Global Debate on Intellectual Property and Public Health* by Professor Frederick Abbott which examines different categories of IPRs and the ways they may have different effects and implications for climate change technologies as compared with pharmaceutical technologies. Available at: http://ictsd.org/i/publications/50454/

- *Intellectual Property and Access to Clean Energy Technologies in Developing Countries: An Analysis of Solar PV, Biofuel and Wind Technologies* (2007) by

Professor John Barton looks at access to clean energy technologies in solar PV, biofuel and wind technologies with a particular focus on China, India and Brazil. Available at: http://ictsd.org/i/events/dialogues/11251/

- *Intellectual Property Rights and International Technology Transfer to Address Climate Change: Risks, Opportunities and Policy Options* (2010) by Professors Keith Maskus and Ruth Okediji, assesses the existing multilateral framework supporting international technology transfer in terms of its efficiency at disseminating climate change technologies. A series of concrete international policy options for innovation and access are presented. Available at: http://ictsd.org/i/publications/97782/

d) ICTSD has also analysed a number of existing technology development, transfer initiatives, activities and programmes with a view to identifying key achievements and gaps, good practices and lessons learned. Examples include:

- *Fostering the Development and Diffusion of Technologies for Climate Change: Lessons from the CGIAR Model* by Professor Carlos Correa draws lessons from a the experience of the Consultative Group on International Agricultural Research's (CGIAR) that may inform efforts to promote the development and diffusion of climate change mitigation and adaptation technologies. Available at: http://ictsd.org/i/publications/66697/

- *Technology Transfer: An Evaluation of Treaty-Based Mechanisms Relevant to Climate Change* (2012) by late Professor John Barton looks at the implementation of technology transfer provisions in international environmental agreements and seeks to draw lessons for efforts to enhance the diffusion of climate change technologies. Available at: http://ictsd.org/i/publications/133973/

- *Unpacking the International Technology Transfer Debate: Fifty Years and Beyond* (2012) by Pedro Roffe and Padmashree Gehl Sampath captures the political economy of technology transfer negotiations since the 1960s and critically reviews the progress made in understanding the role of technology and innovation capacity for economic development over the past decades and draws lessons for current international initiatives and discussions in the area of technology transfer. Available at: http://ictsd.org/i/publications/136292/

Key element 2: Policy recommendations

Technology Executive Committee
Key element 2: Policy recommendations
Key modalities: a) Recommending to the COP, or other relevant bodies under the Convention, actions to promote technology development and transfer and to address barriers; b) Recommending guidance on policies and programme priorities related to technology development and transfer, with special consideration given to the least developed country Parties.

Organization name: ICTSD
Key element 2: Policy recommendations
Actions undertaken by the organization relevant to the TEC in performing its functions: a) In February 2011, ICTSD made a submission to the UNFCCC regarding the availability of technological information to promote cost effective mitigation actions. The submission underlined that rapid and affordable access to information on patenting of technologies for addressing climate change can significantly enhance the cost-effectiveness of mitigation actions. It argued that more tools and mechanisms in this area are urgently needed to enable further deployment and diffusion of existing technologies as well as to spur new technological innovation world-wide. The submission is available at: http://ictsd.org/i/publications/105628/. b) The weakness of technological capabilities in Least-Developed Countries (LDCs) presents important challenges for successful development and transfer of climate change technologies. ICTSD publications addressing this issue include: • *Technologies for Climate Change and Intellectual Property: Issues for Small Developing Countries (2009)* provided an initial review of the links between IP and technology transfer to LDCs and outlined some of the relevant measures that could be developed in support of a post-Kyoto climate regime. Available at: http://ictsd.org/i/publications/57611/ • *African Perspectives on the UNFCCC Technology Mechanism (2012) by* Professor John Mugabe presents a number of recommendations so that African countries can enhance endogenous capabilities to adopt and use technologies already available to them. Available at: http://ictsd.org/i/publications/133973/. The experience gained in the implementation of initiatives and provisions relating to technology transfer to LDCs in other areas should be also considered. This is the case of Article 66.2 of the WTO TRIPS Agreement which requires developed countries to provide incentives for enterprises and institutions in their territories to promote and encourage technology transfer to the Least-Developed Countries (LDCs). The implementation of Article 66.2 is particularly relevant to the TEC as a case study on how to best encourage technology transfer to LDCs, In this regard, ICTSD's publications which have closely examined the implementation of this

provision include:

- *Does TRIPS Art. 66.2 Encourage Technology Transfer To The LDC's?: An Analysis Of Country Submissions To The TRIPS Council (1999-2007*)"(2008) by Suerie Moon examines whether the Article 66.2 obligation under TRIPS has led developed countries to increase such incentives Available at: http://ictsd.org/i/publications/37159/.

- *Meaningful Technology Transfer to LDCs: A Proposal for a Monitoring Mechanism for TRIPS Article 66.2* (2011) outlines the main elements of a monitoring mechanism to induce more relevant, timely and sufficient technology transfer to LDCs. Available here: http://ictsd.org/i/publications/106434/

Key element 4: Linkages with other relevant institutional arrangements under the Convention

Technology Executive Committee
Key element 4: Linkages with other relevant institutional arrangements under the Convention
Key modalities: a) Cross-participation in the meetings of the relevant bodies, including workshops and events organized by such bodies, or jointly organized, on issues of common interest; b) Inviting inputs to support the implementation of particular activities as specified in the workplan of the TEC; c) Providing inputs into other institutional arrangements under the Convention, in response to requests by the Conference of the Parties and/or invitations by respective institutions, to facilitate the work of those institutions; d) Knowledge and information sharing.

Organization name: ICTSD
Key element 4: Linkages with other relevant institutional arrangements under the Convention
Actions undertaken by the organization relevant to the TEC in performing its functions: a) Since its creation in 1996, ICTSD has attended and participated in many UNFCCC meetings as an observer. It has participated in all COP and Subsidiary Body meetings since the Bali COP 2007 and has organized numerous side events to these meetings. Most recently, at the June 2012 subsidiary body meetings, ICTSD organized a side event entitled "Addressing carbon leakage and competitiveness concerns for enhanced mitigation action" which discussed, among other topics, how technology development and transfer is linked to unilateral mitigation measures. b) In 2012, ICTSD released a paper entitled "Can the Climate Technology Mechanism Deliver its Promise? Some Issues and Considerations" by Padmashree Gehl Sampath which reflects on how the Technology Mechanism can "keep its promise" and deliver a novel approach focused on technology development and innovation rather than simply transfer and "access." The author argues that the TM is uniquely positioned to support developing countries build their capacity to develop and deploy climate change technologies. She highlights some key considerations with regards to putting the TM into practice such as: ensuring coordination between the TM's two bodies, identifying technological needs, putting priority areas into practice, addressing the need for effective monitoring and evaluation, promoting a participatory approach, apportioning financial priorities, and coordinating with existing initiatives .Available at: http://ictsd.org/i/publications/133973/ c) ICTSD presented two submissions to the UNFCCC on response measures. The first addressed a number of issues that could be addressed by the future forum on the economic and social impact of parties' response measures. Available at: http://ictsd.org/i/publications/105643/. The second builds upon the first submission, and elaborates on a few trade related measures and introduces suggestions for the operationalization of a possible forum within the UNFCCC. Available at: http://ictsd.org/i/publications/114631/

Key element 5: Linkages with other relevant institutional arrangements outside the Convention

Technology Executive Committee
Key element 5: Linkages with other relevant institutional arrangements outside the Convention
Key modalities: a) Offering participation in the TEC meetings as observers or expert advisers; b) Technical task forces, stakeholder forums and/or consultative groups; c) Bilateral cooperative arrangements; d) Web-based communication channels, including through the technology information clearing house (TT:CLEAR);

Organization name: ICTSD
Key element 5: Linkages with other relevant institutional arrangements outside the Convention
Actions undertaken by the organization relevant to the TEC in performing its functions: a) ICTSD participated in the second meeting of the TEC in Bonn on 15-17 February 2012 as observers. ICTSD Senior Associate Pedro Roffe participated in the third meeting of the TEC on 28-29 May 2012 as a discussant at the thematic dialogue on enabling environments and barriers to technology development and transfer. b) ICTSD has participated and intervened in numerous international meetings and forums addressing issues of technology development and transfer organized by international organizations (UN, UNFCCC , WIPO, UNCTAD, UNEP, OECD, EPO etc…) and other stakeholders from the private sector(ICC, WBCSD, WEF etc. ..) and civil society.

Call for input on

Actions undertaken by accredited observer organizations relevant to the Technology Executive Committee in performing its functions.

Background

1. The COP at its sixteenth session decided to establish a Technology Mechanism to enhance action on technology development and transfer to support action on mitigation and adaptation in order to achieve the full implementation of the Convention. The Technology Mechanism comprises a Technology Executive Committee (TEC) and a Climate Technology Centre and Network. The TEC facilitates the effective implementation of the Technology Mechanism, consistent with its functions.

2. In accordance with decision 1/CP.16, the functions of the TEC are to:[1]

    a) Provide an overview of technological needs and analysis of policy and technical issues related to the development and transfer of technologies for mitigation and adaptation;
    b) Consider and recommend actions to promote technology development and transfer, in order to accelerate action on mitigation and adaptation;
    c) Recommend guidance on policies and programme priorities related to technology development and transfer with special consideration given to the least developed country Parties;
    d) Promote and facilitate collaboration on the development and transfer of technologies for mitigation and adaptation between governments, the private sector, non-profit organizations and academic and research communities;
    e) Recommend actions to address the barriers to technology development and transfer in order to enable enhanced action on mitigation and adaptation;
    f) Seek cooperation with relevant international technology initiatives, stakeholders and organizations, and promote coherence and cooperation across technology activities, including activities under and outside of the Convention;
    g) Catalyse the development and use of technology road maps or action plans at the international, regional and national levels through cooperation between relevant stakeholders, particularly governments and relevant organizations or bodies, including the development of best practice guidelines as facilitative tools for action on mitigation and adaptation.

3. Drawing on the agreed functions of the TEC as decided by the COP, the TEC considered the following items as the six key elements of its modalities:[2]

    a) Analysis and synthesis;
    b) Policy recommendations;
    c) Facilitation and catalysing;

[1] Decision 1/CP.16, paragraph 121.
[2] FCCC/CP/2011/8, paragraph 11.

d) Linkage with other institutional arrangements;
e) Engagement of stakeholders;
f) Information and knowledge sharing.

4. The modalities related to these six key elements are provided in the annex.

Call for input

The TEC, at its third meeting, agreed to launch a call for input on actions undertaken by accredited observer organizations relevant to the TEC in performing its functions. The inventory of actions undertaken by these organizations would provide a basis for the TEC to identify relevant organizations for cooperation. The input from this call will be considered at the fourth meeting of the TEC.

Observer organizations accredited by the UNFCCC are invited to provide their input on actions undertaken by these organizations which are relevant to the TEC in performing its functions by using the template in the annex. Kindly send your input through email to tec@unfccc.int by 31 July 2012.

Annex: Template for the call for input

Key element 1: Analysis and synthesis

Technology Executive Committee
Key element 1: Analysis and synthesis
Key modalities: a) Producing periodic technology outlooks; collating, collecting and synthesizing a range of information on technology research and development and other technology-related activities from various sources, including, but not limited to, national communications, nationally determined technology needs and technology needs assessments, national adaptation programmes of action, nationally appropriate mitigation actions, national adaptation plans, and technology road maps and action plans; and examining the policy implications and opportunities for advancing technology development and transfer; b) Producing a series of technical papers on specific policies and technical issues, including those arising from technology needs assessments; c) Conducting a regular overview of existing technology development, transfer initiatives, activities and programmes with a view to identifying key achievements and gaps, good practices and lessons learned.

Organization name:
Key element 1: Analysis and synthesis
Actions undertaken by the organization relevant to the TEC in performing its functions: a) …… b) ……. c) ……

Key element 2: Policy recommendations

Technology Executive Committee
Key element 2: Policy recommendations
Key modalities: a) Recommending to the COP, or other relevant bodies under the Convention, actions to promote technology development and transfer and to address barriers; b) Recommending guidance on policies and programme priorities related to technology development and transfer, with special consideration given to the least developed country Parties.

Organization name:
Key element 2: Policy recommendations
Actions undertaken by the organization relevant to the TEC in performing its functions: a) …… b) ……. c) ……

Key element 3: Facilitation and catalysing

Technology Executive Committee
Key element 3: Facilitation and catalysing
Key modalities: a) Promoting and collaborating with relevant organizations, resources permitting, in organizing workshops and forums to increase the opportunities for sharing experience with experts in developing and implementing technology road maps and action plans as well as other technology-related activities; b) Establishing an inventory of existing collaboration activities and a regular review process, with a view to identifying key achievements and gaps, good practices and lessons learned; c) Making recommendations on actions to promote collaboration; d) Making recommendations on best practices and relevant tools to develop technology road maps and action plans; e) Establishing an inventory of technology road maps and action plans; f) Making recommendations on concrete actions, such as an international process for the development of technology road maps and action plans as well as support required to enhance the development of these items, and in particular capacity-building programmes that may be appropriate.

Organization name:
Key element 3: Facilitation and catalysing
Actions undertaken by the organization relevant to the TEC in performing its functions: **IEA Technology Roadmaps:** There is a pressing need to accelerate the development of low-carbon energy technologies in order to address the global challenges of energy security, climate change and economic growth. This challenge was acknowledged by ministers from G8 countries at their meeting in June 2008 in Aomori, Japan where they declared the wish to have IEA prepare roadmaps to advance innovative energy technology. It was reconfirmed by IEA member countries. To achieve this ambitious goal, the IEA is developing a series of global low-carbon energy technology roadmaps covering the most important technologies. The IEA is leading the process, under international guidance and in close consultation with government and industry. The overall aim is to advance global development and uptake of key technologies to reach a 50% reduction in energy-related CO2 emissions by 2050. The roadmaps identify priority actions for governments, industry, financial partners and civil society that will advance technology development and uptake to achieve international climate change goals. Each roadmap represents international consensus on milestones for technology development,

legal/regulatory needs, investment requirements, public engagement/outreach and international collaboration. The following definition is used by the IEA in its technology roadmaps programme: A technology roadmap is a dynamic set of technical, policy, legal, financial, market & organizational requirements identified by all stakeholders involved in its development. The effort shall lead to improved and enhanced sharing and collaboration of all related technology-specific RDD&D information among participants.

The goal is to accelerate the overall RDD&D process in order to deliver an earlier uptake of the specific energy technology into the marketplace

The following international low-carbon technology roadmaps are now available:

- Biofuels for Transport,
- Bioenergy for Heat and Power,
- Carbon Capture and Storage (CCS) ,
- CCS Industrial Applications,
- Cement Sector,
- Concentrating Solar Power.
- Electric and Plug-in Hybrid Vehicles,
- Energy Efficient Buildings: heating & cooling systems,
- Geothermal,
- Nuclear Power,
- Smart Grids,
- Solar Photovoltaic Power,
- Solar Heating and Cooling,
- Wind Energy;

In addition the completed roadmaps above, the IEA is also currently working on the following international roadmaps:

- Chemical Sector: Catalysis
- Energy Efficient Building Envelopes
- High Efficiency, Low Emissions Coal
- Hydropower
- Fuel Economy for Road Vehicles

The first series of IEA technology-specific roadmaps are international in scope. Developing country and technology-specific roadmaps provide an opportunity to adapt IEA analysis, methodology and tools to regional context and objectives. The IEA is working closely with

countries to support their national roadmap efforts including the:

- China Wind Energy Roadmap
- Cement in India Roadmap (under development)

The IEA has shared the roadmaps as input to a number of international for a, including the United Nations Framework Convention on Climate Change (UNFCCC) Technology Mechanism discussions, the Major Economies Forum on Energy & Climate and Clean Energy Ministerial (CEM). The roadmaps were featured in the *Energy Technology Perspectives* publication. Based on its experience, and to respond to requests for guidance, the IEA has developed a Guide to developing and implementing Energy Technology Roadmaps that can be used by government and corporate stakeholders to use roadmaps as a strategic planning tool.

For further information, please visit the IEA Technology Roadmaps website: http://www.iea.org/roadmaps/

Key element 4: Linkages with other relevant institutional arrangements under the Convention

Technology Executive Committee
Key element 4: Linkages with other relevant institutional arrangements under the Convention
Key modalities: a) Cross-participation in the meetings of the relevant bodies, including workshops and events organized by such bodies, or jointly organized, on issues of common interest; b) Inviting inputs to support the implementation of particular activities as specified in the workplan of the TEC; c) Providing inputs into other institutional arrangements under the Convention, in response to requests by the Conference of the Parties and/or invitations by respective institutions, to facilitate the work of those institutions; d) Knowledge and information sharing.

Organization name:
Key element 4: Linkages with other relevant institutional arrangements under the Convention
Actions undertaken by the organization relevant to the TEC in performing its functions: a) …… b) ……. c) ……

Key element 5: Linkages with other relevant institutional arrangements outside the Convention

Technology Executive Committee
Key element 5: Linkages with other relevant institutional arrangements outside the Convention
Key modalities: a) Offering participation in the TEC meetings as observers or expert advisers; b) Technical task forces, stakeholder forums and/or consultative groups; c) Bilateral cooperative arrangements; d) Web-based communication channels, including through the technology information clearing house (TT:CLEAR);

Organization name:
Key element 5: Linkages with other relevant institutional arrangements outside the Convention
Actions undertaken by the organization relevant to the TEC in performing its functions: a) …… b) ……. c) ……

Key element 6: Information and knowledge sharing

Technology Executive Committee
Key element 6: Information and knowledge sharing
Key modalities: a) The TEC should disseminate its outputs and facilitate knowledge sharing through a well-functioning information platform that responds to the information and knowledge service requirements of its potential users, including Parties and a wide range of technology actors, experts and stakeholders. b) The platform would be a tool used to promote the collaboration between various actors and to seek cooperation with relevant international organizations and initiatives. It would support the efforts of the TEC in the following ways: exploring opportunities for information sharing, establishing links with existing knowledge platforms and implementing joint initiatives and programmes. c) The TEC should consider upgrading TT:CLEAR with an expanded and more strategic focus, tailored to the functions of the TEC, and building on existing technology information networks.

Organization name:
Key element 6: Information and knowledge sharing
Actions undertaken by the organization relevant to the TEC in performing its functions: a) …… b) ……. c) ……

Call for input on

Actions undertaken by accredited observer organizations relevant to the Technology Executive Committee in performing its functions.

Background

1. The COP at its sixteenth session decided to establish a Technology Mechanism to enhance action on technology development and transfer to support action on mitigation and adaptation in order to achieve the full implementation of the Convention. The Technology Mechanism comprises a Technology Executive Committee (TEC) and a Climate Technology Centre and Network. The TEC facilitates the effective implementation of the Technology Mechanism, consistent with its functions.

2. In accordance with decision 1/CP.16, the functions of the TEC are to:[1]

a) Provide an overview of technological needs and analysis of policy and technical issues related to the development and transfer of technologies for mitigation and adaptation;
b) Consider and recommend actions to promote technology development and transfer, in order to accelerate action on mitigation and adaptation;
c) Recommend guidance on policies and programme priorities related to technology development and transfer with special consideration given to the least developed country Parties;
d) Promote and facilitate collaboration on the development and transfer of technologies for mitigation and adaptation between governments, the private sector, non-profit organizations and academic and research communities;
e) Recommend actions to address the barriers to technology development and transfer in order to enable enhanced action on mitigation and adaptation;
f) Seek cooperation with relevant international technology initiatives, stakeholders and organizations, and promote coherence and cooperation across technology activities, including activities under and outside of the Convention;
g) Catalyse the development and use of technology road maps or action plans at the international, regional and national levels through cooperation between relevant stakeholders, particularly governments and relevant organizations or bodies, including the development of best practice guidelines as facilitative tools for action on mitigation and adaptation.

