

Best Practices in Capacity Building Approaches

Recommendations for the Design of a Long -Term Capacity Building Strategy for the Wind and Solar Sectors by the MEF Working Group

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Abbreviations

AEEP	Africa-Europe Energy Partnership
APN	Asia-Pacific Network for Global Change Research
ART	Antiretroviral Treatment
BMU	Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit / Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (Germany)
BMZ	Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung / Federal Ministry for Economic Cooperation and Development (Germany)
CB	Capacity Building
CD	Capacity Development
CDM	Clean Development Mechanism
EE	Energy Efficiency
ECBP	Engineering Capacity Building Programme of Ethiopia
EFA	Education for All (UNESCO)
ESMAP	Energy Sector Management Assistance Programme
GEF	Global Environment Facility
GEO	Global Earth Observations
GNESD	Global Network on Energy for Sustainable Development
GEOSS	Global Earth Observation System of Systems
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
JI	Joint Implementation
JRC	EU Joint Research Centre
HR	Human Resources
ICT	Information and Communication Technologies
LDCs	Least Developed Countries
LL	Lessons Learned
M&E	Monitoring and Evaluation
MEF	Major Economies Forum
MSMEs	Micro, Small and Medium Enterprises
NCSA	National Capacity Self-Assessment
MoCB	Ethiopian Ministry of Capacity Building
ODA	Official Development Aid
OPURE	Open University for Renewable Energy
PPP	Public Private Partnership
RE	Renewable Energy
TAP	Technology Action Plan
TED	Training and Education Database of REEEP
TNA	Technology Needs Assessment
TVET	Training and Vocational Education and Training
RE	Renewable Energy
REC	Regional Environmental Centre for Central and Eastern Europe
REEEP	Renewable Energy and Energy Efficiency Partnership
REMTI	Renewable Energy Market Transformation Initiative
SHS	Solar Home System
SWOT	Strengths Weaknesses, Opportunities and Threats (Analysis)
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNFCCC	United Nations Framework Convention on Climate Change
WHO	World Health Organisation

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1. Introduction

1.1 Background

In July 2009, Major Economies Forum (MEF) leaders met to prepare for the Copenhagen Conference later that year. At this occasion, the MEF Global Partnership for low-carbon and climate friendly technology was founded. A group of lead countries volunteered to draft Technology Action Plans (TAPs) for ten key technologies. Denmark, Germany and Spain took on the responsibility to draft Action Plans for Solar and Wind Technologies.

In this context, Denmark, Germany and Spain have initiated a multilateral working group, with an initial focus on two of the actions proposed with the TAPs for Wind and Solar Technologies: (I) A Global Solar and Wind Atlas and (II) A Long-term Strategy on Joint Capacity Building and Know-how Transfer.

In July 20th, 2010 the Multilateral Working Group on Implementing the Major Economies Forum Global Partnership's Technology Action Plans for Wind and Solar Technologies held a first workshop in Washington D.C. where it was agreed to split the proposed actions into four work packages: two related to the Global Solar and Wind Atlas and two concerning the Long-term strategy on Joint Capacity Building, as follows:

- WP Atlas 1 - Success factors: Risoe (coordinator), DLR, WindGuard, Prognos, IDAE, CENER
- WP Atlas 2 - Technical Implementation: DLR (coordinator), Risoe, IDAE, CENER
- WP Capacity Building 1 - Transparency Platform: CENER (coordinator), IDAE, GTZ
- WP Capacity Building 2 - Success factors for Long-Term Strategy: Prognos/ WindGuard (coordinator), GTZ, IDAE, CENER

In November 18th, 2010, the Multilateral Working Group held a second workshop in Madrid to exchange on the advances made on each of the work packages, as well as to define next steps to be taken. The main conclusions of the workshop were:

- The work on the Draft Papers for the Global Wind and Solar Atlas, as well as for the Long-Term Strategy on Joint Capacity Building should be continued
- The process of designing pilot project activities can be initiated. GTZ shall prepare a first proposal to develop a Capacity Assessment Tool and to carry out 3-5 capacity needs assessment in selected pilot countries. Additionally, pilot activities for the Wind and Solar Atlas, as well as for the Transparency Platform shall be defined.
- Spain will invite the experts involved in the design of the capacity building strategy to a workshop in January 2011 to further work on the activities related to this issue.

GTZ's role throughout this process has been to provide expert advice to the BMU, especially on the topic of Capacity Building, which is one of its strongest areas of expertise.

1.2 Objectives

This document contains most of the deliverables of the consultancy services provided to GTZ (please refer to the ToRs in Annex IV of this document) and will serve as input to the BMU's and GTZ's contribution to the MEF process of designing a Long-term Strategy on Joint Capacity Building and Know-how Transfer. The aims of this document are:

- To provide an overview of past and present global CB Initiatives/Strategies/Projects, in the Renewable Energy Sector and other sectors
- To identify success factors/Best Practices of CB Initiatives/Strategies/Projects
- To identify potential cooperation opportunities/synergies between MEF and other existing RE and CB initiatives/programmes
- To formulate recommendations for a MEF Long-term Strategy on Joint Capacity Building and Know-how Transfer, based on the outcomes of the CB Initiative Analysis and Best Practices Identified
- To give an overview over financing options for CB and make recommendations to MEF with regards to tapping financing sources

Finally, an overview over existing potential financing sources for MEF activities has been prepared and will be delivered in addition to this report in form of an Excel sheet. This document is not exhaustive and possible financing options should be screened and the overview should be up-dated regularly.

2. Methodology

In a first step, an extensive literature review and Internet research was carried out, focusing on identifying relevant CB Initiatives/Strategies in the renewable energy sector and other sectors, which could provide Best Practice Experiences that could be valuable for the process of designing a MEF Long-term Strategy on Joint Capacity Building and Know-how Transfer for the Wind and Solar Energy Sectors.

The availability of documentation on CB strategies, programmes, projects and their concepts, approaches, methodologies, tools and instruments is vast and easily accessible. On the other hand, availability of documentation on the results of the implementation of these initiatives, their successes and their failures, lessons learned and so on, is very low.

With the aim of extracting Best Practices, the Initiatives/Strategies documentation identified during the literature review and regarded as interesting in the context of a MEF Long-term Strategy on Joint Capacity Building and Know-how Transfer, were analysed with regards to:

- Scope of CB strategy/initiative
- Approach to CB,
- Methods/Instruments and Tools available,
- Implementation (where documented)
- Lessons learned (where documented),
- Sustainability (where documented)

Due to the fact, that only in rare cases documentation can be found that looks at strategies/initiatives/programmes in a critical way, describing strengths and weaknesses, results, lessons learned, and so on, the focus was set on identifying elements of CB Strategies that are present in the majority of strategies. In other words, in this context, the amount of times that a certain element was found in a strategy/initiative (in percentage) was taken as an indicator for Best Practice/Success Factor. The results are presented in Section 3.2 of this document.

Annex II provides an extensive list of the CB strategies/initiatives identified during the literature review and Internet research. The CB strategies/initiatives that were chosen for a more detailed analysis can be found in Annex I in form of a Matrix, which summarises the results of the analysis. The results of the analysis and the identified Best Practices are discussed and presented in Chapter 3 of this document.

Chapter 3 will provide an overview over Best Practices related to:

- Approach to Capacity Building
- Strategic Elements
- Methods and Instruments

Chapter 4 of this document provides an overview over a number of initiatives that show potential for partnership and possible synergy effects with the MEF long-term CB Strategy for the Wind and Solar Sectors and outlines possible areas of cooperation. Some of them were analysed in the context of the best practice study. Others show potential for cooperation but there was too little documentation/information available on their strategies, in order to be integrated into the best practice study.

Finally, Chapter 5 formulates recommendations to MEF on how the process of designing a Long-term Strategy on Joint Capacity Building and Know-how Transfer for the Wind and Solar Energy Sectors can be enriched by the results of the Best Practice Study. Furthermore, the main questions that need to be answered in order to arrive at a comprehensive CB Strategy for the wind and solar sectors are formulated and recommendations with regards on how to systematically develop a MEF CB Strategy are made.

3. Best Practices in Capacity Building Study

3.1 Understanding Capacity Building

Capacity, according to OECD/DAC "...is understood as the ability of people, organisations and society as a whole to manage their affairs successfully". The Agenda 21 of the United Nations Conference on Environment and Development (UNCED), Capacity Building was defined in the following way: "Capacity Building encompasses the country's human, scientific, technological, organizational, institutional and resource capabilities. A fundamental goal of capacity building is to enhance the ability to evaluate and address the crucial questions related to policy choices and modes of implementation among development

options, based on an understanding of environment potentials and limits and of needs perceived by the people of the country concerned" (UNCED, 1992).

Therefore, Capacity Building is a long-term, continuing and complex process, which depends on the participation and constant interaction between all the involved stakeholders (national and local governments, non-governmental organizations, academic institutions, etc.). Capacity Building Strategies and Approaches demand a high degree of flexibility: the demand for CB can vary enormously between countries, regions and sectors and the demand for capacity building is constantly changing, so there is no "one-fits-all" solution for CB and regular evaluations and corrective actions/adaptations to changing needs in capacities are necessary and need to be considered in a CB Strategy.

"Capacity development is an endogenous process of improving individual skills and abilities, ensuring organization that are productive, and creating institutions that optimize utilization of human, financial and physical resources for attaining individual, organizational, institutional and societal goals" (GTZ, 2009)

Capacity Building, when regarded as a holistic system that works together, should be aimed at:

- ***Institutional and legal framework development:*** making legal and regulatory changes to create an enabling environment for organizations, institutions and agencies at all levels and in all sectors to enhance their capacities.
- ***Organizational development:*** the elaboration of management structures, processes and procedures, not only within organizations but also the management of relationships between the different organizations and sectors (public, private and community).
- ***Human resource development:*** the process of equipping individuals with the understanding, skills and access to information, knowledge and training that enables them to perform effectively at (Urban Capacity Building Network, 2004).

There is a complex interdependency between the three levels of CD: The framework conditions (or enabling environment) set on an institutional level "...influence the behavior of organizations and individuals by means of the incentives it creates" (OECD, 2006). Furthermore, "...organizations can be viewed as "open systems"" (OECD, 2006) which are constantly interacting with elements in their context, which can either stimulate CD or act as disincentives for CD. Finally, the development of individual's capacities, as well as the possibilities to apply newly acquired skills, highly depends, next to own motivation and drive, to a large extent on the incentives created at an institutional and organizational level.

Thus, in order for a global Capacity Building Strategy to be ultimately effective and sustainable in a specific context (sector, country, region, etc.), CB cannot be regarded as being restricted to enhancing individual ability; all target levels must be considered and, if necessary, integrated into the approach. A global Capacity Building Strategy that focuses e.g. solely on the training of human resources without taking into account the framework conditions that surround those newly created capacities, will probably only achieve short-time

effects and will not contribute to a sustainable development of capacities in the context it operates.

Seen from another angle, new, innovative technologies, such as wind and solar technologies face a wide range of barriers that need to be addressed, in order to ensure their successful deployment. Project evaluations and research studies clearly prove that the failures in implementation of energy technologies are mainly found in non-technical reasons and very often related to lack of awareness and lack of capable human resources (Rehling *et al.*, 2004). Figure 1 summarizes some of these barriers on the example of the wind energy sector:

Figure 1 – Barriers to Wind Energy Sector Development

POLICY BARRIERS	The benefits of wind energy are not assessed and not taken into account for energy policy-making, resource and spatial planning.
INSTITUTIONAL, LEGAL, REGULATORY BARRIERS	There is no public body with adequate means and powers clearly responsible for developing wind energy; the legal framework for decentralised production is not available or is inadequate; procedures (licensing procedures, environmental impact assessments) entail inordinate burden; projects have no access to the grid and the market.
ECONOMIC AND FINANCIAL BARRIERS	Projects can not be profitable without fiscal or/and economic incentives that are not in place (exemption from payment of income tax, tax credits, exemption from import duties and taxes, allowance for accelerated depreciation, Feed-In tariffs, green premiums); projects are seen as too risky and can not find financing (soft loans; guarantee mechanisms, protection against foreign currency risks); fossil energy benefits from favourable conditions and/or subsidies; there are no PPA model contracts.
INFORMATION AND TECHNOLOGY BARRIERS	There is a lack of information and awareness on wind energy among policy makers and regulators as well as the general public; a lack of information on supply and demand for energy at dispersed level; a lack of data on wind resources; a lack of technical standards on components and turbines to control quality; a lack of local capacity to design, build, operate and maintain wind farms; a lack of national expertise in the design and manufacturing of wind plant components.

TABLE 5: THE MOST COMMON BARRIERS TO THE DEVELOPMENT OF WIND ENERGY

Source: UNDP-GEF, 2008

All the mentioned barriers can be systematically reduced and even removed by targeted CB. Policy makers need to be aware of the relevant issues of emerging renewable energy technologies and take them into account in policy making, creating an enabling environment for their deployment by improving the legal framework and bureaucratic procedures, creating fiscal and/or economic incentives, etc.

As suggested above, training and capacity building are often wrongly treated as synonyms, although training is rather one of the many instruments available for capacity building (next to other instruments, such as seminars, workshops, twinning, etc.), which can be applied to all layers (institutional, organisational, human resources), in all of which individuals are active.

Capacity Building can be provided in many different ways, depending on a) the target group, b) the CB objective (type of capacity, level of detail) and c) geographic considerations

- a) **Target Group:** institutions (policy makers, decision makers, etc.), organisations, individuals
- b) **CB Objective:** policy advice, reform processes, organisational development, range of skills required in the RE sector, etc.
- c) **Geographic considerations:** local CB measures/offer (e.g. in universities, technology centres, etc.), CB that requires travel (e.g. conferences, meetings, etc.), eLearning. Depending on the CB objective, travelling to another country might be necessary to acquire the desired knowledge and/or skills. But also depending on the target group, travelling might not always be a viable option (e.g. due to economic reasons). A broad CB offer (especially locally or via eLearning) and financing are important factors to consider in a CB strategy.