3. Drawing on the agreed functions of the TEC as decided by the COP, the TEC considered the following items as the six key elements of its modalities:[2]

a) Analysis and synthesis;
b) Policy recommendations;
c) Facilitation and catalysing;
d) Linkage with other institutional arrangements;

[1] Decision 1/CP.16, paragraph 121.
[2] FCCC/CP/2011/8, paragraph 11.

e) Engagement of stakeholders;
f) Information and knowledge sharing.

4. The modalities related to these six key elements are provided in the annex.

Call for input

The TEC, at its third meeting, agreed to launch a call for input on actions undertaken by accredited observer organizations relevant to the TEC in performing its functions. The inventory of actions undertaken by these organizations would provide a basis for the TEC to identify relevant organizations for cooperation. The input from this call will be considered at the fourth meeting of the TEC.

Observer organizations accredited by the UNFCCC are invited to provide their input on actions undertaken by these organizations which are relevant to the TEC in performing its functions by using the template in the annex. Kindly send your input through email to tec@unfccc.int by 31 July 2012.

Observer organizations accredited by the UNFCCC are invited to provide their input on actions undertaken by these organizations which are relevant

Annex: Template for the call for input

Key element 1: Analysis and synthesis

Technology Executive Committee
Key element 1: Analysis and synthesis
Key modalities: a) Producing periodic technology outlooks; collating, collecting and synthesizing a range of information on technology research and development and other technology-related activities from various sources, including, but not limited to, national communications, nationally determined technology needs and technology needs assessments, national adaptation programmes of action, nationally appropriate mitigation actions, national adaptation plans, and technology road maps and action plans; and examining the policy implications and opportunities for advancing technology development and transfer; b) Producing a series of technical papers on specific policies and technical issues, including those arising from technology needs assessments; c) Conducting a regular overview of existing technology development, transfer initiatives, activities and programmes with a view to identifying key achievements and gaps, good practices and lessons learned.

Organization name: THIRD WORLD NETWORK
Key element 1: Analysis and synthesis
Actions undertaken by the organization relevant to the TEC in performing its functions: a) Conduct research and analysis on a range of climate change technology related issues involving technology transfer in developing countries (barriers and enabling environments) including on intellectual property rights, use of flexibilities available under the TRIPs agreement, and research and development co-operation options. b) Publication of papers, books and information material related to technology transfer in developing countries in relation to paragraph (a) above, including on how to use flexibilities under the TRIPs agreement.

Key element 2: Policy recommendations

Technology Executive Committee
Key element 2: Policy recommendations
Key modalities: a) Recommending to the COP, or other relevant bodies under the Convention, actions to promote technology development and transfer and to address barriers; b) Recommending guidance on policies and programme priorities related to technology development and transfer, with special consideration given to the least developed country Parties.

Organization name: THIRD WORLD NETWORK
Key element 2: Policy recommendations
Actions undertaken by the organization relevant to the TEC in performing its functions: a) Possess knowledge and expertise on how to promote technology development and transfer and to address barriers. b) Have provided policy advice and guidance to developing countries on how to address barriers and promote technology transfer, including the conduct of workshops and meetings c) Produced publications providing policy recommendations to developing countries in relation to promoting technology development and transfer and how to address barriers.

Key element 3: Facilitation and catalysing

Technology Executive Committee
Key element 3: Facilitation and catalysing
Key modalities: a) Promoting and collaborating with relevant organizations, resources permitting, in organizing workshops and forums to increase the opportunities for sharing experience with experts in developing and implementing technology road maps and action plans as well as other technology-related activities; b) Establishing an inventory of existing collaboration activities and a regular review process, with a view to identifying key achievements and gaps, good practices and lessons learned; c) Making recommendations on actions to promote collaboration; d) Making recommendations on best practices and relevant tools to develop technology road maps and action plans; e) Establishing an inventory of technology road maps and action plans; f) Making recommendations on concrete actions, such as an international process for the development of technology road maps and action plans as well as support required to enhance the development of these items, and in particular capacity-building programmes that may be appropriate.

Organization name:
Key element 3: Facilitation and catalysing
Actions undertaken by the organization relevant to the TEC in performing its functions: a) …… b) ……. c) ……

Key element 4: Linkages with other relevant institutional arrangements under the Convention

Technology Executive Committee
Key element 4: Linkages with other relevant institutional arrangements under the Convention
Key modalities: a) Cross-participation in the meetings of the relevant bodies, including workshops and events organized by such bodies, or jointly organized, on issues of common interest; b) Inviting inputs to support the implementation of particular activities as specified in the workplan of the TEC; c) Providing inputs into other institutional arrangements under the Convention, in response to requests by the Conference of the Parties and/or invitations by respective institutions, to facilitate the work of those institutions; d) Knowledge and information sharing.

Organization name: THIRD WORLD NETWORK
Key element 4: Linkages with other relevant institutional arrangements under the Convention
Actions undertaken by the organization relevant to the TEC in performing its functions: a) Have provided inputs to TEC and other institutional arrangements under the Convention b) ……. c) ……

Key element 5: Linkages with other relevant institutional arrangements outside the Convention

Technology Executive Committee
Key element 5: Linkages with other relevant institutional arrangements outside the Convention
Key modalities: a) Offering participation in the TEC meetings as observers or expert advisers; b) Technical task forces, stakeholder forums and/or consultative groups; c) Bilateral cooperative arrangements; d) Web-based communication channels, including through the technology information clearing house (TT:CLEAR);

Organization name: THIRD WORLD NETWORK
Key element 5: Linkages with other relevant institutional arrangements outside the Convention
Actions undertaken by the organization relevant to the TEC in performing its functions: a) Have knowledge of experts especially from developing countries on technology transfer issues b) Have a good links with scientists, experts and NGOs who work on technology assessments, endogenous and appropriate technologies especially in agriculture. c) Organised dialogues with NGOs on climate related issues including technology transfer issues.

Key element 6: Information and knowledge sharing

Technology Executive Committee
Key element 6: Information and knowledge sharing
Key modalities: a) The TEC should disseminate its outputs and facilitate knowledge sharing through a well-functioning information platform that responds to the information and knowledge service requirements of its potential users, including Parties and a wide range of technology actors, experts and stakeholders. b) The platform would be a tool used to promote the collaboration between various actors and to seek cooperation with relevant international organizations and initiatives. It would support the efforts of the TEC in the following ways: exploring opportunities for information sharing, establishing links with existing knowledge platforms and implementing joint initiatives and programmes. c) The TEC should consider upgrading TT:CLEAR with an expanded and more strategic focus, tailored to the functions of the TEC, and building on existing technology information networks.

Organization name: THIRD WORLD NETWORK
Key element 6: Information and knowledge sharing
Actions undertaken by the organization relevant to the TEC in performing its functions: a) Provide regular information on climate related issues especially to developing countries through established list serves b) ……. c) ……

Inputs from ITU to the UNFCCC Technology Executive Committee (TEC)

31 July 2012

About ITU

ITU (International Telecommunication Union) is the United Nations specialized agency for telecommunications and information and communication technologies (ICTs). ITU membership comprises 193 member states, over 700 private-sector entities and more than 40 academic institutions. ITU is headquartered in Geneva, Switzerland, and has twelve regional and area offices around the world.

ITU is founded on the principle of international cooperation between governments and the private sector around the common challenge of promoting a connected world through the use of ICTs. ITU is the premier global forum through which parties work towards consensus on a wide range of issues affecting the future direction of the ICT industry. Key areas of activity in ITU include coordinating radio-communication services (in particular through the international management of the radio-frequency spectrum and satellite orbits), developing technical standards for ICT services and supporting developing countries to "bridge the digital divide" and enjoy the benefits of the information society.

In the area of climate change ITU is responsible for actively involved in the following activities:

a) Promoting a focused approach to development of product and services in areas where ICTs can readily contribute to reductions in greenhouse gas (GHG) emissions, including more standardized power supplies and batteries, smart devices and buildings, new low consumption devices, research and development on consumption and power supplies, use of ICTs in travel management and paperless meetings;

b) Conducting a systematic review of existing ITU treaties, resolutions and recommendations in the light of climate change and identify requirements for future work;

c) Conducting and fostering further research into the relationship between ICTs and energy efficiency and issue appropriate materials (e.g. a handbook on ICTs and their impact on climate change, a national e-environment toolkit) and organize meetings/symposia on this issue;

d) Participating actively in the key meetings, conferences and bodies conducted under the Uniter Nations Framework Convention on Climate Change (UNFCCC);

e) Disseminating information on relevant ICT success stories and best practices, through the ITU website, handbooks, toolkits, etc..

Further information about ITU´s activities in the area of ICTs and climate change is available at www.itu.int/climate. For queries contact jose.batanero@itu.int or climate@itu.int

Key element 1:
Analysis and synthesis

Organization name: International Telecommunication Union (ITU)

Key element 1: Analysis and synthesis

Actions undertaken by the organization relevant to the TEC in performing its functions:

a) As part of its activities on ICTs and climate change ITU conducts and fosters research on new solutions and applications that, through the use information and communication technologies (ICTs) are addressing the causes and effects of climate change. Examples of this include new solutions for improving the monitoring climate and environmental conditions, enabling reductions of greenhouse gas (GHG) emissions through the use of "smart technologies" (such as smart grids, smart buildings or intelligent transport systems), power supplies and batteries or new low consumption ICT devices, among others;

b) Based on this analysis ITU prepares and publishes regular technical papers on the key issues identified as barriers for enabling the diffusion of these technologies (e.g. handbooks on ICTs and their impact on climate change). Special emphasis is put to the role of developing technological standards to allow for the transfer of green technologies, and on "reducing the standardization gap" (enabling the participation of developing countries in the production of technical standards);

c) In addition to these technical papers ITU also produces toolkits for policy makers and organizes events and meetings to promote information exchange on these issues and undertakes and to engage all stakeholders in the process of identifying best practices. ITU also disseminates information on relevant ICT success stories and best practices, through the ITU website, handbooks, toolkits, etc..

Key element 2:
Policy recommendations

Organization name: International Telecommunication Union (ITU)

Key element 2: Policy recommendations

Actions undertaken by the organization relevant to the TEC in performing its functions:

a) As specialized agency of the United Nations, ITU is taking active part as an observer organization in the high-level meetings and conference that take place within the UNFCCC. ITU is already providing advice and support under request to the UNFCCC Secretariat, as well as to country delegations, on issues related with the use of information and communication technologies (ICTs) to address the causes and effects of climate change. Building on these experiences, ITU can continue to provide this support to the COP, the TEC and the CTCN on issues related with actions to promote technology development transfer, learning from the experience accumulated by ITU in this area.

b) With regards to providing guidance policy recommendations, ITU has extensive experience in assisting ICT policy makers in identifying best practices in promoting an inclusive information society. ITU has been instrumental in assisting a significant number of countries, in particular least developing countries (LDCs), in putting in place good policies and regulations to expand access to ICTs to all major groups of society, including business, public sector and general population.

Key element 3:
Facilitation and catalysing

Organization name: International Telecommunication Union (ITU)
Key element 3: Facilitation and catalysing
Actions undertaken by the organization relevant to the TEC in performing its functions: a) ITU has an extensive experience in collaborating with other organizations in organizing technical meetings. Previous experience include collaboration with several UN agencies (including UNEP, the UNFCCC, WMO or UN Global Compact), industry bodies (such as GSMA, the Global e-sustainability initiative, TechAmerica or the ICC) and member states. ITU can provide support to future similar initiatives in the context of the UNFCCC to promote discussion on technology transfer for green technologies, providing the perspective on the use of Information and communication technologies (ICTs) as a key technology to address climate change. b) ITU commits to contribute to inventories on such collaborations, sharing our experience on the challenges and opportunities involved in setting up this type of information systems; c) ITU can undertake the production of reports to recommendations on actions, best practices, technology road maps and actions on the use of Green ICTs, as well as contribute through inputs for producing new set of recommendations on green technologies in general.

Key element 5:
Linkages with other relevant institutional arrangements outside the Convention

Organization name: International Telecommunication Union (ITU)
Key element 5: Linkages with other relevant institutional arrangements outside the Convention
Actions undertaken by the organization relevant to the TEC in performing its functions: a) ITU can take part as observer in the meetings of the TEC, as well provide support to the operation of the CTCN, providing extensive inputs and support in the issues related with the use of information and communication technologies (ICTs) to address the causes and effects of climate change. b) ITU can take part in the technical task forces, stakeholder forums and other consultative groups, as well as provide inputs on information sharing platforms to be established in the future in this area of activity.

Key element 6:
Information and knowledge sharing

Organization name: International Telecommunication Union (ITU)
Key element 6: Information and knowledge sharing
Actions undertaken by the organization relevant to the TEC in performing its functions: a) ITU can provide support to disseminate information and knowledge through its network of members, which comprises 193 member states, over 700 private-sector entities and more than 40 academic institutions. b) ITU can also promote the participation of these members, as well as other regular ITU partners, in the activities to be conducted by the TEC, the CTCN, as well as other request for inputs from the COP on matters related with technology development and transfer.

Call for input on

Actions undertaken by accredited observer organizations relevant to the Technology Executive Committee in performing its functions.

Background

1. The COP at its sixteenth session decided to establish a Technology Mechanism to enhance action on technology development and transfer to support action on mitigation and adaptation in order to achieve the full implementation of the Convention. The Technology Mechanism comprises a Technology Executive Committee (TEC) and a Climate Technology Centre and Network. The TEC facilitates the effective implementation of the Technology Mechanism, consistent with its functions.

2. In accordance with decision 1/CP.16, the functions of the TEC are to:[1]

a) Provide an overview of technological needs and analysis of policy and technical issues related to the development and transfer of technologies for mitigation and adaptation;
b) Consider and recommend actions to promote technology development and transfer, in order to accelerate action on mitigation and adaptation;
c) Recommend guidance on policies and programme priorities related to technology development and transfer with special consideration given to the least developed country Parties;
d) Promote and facilitate collaboration on the development and transfer of technologies for mitigation and adaptation between governments, the private sector, non-profit organizations and academic and research communities;
e) Recommend actions to address the barriers to technology development and transfer in order to enable enhanced action on mitigation and adaptation;
f) Seek cooperation with relevant international technology initiatives, stakeholders and organizations, and promote coherence and cooperation across technology activities, including activities under and outside of the Convention;
g) Catalyse the development and use of technology road maps or action plans at the international, regional and national levels through cooperation between relevant stakeholders, particularly governments and relevant organizations or bodies, including the development of best practice guidelines as facilitative tools for action on mitigation and adaptation.

3. Drawing on the agreed functions of the TEC as decided by the COP, the TEC considered the following items as the six key elements of its modalities:[2]

a) Analysis and synthesis;
b) Policy recommendations;
c) Facilitation and catalysing;
d) Linkage with other institutional arrangements;
e) Engagement of stakeholders;

[1] Decision 1/CP.16, paragraph 121.
[2] FCCC/CP/2011/8, paragraph 11.

f) Information and knowledge sharing.

4. The modalities related to these six key elements are provided in the annex.

Call for input

The TEC, at its third meeting, agreed to launch a call for input on actions undertaken by accredited observer organizations relevant to the TEC in performing its functions. The inventory of actions undertaken by these organizations would provide a basis for the TEC to identify relevant organizations for cooperation. The input from this call will be considered at the fourth meeting of the TEC.

Observer organizations accredited by the UNFCCC are invited to provide their input on actions undertaken by these organizations which are relevant to the TEC in performing its functions by using the template in the annex. Kindly send your input through email to tec@unfccc.int by 31 July 2012.

Annex: Template for the call for input

Key element 1: Analysis and synthesis

Technology Executive Committee
Key element 1: Analysis and synthesis
Key modalities: a) Producing periodic technology outlooks; collating, collecting and synthesizing a range of information on technology research and development and other technology-related activities from various sources, including, but not limited to, national communications, nationally determined technology needs and technology needs assessments, national adaptation programmes of action, nationally appropriate mitigation actions, national adaptation plans, and technology road maps and action plans; and examining the policy implications and opportunities for advancing technology development and transfer; b) Producing a series of technical papers on specific policies and technical issues, including those arising from technology needs assessments; c) Conducting a regular overview of existing technology development, transfer initiatives, activities and programmes with a view to identifying key achievements and gaps, good practices and lessons learned.

Organization name: The Global CCS Institute
Key element 1: Analysis and synthesis
Actions undertaken by the organization relevant to the TEC in performing its functions: a) The Institute produces and publishes many CCS reports (accessible free of charge) focusing on matters to do with technology, policy, economics, legal and regulatory, and capacity development in developing countries (including country specific needs assessments). b) The Institute produces and publishes annually what is considered the primary expert reference for the global status of CCS projects and policy and program developments. It also includes the results of in-house proprietary research from what is arguably the world's largest project-level survey of CCS project developments. c) The Institute works closely with its 349 Members comprising of 37 governments, and key industry manufacturers, service providers (legal and engineering consultancies), and project proponents. d) The Institute has established its own International Advisory Board, which includes Claude Mandil (former Executive Director of the International Energy Agency) and Lord Nicholas Stern – please refer to http://www.globalccsinstitute.com/institute/about-the-institute/international-advisory-panel.

Key element 2: Policy recommendations

Technology Executive Committee
Key element 2: Policy recommendations
Key modalities: a) Recommending to the COP, or other relevant bodies under the Convention, actions to promote technology development and transfer and to address barriers; b) Recommending guidance on policies and programme priorities related to technology development and transfer, with special consideration given to the least developed country Parties.

Organization name: The Global CCS Institute
Key element 2: Policy recommendations
Actions undertaken by the organization relevant to the TEC in performing its functions: a) The Institute works with some of the world's most respected engineering, intergovernmental and academic organisations, and employs world experts on CCS-related issues such as: policy, economics, commercial and financial, and technology (capture, storage). It is also supporting international government fora such as the Clean Energy Ministerial and the Carbon Sequestration Leadership Forum. b) The Institute works closely with all of its government Members to support CCS related discussions and negotiations, for which all at the national level are Parties to the UNFCCC and have ratified the first commitment period of the Kyoto Protocol (excluding the United States of America). Many government Members are developing countries. c) The Institute also strongly collaborates with key UN organisations (such as the CDM secretariat, newly established CTC), intergovernmental organisations (IEA, OECD), academic institutions (University College London) and private sector organisations including other CCS associations (CCSa, Korean CCS Association), research facilities (CO2CRC), industry (manufacturers and CCS project proponents) and environmental NGOs (NRDC, WRI, Bellona). d) The Institute has participated as CCS experts in UNFCCC workshops including most recently CCS in the CDM (Abu Dhabi in 2011). It has also submitted to the UNFCCC over the past two years many papers expressing its expert views (and it intends to continue to submit) on a variety of UNFCCC related agendas, including the modalities and procedures of CCS in the CDM, and the evolution of new market mechanisms and financing arrangements. e) The Institute has attended all the COPs since 2010 and invests in extensive advocacy and knowledge sharing efforts through hosting side events (with panel experts providing a variety expertise, evidence and views) and from meeting with member Parties.

Key element 3: Facilitation and catalysing

Technology Executive Committee
Key element 3: Facilitation and catalysing
Key modalities: a) Promoting and collaborating with relevant organizations, resources permitting, in organizing workshops and forums to increase the opportunities for sharing experience with experts in developing and implementing technology road maps and action plans as well as other technology-related activities; b) Establishing an inventory of existing collaboration activities and a regular review process, with a view to identifying key achievements and gaps, good practices and lessons learned; c) Making recommendations on actions to promote collaboration; d) Making recommendations on best practices and relevant tools to develop technology road maps and action plans; e) Establishing an inventory of technology road maps and action plans; f) Making recommendations on concrete actions, such as an international process for the development of technology road maps and action plans as well as support required to enhance the development of these items, and in particular capacity-building programmes that may be appropriate.

Organization name: The Global CCS Institute
Key element 3: Facilitation and catalysing
Actions undertaken by the organization relevant to the TEC in performing its functions: a) The Institute has core competencies in hosting and supporting international workshops, seminars and schools. It also has a world-class knowledge sharing digital platform on which to not only conduct virtual dialogues and active blogs among key players, but also to host webinars, distribute reports and alert communities of key dates and developments (including the use of Twitter, Facebook etc). b) Annually, the Institute reviews, conducts proprietary research, drafts and releases a global reference report on status of CCS projects – this is increasingly considered by policy makers and key institutions as the primary source of truth on the progress of CCS projects. c) The Institute is fostering activities and producing guidelines (such as its Communications/Engagement Toolkit) on CCS related best practices. It is also currently embedded in the International Standard Organisation's (ISO) work program to standardise global CCS operations. d) Much of the Institute's capacity development focus is on assisting countries establish their own CCS Roadmaps.

Key element 4: Linkages with other relevant institutional arrangements under the Convention

Technology Executive Committee
Key element 4: Linkages with other relevant institutional arrangements under the Convention
Key modalities: a) Cross-participation in the meetings of the relevant bodies, including workshops and events organized by such bodies, or jointly organized, on issues of common interest; b) Inviting inputs to support the implementation of particular activities as specified in the work plan of the TEC; c) Providing inputs into other institutional arrangements under the Convention, in response to requests by the Conference of the Parties and/or invitations by respective institutions, to facilitate the work of those institutions; d) Knowledge and information sharing.

Organization name: The Global CCS Institute
Key element 4: Linkages with other relevant institutional arrangements under the Convention
Actions undertaken by the organization relevant to the TEC in performing its functions: a) The Institute has expressed an open invitation to the UNFCCC Executive Secretary and both the UNFCCC and CDM Secretariats to call upon its expertise at any time. b) The Institute is interested in reaching out to the TEC and the Climate Technology Centre (CTC) to assist them in their functions in any manner deemed appropriate. c) The Institute has a world class knowledge sharing digital platform. It recently was awarded a contract to facilitate CCS Knowledge Sharing in Europe by providing secretariat and knowledge dissemination services for the European Commission's Carbon Capture and Storage (CCS) Demonstration Project Network. The Institute is working with consortium partners to provide these services for four years. d) The Institute has, and will continue to submit its expert views to the UNFCCC on a variety of agendas affecting the global development and deployment of CCS, and specifically in developing countries.

Key element 5: Linkages with other relevant institutional arrangements outside the Convention

Technology Executive Committee
Key element 5: Linkages with other relevant institutional arrangements outside the Convention
Key modalities: a) Offering participation in the TEC meetings as observers or expert advisers; b) Technical task forces, stakeholder forums and/or consultative groups; c) Bilateral cooperative arrangements; d) Web-based communication channels, including through the technology information clearing house (TT:CLEAR);

Organization name: The Global CCS Institute
Key element 5: Linkages with other relevant institutional arrangements outside the Convention
Actions undertaken by the organization relevant to the TEC in performing its functions: a) The Institute has attended both the second and third meetings of the TEC, and is willing and ready to attend and participate all future TEC meetings as deemed appropriate and value-adding. b) The Institute is keen to discuss how it might assist the TEC in playing a more facilitative role. It has global reach to almost all CCS relevant institutions (public and private sector) and experts across all disciplines. c) The Institute could consider how its world best knowledge sharing digital platform can enhance, and/or be enhanced by TT:CLEAR

Key element 6: Information and knowledge sharing

Technology Executive Committee
Key element 6: Information and knowledge sharing
Key modalities: a) The TEC should disseminate its outputs and facilitate knowledge sharing through a well-functioning information platform that responds to the information and knowledge service requirements of its potential users, including Parties and a wide range of technology actors, experts and stakeholders. b) The platform would be a tool used to promote the collaboration between various actors and to seek cooperation with relevant international organizations and initiatives. It would support the efforts of the TEC in the following ways: exploring opportunities for information sharing, establishing links with existing knowledge platforms and implementing joint initiatives and programmes. c) The TEC should consider upgrading TT:CLEAR with an expanded and more strategic focus, tailored to the functions of the TEC, and building on existing technology information networks.

Organization name: The Global CCS Institute
Key element 6: Information and knowledge sharing
Actions undertaken by the organization relevant to the TEC in performing its functions: a) As stated, the Institute has extensive internal expertise as well as a world-class knowledge sharing digital platform, and it would welcome any opportunity to discuss its experiences and design with the TEC.

Call for input on

Actions undertaken by accredited observer organizations relevant to the Technology Executive Committee in performing its functions.

Background

1. The COP at its sixteenth session decided to establish a Technology Mechanism to enhance action on technology development and transfer to support action on mitigation and adaptation in order to achieve the full implementation of the Convention. The Technology Mechanism comprises a Technology Executive Committee (TEC) and a Climate Technology Centre and Network. The TEC facilitates the effective implementation of the Technology Mechanism, consistent with its functions.

2. In accordance with decision 1/CP.16, the functions of the TEC are to:[1]

a) Provide an overview of technological needs and analysis of policy and technical issues related to the development and transfer of technologies for mitigation and adaptation;
b) Consider and recommend actions to promote technology development and transfer, in order to accelerate action on mitigation and adaptation;
c) Recommend guidance on policies and programme priorities related to technology development and transfer with special consideration given to the least developed country Parties;
d) Promote and facilitate collaboration on the development and transfer of technologies for mitigation and adaptation between governments, the private sector, non-profit organizations and academic and research communities;
e) Recommend actions to address the barriers to technology development and transfer in order to enable enhanced action on mitigation and adaptation;
f) Seek cooperation with relevant international technology initiatives, stakeholders and organizations, and promote coherence and cooperation across technology activities, including activities under and outside of the Convention;
g) Catalyse the development and use of technology road maps or action plans at the international, regional and national levels through cooperation between relevant stakeholders, particularly governments and relevant organizations or bodies, including the development of best practice guidelines as facilitative tools for action on mitigation and adaptation.

3. Drawing on the agreed functions of the TEC as decided by the COP, the TEC considered the following items as the six key elements of its modalities:[2]

a) Analysis and synthesis;
b) Policy recommendations;
c) Facilitation and catalysing;
d) Linkage with other institutional arrangements;
e) Engagement of stakeholders;
f) Information and knowledge sharing.

[1] Decision 1/CP.16, paragraph 121.
[2] FCCC/CP/2011/8, paragraph 11.

4. The modalities related to these six key elements are provided in the annex.

Call for input

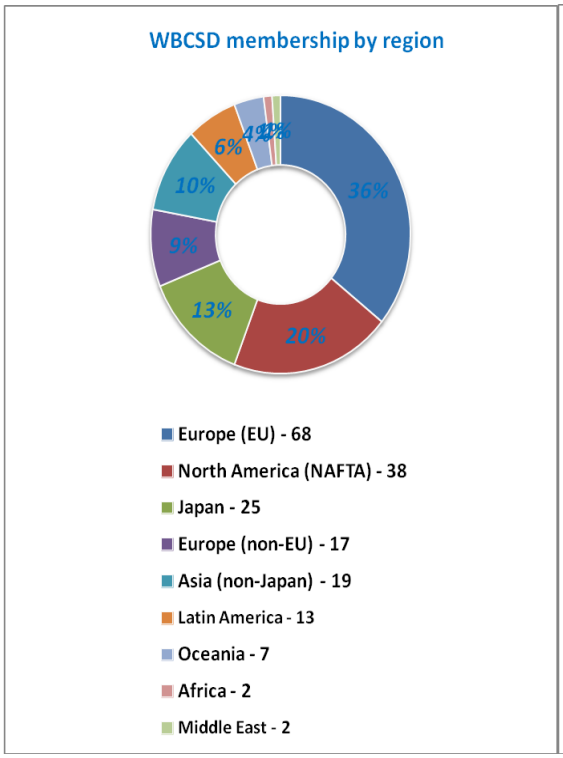
The TEC, at its third meeting, agreed to launch a call for input on actions undertaken by accredited observer organizations relevant to the TEC in performing its functions. The inventory of actions undertaken by these organizations would provide a basis for the TEC to identify relevant organizations for cooperation. The input from this call will be considered at the fourth meeting of the TEC.

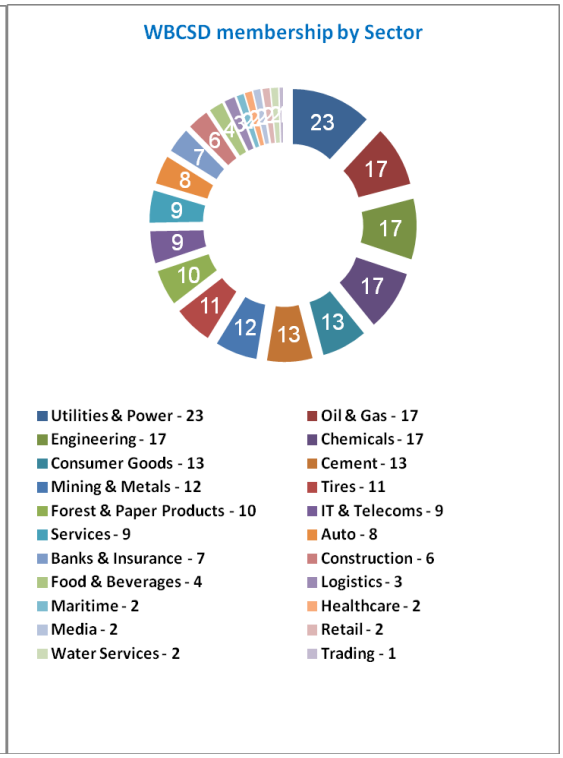
Observer organizations accredited by the UNFCCC are invited to provide their input on actions undertaken by these organizations which are relevant to the TEC in performing its functions by using the template in the annex. Kindly send your input through email to tec@unfccc.int by 31 July 2012.

Annex: Template for the call for input
From: The World Business Council for Sustainable Development

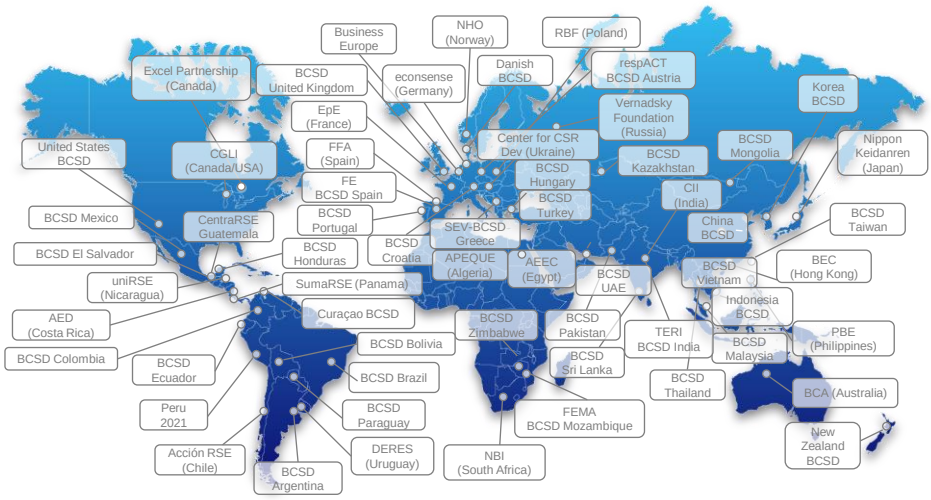
A global business organization focussed on sustainable development issues

Where we are from and what we do





WBCSD's Regional Network



Key element 1: Analysis and synthesis

Technology Executive Committee
Key element 1: Analysis and synthesis
Key modalities: a) Producing periodic technology outlooks; collating, collecting and synthesizing a range of information on technology research and development and other technology-related activities from various sources, including, but not limited to, national communications, nationally determined technology needs and technology needs assessments, national adaptation programmes of action, nationally appropriate mitigation actions, national adaptation plans, and technology road maps and action plans; and examining the policy implications and opportunities for advancing technology development and transfer; b) Producing a series of technical papers on specific policies and technical issues, including those arising from technology needs assessments; c) Conducting a regular overview of existing technology development, transfer initiatives, activities and programmes with a view to identifying key achievements and gaps, good practices and lessons learned.

WBCSD:
Key element 1: Analysis and synthesis
Actions undertaken by the organization relevant to the TEC in performing its functions: **Analysis and synthesis is not one of WBCSD's principle activities. However we do contribute with information and expert advice to organizations which carry out such work.** a) Input into the IEA Road Maps – on Cement, Buildings and others b) OECD Roundtable on Sustainable Development c) Secretary General's Sustainable Energy for All Initiative (SEFA)……

Key element 2: Policy recommendations

Technology Executive Committee
Key element 2: Policy recommendations
Key modalities: a) Recommending to the COP, or other relevant bodies under the Convention, actions to promote technology development and transfer and to address barriers; b) Recommending guidance on policies and programme priorities related to technology development and transfer, with special consideration given to the least developed country Parties.

WBCSD:
Key element 2: Policy recommendations
Actions undertaken by the organization relevant to the TEC in performing its functions: WBCSD has provided policy guidance and recommendations as part of its bread and butter work since its inception in 1995. Policy work is primarily directed at international processes but with relevance also at national level, based on a business perspective.. The focus has been on energy and climate, but also on water, forests and ecosystems. In the context of climate change, WBCSD has produced the landmark Trilogy including Facts and Trends, Pathways and Policy Directions to 2050. More specifically related to the TEC are publications which include: a) Enabling frameworks for technology diffusion…… b) Innovating for green growth……. c) Integrating energy efficiency across the power sector value chain…… d) Business solutions for energy access for all Other areas include in put on a carbon markets and a new market mechanism and on finance and the need for business participation. Recent publications include the Carbon Price and the Energy Mix: Low carbon pathways to 2050

Key element 3: Facilitation and catalysing

Technology Executive Committee
Key element 3: Facilitation and catalysing
Key modalities: a) Promoting and collaborating with relevant organizations, resources permitting, in organizing workshops and forums to increase the opportunities for sharing experience with experts in developing and implementing technology road maps and action plans as well as other technology-related activities; b) Establishing an inventory of existing collaboration activities and a regular review process, with a view to identifying key achievements and gaps, good practices and lessons learned; c) Making recommendations on actions to promote collaboration; d) Making recommendations on best practices and relevant tools to develop technology road maps and action plans; e) Establishing an inventory of technology road maps and action plans; f) Making recommendations on concrete actions, such as an international process for the development of technology road maps and action plans as well as support required to enhance the development of these items, and in particular capacity-building programmes that may be appropriate.

WBCSD
Key element 3: Facilitation and catalysing
Actions undertaken by the organization relevant to the TEC in performing its functions: WBCSD is not involved in direct implementation, although its member companies carry out their own activities in this area. WBCSD regards technology deployment as a commercial venture, and as a part of normal business practice. Business activities, including research, demonstration and development of technologies are an essential part of WBCSD members' commercial strategies. Businesses develop technologies for commercial deployment and hence have a vast range of experience and insights into the frameworks that support such work. In the implementation of their own business strategies many companies have diverse, specialised capacity building programmes as part of their investment portfolio in various countries. WBCSD provides a broad platform for discussion and experience sharing and would be happy to contribute in areas of mutual interest.- by organizing, workshops, dialogues etc

Key element 4: Linkages with other relevant institutional arrangements under the Convention

Technology Executive Committee
Key element 4: Linkages with other relevant institutional arrangements under the Convention
Key modalities: a) Cross-participation in the meetings of the relevant bodies, including workshops and events organized by such bodies, or jointly organized, on issues of common interest; b) Inviting inputs to support the implementation of particular activities as specified in the workplan of the TEC; c) Providing inputs into other institutional arrangements under the Convention, in response to requests by the Conference of the Parties and/or invitations by respective institutions, to facilitate the work of those institutions; d) Knowledge and information sharing.

WBCSD:
Key element 4: Linkages with other relevant institutional arrangements under the Convention
Actions undertaken by the organization relevant to the TEC in performing its functions: WBCSD is active in several areas related to the work of the TEC: a) UNFCCC process including GCF, NAMA process, Market Mechanism work where we participate as observers, provide input, organize meetings with our members on the topics, organize side events and specialised dialogues etc. WBCSD provides regular submissions to the UNFCCC process on topics of interest – usually on issues around technology, finance and markets b) IEA; OECD roundtable on sustainable development, CEM; CIF c) Through our Electric Utilities project, we are active in the Global Electricity Initiative – which brings together a significant group of global utility companies. This involves working with WEC and GSEP (previously E8).

Key element 5: Linkages with other relevant institutional arrangements outside the Convention

Technology Executive Committee
Key element 5: Linkages with other relevant institutional arrangements outside the Convention
Key modalities: a) Offering participation in the TEC meetings as observers or expert advisers; b) Technical task forces, stakeholder forums and/or consultative groups; c) Bilateral cooperative arrangements; d) Web-based communication channels, including through the technology information clearing house (TT:CLEAR);

WBCSD:
Key element 5: Linkages with other relevant institutional arrangements outside the Convention
Actions undertaken by the organization relevant to the TEC in performing its functions: a) WBCSD participates as an observer in the TEC, as it had in the EGTT during its latter meetings. We would be willing to source experts/advisers for particular issues, based on the specific criteria, from its broad membership. b) WBCSD would be happy to cooperate with TEC or other organisations on issues or activities on which there was mutual interest.

Key element 6: Information and knowledge sharing

Technology Executive Committee
Key element 6: Information and knowledge sharing
Key modalities: a) The TEC should disseminate its outputs and facilitate knowledge sharing through a well-functioning information platform that responds to the information and knowledge service requirements of its potential users, including Parties and a wide range of technology actors, experts and stakeholders. b) The platform would be a tool used to promote the collaboration between various actors and to seek cooperation with relevant international organizations and initiatives. It would support the efforts of the TEC in the following ways: exploring opportunities for information sharing, establishing links with existing knowledge platforms and implementing joint initiatives and programmes. c) The TEC should consider upgrading TT:CLEAR with an expanded and more strategic focus, tailored to the functions of the TEC, and building on existing technology information networks.

World Business Council for Sustainable Development (WBCSD)
Key element 6: Information and knowledge sharing
Actions undertaken by the organization relevant to the TEC in performing its functions: a) WBCSD materials are available for use as needed. WBCSD publications referred to above can be found on our website at www.wbcsd.com.

IRENA
International Renewable Energy Agency

Bonn, Germany
31 July 2012

International Renewable Energy Agency (IRENA)
IRENA Innovation and Technology Centre
Robert-Schuman-Platz 3,
53175 Bonn, Germany
Tel : +49 (0) 228 391 79085

Members Technology Executive Committee
UNFCCC secretariat
P.O. Box 260124
D-53153 Bonn, Germany
Email: tec@unfccc.int

Subject: Input to the Public Calls from 18 June to 31 July 2012

Dear Members of the Technology Executive Committee,

We welcome the opportunity to share with you the work undertaken by the International Renewable Energy Agency (IRENA) of relevance to the functions of the Technology Executive Committee (TEC). In response the three calls for public input launched by the TEC the 18th of June 2012, we are pleased to submit the following input annexed to this letter.