When the target group of CB are individuals, CB instruments are applied to enhance the individuals' knowledge, technical skills, and so on, such as training, education (basic, academic (bachelors, masters, PhD), further education), study visits, workshops, self-training (e.g. through information available on websites, books or eLearning), etc. Due to the fact that at this level the target group tends to be the largest, "mass-instruments" (such as seminars, workshops, etc.), i.e. instruments with which a large number of participants can be reached, are applicable.

When the target of CB is the organisational level, training of individuals is also necessary. Next to technical skills, leadership and management skills play a major role in organisational CB. In this case, since the target group is usually smaller, more concerted instruments such as coaching, mentoring, twinning are also viable next to the usual "mass"- training approaches. Additionally, other instruments and/or organisational development tools, such as SWOT, process optimisations, functional analysis, etc., can be applied to assess, adapt and improve the way organisations work.

Last but not least, individual and organisational tools can be also applied to increase capacity and bring about change at the institutional level (policy development, strategic planning, leadership, etc.), which is influenced by the actions of individuals. Here the target group is the smallest, as it consist of policy and decision makers, usually in government positions. CB in this context usually takes place through national/international conferences and fora, meetings, exchange visits and so on.

Crucial for a sustainable CD is that training is embedded in a *long-term (national) strategy* and is not treated as "just an element" or programmes and projects, which comes to an end the moment the programmes/projects are completed.

3.2 Results of the Analysis – Best Practices

The Best Practices identified in this study can be classified into three categories: 1) Approach to CB, 2) Strategic Elements, and 3) Methods and Instruments. The following were the most common elements found in the analysed initiatives/programmes:

Approach to CB

- Integral Approach to Capacity Building (100%)
- Local Ownership (91%)

Strategic Elements

- Definition of Goals, Mission and Vision (100%)
- Time Dimension – Setting Milestones (100%)
- Geographical Focus (91%)
- Strategic Partnerships (91%)
- Secure Financing (82%)

Methods and Instruments

- Building upon existing strategies, tools and structures (55%)
- Capacity Assessment (55%)
- Establishment of Local Technology Centres (37%)
- Training the Trainers (64%)
- Twinning (19%)
- Including RE into basic education curricula (8%)
- Networks (91%)
- Information and Communication Technologies (ICT) (55%)
- Monitoring and Evaluation (100%)

Although “Twinning” and “Including RE into basic education curricula” only scored 19% and 8% respectively, they were added to the list, as they are approaches to CB that might not be widely represented in current CB strategies, but still could be interesting for MEF.

In the following paragraphs, these elements will be discussed in more detail, already focusing on their relevance to the elaboration of a MEF Long-term Strategy on Joint Capacity Building and Know-how Transfer for the Wind and Solar Energy Sectors.

Approach to Capacity Building

a) Integral Approach to Capacity Building

Most of the analysed CB Strategies/Initiatives recognise that CB is not restricted to training of individuals or groups, but is rather a process that requires the integration of all stakeholders (policy makers, academic institutions, finance institutions, the general public, etc.) that can have an influence on the performance of specific CB activities (such as training of skilled personnel for the renewable energy sector). “Capacity development as a “stand-alone” action

outside the context of a substantive programme or project is aimed only at building capacity for its own sake, rather than to address a substantive need” (UNEP-UNDP-GEF, 2007). Thus, CB also needs to take place at institutional and organisational levels, in order to guarantee that the benefits of RE are widely understood, that supporting policies are developed and adopted by authorities and the general public and that there is a sustainable development of human resources for RE and EE.

UNESCO’s GREET Programme recognises that one of the major barriers to overcome is convincing and getting the support of decision makers for promoting CB Programmes, which they believe to be closely linked to the lack of sufficient know-how about the chances and risks of RE technologies. Similarly, ESMAP (2010) states that one of the biggest hurdles to adopt clean energy technologies in developing countries is limited institutional capacity. One of the lessons learned within the National Capacity Self Assessment Programme (UNDP, UNEP, GEF, 2007) points in the same direction: “The interconnected set of capacities held by relevant stakeholder institutions form the enabling environment for CB” and “a detailed understanding of the functioning and interconnection of these capacities” is necessary for defining CB actions.

Similarly, a Study carried out by GEF for the UNDP on experiences and lessons learned from the elaboration process of technology needs assessment (TNAs) in the framework of climate change pointed out that training on the technical skills to carry out the TNAs showed not to be sufficient to provide well elaborated national action plans for technology deployment and recommended to increase capacities to enable an informed prioritisation of technology deployment, as well as finding ways to bring the relevant stakeholders into the TNA process more effectively (UNDP-GEF, 2008b).

b) Local Ownership

With regards to local ownership, two different success factors were identified: i) high-level institutional backup and ii) the inclusion of cultural aspects into CB.

Integrating Capacity Building in the planning and implementation of national policies, strategies and initiatives has proven to be successful for creating ownership and ensuring sustainability. The OECD (2006) points out that country ownership and leadership in CB is of critical importance and that “Capacity Building would be ineffective so long as it was not part of an endogenous process of change, getting its main impulse from within”.

Many examples can be quoted from the analysed CB initiatives. For instance, the BMZ supported “Engineering Capacity Building Programme (ECBP)” is an Ethiopian reform programme fully owned by the Ethiopian Ministry for Capacity Building (MoCB), launched in 2005 and ongoing, its activities being mainly a set of training and further education measures of individuals in different level (institutional, organisational and academic). In a study conducted by GTZ in 2009, the ownership of the programme by the local government was identified to be one of the major success factors, without which the CB process would be much slower and inefficient. During staff interviews, political motivation and ownership were often mentioned as success factors. Some quotes: “Motivation was a key factor – it was a

government accredited programme so the participants were willing” and “If you don’t have ownership of those who make decision then you are wasting your money” (GTZ, 2009).

REEEP’s Strategy points out the importance of working together with governments and so creating ownership and increasing the chances of success and significant impact of their projects (REEEP, 2007). Similarly, a lesson learned during the preparation of NCSAs was that involving all relevant stakeholders into the process from the beginning (participation) was crucial to secure stakeholder interest and commitment to the subsequent implementation of CB measures (UNEP, UNDP, GEF, 2007).

Another important aspect to be considered in a CB Strategy is culture. “Cultural forces are real and powerful influences”, which “shape, steer and limit” the framework, in which CB takes place (GTZ, 2009) and cultural considerations need to be integrated as part of the strategy, in order to increase the chances of success of CB activities. Working together with local actors and individuals can provide important insight into cultural issues and help to identify key factors for success of a particular intervention. For example, one of the barriers to CB is the fact that most of the CB offer (including study courses, educational material, etc.) is available only in a small set of languages, mostly English. In order to make knowledge available to broader audiences, CB needs to take place locally and in the local language. This again stresses the importance of having local infrastructure in place that develops a target group adapted CB offer, taking into account cultural and language issues.

Strategic Elements

a) Definition of Goals, Vision and Mission

All initiatives/programmes analysed are either in line with the implementing/financing organisations’ vision, mission and goals and/or define their own set of goals. Clearly defined goals and desired outputs are an important precondition to define concrete activities and handle expectations, and form the core of every strategy.

b) Time Dimension – Setting Milestones

Capacity Building in its broader sense is a Process of Change. Change processes take time and require a high degree of investment and participation. Nonetheless, capacity needs assessments will reveal diverse needs of CB, not only with regards to contents or level of professionalism, but also with regards to urgency, i.e. need for priority.

The WHO “3by5” Programme takes an interesting approach to CB. WHO includes elements in its strategy to cover the short-term (urgent) demand for capacities, as well as elements that are targeted at achieving a long-term, sustainable supply of CB in the sector of HIV/AIDS. In some (country) contexts in the wind and solar energy sectors, there might be more urgent human resource needs that need to be built up in a short period of time to supply skilled personnel for existing installations (example of low availability of skilled labour for the O&M of wind and solar plants). In this context, measures like identifying human

resources whose level of skills and knowledge can be “upgraded” quickly, will play an important role. “Most of the new jobs to be created do not require a radically new competence” (UNESCO, 2004) which means that existing manpower in a related field (like e.g. an electrician) can be trained on RE specific issues (e.g. installation of solar PV panels) and he/she will be able to apply these newly acquired skills in a relatively short period of time.

But CB at the institutional and organisational levels, especially when aimed at reforms and the establishment of new laws and regulations, is a more complex process. “...Capacity Development is influenced by time and the stage of development of the unit whose capacity is being built...At various stages of their evolution, countries, sectors, organisations, institutions [and individuals] may be capable of some types of change and incapable of others” (Lusthaus *et al.*, 1999). This underlines the importance of sequencing CB correctly and giving the change process time, which in return requires long-term CB strategies that set the basis for a change process that might take many years.

ESMAP (2010) made an important lesson with regards to the time horizon of their strategy and resulting business plan. In order to be able “to cultivate more meaningful, longer-term strategic partnerships” and impacts in their area of work, they increased the time horizon of their business plan from 3 to 5 years.

A CB Strategy in this context should, therefore, allow for a long-term planning (at least 5 years) and consist of a mix of short-term, medium-term and long-term targets to “put out the burning fires” in capacity demand and at the same time ensure that, in the long run, there will be a sustainable Capacity Development in the sector, with the necessary local leadership and ownership.

c) Geographical Focus

Same as with the time dimension, CB initiatives/programmes have a focus on a certain geographical region or a mix of countries. It is recommendable that a MEF CB strategy also defines a geographical focus, maybe in combination with the time dimension (for example, Phase I (short-term): 1-3 countries, Phase II (medium-term): one region, Phase III (long-term): all regions). The decision should be based e.g. on existing partnerships (e.g. country partnerships of Denmark, Germany and Spain), on the level of exploitable solar and wind potentials in specific countries (focus on countries with high potential), as well as the level of quality of capacities available and the thus resulting demand for building up new capacities (focus on countries with higher demand for support).

d) Strategic Partnerships

The establishment of strategic partnerships is fundamental for the sustainability of Capacity Building at a national, regional and international level. Most actors active in the CB sector embrace this fact.

Collaboration enhances the capacity of people and organisation to achieve goals through synergy effects, brought about by the efficient and effective combination of complementary skills and strengths, as well as of the human, material and financial resources between the parties engaged in a partnership.

Partnerships differ in form (alliances, consortia, coalitions, networks, etc.), the goal(s) they are trying to achieve and in which stakeholders they bring together (national/local governments, agencies, donors, NGOs, private sector, network, etc.). A list of organisations/initiatives, which could potentially be partners to MEF throughout the elaboration of a CB strategy as well as during its implementation, is presented in Chapter 4 of this document.

e) *Secure Financing*

Financing is often the largest barrier to capacity building; and securing financing will be crucial for the success of a global capacity building strategy for wind and solar energy. In all the strategies analysed securing finance always played a central role. In the current world, there are many sectors, initiatives, projects, programmes, etc. competing for financial resources and innovative, creative financing solutions are needed to secure finance for CB.

CB on securing Finance at a local level can contribute to increase the investments in RE technology at a national scale. For example, Winrock International India worked together with local and foreign experts on an initiative to improve access to financing for RE projects, especially solar home systems (SHSs): the Solar Finance Capacity Building Initiative. Their approach was to train financiers/lenders (Apex-level Officials and Branch Managers), enhancing their knowledge about SHS technologies in order to make them more comfortable and confident in their abilities to assess related financing opportunities. In parallel they trained a number of trainers at faculty level to ensure constant supply of CB for financing institutions. And they were successful: after the trainings the loans provided for Solar Lighting increased by over 565% and for Solar Water Heating Systems by over 115% (Winrock, 2002).

All initiatives analysed raise issues about financing in some way or the other. Many times its lack represents a barrier to the sustainability of certain activities, like e.g. the REEEP TED. CB is a long-term process that needs constant financing over many years. Therefore securing long-term reliable finance is an extremely important factor to the success of a global CB Strategy. Financing options and financing strategy in the context of the MEF working group will be further discussed in Chapter 6 and potential financing sources are presented in the Excel Sheet delivered as an Annex to this document.

Methods and Instruments

a) *Building upon Existing Strategies, Tools and Structures*

A large number of institutions (donors, universities, training centres, etc.) have CB strategies and carry out CB activities. Most of them have many years of experience in the field of CB, whether related to RE or to other sectors, like basic education, health, and so on. This also means that over the years, structures have been built up and strategies, instruments and tools have been developed to assess capacity building needs and develop and implement CB activities/initiatives/programmes.

This fact is acknowledged by most of the analysed initiatives and the majority of them include measures that aim at profiting from existing structures, tools and instruments, rather than developing new ones. GTZ points out that “no fundamentally new set of methods and instruments are necessary” (GTZ, 2008), it is rather necessary to create an overview over existing structures/tools/ instruments, adapt them if necessary and use them as required.

Therefore, will be crucial for the success of a MEF CB Strategy to engage in a close cooperation with other organisations and institutions in the field of RE and Solar and Wind Technologies, in order to avoid efficiency losses and overlaps in activities and maximise resource utilisation by focusing on the existing gaps with regards to structure, tools and instruments.

In the context of MEF, an extensive analysis of the following type of existing structures/tools/instruments is recommended, in order to identify potential cooperation possibilities and at the same time identify demand for new structures and instruments:

- ***RE and specialised Solar and Wind Technology Centres:*** within the scope of this study, a list of existing RE and Solar and Wind Technology Centres is provided in Annex III, which is meant to be as detailed as possible. With this list at hand, cooperation possibilities can be explored.
- ***RE and specialised Solar and Wind Technology CB Databases:*** there have been some attempts by other initiatives to establish CB Databases. One example is REEEP, which had launched a “Training and Education Database – TED” containing information on CB offer for RE and EE, which had to be removed since they were not able to find a sustainable financing source, necessary to keep the database updated. The effort of REEEP could be built upon, e.g. by brining the database back to life in a joint effort between REEEP and MEF.
- ***Solar and Wind Technology Educational Material:*** there are vast amounts of educational material, course manuals, training guides and so on available through the internet, some of it free of charge, some of it against a fee. This material could be very useful when building up local CB curricula.
- ***Networks:*** networks play a significant role at fostering the collaboration between existing initiatives and between national and international institutions in general. A variety of networks related to RE, Solar and Wind exist and MEF should engage in these networks as a mean to being well informed about other initiatives, identify and initiate cooperation possibilities and avoid duplications of work. Some examples of existing networks are: Sustainable Energy Regulation Network (SERN), World Wind

Energy Institute (WWEI), Global Network on Energy for Sustainable Development (GNESD), among others

b) Capacity Assessment

Effective and sustainable training and education and, in a broader sense Capacity Development, need to be adapted to the local market demand. It has become evident that it is not the fundamental research that represents the main barrier to the development of RE but it is the lack of skilled personnel that is able to plan, install, operate and maintain RE systems (UNESCO, 2004).

The demand for CB in the wind and solar sectors varies strongly among countries and “training needs in the area of renewable energy, [in general], are poorly defined” (UNESCO, 2004). Although most of the analysed initiatives include Capacity Assessment (CA) activities within their approach, very little is published about the methods and instruments used throughout this process.

Local technology centres have often played a major role in assessing CB needs for RE technologies, including wind and solar. One example is the Mediterranean Renewable Energy Centre (MEDREC) who carried out capacity needs assessments for RE in Tunisia, Morocco, Egypt and Algeria in 2009 (MEDREC, 2010). Their diagnosis focused on existing and future RE applications and identifying the requirements for capacity building, training, quality and standardization to further their deployment. Although mentioned in their website, MEDREC has not made these assessments publicly available.

Nevertheless, there are some initiatives that have documented assessment processes very well (e.g. the Technology Needs Assessments (TNAs) – see e.g. UNDP-GEF 2008b, and the National Capacity Self-Assessments (NCSAs) – see e.g. UNEP-ENDP-GEF 2007), which could provide important input for the MEF CB strategy.

Many of the conclusions made during the TNAs and the NCSAs could provide important input for the MEF CB strategy. Also some of the tools and instruments used in these contexts could be applied by MEF while assessing CB needs in their countries of focus.

As CA builds the basis for a successful development of capacities in a certain context, it is important that this process is well embedded within the MEF CB strategy. This will require a thorough analysis of existing CA strategies, tools and instruments, as well as a synthesis of applicable approaches. Different contexts will require different assessment methods of capacity, e.g. in some countries institutional development will be less necessary than in others. Therefore, MEF should count with a toolbox or toolkit with various assessment methods and instruments that can be mixed and adapted to the context in which applied, that will allow for identifying the specific needs within this context and provide the necessary input to offer customised solutions.

c) Establishment of Local Technology Centres

In 2008, the UNDP-GEF published a document on lessons learned from their international experience in the promotion and implementation of wind energy projects. They point out that the establishment of a national expert pool that is able to design, install, operate and maintain their wind farms is crucial for the sustainable development of the technology in a country. The same statement was made by several experts, which were interviewed in the framework of a GTZ study on approaches to Capacity Assessment (GTZ, 2008b).

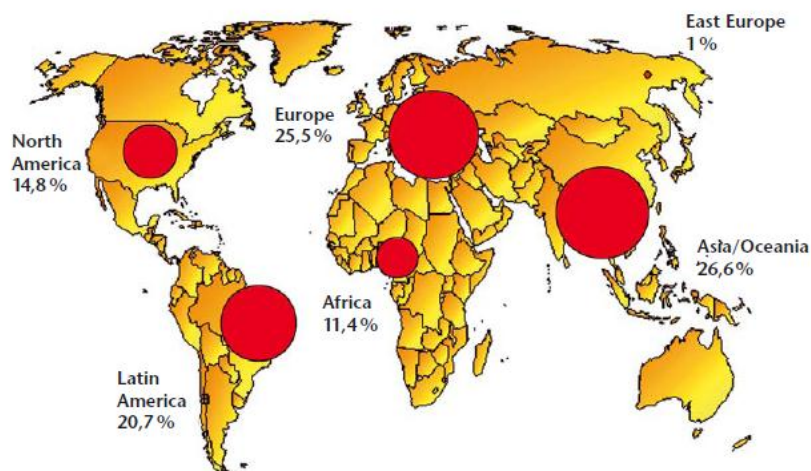
Local Research and Training Centres are the most effective platform for establishing such a pool of experts. RE Training Centres cannot only offer CB for individuals, they can also contribute to the deployment of RE technologies by conducting technology research, analysing the local framework conditions, supporting reform processes, facilitating dialogue between local and international stakeholders and participating in policy making processes.

Osman Benchikh (UNESCO, 2004) also underlines the importance of reinforcing local research and training centres that can establish "...a better coordination between energy needs and the choice of appropriate equipment", train researchers, engineers, technicians and so on, and raise awareness and promote the use of renewable energy among users. The leadership in CB issues through national and regional technology centres is also important from the point of view of attracting financing for CB. A large institution might have more chances at acquiring significant funds for financing CB than individual initiatives.

Many countries have set-up their own Training Centres and CB Programmes. E.g., according to UNDP-GEF (2008), seven universities and learning facilities in Brazil, Canada, China, Cuba, Denmark, Egypt and Russia founded a decentralized network with the aim to provide training and education programmes for postgraduate students. Another example is the Mediterranean Renewable Energy Centre (MEDREC), established by the Italian and Tunisian Governments. Its purpose is to offer training, dissemination of knowledge and information, networking and development of RE projects in the region (partners: Algeria, Egypt, Libya, Morocco and Tunisia). A list of existing Renewable Energy Centres, as well as Centres specialised in wind and solar energy technologies can be found in Annex III.

Although a number of technology centres are in place, according to UNESCO (2004), it is mostly in those countries that have the highest RE potential, that the smallest number of specialised training facilities is available. As an example, Figure 2 below shows the distribution of specialised solar training and research centres by region, as of 2004.

Figure 2 – Distribution of Solar Training and Research Centres by Region



Source: UNESCO, 2004

Therefore, actors involved in the CB in the RE sector need to continue to actively support the establishment of such facilities, as well as strengthening existing ones, in order to achieve multiplier effects, availability of local knowledge and skilled labour, and a faster deployment of RE technologies. The availability of technology centres could be one of the factors to be taken into account when defining the geographical focus of the MEF CB Strategy.

An interesting information for the MEF Working Group for Solar and Wind Technology and a possible chance for cooperation is that the Africa-EU Partnership on Energy has put the point of establishing RE Centres in the countries they operate very high on their Agenda and they are exploring the possibility of launching a major cooperation programme, including the establishment of regional centres for the promotion of RE technologies.

d) Training the Trainers

Most of the initiatives/strategies analysed recognize that building local capacity for training is crucial to ensure the sustainability of CB. Training a set of individuals for a specific project will only ensure that the project activity is executed successfully, given that the trained capacities work in the project for its entire lifetime. But this kind of project-linked capacity building does not contribute to a long term build-up of capacities for a certain technology or sector. In order to achieve a constant supply of trained capacities in a country/sector or for a given technology it is necessary to build up qualified local training and teaching staff. These individuals, whether embedded in an institution (university, training centre, research institute, etc.) or working on an independent basis, can guarantee that the demand for acquiring new skills and knowledge is covered.

The approaches to training the trainers vary among the different strategies/initiatives but also many common elements can be found, such as working with local partners (institutions, universities, etc.), identifying potential training providers and equipping them with the necessary skills to implement training (training skills, training methods but also knowledge transfer on e.g. RE technology), encourage trainers to train other trainers to achieve multiplication effects, twinning, etc.

An important point often mentioned in the context of developing countries is that the establishment of local training capacities is the most cost effective way to build up capacities in a country, since, logically, having to bring foreign experts to carry out CB activities when needed comes at a high cost.

e) *Twinning*

The ECBP Programme made use of the so called “peer-to-peer twinning” approach for developing capacity in individuals and achieved very good results. This approach consists in pairing an expert in a subject/field to an individual, who needs to improve his/her skills in that particular field, to achieve a “learning by supervised doing” effect. The reason for the success of this type of approach is that twinning does not only cover the dimension of knowledge transfer, as it is the case in traditional trainings, but it also provides the opportunity to put the newly acquired knowledge and skills into practice with the guidance of a mentor, who can provide feedback and support throughout the learning process. The downside of this approach is that it can be very resource intensive (GTZ, 2009).

Also the AEEP has considered twinning as a promising approach to facilitate the exchange of know-how between EU political bodies and their African counterparts, as well as between utilities (Africa-EU Strategic Partnership, 2008). Similarly, ESMAP (2010) has used the “twinning approach” to, e.g., help establish the Turkish Government’s capacity to create a framework for a competitive electricity market.

In some contexts, the twinning approach might be particularly interesting, even though it is resource intensive. For example, in the solar and wind energy sectors, twinning approaches might be interesting in the context of building up local technology centres. There would be a direct knowledge transfer that would equip these centres with the necessary skills to support the local development of wind and solar technologies and provide CB to individuals locally.

f) *Including RE into Basic Education Curricula*

In order to create a new generation of RE practitioners, the concept of RE should be also enrooted in basic education. According to UNESCO (2004), secondary schools students should be made aware of the prospects and chances of employment available in the RE sector by including RE topics into the scholar curricula, e.g. in subjects such as physics, and also GEO (2009) acknowledges the importance of embedding knowledge in society from an early stage.

There are some interesting initiatives targeted at young people. For example, the E.ON Energy Experience is an initiative to help teachers in England, Scotland and Wales to teach young people (target group are children between 5-16 years old) about energy, the different sources in use, different emerging energy production options and the meaning of applying these different energy sources on a local, national and global level. They provide teaching support materials to help teachers integrate energy issues in the geography and science curricula, such as information cards about different types of energy, and activity cards to teach children about energy in a playful way and test their knowledge, all of which can be downloaded for free from their webpage (E.ON UK, 2010)

This kind of activities could also be a part of the MEF CB strategy and partnerships are possible with basic education programmes and initiatives, such as UNESCO's "Education for All" Programme.

g) Networks

Networking does not only enhance the proliferation of knowledge and expertise but it also furthers the establishment of partnerships, working relationships, etc, which are key to the sustainability of CB – only when a trained human resource is actually applying its acquired skills and expertise, the CB process can be regarded as successful.

Most of the analysed CB strategies/initiatives include the establishment and use of new or existing networks as an important element for the success of their activities. There are several Networks that could be of interest for the work of the MEF Working Group on Solar and Wind Technologies to a) increase MEF's own knowledge about local policy, regulatory and judicial frameworks, b) build relationships to relevant stakeholders (policy and law makers, technology centres, etc.), c) identify cooperation possibilities with other initiatives/programmes, d) disseminate MEF's own strategy, activities, tools, instruments and lessons learned, and so on:

- The Renewable Energy Policy Network for the 21st Century (**REN21**) provides a forum for international leadership on renewable energy. Its goal is to bolster policy development for the rapid expansion of renewable energies in developing and industrialised economies. REN21 has organised four International Renewable Energy Conferences and produced a number of internationally recognised reports on renewable energy policy and the development of the renewables marketplace. Additionally, they have developed interactive tools, which are available on their website: the Renewables Interactive Map (research tool for tracking the development of renewable energy worldwide), the Local Renewables Web Portal (serves local officials and users from civil society and business by highlighting local action on renewable energy and providing helpful tools for incorporating renewable energy in city energy plans) and, in cooperation with REEEP, the information gateway "reegle" (information portal on clean energy policy, regulation and financing)
- Asian Pacific Network for Global Change Research (**APN**): a network of member country governments (22 member countries) that promotes global change research in

the region, increases developing country involvement in that research, and strengthens interactions between the science community and policy-makers.

- The Sustainable Regulators Network (**SERN**) supported by REEEP and Yale University: has a strong role in data collection/analysis on policies and regulation and provides assistance to the REEEP policy Work.
- The International Law Network (**REIL**) supported by REEEP and Warwick University: has a strong role in outreach to business and law makers and provides policy recommendations
- Global Network on Energy for Sustainable Development (**GNESD**) facilitated by UNEP: It is a knowledge network of Centres of Excellence and network partners worldwide, with the aim to contribute to the MDG by strengthening their members' ability to acquire and apply knowledge in the field of energy, working to change government policies and programmes as well as furthering private sector investments in sustainable energy, providing a communication and information platform for their members to share experiences and to strengthening the South-South, North-South know-how exchange. Currently, 21 Centres are member of GNESD. Some examples: NREL (USA), Fraunhofer Institute for Solar Energy (ISE), Asian Institute of Technology (AIT), Energy Research Centre (ERC - Africa) and MEDREC (Mediterranean region), etc.
- World Wind Energy Institute (**WWEI**): is a worldwide decentralized network of training and research centres specialising in wind energy
- International Network for Sustainable Energy (**INFORSE**): is a worldwide network consisting of 140 Non Governmental Organisations working in about 60 countries to promote sustainable energy and social development and was established in Rio de Janeiro in 1992 to secure follow-up in the political decisions at the United Nations Conference on Environment and Development (UNCED). Its aims are to raise awareness and provide advocacy, build up capacity at local, national and international level, work for institutional reform and support research and development.
- Global Forum on Sustainable Energy (**GFSE**): is a neutral multi-stakeholder platform, which facilitates international dialogue on energy for sustainable development, by taking into account the special interests and challenges of developing countries. It aims at the establishment of a sustainable world energy system in a social, economic and environmental perspective. GFSE plays a crucial role in facilitating sustainable energy projects, by bringing together donors, investors and project developers. GFSE is currently exploring possibilities for its further institutional strengthening and is open to involvement of new partners in its activities. It is committed to an open institutional form and welcomes partners from various sustainable energy activities and might be interested in carrying out activities related to CB to improve the investment climate for RE sources.