Call for inputs on technology road maps and action plans

- Annex 1 - IRENA's Road Mapping Activities

Call for inputs on ways to promote enabling environments and to address barriers to technology development and transfer

- Annex 2 – IRENA's Policy Brief: IRENA and renewable energy technology cooperation

Call for inputs on actions undertaken by accredited observer organizations relevant to the Technology Executive Committee in performing its functions

- Annex 3 - IRENA's Work Programme for 2012
- Annex 4 - IRENA's Renewable Costing Analysis
- Series of five costing analysis papers for renewable energy technology, available at: http://www.irena.org/menu/index.aspx?mnu=cat&PriMenuID=36&CatID=128

Yours sincerely

Dr. Dolf Gielen
Director IRENA Innovation and Technology Centre

IRENA
International Renewable Energy Agency

30 January 2012

INTERNATIONAL RENEWABLE ENERGY AGENCY
Second session of the Assembly
Abu Dhabi, 14 – 15 January 2012

Decision on the

proposed Work Programme and Budget for 2012

The Assembly,

Recalling Article XII of the Statute on the budget of the International Renewable Energy Agency;

Further recalling other relevant provisions of the Statute;

Also recalling the relevant parts of the Assembly decisions regarding the Acceptance of Assets and Liabilities of the Preparatory Commission for IRENA, as contained in document A/1/DC/2, and the Work Programme and Budget for 2011 as contained in document A/1/DC/8;

Further recalling the Interim Financial Regulations for IRENA as contained in document A/1/DC/6;

Reaffirming its determination to strengthen the role, capacity, effectiveness and efficiency of the International Renewable Energy Agency in order to realise its full potential and to respond effectively to the needs of Members, in accordance with the purposes and principles of the IRENA Statute, pursuant to the relevant provisions thereof;

Having considered the report of the Director-General on the Proposed Work Programme and Budget for 2012 pursuant to Article IX.G.2. of the Statute as submitted by the Council pursuant to Article X.F.2 of the Statute and contained in document A/2/1;

Taking note of the considerations of the Council as contained in document C/2/SR/L.1;

1. *Takes note with appreciation* of the report of the Director-General of the Work Programme and Budget for 2012;

2. *Decides* to adopt the proposed Work Programme and Budget for 2012, which totals USD 28.4 million, comprising:

    a. Core budget of USD 16 million to cover the core activities and administrative costs;
    b. Voluntary contributions resulting from the UAE bid implementation agreement of USD 2.9 million for operations, USD 2.9 million for research and USD 1.6 million for workshops and conferences; and
    c. Voluntary contributions for the operations of the IRENA Innovation and Technology Centre (IITC) in Bonn granted by Germany of USD 4 million;
    d. Additional estimated voluntary contributions from Members amounting to USD 1 million;

3. *Resolves* that the scale of assessment for the contributions of Members to the core budget of IRENA for 2012 will be as contained in the revised Annex II of A/2/1 which shall also be applicable to any new Member who joined IRENA during 2011;

4. *Invites* Signatories and other potential Members to contribute to the IRENA budget on a voluntary basis, according to an indicative IRENA scale of contributions, based mutatis mutandis on the applicable scale of assessment to the regular budget of the United Nations;

5. *Decides* that contributions of new Members shall be treated in accordance with Financial Regulation 6.3;

6. *Further decides* that voluntary contributions of others shall be treated in accordance with Financial Regulation 7.1;

7. Also *reaffirms* its decision, as contained in paragraph 4 of Assembly decision A/1/DC/8, that any core budget cash surplus at the close of the financial year 2011, which includes any cash surplus from the liquidation of the Preparatory Commission's assets, shall be apportioned among Members and contributing Signatories, in proportion to their contributions, notwithstanding Financial Regulation 4.5 (a);

8. *Authorises* the Director-General to make transfers between appropriations sub-programmes pursuant to Financial Procedure 104.1 (b) up to the limit of 15 per cent of the amount appropriated for the sub-programme in question;

9. *Requests* the Council to continue to work closely with the Secretariat on the development of the proposed Medium-term Strategy and the 2013 Work Programme and Budget for the purpose of demonstrating clearly how the resources of the Agency support outcomes that advance its mission.

30 January 2012

INTERNATIONAL RENEWABLE ENERGY AGENCY
Second session of the Assembly
Abu Dhabi, 14 and 15 January 2012

Proposed Work Programme and Budget for 2012

Report of the Director-General

* A/2/1 of 30 January 2012 includes a revised Annex II

A/2/1

Proposed Programme of Work and Budget for 2012

Contents

Overview

1. World energy demand is rising as a result of economic growth and population increase. The finite nature of traditional energy sources, and their impact on global markets and the environment require a new sustainable growth strategy that puts renewable sources of energy at the core of efforts to ensure sustainable and reliable energy. Energy is a key prerequisite for socio-economic development, and with many developing countries in Africa, Asia and Latin America poised at the threshold of accelerated economic growth and energy demand, the energy agenda has become a priority for both policymakers and the private sector alike.

2. Renewable energy is playing a rapidly increasing role in global energy supply, and the trends reflect strong growth in all energy sectors and all regions of the world. The latest Renewables Global Status Report shows that renewables delivered close to 20% of global electricity supply in 2010 and that, by early 2011, they comprised one-quarter of global power capacity from all sources. Total global investment in renewable energy broke a new record in 2010, with investment in renewable power and fuels of USD 211 billion, up 32% from USD 160 billion the previous year. In many countries, policymakers, and the public and private sectors are becoming increasingly focused on accelerating the uptake of renewable energy through, inter alia; deployment of technologies, stimulating innovation and expanding related markets. Some 119 countries now have renewable energy policy targets or support policies, and at least half of them are in the developing world.

3. This growing economic and political sensitivity is also reflected in major international events that will take place in 2012, such as the United Nations Conference on Sustainable Development, Rio+20 Summit, and dedication of 2012 as the International Year of Sustainable Energy for All. Strong efforts are being made at the national and regional levels, and by the international community, to pave the way for renewable energies and thus transform existing energy systems. Recent events, such as the impact of natural disasters on the Fukushima plant, also prompted rethinking of the energy policies in different countries. The creation of new entities at national level such as the Japanese Renewable Energy Foundation (JREF), the Green Investment Bank in the UK or the Moroccan Agency for Solar Energy aimed at catalysing large-scale investment in the renewables sector and the change of energy policy in Germany are examples of such efforts.

4. It is against this background that the International Renewable Energy Agency (IRENA) is supporting the transition to sustainable and secure, low-carbon energy systems by further exploring and promoting the vast opportunities offered by renewable energy to address and alleviate current energy and energy-related challenges. IRENA has 85 Members and 70 Signatories and/or countries processing applications for membership, totalling 155 countries actively involved in its activities. Cooperation at the global, regional and national levels, knowledge sharing, enabling policies and enhanced capacity, as well as the encouragement of investment flows and strengthened technology and innovation, are all essential elements in these efforts. IRENA is positioning itself as a platform for all-inclusive cooperation where stakeholders can make a positive

contribution to the common goals. This cooperation and partnerships are essential underpinnings of IRENA's work.

5. The ambitious mandate entrusted to IRENA, positions the Agency at the forefront of the transition to a renewables-based energy future, while ensuring that the benefits of this transition benefit industrialised and developing countries alike. IRENA's principal role is policy innovation and facilitation, and its tools are policy analysis and advice, capacity building, knowledge management, stakeholder convening, and technology cooperation. IRENA's potential can be realised only if it is an inclusive, accountable and innovative organisation.

6. During 2011 significant efforts have been made to strengthen cooperation among IRENA Members, as well as with institutions and organisations committed to renewable energy. In 2011, the Agency was developing its formative institutional managerial structures, transparent and effective administrative procedures, recruiting staff and creating a framework for enhanced programme delivery through its outreach and collaborative initiatives. Drawing on their knowledge, experiences and resources, progress has been made in understanding the political, economic, policy and regulatory environment in which renewable energy competes, as well as the concomitant technological possibilities and business models. IRENA has structured its work within three distinct, but intrinsically connected and inseparable areas: innovation and technology, knowledge management and technology cooperation, and policy advice and capacity building.

7. The Proposed Programme of Work and Budget aims to adapt the framework devised in 2011 to meet IRENA's programmatic and management objectives in order to better serve the needs of Members. The year 2012 is expected be marked by an increase in regional activities particularly in Africa, Latin America and the Caribbean, and the Pacific Islands. 2012 will also be a critically important year for sustainable energy at the international level. The International Year of Sustainable Energy for All and the Rio+20 Conference will provide significant opportunities to advance the mission of IRENA. Building on the institutional and substantive framework set in the course of 2011, and based on the guidance provided by the Members and the experience gained, IRENA's activities have been refined and expanded. They are accompanied by a clear articulation of deliverables and outcomes, as well as the budget allocation required.

8. The organisational structure, as adopted in 2011 and proposed for 2012, reflects the programmatic structure and comprises the following:

   a. Strategic Management and Executive Direction
   b. Knowledge Management and Technology Cooperation
   c. Policy Advisory Services and Capacity Building
   d. Innovation and Technology
   e. Administration and Management Services

Proposed Programme Budget for 2012

Table 1: Estimates of expenditure (in USD thousand)

	2011 Approved Budget	2011 Estimated Expenditure		2012 Estimate
		Amount	Percentage Utilisation	
Assessed Contributions (Core Budget)	**13,260**	**10,820**	**81.6%**	**16,000**
Voluntary Contributions from the UAE				
Operations	2,900	2,900	100.0%	2,900
Research	2,900	1,073	37.0%	2,900
Workshops and Conferences	1,600	1,600	100.0%	1,600
Information Technology Infrastructure	1,148	1,148	100.0%	-
Additional Earmarked contribution (Capacity Building)	-	-	-	*500*
Subtotal UAE Contributions	*8,548*	*6,721*	*78.6%*	*7,900*
Voluntary Contributions from Germany				
Innovation and Technology	3,100	2,731	88.1%	4,000
Additional Earmarked contribution (Capacity Building)	-	-	-	500
Subtotal German Contributions	*3,100*	*2,731*	*88.1%*	*4,500*
Total Voluntary Contributions	**11,648**	**9,452**	**88.1%**	**12,400**
Grand Total	**24,908**	**20,272**	**81.4%**	**28,400**

Table 2: Resource requirements by component (in USD thousand)

Component	Core Budget		Voluntary Contributions		Total	
	2011 Approved Budget	2012 Budget Proposal	2011 Approved Budget	2012 Budget Proposal	2011 Approved Budget	2012 Budget Proposal
A. Strategic Management	3,743	4,422	1,600	1,180	5,543	5,602
B. Governing Bodies Conference Services	-		1,800	1,600	1,600	1,600
C. Programme of Work						
Sub-programme 1. Knowledge Management and Technology Cooperation	3,759	4,157	2,000	2,000	5,759	6,157
Sub-programme 2. Policy Advisory Services and Capacity Building	2,509	3,719	2,000	2,500[1]	4,509	6,219
Sub-programme 3. Innovation and Technology	-	-	3,100	4,000	3,100	4,000
Subtotal C	6,268	7,876	7,100	8,500	13,368	16,376
D. Administration and Management Services	3,249	3,702	1,148	1,120	4,397	4,822
Of which: Information Technology	-	-	1,148[2]	-	1,148	-
Total Estimated Requirements	**13,260**	**16,000**	**11,648**	**12,400**	**24,908**	**28,400**

[1] This includes the Additional Earmarked contribution of USD 1,000,000 for Capacity Building activities from UAE and Germany (USD 500,000 each).
[2] Provided directly by UAE to build IT infrastructure.

Table 3: Post requirements

	Core Budget		Voluntary Contributions		Total	
	2011	**2012**	**2011**	**2012**	**2011**	**2012**
Professional and above						
ASG	1	1	-	-	1	1
D-2	1	1	-	-	1	1
D-1	3	3	1	1	4	4
P-5	14	14	3	3	17	17
P-4	5	6	1	1	6	7
P-3	17	17	3	3	20	20
P-2/1	3	2	-	-	3	2
Subtotal	*44*	*44*	*8*	*8*	*52*	*52*
General Service	**18**	**18**	**2**	**2**	**20**	**20**
Total	**62**	**62**	**10**	**10**	**72**	**72**

Table 4: Resource requirements by object of expenditure and source of funds (in USD thousand)

(1) Core budget

Object of Expenditure	2011 Approved Budget[3]	Resource Growth		2012 Estimate
		Amount	*Percentage*	
Total Staff Costs	7,974	1,906	24%	9,880
Other Staff Costs[4]	50	-16	-32%	34
Consultants	1,700	-283	-17%	1,417
Seconded Personnel	881	22	2%	903
Ad Hoc Expert Meetings[5]	616	623	101%	1,239
Staff Travel	507	-22	-4%	485
Contractual Services	857	94	11%	951
General Operating Expenses	396	131	33%	527
Hospitality	5	3	60%	8
Supplies and Materials	274	7	3%	281
Furniture and Equipment	-	275	N/A	275
Subtotal	**13,260**	**2,740**	**21%**	**16,000**

(2) Voluntary Contributions

Object of expenditure	2011 Approved Budget	Resource growth		2012 Estimate
		Amount	Percentage	
UAE Contribution	7,400	-	0%	7,400
Information Technology[6]	1,148	-	-100%	-
Additional Earmarked contribution (Capacity Building)	-	500	-	500
German Contribution	3,100	900	29%	4,000
Additional Earmarked contribution (Capacity Building)	-	500	-	500
Subtotal	**11,648**	**752**	**6%**	**12,400**

(3) Core Budget and Voluntary Contributions

Object of expenditure	2011 Approved Budget	Resource growth		2012 Estimate
		Amount	Percentage	
Total (1) and (2)	**24,908**	**3,492**	**14%**	**28,400**

[3] *The expenses of the Preparatory Commission for January to March 2011 have been added to the April to December 2011 appropriations in order to make the comparisons by object of expenditure consistent.*
[4] *Other staff costs include general temporary assistance at the general service level.*
[5] *Ad hoc expert meetings include the cost of participants to IRENA meetings other than those of the Governing Bodies and subsidiary organs.*
[6] *Provided directly by UAE to build IT infrastructure.*

9. The level of resources proposed for 2012 amounts to USD 28,400,000, of which USD 16,000,000 is funded from assessed contributions and USD 12,400,000 from voluntary contributions. A thorough review and extensive consultations with programme managers have been carried out to ensure the optimal utilisation of resources and ensure full, efficient and effective implementation of the objectives and mandates set by Members.

10. The proposed core budget requirements for 2012 total USD 16,000,000, which comprises USD 9,880,000 for 62 core posts[7] and USD 6,120,000 for various non-post requirements including general temporary assistance, consultants, seconded personnel, expert group meetings, travel of staff, contractual services, supplies and materials and information technology. The distribution of the core budget requirements, by component, is as follows:

    a. USD 4,422,000 under strategic management, comprising USD 3,063,300 for 20 posts and USD 1,358,700 for non-post requirements;
    b. USD 7,876,200 under Programme of Work, comprising USD 4,174,000 for 23 posts and USD 3,702,200 for non-post requirements;
    c. USD 3,701,900 under Administration and Management Services, comprising USD 2,641,000 for 19 posts and USD 1,060,900 for non-post requirements.

11. It is proposed that the amount of USD 12,400,000 should be funded from voluntary contributions as follows:

    a. USD 7,400,000 from the UAE bid to provide for operations, research, workshops and conferences. An additional contribution USD 500,000 is earmarked for capacity building, and
    b. USD 4,000,000 from Germany to provide USD 1,586,000 for the continuation of 10 posts in Bonn and USD 2,414,000 for non-post requirements. An additional contribution USD 500,000 is earmarked for capacity building.

[7] *This does not include the 10 posts of IITC.*

A. Strategic Management

Core Resource requirements: ***USD 4,422,000***
Voluntary Contributions: ***USD 1,180,150***

Management of the Agency

12. The Director-General has overall responsibility for providing leadership to carry out the Agency's mandate and is also responsible for the efficient and effective management of the Agency and its Work Programme. The Director-General is supported by a Deputy Director-General both in overall management and in strategic management and programme design, formulation, and implementation, in line with IRENA's mandate, mission, objectives and accountability framework.

13. The Office of the Director-General provides support for the timely discharge of his responsibilities and for the management of his Office. It also monitors the implementation of the Programme of Work and acts as the focal point for information on all aspects of the work of the Office. Strategic Management also includes an internal audit function. The internal auditor will ensure that sub-programmes and activities are executed effectively and that internal control and risk management measures are in place to enable rapid response and reaction as required or appropriate. A Legal Advisor, inter alia, prepares and reviews agreements and contracts to ensure requisite compliance and to protect the interests of IRENA.

Outputs

i) Overall management: direction, guidance and policy clearance of all programmatic and administrative actions;
ii) Planning and strategic management: Programme of Work and Budget, annual report;
iii) Audits: facilitation of audits and written management responses showing the actions being taken to implement the audit recommendations provided;
iv) Evaluations: coordination and management of the evaluation of sub-programmes and activities. Evaluation reports for completed activities and written management responses to evaluation findings.

Governance Support Office

14. The establishment of the three principal organs of the Agency, namely the Assembly, the Council and the Secretariat, requires that the Secretariat focuses on the institutionalisation of structures and processes. The Secretariat will ensure effective support to Members in an accountable and transparent manner, to meet the needs of the entire membership. The Governance Support Office will ensure a timely and efficient dissemination of documentation and effective support to Members and to intergovernmental meetings.

Outputs

v) Substantive servicing of meetings of the Assembly and the Council (3 meetings), and, as required, subsidiary organs (up to 6 meetings);

vi) Parliamentary documentation: Reports to the Assembly, the Council, and subsidiary organs (approx. 30 reports), delegates' web-site portal.

Communication and Outreach

15. Within the context of a broad communications umbrella for IRENA, the Communications Unit will maintain a continuous focus on communications and marketing, whose complementary but distinct roles should add to and multiply the value of every aspect and activity of the organisation. The 2012 International Year of Sustainable Energy for All and the Rio+20 Summit in June 2012 present a unique opportunity to place renewable energy prominently on the agenda, and IRENA will continue to contribute to this effort by participating in the UN Secretary-General's High-level Group on Sustainable Energy for All; it will serve as a core partner in the initiative, organising side events and taking the lead in issues related to renewable energy. IRENA is a partner at the World Future Energy Summit (WFES) at which the International Year will be launched, ensuring that the messaging for the year will start from a global platform. Outreach will be undertaken at global renewable energy initiatives such as the Interstate Renewable Energy Council (IREC), the Clean Energy Ministerial (CEM), and regional forums, especially in Africa, Asia-Pacific and Latin America and the Caribbean, and at global events such as Rio+20.

16. The communications strategy will also provide support to the implementation of the Programme of Work. The Communications Unit will partner with the Information Communication Technology and Governance Support Office in continuing its efforts to expand the IRENA website towards becoming a one-stop shop for relevant renewable energy information. A new interactive web platform will replace the current delegates' area. This new platform will enhance collaboration and information sharing. Training will be provided to all Members, and a phased approach will be adopted during the transition.

Outputs

vii) Publications: Key publications including newsletters, production of policy and programme documents in support of PACB, KMTC, and IITC's publications outputs, information and representational materials;
viii) Updates to Members in collaboration with the Governance Support Office including quarterly newsletters on IRENA events and activities;
ix) Continuing development of website content;
x) On-going media outreach, and development of additional media contacts and networks to further knowledge about IRENA's work;
xi) Development and implementation of new information portal for Members replacing the current delegates' area in collaboration with the Information Communications Technology and Governance Support Office;
xii) Implementation of IRENA's communications strategy supporting the Programme of Work and the Midterm Strategic Plan;
xiii) Enhanced engagement with current and new partners and collaborative arrangements to facilitate wider outreach;
xiv) As a core partner of the 2012 International Year of Sustainable Energy for All campaign, IRENA will support and participate in regional rollouts throughout the

year. Communications activities will also support the Director-General as a senior advisor to the UN Secretary-General's High-level Group on Sustainable Energy for All. Outreach support includes:

- *World Future Energy Summit, Abu Dhabi Launch of the 2012 International Year of Sustainable Energy for All;*
- *Delhi Sustainable Development Summit, New Delhi – Asian rollout of the 2012 International Year of Sustainable Energy for All;*
- *African rollout of the 2012 International Year of Sustainable Energy for All, Nairobi;*
- *Americas rollout of 2012 International Year of Sustainable Energy for All;*
- *Support to the Director-General in his role as Senior Advisor to the UN Secretary-General on Rio+20, side events at the Rio+20 Summit, Rio de Janeiro, Brazil (June 2012);*
- *Side events at COP 18 /Climate Change Conference.*

Strategic Partnerships

17. The key drivers of success for IRENA are connectivity and the ability to galvanise critical partnerships with all key players in the renewable energy field. Selecting strategic collaborating partners is central to IRENA's work, fostering a wide array of opportunities to pursue the Agency's mission. The Director-General is responsible for forging major long-term relationships with key players in the field, while sub-programmes focus on continuous development and strengthening of partnerships related to defined activities.