- EuroEnergy.Net Infrastructure Co-operation Network in the areas of “Combustion and Solar Energy”: The goal of this EC funded network is to bring together people and companies and/or institutes, working in the fields of primary energy conversion of fossil and renewable fuels through combustion and solar energy sources, in order to produce reliable and sustainable processes and technologies for power production.

h) Information and Communication Technologies (ICT)

The use of ICT provides great opportunities for disseminating information, proving platforms for auto-learning and/or interactive learning (e.g. eLearning), and they serve as instruments for networking and establishing strategic relationships. Most of the analysed initiatives/programmes acknowledge this fact and have integrated the use of ICT in their approach.

The following is a list of the most common uses of ICT in the context of CB. The first three points are based on online-presence through websites:

- **Information sharing:** websites are the ideal medium to spread knowledge within a broad audience, in a relatively short period of time, without being limited by geographical constraints, and in a cost efficient way. CB initiatives make use of this medium effectively by making available their publications (strategies, work plans, evaluations, etc.) and also by providing basic information (for the general public) and specialised information (for experts) on the topic they cover. In some instances, the information published in the Internet can also be valuable for the replication of successful approaches. Many organisations publish tools kits or guidelines for e.g. the implementation of trainings in certain topics.
- **Online CB:** websites can serve as a medium for auto-learning but organisations/universities and training centres may also choose to provide online CB in form of learning material in electronic form (e.g. lecture scripts and handouts), eLearning courses and fora. The offer of online courses is very varied and can be free of charge or against fees.
- **Networks:** The Internet provides an excellent platform for the creation, maintenance and marketing of networks and partnerships, where stakeholders can exchange valuable information and information. Today, many networks have been established online for a variety of sectors, including RE.
- **Organisational instruments:** ICTs are often introduced at an organisational level, to analyse the efficiency of processes (e.g. SWOT) and optimise processes and workflows, e.g. through automatisation. With regard to M&E of CB activities computer based instruments are used to gather and analyse data on CB.
- **Videoconferencing:** Videoconferencing through web-based tools, such as Skype, allows two or more people to hear and see each other at the same time, and is therefore a cost-effective way to holding meetings, carrying out trainings, etc. almost at the same quality as if all participants were in the same room. Participants of such events do not have to incur high travel expenses and can participate from every location with an Internet connection.

A very important conclusion made during the Internet research was that the supply of information, knowledge and capacity building activities (trainings advertised through the web and/or distance learning) in the RE energy sector can be overwhelming and there is little guidance to the public to differentiate between good and bad offers. This underlines the need for an instance that sets up a database of the existing offer, updates it regularly, carries out quality control and gives advice to the target group, as MEF is planning to do.

Nevertheless, in the past, there have been some attempts to build such an online dataset. The constant changes in CB offer and the resulting need for regular updates of such a website renders this venture a very costly one. E.g. REEEP had established such a database (Training and Education Database – TED), which was available on their website for a certain period of time but has been recently removed due to lack of funding for maintaining and updating the database regularly. MEF should establish a dialogue with REEEP (who are currently actively looking for partners to bring this tool back to life) to learn from their experience and to establish whether there is potential for cooperation. REEEP has already done the programming work on the website, which basically just needs to be updated regularly and potentially MEF could build on their work, by e.g. bringing TED back to life by joining efforts to raise funding.

i) Monitoring and Evaluation

Monitoring and Evaluation of CB is not only relevant to measure success but provides also important input for corrective action and optimisation of the CB strategy, its components and activities. It is extremely important that strategic CB goals are clearly defined at an early stage and milestones to achieving these goals are set under a common understanding of success, in terms of developed capacity and its impact on the wind and solar sector. Based on these goals and milestones, measurable (quantitative and qualitative) indicators should be defined, in order to be able to follow up upon the achievements at a certain frequency and be able to take corrective actions, if necessary (GTZ, 2009). This last point, an iterative character of M&E, which is flexible and allows for change as learning occurs and to extract lessons learned in the process, is especially important in the context of CB. “CD involves adapting to unpredictable changes and establishing working relationships with a wide range of different people. Its goals are often illusive, its processes not standardised. The concept itself changes over time, in response to unique learning needs (...). An iterative approach (...) recognises the complexity of how change occurs and how change must be responded to, over time” (Lusthaus *et al.*, 1999)

The success of CB initiatives/programmes often depends on keeping the motivation and leadership alive and the visibility of results and successes plays a major role at achieving this. Therefore, results should be measured regularly and systematically in order to provide a clear picture of the progress towards achieving (especially long-term) goals, and as mentioned before, be able to identify potential failures of the approach and take action upon it.

Finally, to ensure transparency and avoid conflicts of interest, monitoring and evaluation of results should be delegated to credible and independent institutions.

4. Synergies – Potentials for Partnership

In the present, a large number of renewable energy initiatives have been launched and are operating, or are being planned. Especially in the light of climate change, the urgency of a fast deployment of renewable energy technologies has become more apparent and has mobilised forces and efforts towards a more sustainable use of energy resources.

The MEF Long-term Strategy on Joint Capacity Building and Know-how Transfer for the Wind and Solar Energy Sectors should take into account these dynamics and integrate cooperation considerations as an important element of their strategy. Building on existing programmes and structures has been identified as a best practice in CB Strategies: it does not only increase the efficiency of new initiatives but also provides access to a vast amount of (local) knowledge and opens the door for new opportunities.

For this paper, a list of existing and upcoming initiatives is analysed, with a focus on Renewable Energy Initiatives/Programmes and Climate Change Initiatives/Programmes. Climate Change initiatives have been included, as promoting the use of renewable energy resources plays a major role in combating climate change and therefore many climate change initiatives/programmes/projects include renewable energy in their activities.

Potential cooperation opportunities and synergies with existing (or in the planning) initiatives and programmes have been identified, which should be considered in the process of designing MEF Long-term Strategy on Joint Capacity Building and Know-how Transfer for the Wind and Solar Energy Sectors.

The following initiatives/programmes were identified:

- World Bank - Energy Sector Management Assistance Programme (ESMAP)
- UNDP - Technology Needs Assessments (TNAs)
- Africa-EU Energy Partnership (AEEP)
- OPURE and RenKnow.Net
- UNIDO – REMAP
- Asia Pacific Network for Global Change Research
- BMZ
- infoDev, DFID -Climate Technology Programme
- Carbon Funds
- EU – Solar Facilities for the European Research Area (SFERA)
- Spain – Foundation for the Training in Renewable Energies (FFER)
- UNEP – Capacity Building

Short descriptions of each initiative/programme, as well as potential for cooperation/synergies, are presented below.

World Bank “Energy Sector Management Assistance Programme” (ESMAP)

Description

Established in 1983, the Energy Sector Management Assistance Program (ESMAP) is a global, multi-donor technical assistance trust fund administered by the World Bank and cosponsored by 13 official bilateral donors. ESMAP assists its clients – low- and middle-income countries – to increase know-how and institutional capacity in order to achieve environmentally sustainable energy solutions for poverty reduction and economic growth.

ESMAP has operated in over 100 countries through more than 800 activities covering a broad range of energy issues. Today, ESMAP focuses on three core functions that help client countries translate high quality advice into desired outcomes:

- **Think Tank** - ESMAP aims to influence policy-making and broaden knowledge horizons about cutting-edge solutions to global thematic challenges, by sponsoring a broad range of analytical and advisory services in its client countries.
- **Knowledge Clearinghouse** - ESMAP shares tools, best practices, and lessons learned through training events and knowledge exchange activities that are intended to enhance clients' capacity to plan, manage, and regulate energy sector strategies and programs.
- **Operational Leveraging** - ESMAP provides clients with “just-in-time” technical assistance to help them translate policies, strategies, and programs into results on the ground.

ESMAP has four ongoing sets of Programmes:

- **Energy Assessments and Strategy Programmes (EASP)**
- **Pro-poor Energy Access Technical Assistance Programs (PEA-TAP)**
- **Energy Efficient Cities Initiative (EECI)**
- **Renewable Energy Market Transformation Initiative (REMTI)**: aims to help countries to build their institutional capacity to develop, plan, and implement strategies to quickly deploy RE technologies (solar, wind, geothermal and hydroelectric power). REMTI aims at supporting the entire RE development cycle by helping countries to address the work needed in the earlier stages of programme development through technical assistance, knowledge sharing, and capacity building to facilitate access to financing, as a response to multilateral initiatives and facilities that provide funds to scale up investments in the RE Sector, usually targeted at the end of the project/programme cycle. (ESMAP-REMTI 2010 and ESMAP 2010).

Potential for Cooperation/Synergies

- Elaboration of studies: Capacity Needs Assessments on a National Level could be funded by ESMAP (e.g. through REMTI which focuses on wind and solar technologies).
- ESMAP could provide financing for some MEF activities.
- REMTI has a wide range of knowledge products generated from country RE market transformation strategies and RE technology deployment roadmaps—modelling toolkits, best practices, “how to” guidance, and interactive trainings that should be analysed in detail to identify their applicability to the CB activities of MEF
- REMTI is has a number of country projects in which energy planning tool are being developed (e.g., for the wind sector MENA and India) which represents a good chance for cooperation for the Working Group on the Wind and Solar Atlases
- For CD, REMTI is exploring partnership arrangements with other global institutions, including the International Renewable Energy Agency (IRENA).

UNDP “Technology Needs Assessments” (TNAs)
<p>Description</p> <p>The UN Development Programme (UNDP) and the UNFCCC Secretariat, in collaboration with the Expert Group on Technology Transfer (EGTT) and the Climate Technology Initiative (CTI), support and assist countries in the elaboration of Technology Needs Assessments (TNAs)¹ to identify, evaluate and prioritize the technological means for achieving sustainable development in developing countries, increasing resilience to climate change, and avoiding dangerous anthropogenic climate change. Solar and wind energy technologies are two of the most identified means to mitigate GHG emissions. The recently revised Handbook for Conducting Technology Needs Assessment for Climate Change (UNDP, 2010)² describes a process, which involves different stakeholders in a country-driven and consultative process to identify the barriers to technology transfer and measures to address these barriers through sectoral analyses. The elaboration of TNAs not only provides an overview over the priority technology needs of the countries but also forms the basis for a vast portfolio of potential projects (largely RE). To date, some 71 TNAs have been reported (many of them funded by GEF), including more than 200 project proposals. Most of the TNA Country Reports available date back from 2000 to 2005. They can be viewed and downloaded at: http://unfccc.int/tclear/jsp/CountryReports.jsp. 70 % of the Country Reports cite Solar Energy Technologies and 50% cite Wind Energy as priority technologies.</p> <p>In order to facilitate the countries’ process of assessing their needs, the Handbook for Conducting Technology Needs Assessment (TNA) for Climate Change was elaborated and made publicly available.</p> <p>Several tools have been developed to support the TNA process, including:</p> <ul style="list-style-type: none"> ▪ TNAAssess: decision-support tool provided for undertaking the prioritization process of technologies for mitigation or adaptation, designed for use in national TNA processes ▪ TechWiki: database of low carbon technologies for mitigation and adaptation in different sectors, which provides examples of actual technology application and market potential, and the required financial and management investments ▪ TNA Report Formulation Aid: template for reporting that provides an overview of the TNA process, key sectors and technologies, technology prioritization, enabling frameworks and strategies, technology needs to national technology strategies and work plan, and recommendations. (climate-L.org, June 6th, 2009) ▪ National Communications Support Programme: website, which contains a page on technology transfer and facilitates the dissemination of material and exchange of information among the countries (UNDP-GEF, 2008b). It contains all TNA reports submitted so far.
<p>Potential for Cooperation/Synergies</p> <ul style="list-style-type: none"> ▪ The more recent TNAs, especially those that were conducted in line with the Handbook, provide information about the national relevance of wind and solar energy in the framework of other national strategies. ▪ During the TNA process, the maturity level of the prioritized technologies (e.g. Wind/Solar), barriers to successful integration in the national context, and feasible entry points to accelerate its adaptation are discussed and documented by a group of nationally informed stakeholders. ▪ The TNAs ought to be conducted in a country driven and participative manner and shall document decision processes transparently. They deliver insight into the networks, stakeholder and interests of the addressed sectors.(eg. Renewable / wind and solar energy) ▪ The Methods of the TNA Handbook and the respective Toolkit are well elaborated. The recommended methods and the experiences, that were gained with their implementation could

¹ The Global Environmental Facility (GEF) has provided funding to some 92 non-Annex I Parties to conduct TNAs. Out of these, 78 TNAs are being supported by the United Nations Development Programme (UNDP), and 14 by the United Nations Environment Programme (UNEP). See <http://unfccc.int/tclear/jsp/TNA.jsp>

² see <http://unfccc.int/tclear/jsp/TNAHandbook.jsp>

serve as a reference/ blueprint for the elaboration of the MEF capacity assessment tool

- The output of the assessment ought to provide a general list of Capacity Building activities that have been prioritized for the identified technologies (e.g. wind and solar technologies), including specific recommendations on training and Capacity Building requirements for prioritized technologies.
- Capacity Building Activities in the framework of the MEF Capacity Building Strategy for Wind and Solar should consider the TNA Capacity Building Activities or even implement them.
- The TNAs are also an up to date and concise information source on the technology needs and priorities of the different developing and transition countries and can serve as a basis to make strategic decisions, in which countries to engage first.

OPURE and RenKnow.Net (German Federal Ministry of Education and Research)

Description

One of the major results of the international conference for renewable energies in Bonn is the initiative for an International Open University for Renewable Energies (OPURE). During the renewables2004, the Solar Energy Research Association (ForschungsVerbund Sonnenenergie, FVS) organised the Science Forum, during which the willingness of the Federal Ministry of Education and Research to financially support the start up of a University for Renewable Energies (OPURE), with the aim of exchanging know-how, providing education and training and facilitating networking with other facilities, centres, institutes, etc. Active in the RE sector, was announced. OPURE stands for Open University for Renewable Energy and its establishment was included in the International Action Plan of the renewables2004.

In a first step, the University was set up in 2007 as an Internet platform (RenKnow.Net: <http://www.renknow.net/>) but in the long term the goal is to build up an actual institution. RenKnow.Net is a database for research and education in the Renewable Energy Sector. The aim of this online network is to promote and enhance the active exchange of research and educational material by making it available through its website. The offered material (educational material, university lectures and slides, measurement and simulation data, multimedia objects, etc.) is free of charge and has undergone quality control by peer reviews. Currently, the focus lies on wind power, but in future also solar energy material (among other technologies) shall be published.

Potential for Cooperation/Synergies

- RenKnow.Net makes available high quality and free of charge educational material (in the present predominantly on wind energy) that can be used for MEF activities
- MEF could actively contribute in the process of establishing OPURE
- MEF and OPURE/RenKnow.Net could cooperate on building up a database on available CB options. There are various initiatives, which have this activity in their agenda (see for example also REEEP) and coordinating these efforts could result in large synergy effects by avoiding double work and using resources more effectively.

Africa-EU Energy Partnership (AEEP)

Description

The Africa-EU Energy Partnership was launched during the 2nd Africa-EU Summit in December 2007, Lisbon, Portugal where the First Action Plan (2008-2010) was adopted. The Action Plan defines 8 Partnerships and Priority Actions, one of which is the Africa-EU Partnership on Energy (AEEP). The Africa-Europe Energy Partnership (AEEP) is a long-term framework for structured political dialogue and cooperation between Africa and the EU on energy issues of strategic importance. It provides a platform for energy dialogue between the EU and Africa and aims at mobilising financial, technical and human resources in support of Africa's energy development by promoting the use of RE and EE and increasing European and African investments in energy infrastructure and in energy interconnections within Africa and between Africa and Europe through instruments such as:

- the [Energy Facility](#),
- the [EUEI Partnership Dialogue Facility](#),
- the [EU-Africa Infrastructure Trust Fund](#)

A 2nd Action Plan to cover the period 2011-2013 was discussed at a **high level meeting on Energy, which** took place in Vienna mid September 2010. The results of this meeting are not yet publicly available, but should be followed up, as soon as they are published.

Potential for Cooperation/Synergies

- There could be synergies between the MEF and AEEP with regards to **Financing**: a) The AEEP is exploring the possibility of using innovative financing methods (especially for small scale facilities) through public-private partnerships, b) the AEEP is carrying out fundraising activities and looking for investment capital from public sources, financing institutions and the private sectors of Africa and Europe and c) is planning the creation of African Energy Funds. These could be potential financing sources for MEF wind and solar CB activities in Africa.
- The AEEP is planning to build capacities at institutional level, to support energy policies and planning and establishing enabling legal, fiscal and regulatory frameworks at regional and national levels in Africa. MEF and AEEP could cooperate in this effort.
- The EU will support CB for national, regional and continental institutions (AUC, AfDB, RECs, power pools, UPDEA, AFUR, AFREC, AFSEC, etc.) e.g. on information systems, databases, planning, standardisation, etc. and promote access for African institutions, organisations and enterprises to technology and CB programmes in the field of energy, such as: SAVE INCO; ALTENER; ENRTP; Marie-Curie. They are already exploring synergies with the REC Capacity Building programme of the NEPAD Infrastructure Project Preparation Facility (IPPF) at the African Development Bank. MEF should also explore synergies with these programmes.
- One of the AEEP's activities related to CB will be to explore the possibilities for launching a cooperation programme on RE resources in Africa, including the establishment of regional centres for promotion of RE and EE. MEF could participate in this action.
- The EU is working with some African countries to develop a **Mediterranean Solar Plan**. This activity should be followed closely, as it could be complementary to the MEF activities within the Wind and Solar Atlas Working Group.
- The AEEP also foresees **renewable energy resource mapping** in their activities. EU Joint Research Centre (JRC) will undertake a mapping of African RE resources in support of the partnership and will explore cooperation opportunities with similar initiatives. The Working Group on The Wind and Solar Atlases should investigate more in detail what they are planning to identify possible overlaps, coordination needs and opportunities for cooperation.

UNIDO – REMAP**Description**

UNIDO is developing a global instrument addressing the challenge of capacity development and providing knowledge for the accelerated deployment of small-scale renewable energy technologies in developing countries and emerging economies (focusing on productive use): The Renewable Energy Knowledge Management Platform for Technology Transfer and Capacity Building (REMAP). This umbrella project provides a combination of traditional face-to-face training with significant online support for CB, technology transfer and network-based information sharing. It seeks to close a gap in existing approaches and offers a platform that complements/supports ongoing initiatives and projects.

Potential for Cooperation/Synergies

This initiative is still in its planning phase but will potentially have much in common with the MEF CB initiative. The developments of this initiative should be closely monitored to identify possible cooperation opportunities and synergy effects.

Asia Pacific Network for Global Change Research**Description**

The Asia-Pacific Network for Global Change Research (APN), launched in 1996, is a network of member country governments (22 member countries) that promotes global change research in the Asia-Pacific region, increases developing country involvement in that research, and strengthens interactions between the science community and policy-makers. The APN strives to enable the developing countries of the region to participate increasingly in, and to benefit fully from, cooperative research in the region. It assures that the research results contribute to the development of a sound science-based adaptation strategies, policy- and decision-making processes, and developing scientific capacity to address these important issues. Recognising the interactive role of regional processes in the overall Earth system, the APN also aims to link the initiatives it sponsors with related projects conducted in other regions and under the aegis of global-scale programmes.

Its goals are:

- Supporting regional cooperation in global change research on issues particularly relevant to the region
- Strengthening appropriate interactions among scientists and policy-makers, and providing scientific input to policy decision-making and scientific knowledge to the public
- Improving the scientific and technical capabilities of nations in the region including the transfer of know-how and technology
- Cooperating with other global change networks and organisations

Potential for Cooperation/Synergies

- APN has a Programme called CaPaBLE with the aim of enhancing scientific capacity in developing countries to improve decision-making relating to issues that are directly linked to

their sustainable development, through capacity enhancement for experienced leading scientists and capacity development for early-career scientists. They fund capacity building activities for scientists and research activities, as well as dissemination and awareness raising activities in this context. MEF could cooperate with APN to finance some of its activities. E.g. APN's support could be relevant in the establishment of wind and solar technology centres in the Asian-Pacific region.

German Federal Ministry for Economic Cooperation and Development– BMZ

Description

The German Federal Ministry for Economic Cooperation and Development (BMZ) is strongly engaged in improving access to energy in Germany's partner countries in the framework of achieving the Millennium Development Goals. The priority areas of cooperation in this regard are promoting RE and increasing EE. The BMZ is currently supporting bilateral energy projects in more than 50 partner countries and between 2004 and 2009, a total of over four billion Euros and in 2010 alone almost 1.8 billion Euros were committed for bilateral energy projects, rendering the energy sector the biggest support sector of the BMZ.

Apart from specific actions at national level, the BMZ is also involved in international processes and initiatives, together with other internationally active organisations and partners, in order to achieve global expansion of sustainable energy:

- **International Renewables Conferences (IREC) and REN21:** The "renewables2004" conference in 2004 in Bonn marked the launch of a series of successful international renewable energy conferences (IREC), characterised in particular by the consistent involvement of the private sector and non-governmental organisations. The "DIREC 2010" conference in October in Delhi, India, is the fourth conference of this kind. In the policy network REN21 the BMZ is part of a global lobby for the development of markets for renewable energy. Developing countries in particular can benefit greatly from targeted political promotion of renewables.
- **IRENA:** In January 2009, the International Agency for Renewable Energies (IRENA) was founded in Bonn. The aim of IRENA is to support countries' efforts to develop strategies and policy measures for the development of renewable energy. The BMZ, together with the Federal Ministry of the Environment, is supporting the establishment of IRENA.
- **Africa-EU Energy Partnership:** the BMZ supports the AEEP. For more details on the AEEP, refer to the description above.
- **Energising Development (EnDev):** In 2004, the BMZ and the Dutch Directorate-General for International Cooperation (DGIS) agreed to a German-Dutch cooperation in the energy sector. The global programme Energising Development (EnDev) is co-financed by both countries and the implementing agency is GTZ. The aim of the programme is to provide people in developing countries with sustainable access to modern energy services. EnDev is being carried out in about 20 partner countries, with the focus on Africa. Up to the end of the 1st phase in December 2009, 6.64 million people had access to modern energy services. By the end of the second phase in 2014, the number of people reached is expected to be over 9 million.
- **develoPPP:** Set up in 2009, develoPPP offers a framework under which German development cooperation can be used to provide ongoing support for corporate involvement in the energy markets of Germany's partner countries in a way that complements development policy goals. Since 1999, a total of 170 measures involving integrated partnerships with the private sector have been implemented in BMZ energy projects.

Potential for Cooperation/Synergies

- The BMZ is involved in a number of national and international renewable energy activities that either involve CB measures or offer potential for the development of further cooperation opportunities for CB in the wind and solar sectors.

- MEF can build upon the BMZ experiences and national and international activities
- BMZ could support an eventual institutionalisation of the MEF CB Strategy for the wind and solar sector

The BMZ can support MEF to establish PPPs to offer capacity building in the wind and solar sectors

infoDev, DFID – Climate Technology Programme

Description

The aim of "infoDev's" Climate Technology Program is to establish a global network of 30 Climate Innovation Centres that develop technology innovation capacity and enable accelerated commercialisation and transfer of technologies for the mitigation and adaptation of climate change in developing countries. In addition to incubating promising new ventures, these centres can importantly provide access to risk capital, product testing facilities, market information, technology roadmaps, policy advocacy, technical assistance and facilitate R&D and technology transfer. The first two pilot project countries, where innovation centres will be designed and established are India and Kenya

Potential for Cooperation/Synergies

- The pilot climate innovation centres being established in India and Kenya can provide valuable experiences and lessons learned for the future work of MEF, should the establishment of technology centres play a role in the long-term CB Strategy.
- MEF could engage in a partnership with this programme to jointly establish technology centres
- MEF could engage directly with the established climate innovation centres to further CB in the wind and solar sectors locally

Carbon Funds

Description

The global concerns on access to energy, energy security and climate change are strongly interlinked. In recent years, climate change has moved up to the first place on nations' environmental agendas and numerous initiatives have been launched to mitigate and adapt to the changing climate. Since the use of fossil energy sources is the major contributor to the greenhouse gas effect, the deployment of clean, renewable energy solutions is seen as one of the most promising solutions to this problem. Therefore, many climate change initiatives/programmes foster the implementation and use of RE and EE technologies.

Potential for Cooperation/Synergies

Climate change initiatives, thus, provide real chances for further RE deployment and CB in this sector. The project-based Kyoto Mechanisms (CDM and JI) support the implementation of RE technologies in projects that achieve additional emission reductions and large sums have been mobilised world-wide to finance climate change abatement. In the last years, several funds have been set-up for this purpose:

- The Prototype Carbon Fund
- The BioCarbon Fund

- The Italian Carbon Fund
- The Netherlands CDM Facility
- The Netherlands-European Carbon Facility
- The Community Development Carbon Fund
- The Spanish Carbon Fund
- The Danish Carbon Fund
- The Carbon Fund for Europe
- Umbrella Carbon Facility T1
- Umbrella Carbon Facility T2
- The Carbon Partnership Facility
- And others...

Some of these funds could be potential sources of (co-)finance for CB building activities in the context of the strategy currently being developed by MEF.

EU – Solar Facilities for the European Research Area (SFERA)

Description

This EU-funded research project - SFERA - aims to boost scientific collaboration among the leading European research institutions in solar concentrating systems, offering European research and industry access to the best research and test infrastructures and creating a virtual European laboratory. The project incorporates the following activities:

- Transnational Access: Researchers will have access to five state-of-the-art high-flux solar research facilities, unique in Europe and in the world. Access to these facilities will help strengthen the European Research Area by opening installations to European and partner countries' scientists, thereby enhancing cooperation
- Networking: These include the organisation of training courses and schools' to create a common training framework, providing regularised, unified training of young researchers in the capabilities and operation of concentrating solar facilities. Communication activities will seek to both strengthen relationships within the consortium, creating a culture of cooperation, and to communication to society in general, academia and especially industry what SFERA is and what services are offered
- The Joint Research Activities aim to improve the quality and service of the existing infrastructure, extend their services and jointly achieve a common level of high scientific quality.

Potential for Cooperation/Synergies

SFERA could provide valuable input to the MEF process through:

- Exchange on CB curricula for solar technology training and education
- Could be involved in the formulation and execution of concrete CB activities
- Could be interested in twinning for CB in research centres in developing countries

Spain – Fundación para la Formación en Energías Renovables (FFER)

Description

The creation of this foundation was approved in a governmental session in December 2003. The aim of the foundation is to provide vocational training to achieve an appropriate development of the sector of Renewable Energies, as well as the spreading, experimenting, innovating and similar activities related to the training in Renewable Energies.