Table 5: Objective, expected accomplishments and indicators of achievement

Objective: Effectively and efficiently manage the Agency and its Work Programme	
Expected accomplishments	**Indicators of achievement**
(a) Visibility of IRENA as the global voice for renewable energy	i. Growing recognition of IRENA among renewable energy stakeholders. ii. Growing recognition of IRENA as authoritative voice on renewable energy in international forums.
(b) Transparent, responsive and effective management of resources of the organisation	iii. Effective implementation of administrative procedures and mechanisms. iv. Prioritised result oriented implementation of programme of work and budget.
(c) Support to members of the governing bodies of IRENA	v. Timely delivery of documentation. vi. Effective support to inter-governmental meetings. vii. Effective communication with representatives of governments, international/regional organisations and stakeholders.
(d) Effective formulation, prioritisation and implementation of the Programme of Work	viii. Recognition by Member countries of an effective programme formulation, implementation and evaluation. ix. Effective internal budget management and coordination across sub-programmes.
(e) Timely and adequate mobilisation of financial resources	x. Percentage of resources mobilised in a timely manner to implement the Programme of Work.

Table 6: Resource requirements: Strategic Management

Category	**Resources (in USD)**		**Posts**	
	2011 Budget	2012 Estimate	2011	2012
Core Budget				
Post	2,405,300	3,064,000	20	20
Non-post	880,300	1,358,000	-	-
Subtotal	*3,285,600*	*4,422,000*	*20*	*20*
January to March 2011	457,017	-	-	-
Voluntary Contributions				
UAE Government Bid	1,800,000	1,180,150	-	-
Subtotal	*1,800,000*	*1,180,150*	-	-
Total	**5,542,617**	**5,602,150**	**20**	**20**

Table 7: Strategic Management Resource requirements by object of expenditure and source of funds 2012 (in USD)

Core budget	**4,422,000**
Total Staff Costs	3,064,000
Other Staff Costs	-
Consultants	-
Seconded Personnel	208,000
Ad Hoc Expert Meetings	700,000
Staff Travel	
Contractual Services	400,000
General Operating Expenses	
Hospitality	
Supplies and materials	50,000
Furniture and Equipment	-
UAE Bid	**1,180,150**
Research	537,500
Operations	642,650
GRAND TOTAL	**5,602,150**

18. The amount of USD 3,064,000 would provide for the continuation of 20 posts approved in 2011, including the reclassification of 1 P-3 post to P-4 (1 ASG, 1 D-2, 5 P-5, 2 P-4, 3 P-3, 1 P-2 and 7 GS). Resources totalling USD 1,358,000 would provide for non-post requirements including:

    a. Development of renewable energy initiatives and communication strategy for participation in the Rio+20 Conference on Sustainable Development;
    b. Support to the United Nations Secretary-General's High-level Group on Sustainable Energy for All;
    c. Participation in international renewable energy conferences/meetings and initiatives;
    d. Consultants to avail of specialised expertise in policy and substantive areas;
    e. Seconded personnel;
    f. Travel of staff;
    g. Supplies and materials;
    h. Hospitality.

19. Voluntary contributions totalling USD 1,180,150 from the UAE bid will continue to be utilised to assist in strategic stakeholder consultations, experts, outreach, support to IRENA's role as UN observer in particular during the International Year of Sustainable Energy for All and Rio+20 process, and meetings and conferences.

B. Governing Bodies Conference Services

Voluntary Contributions: ***USD 1,600,000***

20. The Assembly is the supreme organ of IRENA and its main decision-making body. It is composed of all Members of IRENA and meets in regular annual sessions. The Assembly considers and approves IRENA's Work Programme and Budget and determines the guiding principles and policies of the Agency. The IRENA core budget does not cover the costs of delegations' participation at the Assembly.

21. The Council carries out functions entrusted to it under the Statute of IRENA and functions delegated to it by the Assembly. The Council has 21 members, elected by the Assembly on a rotating basis for a two-year term; it meets semi-annually. Until its third meeting, the Council has three subsidiary organs: the Policy and Strategy Committee, the Governance and Legal Committee, and the Finance Committee, which meet as required.

22. The Secretariat assists the Assembly, the Council and their subsidiary organs in the performance of their functions. The core resource requirements for this support are included under Strategic Management in Part A above.

Table 8: Resource Requirements: Meetings of the Governing Bodies

Category	**Resources (in USD)**		**Posts**	
	2011	2012	2011	2012
UAE Government Bid	1,600,000	1,600,000	-	-
Total	**1,600,000**	**1,600,000**	**-**	**-**

C. Programme of Work

Table 9: Resource requirements by sub-programme

	Core				Voluntary				Total			
	Resources		Posts		Resources		Posts		Resources		Posts	
	2011 Appropri-ation	2012 Estimate	2011	2012	2011 Appropri-ation	2012 Estimate	2011	2012	2011 Appropri-ation	2012 Estimate	2011	2012
Sub-programme 1 Knowledge Management and Technology Cooperation	3,759,020	4,156,700	14	14	2,000,000	2,000,000	-	-	5,759,020	6,156,700	14	14
Sub-programme 2 Policy Advisory Services and Capacity Building	2,509,545	3,719,500	9	9	2,000,000	2,500,000[8]	-	-	4,509,555	6,219,500	9	9
Sub-programme 3 Innovation and Technology	-	-	-	-	3,100,000	4,000,000	10	10	3,100,000	4,000,000	10	10
Total	**6,268,565**	**7,876,200**	**23**	**23**	**7,100,000**	**8,500,000**	**10**	**10**	**13,368,565**	**16,376,200**	**33**	**33**

[8] *This includes the Additional Earmarked contribution of USD 1,000,000 for Capacity Building activities from UAE and Germany (USD 500,000 each).*

Sub-programme 1: Knowledge Management and Technology Cooperation

Core Resource requirements: ***USD 4,156,700***
Voluntary contributions: ***USD 2,000,000***

Strategic Objectives and Context

23. Recent trends on renewable energy reflect the substantial progress being made in developing and deploying renewable energy resources; as seen in the increased contribution of renewable energy to the energy mix and the growth in global investments in the sector. Positive trends in new investments in emerging economies and developing countries have provided momentum to the markets. A large number of countries have developed policies and measures to stimulate the deployment of renewable energy.

24. There is however considerable room for improvement: out of the nearly 100 countries that have announced national targets for increasing the share of renewable energy in the energy mix, only half have received investment flows of more than USD 10 million. Moving from target-setting and political buy-in to actual deployment of technology requires intermediate steps. This sub-programme focuses on identifying the critical areas of knowledge, and making this knowledge available to IRENA Members and the wider renewable energy community, based on a coherent and integrated framework of knowledge resources. In some areas, i.e. potentials, statistics, indicators, assessments, large gaps were identified, which need to be filled. However, making knowledge available is not a guarantee of success. The transmission and absorption of knowledge depends on the readiness of the country to move towards renewables. The role of KMTC is to develop a systematic approach to renewable energy readiness, designed to support regional partners and Member countries. This work would lead to concrete tailor-made action plans at regional and national level, to be implemented in coordination with PACB.

25. As detailed in Article 2 of its Statute, the mandate of IRENA includes a focus on the widespread and increased adoption and use of renewable energy with a view to sustainable development. In this regard, North-South and South-South technology cooperation will be a central element of any discussion related to knowledge, be it knowledge-sharing, dissemination of knowledge, or readiness to absorb and implement this knowledge. KMTC's role is to assist and catalyse multilateral cooperation in renewable energy technology by providing a platform for dialogue and by fostering technology cooperation. The sub-programme is articulated around three components, described below.

Component 1: Systematise relevant global knowledge on renewable energy

26. Targeted generation and transfer of knowledge are central to promoting and facilitating change. A central aspect of this is the creation of a solid and reliable information base. In 2011, KMTC started to develop a statistical database, which builds on the main global databases (IEA, UN, others) by gathering additional information from countries through partnerships at the country level. Information on potentials is being collected, and an electronic database of studies has been initiated. Partnerships with the Clean Energy Ministerial lead to a concept and prototype for a Global Solar and Wind Atlas, which will be presented to end-users, and expanded to include other renewable energy technologies.

A conceptual framework is under development for energy indicators, which will also seek input from experts and governments. The components and activities proposed in 2012 will build upon these foundations and will develop a knowledge management platform, which will engage stakeholders at the global, regional and local level in the creation, use and dissemination of information and knowledge. Five activities are planned for 2012:

27. **Activity 1: Operationalise IRENA's Knowledge Management (KM) strategy**. Following the mapping of existing sources of knowledge and gap analysis undertaken in 2011, KMTC will develop a Knowledge Management strategy for IRENA. The strategy will establish a Knowledge Management framework that ensures easy access to renewable energy information and knowledge relevant to the needs of Members, academia, civil society, and other stakeholders. It will also provide for the management of knowledge within the Agency, establishing a system to ensure institutional memory as well as a documentation centre. A workshop will present the Knowledge mapping and gap analysis to countries in order to integrate their expectations in the Knowledge Management strategy. A core team will be established within IRENA to monitor and assist in the implementation of the Knowledge Management strategy. This process will include a capacity building component to ensure the application of the strategy internally.

Output

i) IRENA Knowledge Management Strategy document

28. **Activity 2: Renewable Energy Potentials**. Knowledge of energy potentials is the basis for planning the transition to renewable energy systems. In partnership with the Clean Energy Ministerial Multilateral Solar and Wind Working Group (CEM MWG), IRENA is coordinating the development of the Global Solar and Wind Atlas. This initiative will enhance IRENA's ability to provide targeted services to its Members, and will also ensure that it responds to Member countries specific needs and requirements. Building on existing international initiatives to improve data quality IRENA will contribute to assessing renewable energy potentials by carrying out the following tasks:

a. Provide a platform (meta-database) for global data providers such as the National Renewable Energy Laboratory (NREL) of the US Department of Energy, the German Aerospace Centre (DLR), the Danish National Laboratory for Sustainable Energy (Risø), the Spanish Renewable Energy Centre (CENER), and NASA among others. The collaboration with the World Meteorological Organisation (WMO) begun in 2011 will be supported by the network of WMO members in the verification phase of the Global Solar and Wind Atlas. Recommendations will be formulated on the elements and instruments required to densify the measurement network to enhance the level of accuracy in terms of evaluating renewable energy potentials, starting with wind and solar.

b. While the initial phase will focus on wind and solar, work on other renewable energy sources will progressively be initiated. KMTC will start to develop a global biomass dataset, building on datasets from the Food and Agriculture Organisation (FAO) and the International Institute for Applied Systems Analysis (IIASA).

Exchanges of views and information initiated in 2011 will be pursued, resources allowing, in particular on geothermal energy, and hydropower.

c. The Global Atlas will contribute to the upcoming Global Framework for Climate Services (GFCS), by ensuring that end-user recommendations are transmitted to the GFCS programme. Demonstration campaigns within the Global Atlas will be organised jointly with WMO and the GFCS programme.

d. A simplified version of the final system for the Global Solar and Wind Atlas will be made available to a group of end-users gathered on the occasion of the second session of IRENA's Assembly. It will demonstrate the feasibility of delivering adequate data and services at the global level, and will gather recommendations from end-users before developing a more complete system.

e. A strategy paper on developing and exploiting renewable energy potentials for policymaking will be prepared. KMTC will develop a set of case studies focusing on three countries at different stages of resource assessment. In the process, these countries will be assisted in building their methodology to provide critical inputs for decision-making.

Outputs

ii) Advanced demonstration platform, building on open architecture and existing datasets;
iii) Draft publication on architecture, methodology, services, and use of the Atlas submitted for online publication;
iv) Two case studies initiated at national level, illustrating the benefit of resource mapping for policy development;
v) Partnerships to expand datasets on bioenergy, geothermal energy and hydropower will be initiated.

29. **Activity 3: Renewable Energy Statistics**. Consultations with Members have highlighted the need for a continuous coordinated data collection process to develop reliable and consistent data on renewable energy. Current and accurate statistical information is essential for knowledge management and will remain a critical underpinning of KMTC work. To provide better quality of data, KMTC will focus on data collection of the countries not covered by the International Energy Agency (IEA), which are non-OECD countries. In 2011, KMTC started to collect data for a set of countries in Africa through IRENA focal points and this process will be extended to include all countries in Africa and Pacific islands in 2012. This activity will include a capacity building component to be undertaken in collaboration with PACB and will comprise the following tasks:

a. In collaboration with REN21, an expert group will be set up to conceptualise a framework of datasets focusing on national measures to deploy renewable energy. The framework will be based on official statistics, where these exist, and on data provided by IRENA focal points, industry, financial institutions, NGOs and other relevant actors. This exercise will also help to identify additional data sources, major programmes and projects, and highlight the capacity development needs with respect

to gathering renewable energy data. This exercise will be carried out at the regional level.

b. A special series of papers on statistics will be developed – Beyond Energy Balances – which will discuss the analysis required to start discussions on an appropriate statistical methodology.

c. Country profiles for two regions – Asia and Latin America – will be produced following the development of country profiles for the Pacific and Africa. These profiles aim at giving the general audience a brief yet comprehensive picture of renewable energy in each country and provide information on energy supply, energy access, targets, policies and measures, projects and resource endowment. The profiles will be updated when new data become available and after consultation with focal points in each country.

Outputs

vi) Updated renewable energy statistics for Member countries;
vii) Updated Country Profiles for all counties in Latin America and the Caribbean, Asia, Africa and the Pacific;
viii) Reports and working papers on the methodology to build renewable energy datasets.

30. **Activity 4: Renewable Energy Indicators**. In order to monitor renewable energy trends and the effectiveness of policies, in 2011, KMTC conducted a literature review of the methodology used to develop existing indicators on energy and sustainable development. This was an initial step in the development of Renewable Energy indicators. The review will continue in 2012. IRENA will bring together experts and institutions active in the fields of statistics, energy planning, macroeconomics and renewable energy policy to develop a concept paper on the framework for Renewable energy indicators, and will present it for wider discussion among Member countries with a view to finalising the methodology.

Output

ix) Concept note on methodology to build renewable energy indicators.

31. **Activity 5: Global and Regional Reports**. To make a substantive contribution to the production of global and regional assessment reports, cooperation with key actors will continue. In collaboration with PACB and IITC, KMTC will publish an annual renewable energy report on a specific theme. The first edition will focus on African investment trends. A set of country case studies will be prepared to gain a better understanding of how particular policy initiatives impact investments in specific renewable energy technologies.

Outputs

x) Report on renewable energy investment trends in Africa;
xi) Report on the impact of policy initiatives on investments in the renewable energy sector as a whole and in specific technology areas.

Component 2: Promote regional consensus to adopt renewable energy

32. Regional economic and political forums are the primary entry point to discuss policy interventions at the regional and country levels. The work in this respect was initiated in 2011 by engaging with leaders and other stakeholders from Africa and the Pacific Islands. Two activities are envisaged in 2012:

33. **Activity 1: Renewable Energy Readiness Assessments**. Renewable readiness assessments aim to identify the elements necessary to devise an effective policy framework to support market development. Readiness assessments are being designed to provide input to regional renewable energy action plans as well as solutions to energy access by bringing together partners in the implementation of action plans. The renewable energy readiness reports will enable IRENA to structure policy advice by providing detailed guidelines to address specific policy challenges and by promoting innovative policy tools.

34. In 2011, the readiness assessment methodology was developed and tested in two sub-Saharan African countries, Senegal and Mozambique. In 2012, one readiness assessment will be conducted in one Latin America/ Caribbean country and in one Pacific Island country. These countries could subsequently act as a channel for dissemination and engagement across their respective regions. Two regional workshops will be held in ECOWAS and SADC in order to roll-out the methodology. The methodology will be further refined based on feedback received during the workshops and through subsequent consultations with stakeholders. The methodology will be published along with the templates and questionnaires necessary to carry out future readiness assessments.

Outputs

xii) Pilot studies for testing the Renewable Readiness Assessment Methodology in one Latin America/Caribbean country and in one Pacific Island;
xiii) Regional reports on Renewable Energy Readiness Assessment;
xiv) Final report on the Renewable Energy Readiness Assessment methodology.

35. **Activity 2: Forging Partnerships for Action**. The regional and country-level assessments carried out in 2011 enabled IRENA to identify organisations and stakeholders in the Economic Commission of West African States (ECOWAS) and in the Southern African Development Community (SADC) as partners for bridging gaps with concrete action plans. These partnerships will be articulated at the country level and will address the needs identified in the renewable readiness assessments with the added value that specific partnerships can bring.

36. In 2012, cooperation with regional organisations will be further enhanced. This cooperation will be expanded to the Middle East and North Africa region. In this context, a strategic partnership with the Regional Centre for Renewable Energy and Energy Efficiency (RCREEE) will be developed to enable IRENA to implement a joint work plan based on the real needs of these countries.

Outputs

xv) Two regional workshops to help countries prepare their Renewable Readiness Assessments and to initiate partnerships to implement the actions proposed;
xvi) A Memorandum of Understanding (MoU) will be signed with the Regional Centre for Renewable Energy and Energy Efficiency (RCREEE).

Component 3: Catalyse multilateral cooperation in renewable energy technology

37. In an effort to catalyse North-South and South-South technology cooperation, IRENA will continue to provide a platform for dialogue and will develop modalities for fostering technology cooperation. Three activities are planned:

38. **Activity 1: Enhance South-South Technology Cooperation**. During 2011, IRENA convened an entrepreneur workshop in collaboration with E+Co and SELCO. A key result from the workshop was a working paper on South-South technology cooperation. Building on this work and in cooperation with governments, international organisations, the private sector and the academic and scientific community, IRENA will work on the development of a comprehensive, cross-disciplinary strategy to enhance South-South technology cooperation.

Outputs

xvii) Establishment of a network across the regional centres in Africa, Latin America and the Caribbean, and Asia and the Pacific with a view to creating synergies and reinforcing South-South cooperation;
xviii) Strategy paper for promoting South-South technology cooperation.

39. **Activity 2: Policy Dialogue for Technology Cooperation**. In 2011, KMTC conducted a review of renewable energy technology cooperation in order to map best practices. The IRENA-NREL workshop initiated discussions at the expert level. In 2012, two meetings of experts, multilateral and bilateral organisations, and representatives from Member countries will be organised to initiate a dialogue among IRENA Members on technology cooperation. The report being prepared on best practices will provide background information for Members to identify gaps that can be addressed by collaborative action. This forum will also provide a platform to discuss other aspects of technology cooperation, including the environmental impacts of renewable energy technologies and a strategy for regional centres. Both of these topics will be analysed in cooperation with IITC.

Output

xix) Two meetings of the forum for policy dialogue on technology cooperation.

40. **Activity 3: Engaging the Industry in Specific Technology Areas**. KMTC will undertake an assessment of policy frameworks in a specific technology. This activity will build on the work to date for the wind sector and will help design concrete action plans to replicate successful approaches. This work will be complemented by formulation of appropriate policy advice by PACB and will be expanded to two additional technologies.

Output

xx) Assessment of key policy issues in the deployment of two renewable energy technologies in collaboration with industry.

External Factors

41. The KMTC sub-programme is expected to achieve its objectives based on the assumption that countries will be willing to engage with IRENA to build a long-term plan of action to increase the deployment of renewable energy.

Table 10: Objective, expected accomplishments and indicators of achievement

Objective: Support countries in accelerating renewable energy uptake through dissemination and transfer of knowledge, and to facilitate international technology cooperation in the field of renewable energy.	
Expected accomplishment in 2012	**Indicators of achievement**
(a) A shared and inclusive strategy for a systematic approach to knowledge management is adopted, and implemented in specific areas.	i. Number of countries providing input to the Knowledge management strategy, leading to a shared and agreed vision, to be implemented jointly. ii. An inclusive partnership for a Global Solar and Wind Atlas established (number of partners, geographic balance), with prospects for expansion to other resources (number of partners). iii. A network of focal points for renewable energy statistics established (number of partners, geographic balance).
(b) A systematic framework for assessing the concept of 'renewable readiness' is designed and tested in selected countries and regions.	iv. Attendance at the two regional workshops designed to build capacity of countries to carry out their readiness assessments (number of attendants). v. Widespread adoption of the concept: agreement from regional entities and countries to move forward with readiness assessments in the coming years (number).
(c) Mechanisms for technology cooperation are designed and progressively implemented.	vi. Engagement of key stakeholders in discussions on technology cooperation strategies to allow peer to peer interaction and agreement on collaborative plans (number). vii. Policy dialogue on technology cooperation initiated through two workshops (number of attendants, type of organisations, geographic balance). viii. Policy issues in two technology sectors are assessed, laying the ground for action plans to be prepared and implemented by countries (number of involved countries initiating the process).