Potential for Cooperation/Synergies

- FFER is open for collaboration with other national, regional and international agents active in vocational training, to further the deployment of RE
- FFER could participate in the formulation and execution of concrete CB activities
- FFER is experienced in formulating new training programmes for using new technologies

UNEP – Capacity Building**Description**

UNEP has implemented a series of capacity building activities in its programmes and projects that are directly related to the goals of the MEF task force and their methods, results and experiences could be valuable for the MEF process.

Potential for Cooperation/Synergies

- UNEP have experience in identifying capacity needs in the wind and solar sector of specific countries (e.g. Brazil, China and South Africa) and preparing CB responses, like e.g. trainings for government officials of energy government agencies on topics such as resource mapping, potential applications of different technologies, energy pricing schemes, etc.
- UNEP has an overview over experts/consultants in the area of CB for wind and solar technologies, which could be involved in MEF activities as required
- UNEP has done a solar resource mapping and assessment for South Africa. The MEF working group dealing with the mapping of wind and solar resources could profit from their experience and lessons learned.

5. Recommendations for a MEF Long-Term Capacity Building Strategy for the Wind and Solar Sector

The analysis of various CB initiatives/programmes in the RE sector and other sector revealed a number of Best Practices that could be adopted by the MEF Long-term Capacity Building Strategy for the Wind and Solar Sectors. At the same time, the analysis revealed a significant number of initiatives, with which MEF could cooperate and exploit synergy potentials throughout the process of building up and implementing their CB strategy.

These findings, together with other conclusions made in this paper, will be useful to assist MEF in the development of a concise strategy and in a later stage in the implementation of concrete activities.

To arrive to such a strategy there are some central questions that need to be addressed and agreed upon by all the relevant stakeholders participating in this process:

Table 1 – MEF CB strategy development

Question	Issues to be addressed	Outputs
What?	<ul style="list-style-type: none"> ▪ What is the understanding of CB of MEF (institutional, organisational, individual)? ▪ What should be the level/scope of MEF's activities? ▪ What does MEF want to achieve? What are the outcomes expected? ▪ Which target groups does MEF want to reach? 	<ul style="list-style-type: none"> ▪ Vision ▪ Mission ▪ Goals ▪ Target Group(s)
When?	<ul style="list-style-type: none"> ▪ What should be the time scope of the strategy? 2,3,5,10 years? ▪ What can be achieved in the short, medium and long term? 	<ul style="list-style-type: none"> ▪ Definition of short-term, medium-term and long-term objectives
Where?	<ul style="list-style-type: none"> ▪ Does MEF want to focus on specific region(s) or countries? If yes, which? What are the selection criteria? ▪ If there is a "pilot phase": which countries are especially attractive? 	<ul style="list-style-type: none"> ▪ Geographical Focus ▪ Pilot Countries
How?	<ul style="list-style-type: none"> ▪ How can the Vision, Mission and Goals be achieved through concrete activities? ▪ Which tools and instruments are available to MEF for implementation, which need to be developed? ▪ How will these activities be financed? ▪ How can the success of these activities be properly monitored and evaluated? 	<ul style="list-style-type: none"> ▪ Activities ▪ Tools and Instruments ▪ Financing ▪ Monitoring and Evaluation
Who?	<ul style="list-style-type: none"> ▪ Who will implement the MEF CB strategy and its activities? ▪ Is there a need to institutionalise MEF's initiative? ▪ What are strategic partnerships for implementation? 	<ul style="list-style-type: none"> ▪ Institutional Set-up ▪ Strategic Partnerships

Some of these questions have been addressed throughout the Working Group Paper, but the focus has been mainly background information (such as CB status in industrialised and de-

velopping countries), on the theoretical benefits of CB (e.g. impact on employment) and the question of “How” to implement CB measures, i.e. an evaluation of existing tools and instruments for CB (CA, networks, materials, training the trainers, technology centres, etc.).

It is recommended to take a step back to look at the broader picture and shift the focus to defining exactly what role MEF wants to play within the international CB efforts in the targeted sectors and which approach MEF wants to pursue, in terms of target groups and in the development and implementation of its activities, with respect to time and geographical dimensions. MEF needs to define its vision, mission and concrete goals, from which specific activities or CB packages can then be derived, making use of the identified best practices, approaches and instruments, described in the Working Group paper. A systematic and result oriented approach should be taken to answer all the questions mentioned above, e.g. in workshops with the participation and input from all the stakeholders relevant to the MEF CB Strategy development process.

The following paragraphs intend to initiate the discussion on these questions, pointing out critical elements that need to be defined at this stage, in order to achieve a comprehensive and realistic strategy that is in line with the existing gaps in CB in the wind and solar sectors and that meets the expectations, skills and resources of the involved stakeholders. Finally, recommendations will be made with regards to next steps.

What?

MEF has decided to engage in promoting CB in the wind and solar sectors, in order to further the deployment of these technologies at a global level. In previous chapters, the nature of CB has been described as a holistic approach that is not only restricted to training of human resources but also needs to take into account the political, legal and regulatory framework conditions that surround CB (institutional development), as well as strengthening organisations relevant to the development of renewable energy technologies, more specifically in this context those involved and/or influencing the deployment of solar and wind technologies.

The first strategic question, thus, that needs to be addressed by the MEF working group is ***What role should MEF play in this context?***

- Will MEF embrace the integral approach to CB in their strategy (i.e. target all levels of CB)? Or will MEF concentrate on one or two levels of CB and e.g. engage in complementing partnerships to ensure the sustainability of their measures?
- Who does MEF want to reach with their activities (target groups)? Policy-makers, decision-makers, institutions/organisations, professionals, technicians?
- What should the level/scope of MEF’s activities be? Will MEF act as a facilitator to CB (e.g. through channelling financing, fostering partnerships and network, providing crucial information, etc.) or will MEF also implement concrete CB activities?
- What are the outcomes expected from MEF’s engagement into CB in the wind and solar sectors?

The answers to these questions depend on many factors. E.g. in most industrialised countries the level of awareness and knowledge about solar and wind energy is relatively high,

compared to developing countries, which justifies setting the focus on the development of human resources. On the other hand, in developing countries, a more complex approach, including institutional and organisational development, might be needed to render CB activities fruitful and sustainable.

Another important factor is the level to which MEF wants to pursue and develop this initiative. Should these activities be embedded within an international institution (existing or to be founded) and further developed, in the medium to long-term? Or will it rather be an initiative or a set of measures that is restricted in time and budget?

The answers to all these questions will allow MEF to define clear vision and mission statements, as well as to formulate concrete goals, which will build the pillars of a MEF CB Strategy and from which later on concrete activities can be derived, formulated and planned. What is important at this stage is to be completely clear on what the joint vision of the MEF Working Group is and what it is the Group wants to achieve.

When?

Once Vision, Mission and Goals have been agreed upon the time dimension will play an important role while defining concrete activities and measures. Vision, Mission and Goals should be formulated in a way that they are (almost) timeless. But of course it is rather unrealistic to plan activities/measures for too long periods of time. Most strategies account for time frames of 3-5 years.

Depending on the nature of the goals and related activities defined, there might be a need of differentiating short-term, medium-term and long-term goals. A balanced mix of short and long term goals should, on one hand, allow for a fast response on pressing capacity demands and the achievement and visibility of quick results and successes and on the other hand ensure that MEF's CB measures are sustainable by addressing more complex issues, such as change processes towards an improved CB supply, that will show results in the long-term.

Where?

MEF's aim is to develop a **global** CB Strategy for the wind and solar sectors. Keeping this global dimension in mind is important when defining vision, mission and goals, as well as when deriving concrete measures related to the development of the instruments and tools with which MEF will work.

When it comes to the gradual implementation of the MEF strategy, MEF might choose to set an initial geographical focus and slowly expand their activities to other countries/regions. Initially, MEF's strategy could be to initiate their work in countries where e.g. institutional and organisational CB is not the main priority (e.g. European countries), another approach could be to target countries that have a large solar and/or wind potential but an undersupply of capacities, which is hindering the deployment of wind and solar technologies (e.g. LDCs).

Should MEF choose to plan a “pilot phase” to test the applicability of its approach, it is recommended to set an initial geographical focus, to be defined by the analysis of a set of factors that could render specific countries or regions especially attractive for implementing pilot projects and testing MEF’s approach or set of approaches and instruments. Possible eligibility criteria for countries could be their solar and wind potentials, availability of national incentives for renewable energy deployment, existing/promising partnerships with international and national organisations active in a country, size and nature of CB demand, and so on.

How?

The MEF working group paper provides a comprehensive overview over existing tools and instruments for CB. Nonetheless, there is a need for agreeing on what the approach of MEF will be and the scope of activities that MEF wants to cover.

A possible scenario could be that MEF assists countries/entities in developing and implementing national CB building strategies for the wind and solar sectors. MEF could provide support on 4 basic steps of the process:

- Capacity Assessment (if not already available)
- CB Strategy Development (at a national level)
- Financing
- Monitoring and Evaluation

The level of involvement of MEF, i.e. how MEF supports countries/entities, would need to be defined more clearly. Possible modes of support would be:

- Providing advisory services (e.g. in the process of translating the results of the CA into a CB Strategy)
- Providing sets of tools and instruments for each of the mentioned activities (e.g. CA Toolbox, Monitoring Guidelines, etc.)
- Providing or assisting in the procurement of financial resources
- Or a combination of the above

Once the level of support MEF wants to provide has been defined, the next step would be to translate the predefined vision, mission and goals into concrete activities. Most certainly, in the first year the majority of the activities will be of strategic and organisational nature, like e.g. establishing partnerships, compiling tools and instruments, developing own tools and instruments, etc. Once the strategy and its tools and instruments are in an advanced stage, it is recommended to consider the implementation of pilot projects to test the applicability of the approach and learn from first experiences. An advantage of pilot projects, apart from providing the chance to test and if necessary adapt the strategy/approaches, is that these types of activities are usually easier to find financing for.

Financing in general will be a crucial issue to implement MEF’s activities. Some potential financing sources have been identified (overview over financing sources is provided in a Excel Sheet, additional to this report) and this issue is further discussed in Chapter 6 of this

document. But in order to be able to procure financing it is necessary that MEF define their activities in detail and prepare packages that are suitable for financing.

Who?

The multilateral character of the working group provides an accurate framework for the development of a CB strategy and with inputs from different stakeholders. The stakeholders that are involved in the process also dispose, to a certain extent, of relevant capacities for implementing the activities, at a later stage. Nevertheless, in order to guarantee backstopping, follow-up and a continuous adjustment of the strategy and adaptation of activities to the market, as well as the management of mid- and long-term goals, especially at an institutional level, there will be a need to institutionalise these efforts, either by handing the ownership to an existing institution/secretariat or by creating a new body. This issue needs further consideration and the different options/possibilities should be discussed by the Working Group.

Strategic partnerships with other stakeholders active in CB will play an important role for MEF's work and cooperation opportunities should be identified and followed up at an early stage, to take advantage of synergy effects by guaranteeing an optimised use of complementary skills and resources.

Final recommendations and next steps

- Take a step back and concentrate on defining vision, mission and goals for MEF's CB Strategy
- Discuss strategic considerations, such as what will be MEF's approach? Who will be the target group(s), Should there be a geographical focus?, What should be the planning timeframe?, Is there a need to institutionalise MEF's efforts?, etc.
- Once the general direction is clearly defined and agreed upon, define concrete activities
- Compile existent and applicable tools and instruments and develop necessary additional tools and instruments
- Explore strategic partnerships
- Develop a "pilot project" package that is attractive to financing entities

As a next step, it is highly recommended that MEF plans and holds a **strategy workshop** or a series of workshops with selected relevant stakeholders in the Working Group of the Long-term Capacity Building Strategy for the Wind and Solar Sectors. The aim of this workshop(s) should be to systematically answer all questions listed above, in order to arrive at a well-structured and comprehensive strategy that is agreed upon by all participants.

GTZ has experience in organising and moderating this type of strategy workshops and could support MEF in this task. During the working group's workshop in Madrid (November 2010), EOI and CIEMAT also offered to host a workshop in order to the technical issues of the CB strategy and prepare for implementation of MEF's activities.

6. Financing the MEF long-term Strategy for Capacity Building for the Wind and Solar Sector

Financing is often the largest barrier to capacity building; and securing financing will be crucial for the success of a global capacity building strategy for wind and solar energy.

Regarding the context in which MEF was formed and is active, the most logical and promising financing source are the countries/governments involved in MEF's activities. MEF should focus on procuring funds from the Danish, German and Spanish Governments, but also from other governments member to the MEF.

Nevertheless, there might be other sources for financing, which should be taken under account. The process of identifying other possible, existing financing sources that could be applicable for the implementation of the Long-Term Strategy on Joint Capacity Building has been initiated, and a preliminary overview is available (Overview provided as an Excel sheet, additional to this report). In general, financing sources could be public institutions (government national and local budgets), private companies and organisations (e.g. RE technology providers), banks, donors, etc. The following list provides an overview over these general financing sources and what type of activities they could target:

- a) **International sources/ODA:** CB initiatives can be financed through funds from international cooperation and official development aid (ODA). Possible sources are:
 - Multilateral Funds (WB, GEF, EU-Africa Infrastructure Trust Fund, Climate Funds, etc.): mostly interesting for financing of large initiatives/programmes/projects with large investment volume.
 - Bilateral Funds (ODA): official development aid funds can be a significant source for funding different kinds of CB activities, ranging from the set-up of national initiatives, national CB strategy development, project implementation, etc.
- b) **Public Sources:** CB activities can be financed by national governments through public finance, i.e. national, regional and local budgets, potentially also national climate funds. Activities financed through public resources can range from including RE issues into national basic education curricula to supporting the establishment of national research and/or training centres for solar and wind technologies or RE, in general.
- c) **Private Sources:** the private sector (RE companies, banks, etc.) is also a potential financier for CB in the wind and solar sectors. Especially RE companies have an interest in assuring the availability of trained HR for the successful deployment of RE technologies. Apart from providing financing they also contribute to CB by providing know-how for the training of professionals and technicians.

Nevertheless, in order to be able to tap existing financing sources it is necessary to have a clear picture of what it is exactly what MEF wants to do (CB strategy is in place) and to develop concrete working packages that can be presented to financing institutions to obtain the financial resources necessary to develop them.

Another approach would be to assess the possibility of creating a new fund, managed by MEF, e.g. in cooperation with other stakeholders active in CB in the RE sector and with significant contributions from Denmark, Germany and/or Spain. While financing single activities might be an attractive option from a short-term perspective, in the long run, setting up a MEF fund could ensure that financial resources are available for longer periods of time, also allowing continuous financing of all of MEF's activities, rather than having to seek finance for single work packages.

Last but not least, the establishment of public-private partnerships (PPPs) could also be a mechanism to finance CB in the wind and solar sector. Especially in the RE sector, which has a relatively strong innovation character, the private sector has a significant interest that the framework conditions for the deployment of these technologies are optimised, which is partly achieved by enhancing the availability of skilled professionals and technicians that have the ability to plan, install and maintain RE projects.

The following is an overview over the identified possible, additional financing sources for MEF's CB activities. More details on each one of these sources can be found in the Excel Sheet, delivered as an Annex to this document:

Financing Source	Managing Institution	Programmes & Projects	Academic & Further Education
Second Energy Facility – 10 th EDF	European Commission	x	
CaPaLe	Asian Pacific Network for Global Change	x	
EU-Africa Infrastructure Fund	EU-Africa Partnership on Infrastructure	x	
NEPAD-IPPF Special Fund	African Development Bank	x	
REEEP Programme Calls	REEEP	x	
Global Network on Energy for Sustainable Development	UNEP	x	
Intelligent Energy Europe Programme	European Commission	x	
ENRTP	European Commission	x	
E8 Sustainable Energy Development Scholarship Programme	e8		x
JJ/WGBS Programme	World Bank		x
Robert S. MacNamara Fellowship Programme	World Bank		x
Japan Indonesian Presidential Scholarship Programme	World Bank		x
UNESCO/Russian Federation Co-Sponsored Fellowships	UNESCO/Russian Federation		x
MAEC AECID Scholarship for Spanish	AECID		x
MAEC AECID Scholarship for Foreigners	AECID		x

Additionally, Spanish representatives in the MEF working group suggested that the Spanish Agency for International Development Cooperation (AECID) could be potentially interested in financing some of MEF's activities in developing countries.

7. Final Remarks

- A large part of this report has been included into the MEF working paper: “A Long-Term Strategy on Joint Capacity Building – Work Package 2: Success Factors for a Long-Term Strategy”. As of December 2010, this paper is still in working progress and additional inputs will be fed into the paper, in the following year.
- GTZ has been asked to prepare a proposal for developing a Capacity Assessment Methodology for the Wind and Solar Sector and the execution of CA pilot projects. An initial draft has been prepared and is handed in as a separate deliverable (word document) to this consultancy.
- The final deliverables of this consultancy are: 1) “Best Practices in capacity Building Approaches” Report (Word Document), 2) “Mapping of Financing Sources” for MEF CB activities (Excel Sheet) and 3) “Capacity Needs Assessments for the Wind and Solar Sector” (Word Document). Additionally various inputs were prepared for inclusion the MEF working paper.

ANNEX I - Capacity Building Strategies/Initiatives Analysed

A – Renewable Energy Sector

a) Africa-EU Energy Partnership – AEEP

Objective	Through improved dialogue and cooperation the AEEP aims to increase the effectiveness of African and European efforts to: <ul style="list-style-type: none"> - Assure secure, reliable energy services in the coming decades on both continents - Extend access to modern energy services to the entire African population
Target	Priority on Institutional and organisational level but also HR development in the RE sector
Methods/ Approaches	Among others: <ul style="list-style-type: none"> - Create appropriate institutional and technical capacity; RE/EE policies, support centres, resource mapping - Support RE and EE programmes and projects - Support CB for national, regional and continental institutions (RECs, power pools, UPDEA, AFUR, AFREC, AFSEC) for instance on information systems, databases, planning standardisation, etc. - Support technical and political dialogue on CB - Facilitate contacts and exchange know-how between relevant EU bodies and their African counterparts, including possibly via twinning arrangements - Creating an international cooperation RE programme for Africa, including the establishment of regional RE centres - Seek for synergies with the REC CB programme and the IPPF - Promote access for African Institutions, organisations and enterprises to technology and CB programmes in the field of energy such as SAVE, ALTENER, INCO, ENRTP, etc.
Tools/Instruments	<ul style="list-style-type: none"> - Energy Facility I : e.g. CB Programmes for African Power Pools - EUEI Partnership Dialogue Facility - EU-Africa Infrastructure Trust Fund - Resource Mapping by the EU Joint Research Centre (JRC)
Implementation	<p>The EU is already working with some African countries to develop a Mediterranean Solar Plan. A Commission Communication on the Med-Ring for gas and electricity is planned for 2010. Major joint initiative to harness renewable energy will be launched with support from the EC and several EU member states.</p> <p>High level meeting on Energy took place in Vienna in mid-September 2010. EU and AU Commissioner(s) and a substantial number of European and African Ministers holding relevant portfolios attended. A wide-ranging Africa-EU renewable energy cooperation programme has been prepared and launched at the high level meeting. Some other concrete achievements of this partnership include:</p> <ul style="list-style-type: none"> - Integration of energy systems and markets: ex. Felou run-of-river hydropower plant (EIB, OMVS WB, support from EU – Africa

	<p>Infrastructure Trust Fund).</p> <ul style="list-style-type: none"> - Energy Access: Actions in 13 African countries, benefiting 3 million people is currently being extended to supplying an additional 2.5 million people with sustainable energy services. - Scaling up investments, mobilising private capital: the Emerging Africa Infrastructure Fund will be supported by KfW, DFID and Sida. The new ACP-EU Energy Facility will focus on renewable energy for access at local level - Renewable Energy and Energy Efficiency: concrete projects include: Olkaria Geothermal Power Plants in Kenya, the ECOWAS Renewable Energy Center.
Strengths/Weaknesses	Their activities show many similarities to the activities planned by MEF with regard to CB in the wind and solar sectors. Possibilities for cooperation are available (AEEP is actively looking for partners) and should be elaborated.
Documents/Links	See Reference List

b) ESMAP - World Bank

Objective	ESMAP's objective is to help its client countries increase know-how and institutional capacity to achieve environmentally sustainable energy solutions for poverty reduction and economic growth, by enabling better informed choices, increasing capacity and furthering the adoption of cutting-edge solutions. Furthermore, enhancing capacities shall serve the ultimate goal of increasing access to financing national RE deployment.
Target	Mainly Institutional Level but some of their activities also target the human resource level (e.g. "Capacity Building Among Small Scale Off-Grid Energy Suppliers" in Burkina Faso and Cameroon)
Methods/Approaches	<p>ESMAP focuses on three core functions:</p> <ul style="list-style-type: none"> - Think Tank - ESMAP aims to influence policy making and broaden knowledge horizons about cutting-edge solutions to global thematic challenges, by sponsoring a broad range of analytical and advisory services in its client countries - Knowledge Clearinghouse - ESMAP shares tools, best practices, and lessons learned through training events and knowledge exchange activities that are intended to enhance clients' capacity to plan, manage, and regulate energy sector strategies and programs - Operational Leveraging - ESMAP provides clients with "just-in-time" technical assistance to help them translate policies, strategies, and programs into results on the ground <p>ESMAP has four ongoing sets of Programmes:</p> <ul style="list-style-type: none"> - Energy Assessments and Strategy Programmes (EASP) - Pro-poor Energy Access Technical Assistance Programs (PEA-TAP) - Energy Efficient Cities Initiative (EECI) - Renewable Energy Market Transformation Initiative (REMTI)
Tools/Instruments	In 2009, ESMAP launched the Africa Electrification Initiative (AEI) , a CB programme that intends to create a living body of practical knowledge, sustained by a network of local practitioners in Sub-Saharan Africa- at electrification agencies, government ministries, regulatory bodies, and state community, or privately owned utilities. Aim is to pool their individual and collective expertise in designing and implementing electrification programmes and enable governments to use new planning tools to develop sector wide strategies to mobilize financing to invest in

	electrification access programmes.
Implementation	<p>ESMAP's work mainly consists in providing advisory services and carrying out studies. ESMAP has various implemented, ongoing and new activities related to CB. Here some examples:</p> <ul style="list-style-type: none"> - Institutional CB (Policy and regulations): "Policy and Capacity Building Support for Greater Mekong Subregion Power Trade" (new activity; EASP), "Institutional Framework Development and Capacity Building" in Guinea Bissau (ongoing activity, EASP), "Commercial Wind Development Framework" in Egypt (completed activity;REMTI) - Institutional CB (RE Know-how): "Capacity Building in Renewable Energy for Implementing Agencies in Latin America and the Caribbean" (new activity; REMTI) - Organisational CB: "Capacity Building for Electricity Market Operations" in Turkey (new activity; EASP) - Human Resource CB: "Capacity Building Among Small-Scale Off-Grid Energy Suppliers in Burkina Faso and Cameroon (completed activity, PEA-TAP).
Strengths/ Weaknesses	<ul style="list-style-type: none"> - REMTI is short cut in economic and human resources, which reduces their current ability to engage in activities - ESMAP is trying to focus more and more on the poorest of the developing countries
Documents/Links	http://www.esmap.org/esmap/

c) Group on Earth Observation – GEO

Objective	Increase access to Earth observation data and products and encourage decision makers worldwide to use these tools to guide their decisions in sustainable development planning and policy making
Target	Assess the utility of Earth system models to inform energy sector decision-making on the future availability of resources in a changing climate
Methods/ Approaches	<p>GEO was established in 2005 with the mandate to create a Global Earth Observation System of Systems (GEOSS). Among others, this system is building up a database for the management of Energy Resources. Group (I) A Global Solar and Wind Atlas should exploit potential cooperation and synergy effects with this initiative. One contact person is Marion Schroedter Homscheidt from the German Aeronautics Centre (DLR) – contact: marion.schroedter-homscheidt@dlr.de</p> <ul style="list-style-type: none"> - Management of Energy Resources (responsibility of the DLR): Support the development of Earth observation products and services for resource assessment, monitoring and forecasting of fluctuating energy sources (e.g. hydro, solar, wind, etc.). Consider end-to-end systems including generation, transmission, distribution, and integrated operations (e.g. efficient integration of energy sources into the electricity grid, and electricity grid management). Related activities will include: Promote collaboration between users and providers of Earth observation applications to foster the development of innovative Earth observation services in support of energy management. Expand the use of Earth observations in the development, operation and management of energy production systems. Assess the utility of Earth system models to inform energy sector decision-making on the future availability of resources in a changing climate. - Energy Environmental Impact Monitoring: Promote the development of Earth observation systems for monitoring and prediction of environmental impact from energy resource exploration, extraction, transportation and/or exploitation. Build upon the contribution of the European project EnerGEO. Related activities will include: Promote and develop the use of Earth observation data for impact monito-

	ring. Support the development of modeling systems helping to quantify and anticipate changes e.g. to freshwater, biodiversity, ecosystems, atmospheric and oceanic composition, and ground elevation.
Tools/Instruments	See GEO analysis in section B – Other sectors
Implementation	The process of building the Global Earth Observation Systems of Systems (GEOSS) has been initiated and first results have been achieved, including the performance of user surveys to identify the requirements of solar and wind data of different user groups.
Strengths/Weaknesses	GEO's vision with regards to mapping solar and wind resources world-wide and developing a global Earth observation system of systems coincides with the activities planned by the MEF working group on solar and wind atlases. There is a large potential for cooperation and a closer cooperation with this initiative should be furthered, in order to achieve synergy effects.
Documents/Links	http://www.earthobservations.org/documents/work%20plan/geo_wp0911_rev2_091210.pdf , http://www.earthobservations.org/

d) Renewable Energy and Energy Efficiency Partnership (REEEP)