Table 11: Resource requirements Knowledge Management and Technology Cooperation

Category	Resources (in USD)		Posts	
	2011 Appropriation	2012 Estimate	2011	2012
Core Budget				
Post	1,945,000	2,509,000	14	14
Non-post	1,355,000	1,647,700	-	-
Subtotal	*3,300,000*	*4,156,700*	*14*	*14*
January to March 2011	459,020	-	-	-
Voluntary Contributions				
UAE Government Bid	2,000,000	2,000,000	-	-
Subtotal	*2,000,000*	*2,000,000*	-	-
Total	**5,759,020**	**6,156,700**	**14**	**14**

Table 12: KMTC Resource requirements by object of expenditure and source of funds 2012 (in USD)

Core budget	**4,156,700**
Total Staff Costs	2,509,000
Other Staff Costs	-
Consultants	667,000
Seconded Personnel	288,000
Ad Hoc Expert Meetings	189,000
Staff Travel	285,250
Contractual Services	151,000
General Operating Expenses	10,500
Hospitality	2,500
Supplies and materials	54,450
Furniture and Equipment	-
UAE Bid	**2,000,000**
Research	1,612,500
Operations	387,500
Total	**6,156,700**

42. The amount of USD 4,156,700 would provide USD 2,509,000 for the continuation of 14 posts (1 D-1, 3 P-5, 2 P-4, 6 P-3, 2 GS). Non-post resources totalling USD 1,647,700 would cover the following requirements to allow the anticipated results to be achieved and delivery of the outputs elaborated above:

    a. Specialised expertise not available in IRENA;
    b. Seconded personnel;
    c. Expert meetings;
    d. Travel of staff related to undertaking targeted studies and participating in relevant forums;
    e. Training related to the concept paper and partnership agreements for a renewable energy potentials platform;
    f. External printing of the design process related to engagement with partners in Africa and the Pacific Islands on renewable readiness assessments;
    g. Proprietary software related to the prototype renewable energy statistics database and data collection methodology;
    h. Technical publications and information related to the knowledge mapping report and the renewable readiness assessment.

43. The voluntary contributions resources of USD 2,000,000 to be funded from the UAE bid will contribute to the implementation of the outputs outlined in the paragraphs above.

Sub-programme 2: Policy Advisory Services and Capacity Building

Core resource requirements: ***USD 3,719,450***
Voluntary contributions: ***USD 1,500,000***
Additional earmarked contribution (Capacity Building)
from UAE and Germany: ***USD 1,000,000***

Strategic Objectives and Context

44. Article IV of the Statute mandates IRENA to: "a) analyse, monitor and systematise current renewable energy practices, including policy instruments and incentives …; c) provide its Members, upon their request, policy advice and assistance …; and e) offer capacity building including training and education to its Members." Accordingly, IRENA's Policy Advisory Services and Capacity Building (PACB) sub-programme aims to assist countries to foster an enabling policy, financial and human resource framework for the deployment of renewable energy technologies.

Component 1: Strengthen countries' capacity to design long-term enabling renewable energy policy frameworks and maximise socio-economic benefits

45. An increasing number of policies have supported the substantial growth of renewable energy technologies in recent years. While some policies have proven to be more effective than others in rapidly increasing renewable energy deployment, there is no one-size-fits-all policy framework. An important aspect in the design of sustainable renewable energy policy is the assessment of long-term socio-economic benefits, including employment and industry creation, energy security and climate change mitigation.

46. **Activity 1: Policy Assessment**. PACB will monitor best practices in renewable energy policy design and make that information and advice available to national and local policy-makers, civil society and private sector actors.

47. *Best Practices in Policy Design*: (a) PACB, in coordination with IITC, will analyse the role of cities, towns and local governments in enacting renewable energy promotion policies. Given the increasing demand for local governments to integrate renewable energy policies in sustainable urban planning, PACB will cooperate with the International Council for Local Environmental Initiatives (ICLEI) and UN-HABITAT to demonstrate how local policies can be shaped towards a renewable energy future; (b) PACB will conduct an assessment of renewable energy tariff-based support mechanisms, taking into account recent findings from renewable energy auctions (e.g. France, Brazil, and Peru); (c) PACB will analyse options to enhance the role of renewable energy in the implementation of emerging mechanisms in the UNFCCC process, including the Technology Mechanism, the Green Fund, and Nationally Appropriate Mitigation Actions (NAMAs), which have become a key component of the new international climate regime under discussion.

48. *Socio-economic Impact of Renewable Energy*: (a) PACB will be a contributing author to the report on renewable energy and job creation coordinated by the International Labour

Organisation (ILO). PACB will continue to participate in the Project EMPLOY led by the Renewable Energy Technology Deployment Implementing Agreement of the International Energy Agency (IEA-RETD) to develop methodologies for estimating the employment impact of renewable energy use; (b) PACB will initiate, in collaboration with IITC, an analysis of macro-economic framework conditions that determine the impact of national and local industrial policies for the local development of renewable energy technologies.

49. *Joint IRENA-IEA policy database*: PACB, in collaboration with the IEA, will expand the geographical scope of the Global Renewable Energy Policies and Measures Database with primary information from over 100 IRENA Member and Signatory countries currently not covered by the IEA. The Database will be updated on a biennial basis through national focal points. It aims to provide accurate and up-to-date information on national renewable energy policies to policy-makers and academic and private sector actors.

Outputs

i) Three working papers on best practices focusing on:
- *Renewable energy policies for local governments;*
- *Design of renewable energy auctions and;*
- *The role of renewable energy in the Technology Mechanism, the Green Fund, and in Nationally Appropriate Mitigation Actions.*

ii) Participation in relevant intergovernmental initiatives on renewable energy and job creation;

iii) Preliminary report on macro-economic framework conditions for the local development of renewable energy industries;

iv) Joint IRENA-IEA Global Renewable Energy Policies Database

50. **Activity 2: Pilot Project – Technical and Policy Advice for Wind Deployment**. This activity will build on KMTC's work with the Global Wind Energy Council (GWEC) on the design of successful approaches for national action plans for wind energy deployment. PACB will establish an expert group, consisting of policymakers, academia, and the private sector, to provide technical assistance and policy advice to Member countries for the development of the wind sector. A workshop will be organised to define the scope of work and initiate the activities of the Expert Group.

Output

v) Pilot Expert group established to facilitate assistance to Member countries in deploying wind energy.

51. **Activity 3: Contribution to the International Year of Sustainable Energy for All**. In continuation of the work started in 2011 and in the context of the International Year of Sustainable Energy for All, PACB will support The Alliance for Rural Electrification (ARE) and ECOWAS Regional Centre for Renewable Energy and Energy Efficiency (ECREEE) in the organisation of the First International Off-Grid Renewable Electrification Conference. The Conference will aim at raising the profile of investment opportunities in rural electrification projects in Africa by facilitating contact between

African leaders and international renewable energy companies. The Conference will take place in the ECOWAS region in autumn 2012. A similar approach will be designed in consultation with Latin American governments and stakeholders.

Output

vi) Joint organisation of an International Off-Grid Renewable Electrification Conference with the private sector and African governments.

Component 2: Improve understanding of economic and financial conditions to leverage renewable energy investment

52. Although investment in renewable energy reached USD 211 billion in 2010 globally, its share remains limited in developing countries outside China, Brazil, and India. Access to increased finance and investment will be a decisive factor in achieving higher levels of renewable energy uptake in developing countries. However, renewable energy projects in emerging markets and developing countries face a number of challenges. PACB will continue to identify barriers to renewable energy investment, and will provide a basis for understanding necessary conditions for scaling up investment in renewable energy.

53. **Activity 1: Analysis of Renewable Energy Financial Mechanisms and Risk Mitigation**. In continuation of work done in 2011, PACB will carry out the following activities: (a) PACB will conduct five case studies of renewable energy projects in developing countries identifying investment challenges and formulating policy recommendations; (b) Scaling-up of renewable energy through new sources of funding. Building on 2011 work, PACB will convene a workshop to disseminate information and develop a consultative process on new programmatic approaches for scaling up renewable energy investment such as Energy+ and GetFit.

Outputs

vii) Five case studies on renewable energy projects identifying critical issues and investment challenges in developing countries;
viii) Workshop on programmatic approaches to scale-up renewable energy funding.

54. **Activity 2: Business Models for Small and Medium-size Entrepreneurs for Renewable Energy Access Projects**. Building on feedback from local practitioners who participated in the IRENA workshop on enabling local renewable energy entrepreneurship held in Bangalore in November 2011, PACB will prepare a handbook for policy-makers to promote successful business models for small and medium-size entrepreneurs working on renewable energy access schemes in rural areas.

Output

ix) Handbook with recommendations for policy-makers on successful business models for renewable energy based access to energy projects.

55. **Activity 3: Abu Dhabi Fund for Development (ADFD)**. PACB will administer and assist the first project cycle of the ADFD for renewable energy projects in developing

countries. PACB will also participate in preparations for the second call for proposals scheduled for 2013.

Output

x) Technical and administrative assistance for the first project cycle of ADFD renewable energy projects.

Component 3: Enhance governments' understanding of critical gaps and needs for capacity building

56. In continuation of the work carried out in 2011, PACB will facilitate the training and development of qualified human resources to supply the renewable energy sector. This activity will bring together governments and their agencies, educational and training institutions as well as private sector and civil society actors. PACB will assist countries in developing their own capacity building interventions, improve connectivity among relevant actors and enhance the learning environment.

57. PACB will develop analytical processes assisting Governments to identify existing capacity gaps, priority areas, and to design and implement integrated capacity building programmes addressing individual and institutional capacities.

58. **Activity 1: IRENA Capacity Building Strategy**. Based on the analytical work carried out in 2011 and consultation with government representatives, private sector actors and civil society, IRENA's Capacity Building Strategy will be finalised and presented to countries and the wider public. The strategy document will map out clear focus areas and describe the modes of implementation and generate an understanding and subsequently acceptance of the Agency's capacity building services.

Output

xi) IRENA Capacity Building Strategy

59. **Activity 2: Capacity Needs Assessments**. The KMTC sub-programme started in 2011 to develop a methodology to systematically assess the readiness of countries for renewable energy uptake. PACB will work on the skills and capacity component of this activity. Furthermore, since 2011 PACB is collaborating closely with the CEM on the analysis of available methodologies with the aim of providing countries with the means to assess existing capacity assets and challenges of a country, as a basis to develop capacity building responses and monitor progress. PACB will ensure that synergies between these two efforts will be realised. For 2012 one training workshop on how to conduct capacity needs assessments for government officials is planned.

Output

xii) Training workshop on how to conduct capacity needs assessments for government officials.

60. **Activity 3: Supporting Regional Capacity Building Initiatives**. In 2012, two regional capacity building initiatives will translate the consultation work carried out during 2011 into concrete and replicable training activities. In cooperation with KMTC, consultations will start for a third region. The following regional programmes will be initiated:

    a. *Pacific Islands:* Building on the insights gained during the IRENA-Pacific Consultative Meeting, held in October 2011, the activities aim to provide training to governments, utilities and entrepreneurs to enable for a roll-out of both grid-connected and isolated systems in a region with a limited market and low population density. The activity will be implemented in close cooperation with relevant partners as the Secretariat for Pacific Community (SPC) or University of South Pacific (USP). The experiences will also inform future activities in the Caribbean.

    b. *West Africa:* The dialogue initiated with ECREEE in 2011 will be continued with the aim to define a regional capacity building action plan to be carried out jointly. This plan will be elaborated on the basis of ECREEE's knowledge of the capacity gaps in the region and the findings of the pilot readiness assessment conducted by IRENA and with participation of an expert from ECREEE in November 2011 in Senegal.

    c. *Latin America and the Caribbean*: In the framework of the readiness assessment to be carried out in the region, PACB will establish a consultative process with Member countries in the region to identify priority areas of action.

61. **Activity 4: Renewable Energy Training Programme**. Under the auspices of IRENA and funded through voluntary earmarked contributions from Germany and the United Arab Emirates, training programmes will be developed and carried out to enhance the implementation of the regional capacity building initiatives. The implementation of these training programmes is subject to availability of voluntary funds.

Output

xiii) Design and initiation of a modular renewable energy training programme targeting two regions: Pacific Islands; and West Africa

Component 4: Facilitate and increase education and training

62. The renewable energy sector provides increasing income generation and job opportunities. Education and training will be required to support a growing renewable energy sector. Renewable energy technologies are suitable for a wide range of possible applications, from solar home systems to steam from geothermal sources. New skills will also need to be developed as knowledge expands. For example wind resource assessments have become more accurate in recent opening new forecasting applications. PACB will continue its work to build a one-stop-shop for education and training covering all sources and renewable energy technology applications. This will be done in partnership with other international organisations, multilateral forums, academia and associations. Training activities will target three major groups: government agencies; students, trainees and professionals; and education experts and practitioners. PACB education and training activities will also support KMTC and IITC in energy planning

and power sector modeling tools; Renewable Energy Statistics; and Patent information for technology transfer.

63. **Activity 1: IRENA Renewable Energy Learning Partnership (IRELP)**. In 2011 the conceptual and preparatory work for building a common platform to enhance the visibility and accessibility of renewable energy education and training (E&T), and to increase its availability was expedited. A platform for the activities of the partnership will be launched in early 2012 and among its first and core services will be the global E&T database, the library, and the pooling of E&T materials and relevant documentation. Through this partnership IRENA will support the development of curricula for different target groups. Partnership and data exchange are at the core of this activity, with, among others, CEM, E+Co, GIZ, NREL, REEEP, and RETScreen. IRENA will support the initiative "Global Energy Entrepreneurship Programme" in cooperation with E+Co to promote training developing country energy entrepreneurs

Outputs

xiv) Global IRELP database on renewable energy education and training activities and materials;
xv) Curricula on renewable energy access projects and business models for small-scale entrepreneurs.

64. **Activity 2: IRENA Scholarship Programme**. The IRENA Scholarship Programme, established in November 2011 in cooperation with the Masdar Institute (MI), will continue in 2012. IRENA will award full scholarships to 20 promising students and will propose a lecture programme on various renewable energy topics delivered by recognised experts.

Output

xvi) IRENA lecture programme in cooperation with the Masdar Institute.

External Factors

65. The sub-programme will achieve its objectives and expected accomplishments based on governments continuing to make commitments to advance the deployment of renewable energies at national and local levels, and also being willing to provide access to relevant data and information and to participate in assessment processes. The readiness of international organisations, civil society, the private sector, and the academic and scientific communities, to share information and to partner with IRENA is also of equal importance. Furthermore the achievement of objectives and accomplishments will depend on the recruitment of qualified applicants for vacant positions as well as on the availability of qualified individuals for short-term contracts.

Table 13: Objective, expected accomplishments and indicators of achievement

Objective: Strengthen countries' abilities to design and implement appropriate policies and supportive financial frameworks as well as build the human and institutional capacities required to achieve IRENA's vision	
Expected Accomplishments	**Indicators of achievement**
(a) National and local policy makers, civil society and private sector actors have access to relevant information for decision making in key issues renewable energy policy design	i. IRENA information and advice used in stakeholders' renewable energy deployment; ii. Number of visits to and downloads from IRENA webpages for information provided on renewable energy policies; iii. Number of dataset from developing countries included in the joint IRENA IEA policy database.
(b) Countries develop sound policies that lead to deployment of wind energy technology	iv. Policy dialogue on wind deployment initiated through an expert group (number of attendants, type of organisations, geographic balance).
(c) Country and private sector have access to relevant information on financial mechanisms and risk mitigation for renewable energy projects	v. Increased number of visits to and downloads from IRENA webpages for information provided on financial mechanism and risk mitigation for renewable energy projects.
(d) Increased access to finance for renewable energy projects in developing countries	vi. Endorsement by IRENA of renewable energy projects to be financed by the ADFD for a total investment up to USD 50 million.
(e) Strengthened capacity of countries to accelerate renewable energy uptake	vii. roll-out of two regional training programmes (Pacific islands and ECOWAS).
(f) Facilitate education and training in renewable energy	viii. An inclusive partnership for renewable energy education activities (number of partners, geographic balance); ix. Development of learning material for entrepreneurs; x. 40 students at MASDAR institute following IRENA's lecture programme.

Table 14: Resource requirements Policy Advisory Services and Capacity Building

Category	**Resources (in USD)**		**Posts**	
	2011 Appropriation	2012 Estimate	2011	2012
Core Budget				
Post	955,300	1,666,000	9	9
Non-post	1,247,800	2,053,450	-	-
Subtotal	*2,203,100*	*3,719,450*	*9*	*9*
January to March 2011	306,445	-	-	-
Voluntary Contributions				
UAE Government Bid	2,000,000	1,500,000	-	-
Additional Earmarked contribution (Capacity		500,000		

Category	Resources (in USD)		Posts	
Building) from UAE				
Additional Earmarked contribution (Capacity Building) Germany	-	500,000	-	-
Subtotal	*2,000,000*	*2,500,000*	-	-
Total	**4,509,545**	**6,219,450**	**9**	**9**

Table 15: PACB Resource requirements by object of expenditure and source of funds 2012 (in USD)

Core budget	**3,719,450**
Total Staff Costs	1,666,000
Other Staff Costs	-
Consultants	750,000
Seconded Personnel	286,000
Ad Hoc Expert Meetings	350,000
Staff Travel	200,000
Contractual Services	400,000
General Operating Expenses	10,500
Hospitality	2,500
Supplies and materials	54,450
Furniture and Equipment	-
UAE Bid	**1,500,000**
Research	750,000
Operations	750,000
Additional earmarked contributions	**1,000,000**
From the UAE	500,000
From Germany	500,000
Total	**6,219,000**

66. The amount of USD 3,719,450 would provide USD 1,666,000 for the continuation of 9 posts (1 D-1, 3 P-5, 1 P-4, 2 P-3, and 2 GS). USD 2,053,450 for non-post requirements would cover:

a. Specialised expertise of consultants;
b. Seconded personnel;
c. Workshops and expert meetings on policy, macroeconomic aspects of renewable energy, assessment of financial flows and mechanisms, and capacity building;
d. Travel of staff in support of envisaged activities;
e. Specialised services related to information technology for the Renewable Energy Learning Portal;
f. Rental and maintenance of data processing equipment;
g. Books and technical publications.

67. The Voluntary Contribution resources of USD 1,500,000, to be funded from the UAE bid and an additional earmarked contribution of USD 1,000,000 from the UAE and German governments (USD 500,000 each), will be used to implement the outputs outlined in paragraphs above.

Sub-programme 3: Innovation and Technology

Resource requirements from the German voluntary contributions: USD 4,000,000

Strategic Objectives and Context

68. Within IRENA´s overall mission of promoting the increased and widespread adoption of renewable energy, its Innovation and Technology Centre (IITC) is responsible for creating a framework for technology development and deployment support and for the work on renewables competitiveness and markets. IITC performs this work with the view to objectives stipulated in Article II of the IRENA Statute, taking into account, inter alia, priorities and benefits of the deployment of renewable energy that includes consideration of energy efficiency measures, environmental preservation, security of energy supply and economic growth and social cohesion.

69. Building on the progress made in 2011, IITC will continue to pursue its stated goal of "providing the governments the means for an accelerated technological change and the use of innovation to transition to renewable energy based systems". This will be achieved through analysis of renewable energy technology policies; dissemination of information and increased awareness; technologies and equipment overview and assessment of success-failure factors; improved relevant knowledge and technology cooperation, and joint RD&D and provision of information on the development and deployment of national and international technical standards in relation to renewable energy. A major mechanism for dissemination and exchange of technical knowledge will be through the industry and expert networks established under the Knowledge Management and Technology Cooperation sub-programme, complemented by the activities of the Policy Advice Services and Capacity Building sub-programme.

Component 1: Assist governments on request in energy planning for more efficient and effective renewable energy technology and innovation strategies

70. To assist governments gain a better understanding of how renewable energy technologies can help them meet their medium- and long-term energy policy goals, IITC will continue with its strategic and analytical work on renewable energy technology and innovation. Two activities are planned for 2012:

71. **Activity 1: Scenarios and Strategies to Support Renewables Readiness**. Building on the work to date, the development of scenarios and strategies will continue in the context of renewables readiness for African countries. The report on key renewable energy technology issues for Africa will be finalised to assist the countries in identifying technologies that are relevant to them. The power sector modelling tools developed in 2011 will be disseminated, and a combination of energy planning and modelling training will be undertaken, with the support of PACB. In cooperation with the University of Cape Town, a special session on renewables will be held at the 2012 International Energy Workshop. The work on scenarios and strategies will be broadened beyond Africa to the Pacific countries and to Latin America and the Caribbean. This work will support the renewables readiness analysis of KMTC and the Africa results will feed into the annual thematic renewables report.

72. A follow-up workshop on the impact of the existing and emerging factors likely to influence energy scenarios for the period 2015-2050 and their possible implications for renewable energy outlooks and policy needs will also be organised in cooperation with IEA-RETD. As a result of these undertakings, Member Countries will gain a much better understanding not only of the role of technology in meeting their energy goals, but also of the investment needs and the time path for an energy transition. The regional scope with country detail will help identify possible areas for cooperation that would enhance the efficiency and effectiveness of national policies.

Outputs

i) Africa scenarios and strategies final report;
ii) Pacific scenarios and strategies working papers;
iii) Latin America data collection report;
iv) Second IRENA-IEA/RETD workshop renewables outlook.

73. **Activity 2. Strengthening Members' Technology & Innovation Strategies**. In 2011, work began on a technology roadmap for using renewables in manufacturing industries. In 2012, the focus will be on dialogue with stakeholders to assess the viability of the proposed approaches and to develop an effective implementation strategy. Within IRENA's planned work on the use of renewable energy in urban settings, IITC, in coordination with PACB, will develop on roadmap on the use of renewable energy resources. The roadmap will assess not only the use of renewable energy resources, but also the design of city energy systems in a way that is conducive to the use of renewable energy produced elsewhere. This work will be undertaken in cooperation with ICLEI and UN-HABITAT.

74. In 2012, work will commence on the analysis electricity of storage and smart grids to determine how electricity from different renewable sources can be fed into electricity systems. The purpose of this work is to develop strategies for reliable and affordable systems solutions for electricity systems with different supply and demand characteristics. This will offer solutions to different issues such as variability, battery storage, demand side management and dispatch prioritisation. The work on storage and smart grids will help countries increase the share of renewables in their power systems. This work, which will continue beyond 2012, will be carried out in cooperation with system operators, utilities and research centres.

Outputs

v) Two workshops on Industry roadmapping in different regional settings;
vi) Cities roadmapping section at ICLEI conference and workshop.

75. **Activity 3: Support to the 2012 International Year of Sustainable Energy for All**. IRENA will work with the United Nations system and other stakeholders in elaborating and operationalising the doubling renewable energy share by 2030 as a part of the 2012 International Year of Sustainable Energy for All (SE4ALL). In this context, a roadmap that examines the elements necessary to operationalise this target, including a time path, financial planning, and sectoral and country detail will be developed. The interconnectivity between renewable energy and energy efficiency strategies will also be

elaborated. In 2012, IRENA will assist the UN High-level Group on Sustainable Energy for All in formulating an analysis and action plan, which will feed into the Rio+20 process, various UN initiatives and the work of different stakeholders. It is envisaged that the work on pursuing this target will continue in the coming years.

Output

vii) IRENA report on renewables targets as input to UNSG High-level Group and RIO+20.

76. **Activity 4: Technology Applications**. In 2011, IITC analysed the potential for bioenergy technology transfer from Brazil to Africa, to facilitate broader sharing of technologies and related experience. In 2012 emphasis will be placed on South-South technology cooperation as a means of accelerating application of Asian technologies in Africa and the Pacific, with the specific focus on solar water heaters, biogas installations, wind turbines and PV home systems. This work will be done jointly with KMTC.

77. A number of countries have sought assistance from IRENA to help translate their renewable energy potential and strategies into a framework for technology funding. To address this need, the tools to help in project development will be developed for relevant countries. These tools will include an assessment of existing project programming approaches, including those used by the Global Environmental Facility, the Program on Scaling-Up Renewable Energy in Low Income Countries (SREP) and the Climate Technology Fund (CTF) administered by the World Bank. Following an analysis of the available information, key project documentation and project management practices will be outlined including barrier analysis, quality and technology specifications, methodologies for financial evaluation of projects, monitoring, and reporting and verification frameworks.

78. A technology-specific checklist and methodology for project development will be developed to assist governments or project developers in discussions with financing institutions. As the private sector plays a pivotal role in investments, it is essential that the policy framework allows for economically viable business operations by building a business case. In order to support the development of enabling policy frameworks, common obstacles will be identified, along with possible solutions. This activity will help countries to develop effective strategies for accessing investment for accelerated deployment of renewable energy, and will complement PACB activity on business models for rural renewable energy deployment.

Outputs

viii) IRENA report on technology dissemination from Asia to Africa;
ix) Toolbox to facilitate project development and design business models.

79. **Activity 5: Success Criteria for Innovation Policies**. In 2011, work on the assessment of renewable energy innovation policy frameworks started. In 2012, the insights gained will be discussed with policymakers to ascertain their relevance for practical decision making in different regions and countries. A workshop will be held to assess needs and gaps, followed by the design of a strategy with respect to filling these.

80. *Environmental impact assessment of renewables*. Renewable energy solutions are not without environmental impacts. As a first step in ascertaining the best way forward in this context, an inventory of the work done will be compiled. This will serve as a basis for the development of future activities aimed at addressing environmental impacts of renewable energy. Significant data have been gathered in the last two decades for the purpose of environmental life cycle assessment of products and services for environmental labelling and regulation and the greening of industry, including renewable energy. IRENA will analyse data relevant to renewable energy and provide an overview of environmental impacts, recommended data sources, and gaps in knowledge. In addition, material flow data will be collected to enable analysis of whether the massive deployment of renewables could lead to new bottlenecks in materials supply, and provide possible solutions to the problems identified. This work will feed into the KMTC mitigation dialogue platform to help countries better understand the environmental impacts of renewable energy projects and how to mitigate them. Finally, IRENA will continue its work with UNEP/CMS on the impacts of renewable energy projects on migratory species.

Outputs

x) Workshop and recommendations on international innovation policies;
xi) Working paper on identification and mitigation of potential environmental impacts of renewable energy technologies.

81. **Activity 6: Patents and Licensing**. In 2011, as a result of a joint project with WIPO, a new portal concept for access to renewable energy patent information was developed. In 2012, the focus will be on deploying the concept and making this resource accessible to Member Countries. The cooperation will be broadened to include other parties, such as European Patent Office (EPO). Three workshops will be organised to dissemination this information, identify additional needs and possible gaps, and provide training on how to use this information for technology application and development. This work will be carried out with PACB in order to benefit from its networks and expertise.

Output

xii) Three training workshops with Member countries' experts on patent information search and use.

Component 2: Facilitate a better understanding of cost and the potential for cost reductions through technology development and market deployment to accelerate renewables uptake

82. In order to provide governments with objective and current information on the status of, and prospects for, renewable energy technologies in terms of cost, availability and supporting infrastructure needs, four activities are planned:

83. **Activity 1: Competitiveness Status and Outlook**. In 2011, IRENA began collecting country-specific cost data for renewable power generation. In 2012, the information collected will be validated against country-specific data. In addition, cost-specific data on transportation will be added to the set of technologies. For example, transportation will be reviewed not only from the fuel source viewpoint (e.g. biofuels, electricity), but

also a modal shift to transportation means that use electricity from renewable energy. A workshop will be held to assess needs and gaps on competitiveness data for renewable energy and develop a strategy on how to address them. With this information, policy makers will be better able to assess the cost-effectiveness of options and calculate investment and financing needs and priorities. It is envisaged that compilation and analysis of data on cost status and outlook related to different sectors and technologies will continue in the coming years.

Outputs

xiii) Costing renewable power generation final report;
xiv) Costing renewables solutions for transportation report;
xv) Workshop on renewable energy technologies' competitiveness with recommendations for policymakers.

84. **Activity 2: Renewable Energy Standards, Test Procedures and Best Practices**. Development and deployment of national and international technical standards can help accelerate the deployment of renewable energy. Well-functioning markets require transparency which can be facilitated, inter alia, by the introduction of equipment labels and quality standards. Application of standards in turn helps to lower transaction cost and project appraisal needs, as well as optimise the use of renewable energy. In an effort to stimulate progress in this respect, IRENA will aim to obtain the relevant information and influence discussion. Initial contact has been established with international standardisation bodies such as the IEC and ISO in 2011, and in 2012, the cooperation will be further enhanced. This cooperation will be expanded to include regional and national standardisation bodies, as envisaged by Article IV of the IRENA Statute.

Output

xvi) Workshop on gaps and needs for standardisation of renewable energy equipment.

85. **Activity 3: Provision of Objective and Up-to-date Technology Data**. IITC will continue to develop renewable technology factsheets on best-practice renewable energy technology use for different types of end use. This work is undertaken in cooperation with the Energy Technology Systems Analysis Program of the International Energy Agency (IEA-ETSAP). Technology factsheets will provide concise, policy-relevant, objective information able to assist in the development of national renewable energy strategies and the evaluation of related project proposals. Ten factsheets are expected to be completed in 2012.

Output

xvii) Ten IRENA-ETSAP technology factsheets.

86. **Activity 4: Assessment of Early Opportunities and Niche Markets**. In 2012, IITC will continue to contribute to the Agency wide efforts to assist island states in the uptake of renewable energy. In this context, IITC will contribute to the development of a methodology for the assessment of renewable energy power systems in islands. This work will include Pacific Island States, as well as the Mediterranean and the Caribbean. A conference will be held in Malta to discuss the development of renewable energy-

based systems for islands. Members will benefit from a better understanding of early opportunities to achieve high shares of renewables in power generation. The insights gained in the islands-related work could also be used for other mini-grids.

Output

xviii)Renewables and Islands - Global Summit, Malta.

87. **Activity 5: Strengthened Partnerships and Cooperation with Relevant Actors in the Renewable Energy Field**. Cooperation and partnerships with international organisations, the private sector and the academic and scientific community to share information and develop partnerships is of critical importance. IITC will continue to make formal and informal collaborative arrangements with a variety of partners. This will include the assessment of potential for working with technical centres, which will be undertaken in collaboration with KMTC. These arrangements will enable the Agency to have access to wide sources of information and assistance which, in turn, will strengthen its ability to assist countries in their efforts to accelerate the uptake of renewable energy.

Output

xix) Identification and collaboration with broad range of experts and institutions.

External Factors

88. The sub-programme will achieve its objective and expected accomplishments as long as voluntary funding is available. The readiness of international organisations, the private sector and the academic and scientific community to share information and partner with IRENA is of equal importance.

Table 16: Objective, expected accomplishments and indicators of achievement

Objective: Provide governments the means for an accelerated technological change and the use of innovation, to transition to renewable energy based systems.	
Expected accomplishments in 2012	**Indicators of achievement**
(a) Framework for technology policy support to governments for accelerated renewable energy development and deployment designed.	i. Scenario and strategy analysis results used for the development of renewables action plans by governments in Africa and Pacific region. ii. IRENA is recognised as an important source of information on renewable energy technology and innovation for stakeholders including governments, private sector, and academic and research institutions. iii. IRENA tools and advice used in stakeholders' renewable energy technology and innovation strategies.
(b) Increased understanding of cost reduction potential and wider use of standards to accelerate renewable uptake.	iv. IRENA study laying the basis for analysis of current cost of technology widely utilised in national planning. v. IRENA costing study used by countries for informed decision making. vi. Countries engaged in enhancing their renewable energy standards and labels based on IRENA advice.
(c) Strengthened partnerships and cooperation with relevant actors in renewable energy fields.	vii. Convening of and participation in national, regional and global conferences, expert meetings, and discussions on renewable energy related issues. viii. Strategic and institutionalised role in renewable energy related networks ix. Formalised cooperation arrangements with relevant actors. x. Contribution to major inter-governmental renewable energy forums (IEA, CEM, CEMA, SPC, and other regional forums.)

Table 17: Resource requirements from the German voluntary contributions – Innovation and Technology

Category	**Resources (in USD)**		**Posts**	
	2011 Appropriation	2012 estimate	2011	2012
Voluntary Contributions				
German Government Contribution	3,100,000	4,000,000	10	10
Total	**3,100,000**	**4,000,000**	**10**	**10**

Table 18: IITC Resource requirements by object of expenditure and source of funds 2012 (in USD)

German contribution	**4,000,000**
Total Staff Costs	1,586,000
Other Staff Costs	-
Consultants	1,050,000
Seconded Personnel	65,000
Ad Hoc Expert Meetings	-
Staff Travel	300,000
Contractual Services	926,000
General Operating Expenses	4,000
Hospitality	5,000
Supplies and materials	65,000
Furniture and Equipment	-
Total	**4,000,000**

D. Administration and Management Services

Core Resource requirements: ***USD 3,701,850***
Voluntary Contributions: ***USD 1,119,850***

89. The Division for Administration and Management Services (AMS) will continue to provide IRENA with administration and management services in support of implementing its mandates. The core objectives and responsibilities of the Division are to ensure that the Agency has the necessary infrastructural, human and technical assets in place, and is well positioned to realise its strategic objectives in the short, medium and longer term.

90. In 2012, the Division will continue to develop administration strategies, policies and procedures, as well as to enhance their implementation. The Division will define standard levels and ensure that the quality of support services provided by outside contractors is of the highest possible level. It will ensure that there is general satisfaction from all stakeholders, take action on complaints, identify sources of dissatisfaction and take corrective actions.

91. The Division is composed of the following units: Finance and Budget; Human Resources; Information and Communications Technology; Procurement and General Services. Managerial and financial authority is exercised to the level delegated by the Director-General. Through its technical units, the Division will aim to ensure that all new or revised management policies, procedures and internal controls meet or exceed the expectations of Members, as reflected in the Statute, the decisions of the governing bodies, the relevant regulations and rules, and reviews by audit and oversight bodies.

92. The Division will also closely monitor oversight body recommendations, identify material weaknesses and ensure that remediation plans are developed. As the Division is also responsible for improving management practices throughout the Agency, it will promote accountability and management evaluation, with the aim of improving work processes and procedures. This will enable continuous management improvement, effective implementation of management policies and new initiatives to empower the staff, and enhance the ability of staff to carry out work more effectively.

93. The Division also facilitates the coordination with the host country, for the management and operation of the existing physical facilities; the preservation and servicing of records with continuing value in support of the Organisation's operational, informational, legal and other needs. The Office is also responsible for the management of mail operations.

94. The Division will also provide administrative and/or technical support to the governing, as well as audit and oversight bodies. The Division will provide coordinating and oversight function of the business process and needs analyses, and the preparations for the implementation of an enterprise resource planning system (ERP) to consolidate the management of all financial, human and physical resources under a single integrated system for the entire Agency. This function will be exercised in a manner that minimises the burden on the Agency and its resources, and mitigates organisational and managerial risks.

95. The Division represents the Director-General, as requested, on administrative and management matters in relation to governing bodies and monitors emerging management issues throughout the Agency. Within its delegated authority, the Division is responsible for maintaining close liaison with host country authorities and Members on all substantive aspects of financial, budgetary, procurement, personnel and common support services matters. In this function and in close coordination with the host country, the Division will continue to manage the development plans for the Agency's new Headquarters complex in Masdar.

Human Resources

96. The Office of Human Resources plays a strategic role in ensuring human resources capacity to the Agency's overall management to meet its goals and enable it to deliver its mandates. The Office of Human Resources provides the framework to enable the Agency to attract, develop and retain a wide spectrum of talent, taking into account the necessity of securing the highest standards of efficiency, competence and integrity, with due regard to the importance of recruiting staff primarily from Member States and the adequate representation of developing countries with emphasis on gender balance. It participates in strategic workforce planning that aligns with organisational needs.

97. In accordance with the Staff Regulations and Staff Rules, the Office continues to develop human resources policies and systems that are in line with the UN common system and global human resources best practices. In addition, the Office of Human Resources provides expert advice to managers and staff on all aspects of human resources, staff administration; monitors performance; administers staff benefits and entitlements and coordinates with other Offices (i.e. Finance, Information & Communications Technology, Procurement and General Service) to ensure the implementation of related activities.

98. In 2012 as a part of ERP enterprise implementation, the deployment of a human resources information system will integrate all aspects of human resources and financial operations. This will ensure that Human Resources transitions from a transactional to a more strategic, dynamic office. The Office will also establish a cost-effective and administratively efficient social security scheme for all staff.

99. The Office of Human Resources will coordinate and monitor training and development activities across the Agency and ensure the availability of adequate resources for appropriate staff learning and development activities.

Outputs

i) A complete and user-friendly Human Resources Policy & Process Manual and issuance of administrative directives as required to reflect the evolving needs of the Agency. Defined conditions for entitlements as established in the Staff Regulations and Rules; assessment and implementation of approved business processes to introduce simplified, more efficient and effective procedures, related forms, templates and standard operating procedures.

ii) Complete package and established process for induction of new staff.

iii) On-line e-recruitment system, including standardised vacancy notices and applicants' profile registration system to announce employment opportunities.

iv) Administration of contracts for different contractual arrangements to meet the short, medium or longer term requirements of the Agency, including fixed-term and temporary appointments; loans, general temporary assistance, consultancy and service contracts.
v) Improved response time to staff members' queries.
vi) Provision of staff development opportunities by coordinating and monitoring training activities across all programmes to ensure integration and consistency of training and staff development activities (as above).
vii) High quality and attractive internship programme.
viii) Formal performance appraisal system in support to managers in effectively managing performance of staff; appeals and administration of justice policies.

Table 19: Objective, expected accomplishments and indicators of achievement

Objective: effective human resources management	
Expected accomplishments	**Indicators of achievement**
(a) Continue the development and implementation of human resources policies and procedures in line with the UN common system and global human resources best practices.	i. Enhanced and updated human resources manual to reflect the evolving requirements of the Agency. ii. Assessment and implementation of approved business processes through a human resources information system.
(b) Standard HR practices and procedures implemented in line with Common System policies and approved business processes.	iii. Unified and consistent HR administration and operations.
(c) Help ensure that IRENA has competent and qualified staff.	iv. Selection process is competitive and transparent.
(d) IRENA maintains gender balance.	v. Gender ratio of staff at organisational and management levels.
(e) IRENA's staff are geographically diverse.	vi. Number and geographical distribution of nationalities represented in Agency.
(f) Effective management of talent by ensuring retention and career development.	vii. A system of performance management that rewards personal and organisational performance and addresses and rectifies under performance.
(g) Accurate and timely day-to-day human resources administration across all offices.	viii. Staff benefits and entitlements are processed accurately and in a timely manner.

Procurement

100. The main objectives of the Procurement Office include: ensuring continued efficient, effective and high quality support in the areas of procurement, facilities management, archives, mail operations and records management.

101. In 2012, the Procurement Office will focus of institutionalising policies, systems and processes that would ensure compliance with the applicable regulations and rules, and the highest standards of efficiency, transparency and accountability.

Outputs

ix) New Procurement Policy and Processes manual;
x) Maintenance of vendor database;
xi) Technical and substantive archives and records management;
xii) Asset and inventory services: efficient and effective management of all non-expendable property and equipment;
xiii) Mail operations services: provision of means of transmitting official correspondence and material through the worldwide pouch and postal service and the messenger service within the Headquarters complex;
xiv) Liaising with host country on building custodial services;
xv) Procurement services: posting of procurement plans and upcoming procurement opportunities; preparation and issuance of tenders.

Table 20: Objective, expected accomplishments and indicators of achievement

Objective: Ensure efficient, effective and high quality support in the areas of procurement and facilities management.	
Expected accomplishments	**Indicators of achievement**
(a) Transparent, effective, and efficient procurement of goods and services.	i. Full compliance with procurement requirements.
(b) Developing an accurate, systematic and timely reporting process and providing users with clear and transparent reporting on a consistent basis.	ii. A positive audit opinion of the Board of Auditors on procurement activities.

Finance

102. The Finance Office is responsible for the administration and insurance of compliance with the IRENA's Financial Regulations and Procedures as well as the relevant legislative mandates. The office will apply accounting policies and procedures will be in accordance with these standards in order to ensure sound financial management of all resources made available to the Agency. Appropriate measures and systems will be instituted for their effective and efficient use, proper and transparent accountability and regular reports to the appropriate authorities and stakeholders. The extensive review and re-engineering of the business processes to be completed in 2011 will prepares the necessary groundwork for the implementation of an Enterprise Resource Planning system and the gradual progression in the adoption of the International Public Sector Accounting Standards (IPSAS); two core component in the successful to the achievement of these objectives.

103. The Office's activities will put emphasis on the efficient delivery of support to the client units and other stakeholders. This would particularly apply in the continuous improvement of process and systems for the processing of contributions, disbursements and obligations. A relevant and scalable financial information system will be established to provide both internal and external stakeholders a reliable basis of informed assessments of the allocation and utilisation of resources. This will be built upon a Chart of Account that is tailored to record the utilisation of organisational resource in a manner that could be used to provide measurement of achievements and objectives at the organisational and sub-programme levels.

104. The Finance Policy Manual will be reviewed and updated. The outcome will serve to provide the robust framework for the effective application of the financial procedures and processes as well as provide a service level that will facilitate the achievement of goals and objectives of IRENA and its sub-programmes.

Outputs

xvi) Establishment and maintenance of an IPSAS-compliant chart of accounts that is appropriate for the organisation's stage of growth as an institution;

xvii) Institution of a client oriented routine reporting schedule that serves the needs of stakeholders. This would be in addition to the mandated reports such as the annual financial statements. These reports would be based on performance indicators for the achievement of organisation's goals and objectives.

xviii) Major review and update of business processes and the implementation of the ERP based on the resulting processes.

xix) Adaptation of the available staffing structure to facilitate the provision of essential support to the sub-programmes

Table 21: Objective, expected accomplishments and indicators of achievement

Objective: The objective of Finance is effective, efficient and transparent financial management	
Expected accomplishments	**Indicators of achievement**
(a) The implementation of ERP system and other automation as is relevant to institute more efficient integration and controls.	i. Migration of majority of the processes into the ERP system ii. Absence of significant adverse audit observations relating to financial management and control as a result of use of an integrated system iii. Real-time access to reliable and relevant information for decision-making on allocation and utilisation of resources
(b) Developing an accurate, systematic and timely reporting process and providing stakeholders with clear and transparent reporting on a consistent basis.	iv. A positive audit opinion of the Board of Auditors that reflects satisfactory compliance with IRENA Financial rules and regulations as well as the relevant accounting standards such as IPSAS to a level that is appropriate for the organisation's stage of growth as an institution.
(c) Ensuring the prudent investment of funds and improving cash management actions.	v. Maintenance of a record that reflects preservation of capital, availability of adequate liquidity to meet all operating requirements and adequate yields or returns on investments
(d) Delegation of authority on administrative actions with financial implications.	vi. A positive audit opinion of the Board of Auditors that reflects satisfactory compliance with IRENA Financial Regulations and Procedures and regulations, the approved Delegation as well as improvements in operational efficiency of the Finance Office.

Information and Communications Technology

105. The Information and Communications Technology (ICT) office provides a broad range of solutions and services to IRENA offices by enhancing technology to achieve the work programme targets. In 2012, ICT will strengthen service delivery operations aimed at enabling staff members, Members and other stakeholders to connect and share knowledge continuously and improve the high-end secure connectivity to IRENA's remote offices. ICT strives to improve work efficiency with the newest tools, technologies and applications to increase transparency and accountability in the Organisation.

106. Working closely with sub-programmes, technical solutions will be developed to set up frameworks collaboratively to meet the information technology needs, including suitable internet connectivity, managed and secured infrastructure supported by wireless network, printing, voice and audio-video technologies to enable personnel and programme partners to connect and share knowledge.

107. ICT manages one virtual office environment integrating information and communication of the two offices in Abu Dhabi and Bonn. Connectivity is established via a site-to-site, high-speed secured link in a cost-effective, scalable and secured manner for optimal information and knowledge exchange between the two offices.

108. ICT acts as a focal point for IRENA's basic and strategic information technology requirements, and takes an active role in building the IT design, specification, branding, installation, implementation and operationalisation. It implements infrastructure, software applications and security health checks, as well as latest anti-virus tools, patches and upgrades for efficient and secured system. The office also provides regular data backup to ensure all users and operational data are secured.

Outputs

xx) Deployment and implementation of ERP application mapping the approved business policies and processes for Human Resources, Finance and Procurement;
xxi) Provision of new features for general public for renewable energy information and improved delegates' area for efficient communication and collaboration among Members;
xxii) Integration of employee self-services for business processes and workflows to intranet portal;
xxiii) Enhanced hardware infrastructure for high-end connectivity and security to and for remote offices.

Table 22: Objective, expected accomplishments and indicators of achievement

Objective: Provide a broad range of solutions and state-of-the-art services that enable personnel to connect and share knowledge effectively and continuously and to build applications frameworks and setups to facilitate software requirements in support of these functions	
Expected accomplishments	**Indicators of achievement**
(a) Automation of Human Resource, Finance and Procurement (ERP Application).	i. Deployment of ERP applications for Human Resource, Finance and Procurement. ii. Mapping and validation of approved business processes into ERP applications. iii. Training of staff members and implementation.
(b) Enhanced and improved website features and upgrade of delegates' area.	iv. Provision of new features for general public to present renewable energy information. v. Upgrade of delegates' area for efficient communication and collaboration among Members.
(c) Improved office productivity, internal communication and automation of business processes.	vi. Provision of new features to intranet portal. vii. Integration of employee self-services for business processes available in ERP and introduction of workflows.
(d) Enhancement to hardware infrastructure and security.	viii. Improvement of hardware infrastructure and security to facilitate the remote offices.

Table 23: Resource requirements: Administration and Management Services

Category	**Resources (in USD)**		**Posts**	
	2011 Appropriation	2012 Estimate	2011	2012
Core Budget				
Post	1,877,600	2,641,000	19	19
Non-post	1,841,850	1,060,900	-	-
Subtotal	*3,719,450*	*3,701,900*	*19*	*19*
Voluntary Contributions				
UAE Government Bid	-	1,119,900	-	-
Subtotal	*3,719,450*	*1,119,900*	-	-
Total	**3,719,450**	**4,821,800**	**19**	**19**

Table 24: AMS Resource requirements by object of expenditure and source of funds 2012 (in USD)

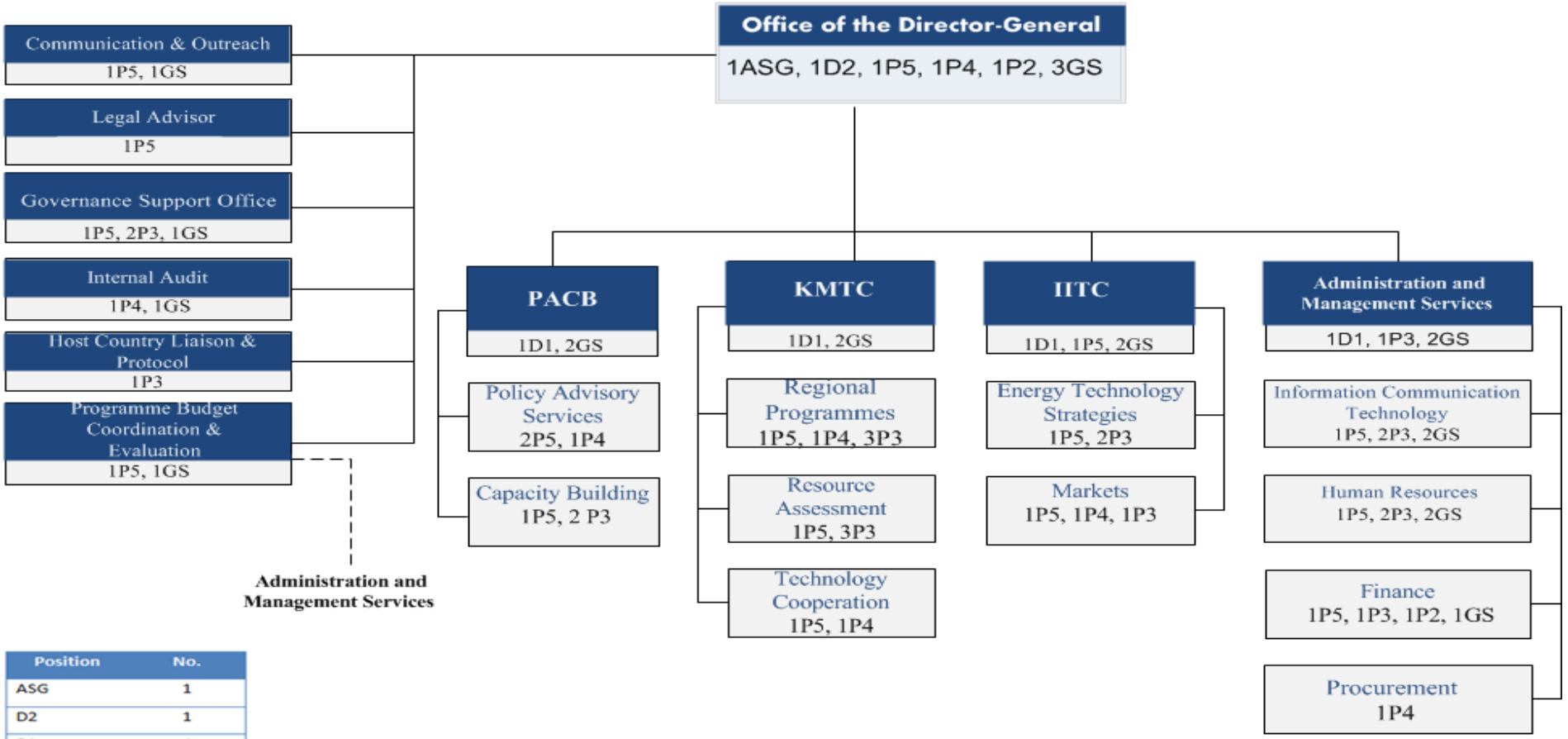
Core budget	**3,701,850**
Total Staff Costs	2,641,000
Other Staff Costs	34,100
Consultants	-
Seconded Personnel	121,000
Ad Hoc Expert Meetings	-
Staff Travel	-
Contractual Services	-
General Operating Expenses	506,300
Hospitality	2,500
Supplies and materials	121,950
Furniture and Equipment	275,000
UAE Bid	**1,119,850**
Research	-
Operations	1,119,850
Total	**4,821,800**

109. The overall level of resources for Administration and Management Services under the core budget amounts to USD 3,701,900, providing USD 2,641,000 for the continuation of 19 posts (1 D-1, 3 P-5, 1 P-4, 6 P-3, 1 P-2 and 7 GS) including the reclassification of 1 P-2 to P-3 and USD 1,060,900 for non-post requirements including:

a. General temporary assistance;
b. Seconded personnel;
c. Specialised expertise not available in IRENA in the areas of finance, human resources and procurement;
d. Travel of staff to attend training programmes and to conduct an assessment of the information technology and financial systems requirements of the Bonn office;
e. Contractual services related to information technology requirements including proprietary software, email security, telecommunications services, equipment warranties and upgrade of hardware infrastructure;
f. Office supplies and materials.

110. Voluntary contributions of the UAE totalling USD 1,119,900 would provide resources, including in-kind contributions, to support the IRENA's information technology requirements including the annual cost of IT support and data centre hosting and internet connectivity.

ANNEX I: IRENA Organisational Structure and Post Distribution for 2012



Position	No.
ASG	1
D2	1
D1	4
P	46
GS	20
Total	**72**

REVISED* ANNEX II: IRENA Scale of Contributions for 2012

Scale of Assessment[9]

Members	UN Factor	Adjusted Contribution	Assessed Contribution to IRENA 2012 (USD)
Albania	0.010	0.014%	2,276
Angola	0.010	0.010%	1,600
Antigua and Barbuda	0.002	0.003%	455
Armenia	0.005	0.007%	1,138
Australia	1.933	2.750%	440,047
Bangladesh	0.010	0.010%	1,600
Belarus	0.042	0.060%	9,561
Bosnia and Herzegovina	0.014	0.020%	3,187
Brunei Darussalam	0.028	0.040%	6,374
Bulgaria	0.038	0.054%	8,651
Cameroon	0.011	0.016%	2,504
Cape Verde	0.001	0.001%	228
Croatia	0.097	0.138%	22,082
Cyprus	0.046	0.065%	10,472
Czech Republic	0.349	0.497%	79,450
Denmark	0.736	1.047%	167,550
Djibouti	0.001	0.001%	228
Dominican Republic	0.042	0.060%	9,561
Ecuador	0.040	0.057%	9,106
Eritrea	0.001	0.001%	228
European Union[10]	-	-	-
Fiji	0.004	0.006%	911
Finland	0.566	0.805%	128,850
France	6.123	8.712%	1,393,899
Gambia	0.001	0.001%	228
Georgia	0.006	0.009%	1,366
Germany	8.018	11.408%	1,825,295
Grenada	0.001	0.001%	228
Iceland	0.042	0.060%	9,561
India	0.534	0.760%	121,565
Israel	0.384	0.546%	87,417
Japan	12.530	17.828%	2,852,450
Kenya	0.012	0.017%	2,732
Latvia	0.038	0.054%	8,651
Lesotho	0.001	0.001%	228
Liechtenstein	0.009	0.013%	2,049

[9] *Pursuant to Article XII.A.1 of the IRENA Statute, this scale includes Members only.*
[10] *Pursuant to the decision 2010/385/EU of the Council of the European Union of 24 June 2010, the European Union as a Member of IRENA shall pay an annual contribution to the Agency. The EU has contributed USD 686,680.97 in 2011.*

* *The revised Annex II includes Angola and Panama who became Members of IRENA on 14 and 15 January 2012 respectively.*

Members	UN Factor	Adjusted Contribution	Assessed Contribution to IRENA 2012 (USD)
Lithuania	0.065	0.092%	14,797
Luxembourg	0.090	0.128%	20,488
Malaysia	0.253	0.360%	57,595
Maldives	0.001	0.001%	228
Mali	0.003	0.004%	683
Malta	0.017	0.024%	3,870
Marshall Islands	0.001	0.001%	228
Mauritius	0.011	0.016%	2,504
Mexico	2.356	3.352%	536,343
Monaco	0.003	0.004%	683
Mongolia	0.002	0.003%	455
Montenegro	0.004	0.006%	911
Mozambique	0.003	0.004%	683
Nauru	0.001	0.001%	228
Netherlands	1.855	2.639%	422,290
New Zealand	0.273	0.388%	62,148
Nicaragua	0.003	0.004%	683
Niger	0.002	0.003%	455
Nigeria	0.078	0.111%	17,757
Norway	0.871	1.239%	198,283
Oman	0.086	0.122%	19,578
Palau	0.001	0.001%	228
Panama	0.022	0.031%	5,008
Philippines	0.090	0.128%	20,488
Poland	0.828	1.178%	188,494
Portugal	0.511	0.727%	116,329
Qatar	0.135	0.192%	30,733
Republic of Korea	2.260	3.216%	514,488
Republic of Moldova	0.002	0.003%	455
Romania	0.177	0.252%	40,294
Samoa	0.001	0.001%	228
Senegal	0.006	0.009%	1,366
Serbia	0.037	0.053%	8,423
Seychelles	0.002	0.003%	455
Sierra Leone	0.001	0.001%	228
Slovakia	0.142	0.202%	32,326
Slovenia	0.103	0.147%	23,448
South Africa	0.385	0.548%	87,645
Spain	3.177	4.520%	723,243
Sri Lanka	0.019	0.027%	4,325
Sudan	0.010	0.010%	1,600
Swaziland	0.003	0.004%	683
Sweden	1.064	1.514%	242,219
Switzerland	1.130	1.608%	257,244
The former Yugoslav Republic of Macedonia	0.007	0.010%	1,594

Members	UN Factor	Adjusted Contribution	Assessed Contribution to IRENA 2012 (USD)
Togo	0.001	0.001%	228
Tonga	0.001	0.001%	228
Tunisia	0.030	0.043%	6,829
United Arab Emirates	0.391	0.556%	89,011
United Kingdom of Great Britain and Northern Ireland[11]	6.604	9.396%	1,503,398
United States of America	22.000	22.000%	3,520,000
Uruguay	0.027	0.038%	6,147
Total IRENA Budget	**76.830**	**100.000%**	**16,000,000**

This calculation is based on the United Nations General Assembly Resolution 64/248 on "Scale of assessments for the apportionment of expenses" of 24 December 2009[12]. It has been adjusted to reflect States Members of IRENA.

[11] *The United Kingdom of Great Britain and Northern Ireland has officially requested to be included in the scale of assessment for 2012 as a Member while affirming that it will have completed the ratification process prior to the second session of the Assembly.*
[12] *In force for the period 2010-2012.*

IRENA's Renewable Costing Analysis

Energy from renewable sources has a key role to play in the transition to a truly sustainable energy sector, particularly in light of the global aspirations of access to sustainable energy for all and a doubling of the share of renewables in the global energy mix by 2030. Renewables face a number of barriers to their deployment, with their contribution to the energy mix being constrained by the high upfront costs faced by some renewable energy technologies in the past being a key barrier. However, renewable power generation technologies are becoming increasingly cost-competitive and are now the most economic option for off-grid electrification in most areas, as well as for centralised grid supply and extension in locations with good resources.

This improved competitiveness is being driven by a virtuous circle whereby the rapid deployment of renewables based on support policies to overcome the barriers renewables face is leading to significant cost declines. These rapid cost reductions for many renewables also implies that policy makers should take note that the cost of supporting renewables with well-designed support packages is declining over time and much less costly than a static analysis of costs would suggest.

Renewable power generation technologies now account for around half of all new power generation capacity additions worldwide. In 2011 41 GW of new wind power capacity was added, 28 GW of solar photovoltaic, 25 GW of hydropower, 6 GW of biomass, 0.5 GW of CSP and 0.2 GW of geothermal power generation capacity.

This rapid deployment of these renewable technologies has a significant impact on costs, because of the high learning rates for renewables, particularly for wind and solar in. For instance, for every doubling of the installed capacity of solar PV, module costs will decrease by as much as 22% and crystalline silicon PV module costs have fallen by over 60% in the last two years to as little as USD 1/watt.

However, without access to reliable information on the relative costs and benefits of renewable energy technologies, it is difficult, if not impossible, for governments to arrive at an accurate assessment of which renewable energy technologies are the most appropriate for their particular circumstances. The absence of accurate and reliable data on the cost and performance of renewable power generation technologies is therefore a significant barrier to the uptake of these technologies. IRENA's work to provide this information will help governments, policy-makers, investors and utilities make informed decisions about the role renewables can play in their power generation mix.

IRENA's five renewable power generation costing papers provide in-depth and up-to-date information on the cost of generating electricity from solar photovoltaics (PV), concentrating solar power (CSP), wind power, hydropower and biomass for power generation.1 These papers are helping to fill an important information gap in the availability of the latest, objective data on the cost and performance of these renewable power generation technologies.

[1] See www.irena.org/publications or contact Michael Taylor mtaylor@irena.org