Objective	Facilitate the transformation of energy systems by accelerating the uptake of renewable and energy efficiency technology, as a means of reducing carbon emissions, increasing energy security, and improving access to sustainable energy for the poor worldwide.
Target	<ul style="list-style-type: none"> ▪ Governments/Policy makers (institutional level) ▪ Private Sector
Methods/Approaches	<ul style="list-style-type: none"> ▪ Initiate and Fund RE and EE Projects ▪ Support policy maker networks ▪ Disseminate and replicate learnings from their projects through the development of toolkits, guidebooks, etc. Available at their “Build your Capacity” page on their website (see reference under Documents/Links below)
Tools/Instruments	<ul style="list-style-type: none"> ▪ reegle: search engine designed to provide easy access to the world’s best databases and information on RE and EE ▪ Clean energy blog: platform where users can post information, news, articles, etc. on issues of RE and EE ▪ Energy Efficiency Coalition (EEC): network of stakeholders established by REEEP to help draw together initiatives in the diverse EE field and to promote real action on the ground. Its priority area of focus is on buildings. ▪ Renewable Energy and International Law Network (REIL): in collaboration with Yale University (USA), REEEP supports the REIL sub-network of legal and technical experts in providing analysis of the barriers and opportunities in international law. ▪ Sustainable Energy Regulation Network (SERN): REEEP supports, in collaboration with Warwick University (UK), SERN to facilitate sharing amongst regulators on policy and regulatory mechanisms. SERN is comprised of regulatory bodies, government departments, energy companies, NGOs and researchers. ▪ Toolkits: Project outcomes of REEEP projects are made publically available online on a toolkit website ▪ REEEP/UNIDO Training Package on “Sustainable Energy Regulation and Policymaking for Africa”: this training package provides an introduction to the key issues relating to the energy market and energy regulation, as they affect sustainable energy ▪ ESCO Models: Information and material on how to build up ESCOs ▪ Training and Education Database (TED): REEEP had a training and education database in place, which had to be removed from the net, since they did not have the necessary funded to keep it up to date. They are currently looking for partners to bring this project back to life.
Implementation	Florian Bauer (REEEP Operations Managers responsible for all web-based tools and instruments of REEEP): “Our main lesson learnt was that

	such a platform [TED] is NOT self maintaining in case of up-to-date data. We offered all involved training providers, schools and universities to upload their courses (which they did, we had more than 600 courses there) but most of them never updated their records. We then hired a person to update this data centrally. However, our funding for this project was limited and we could not continue with in house capacity and had to temporarily close the system because we could not guarantee data accuracy anymore. This is where we are today - we are still looking for potential donors to improve and maintain the system (from the technical side, it is fully functional and we can start anytime again). I now did several projects like that, and my experience is that it is extremely hard to run such a platform without guaranteed long term funding (including manpower for updating entries manually). It has good chances to work if the participating companies will have a benefit (participants paying for courses), but it will be very difficult to keep records up to date for University, Schools, ... As I said, we have a technical finished solution here, which is not used at the moment. Maybe this is a good chance to re-activate it without replicating the effort we already made. Happy to discuss this in detail if this is an option for you - I think it could be worth thinking about saving money to establish a brand new platform and spending this money on man-power to ensure up-to-date data."
Strengths/Weaknesses	Cooperating with REEEP in the process of building up a MEF transparency platform for capacity building could provide important insight on factors that need to be considered in order to guarantee the successful implementation and long-term availability and use of such a platform.
Documents/Links	http://www.reegle.info/ (reegle), http://blog.reegle.info/ (Clean energy blog), http://www.reeep.org/file_upload/5272_tmpphpdh3Mm.pdf (Strategy Document), http://www.reeep.org/122/build-your-capacity.htm (Build you Capacity Page of REEEP's website), http://toolkits.reeep.org/ (toolkit database), http://africa-toolkit.reeep.org/ (REEEP/UNIDO Training Package)

e) GREET (UNESCO)

Objective	Enhancing the use and application of renewable energy sources and Strengthening national competencies by favouring exchange of knowledge and best practices;
Target	Institutional and human resource development, especially in the developing countries
Methods/Approaches	<ul style="list-style-type: none"> - Identification of local training needs, resources and priorities - Definition of curricula and organisation of training programmes at different levels, including continuing training for professionals (decision and policy makers, researchers, engineers, university teachers and technicians); - Design and field implementation of training tools and learning/teaching material; - Promotion of national/regional training centres of excellence at the regional level and; - Setting of standards and definition of energy training curricula.
Tools/Instruments	None publicly available
Implementation	Between 2004-2005 around 500 people in 27 different countries benefitted from GREET capacity building activities.
Strengths/Weaknesses	Very little to none information available online on this programme.
Documents/Links	http://www.fvee.de/fileadmin/publikationen/Themenhefte/sf2004/sf2004_03_02.pdf http://www.renknow.net/cms.showdetails?action=details&id=506&subID=2

B – Other Sectors

a) “Education for All” – UNESCO

Objective	The overall objective of “Education for All” is to pursue a broad-based strategy to ensure that the basic learning needs of every child, youth and adult are met within a generation and sustained thereafter. Every continent has developed its own strategy under the umbrella of “Education for All”
Target	
Methods/ Approaches	<ul style="list-style-type: none"> - Review and harmonization of existing policies and legislation - Increase the financing and rationalization of investment in education - Develop national, sub-regional and regional institutional capacities - Improve capacities for educational change - Improve the teaching and learning environment - Promote and support local research on education - Develop genuine and sustainable partnerships
Tools/Instruments	
Implementation	<ul style="list-style-type: none"> - Primary school enrolment increased by 82 Mio. pupils between 1990-2000 - DCs had enrolment rates over 80% - Decline of repetition and drop-out rates - Slight improvement in gender equality in primary schools
Strengths/ Weaknesses	Involves CB in all levels and has had significant impacts on education world wide.
Documents/Links	http://www.unesco.org/new/en/education/themes/leading-the-international-agenda/education-for-all-international-coordination/

b) Engineering Capacity Building Programme (ECBP)– GTZ

Objective	The ECBP is a reform programme aimed at accelerating industrial development in Ethiopia through CB
Target	Institutional, organisational and individual levels
Methods/ Approaches	<p>Among many others:</p> <ul style="list-style-type: none"> - Revision of engineering curricula and teachers’ curricula - Governance and management reform of universities - Strengthening cooperation between industry and university - Experience sharing between Ethiopian universities and cooperation between Ethiopian and European universities - Development of a modernisation strategy for the Technical and Vocational Education and Training (TVET) System

	<ul style="list-style-type: none"> - Introducing occupational standards - Introducing cooperative training - Training on TVET teachers - Building capacity of investment promotion agencies
Tools/Instruments	<ul style="list-style-type: none"> - Long-term and short-term Technical Assistance to private sector intermediary organisations, public services bodies and companies in the priority sectors; - Training courses and coaching for private stakeholders in management, product development, marketing and technical skills through long-term and short term experts; - Seminars and workshops on investment opportunities, export markets. - Organisation of international Trade Fairs in Ethiopia, international Trade Fair visits, Delegation trips and PR activities in Europe - Capacity building for Ethiopian Investment Promotion Agencies and network-building with regional IPAs - Twinning arrangements with one Ethiopian sector institution (long-term experts, short term experts, trainings); - In coordination with other donors, improving service delivery of public authorities and improving regulatory environment As a major bottleneck of all exporting sectors, customs procedures and cost will be eased through capacity development and software solutions and transport costs will be reduced through policy adjustments. - Establish linkage projects and input upgrading projects with MSMEs and lead companies in the priority sectors; - Support to quality infrastructure bodies including physical capacity building in the newly established Ethiopian Metrology Institute Chemical Reference Laboratory supporting all sectors, Microbiology laboratories in regions and - Upgrading of the new Ethiopian National Standards Body through a Twinning arrangement with a European leading institution (e.g. DIN) to help reforming the legal and institutional setup.
Implementation	<p>The programme was successful at many levels, e.g.:</p> <ul style="list-style-type: none"> - Revised curricula were successfully introduced in all engineering faculties - Occupational standards were developed - Financial support for centres for training of the trainers was secured - University reform was brought forward - Etc. <p>Some of the lessons learned throughout ECBP are:</p> <ul style="list-style-type: none"> - Motivation, ownership and leadership were identified as success factors - The twinning approach proved to be very effective in terms of knowledge and skills transfer - Importance of including the private sector in the establishment of curricula of engineers was underlined
Strengths/Weaknesses	<p>Good combination of short-term and long-term goals/processes, which on the one hand guarantee quick results (short-term) but also provide for an institutional change that ensures sustainability of CB in the long-term</p>
Documents/Links	<p>http://www.gtz.de/en/presse/14270.htm</p>

c) Group on Earth Observation – GEO

Objective	To achieve more coordination in Earth observation capacity building efforts and enhancing the availability and access to capacity building programmes to users. Increase access to Earth observation data and products and encourage decision makers worldwide to use these tools to guide their decisions in sustainable development planning and policy making
Target	<ul style="list-style-type: none"> - Building Infrastructure - Human resource CB (education and training) - Local institutional CB
Methods/ Approaches	<ul style="list-style-type: none"> ▪ Identify, coordinate and build synergies between existing efforts and Best Practices ▪ Enable human, technical and institutional capacity at national and regional level ▪ Focus on user needs (decision makers) – Capacity Building Needs and Gaps Assessment and Definition of Capacity Building Performance Indicators (see GEO 2009-2011 Workplan, p.13) ▪ Individual Capacity Building ▪ Foster Collaboration and Partnerships (building and strengthening national, regional and international networks) ▪ Collaboration with Donors (matching identified needs and gaps to Donor priorities, engaging the donor community to support building Earth observation capacity) ▪ Sustainability of CB efforts by awareness-raising
Tools/Instruments	<ul style="list-style-type: none"> ▪ Capacity Building Needs and Gaps Assessment and Definition of Capacity Building Performance Indicators: Preliminary survey and analysis of existing documentation to assess Earth observation capacity needs ▪ Capacity Building through GEO Web Portal (information exchange, access to resources for CB, networking, outreach) ▪ Best Practices Wiki: aggregation and community review of best practices in all fields of Earth observation. It is being provided by the IEEE Committee on Earth Observation (ICEO) to GEO ▪ Develop a global database of technical expertise for capacity building and related monitoring & evaluation mechanisms ▪ CB through Outreach and Awareness-raising: a) Earth Observation Game for Youth: Initiate an international contest to create a game that emphasizes the impact of Earth observation on societal conditions. Develop an outcome to work with students and young people through their recreational interest to participate in game playing. The winners will support introduction of the game on a global basis, both into schools and through community organizations. b) Building Capacity for Non-technical Decision-makers in the Use and Impact of Earth Observation: Maintain a GEOSS-focused web-based magazine for the general public and non-technical managers & decision-makers to complement existing capacity building efforts in GEO. Update the magazine(s) on a routine basis to inform and provide an understanding of the impacts of Earth observations on societal conditions and the benefits of global observation. Expand on existing GEOSS-focused web-pages to incorporate more material from developing countries. Enable access to the magazine(s) through the GEOPortal. c) User Oriented Workshops for GEOSS Outreach and Feedback: Organize a series of workshops to demonstrate the GEOSS Common Infrastructure to user. Continue series of global and regional workshops to provide avenues for user inputs into the GEOSS requirements and feedback on the operational aspects of GEOSS; Organize CB workshops to expose regional and local stakeholders to best practices in capacity building and to the benefits of the GEONETCast data dissemination system. d) Atlases of our Changing Environment: Draw the attention of national, regional and international authorities towards environmental issues and strengthen their capacity to monitor resources using Earth observations and communicating complex scientific data and information to policy makers. Provide information that underscores the intrinsic value of harnessing, visualizing and communicating technologies to gain a deeper understanding of the dynamics and impacts of environmental changes. Atlases use a combination of ground photographs; satellite images and narratives based on extensive scientific

	<p>evidence to illustrate how humans have altered their surroundings and continue to make changes to the global environment.</p> <ul style="list-style-type: none"> ▪ Seville Roadmap on Resource Mobilization: The road map aims to mobilize resources for building the capacity of the three key contributors to Earth observations: individuals, institutions and infrastructure. It also works to strengthen links between the user and donor communities ▪ Data Democracy - High Level Data Sharing principles: As part of the implementation of GEOSS, a team of experts has worked on the GEO Work Plan Task on GEOSS Data Sharing Principles DA-06-01 under the leadership of the Committee on Data for Science and Technology (CODATA) of the International Council for Science (ICSU). Over the past 2 years, the team has drafted a White Paper that provides an overview of international data sharing laws, principles, and policies and recommends a draft set of implementation guidelines for the GEOSS Data Sharing Principles. The White Paper builds upon a diverse history of data sharing practices to forge a set of specific guidelines for data sharing, consistent with the accepted Data Sharing Principles, that should enable GEOSS to maximize its societal benefits and realize its potential. (1) There will be full and open exchange of data, metadata, and products shared within GEOSS, recognizing relevant international instruments and national policies and legislation; (2) All shared data, metadata, and products will be made available with minimum time delay and minimum cost; (3) All shared data, metadata, and products free of charge or no more than cost of reproduction will be encouraged for research and education. November 2010: Guidelines considered for adoption at GEO-VII and Ministerial Summit. ▪ GEONETCast: will be a distribution system for GEOSS related data, information and products using communication satellites and low cost, self contained, stand alone, off-the-shelf reception stations. ▪ GEONET: a global communication network of interconnected networks by which GEOSS related information, data and products can be circulated and distributed in response to user and provider needs. GEONET is based on the sharing of national, regional and global telecommunications networks. GEONET comprises User Access, Data Exchange and Dissemination services. ▪ Establishment of Summer Institutes and Summer Schools (events) to establish and support regional training and capacity building programmes related to disaster management and emergency response, and other subjects ▪ Development of Training Modules and CB Programmes (e.g. for Agriculture, Water Management, etc.) ▪ Many other training and capacity building programmes worldwide (please refer to the GEO 2009-2011 Workplan)
Implementation	See reference above
Strengths/ Weaknesses	Well structured and formulated strategy, takes into account all levels of CB institutional, organisational and human CB. Also includes outreach and awareness-raising activities for the general public.
Documents/Links	GEO 2006 Ref. List, http://www.earthobservations.org/index.html , http://wiki.ieee-earth.org/ , http://www.earthobservations.org/geoss_dsp.shtml , http://www.earthobservations.org/documents/work%20plan/geo_wp0911_rev2_091210.pdf , http://www.earthobservations.org/documents/geo_iv/23_Mobilizing%20resources%20for%20implementing%20GEOSS_The%20Seville%20Roadmap.pdf ,

d) Human Capacity Building Plan for scaling up HIV/AIDS Treatment – “3 by 5” Initiative - WHO

Objective	Ensure the availability within countries of a sufficient number of appropriately qualified individuals for the emergency scale up of antiretroviral treatment services to 3 million people by the end of 2005
Target	<ul style="list-style-type: none"> ▪ Human Resources for HIV/AIDS Treatment (urgency action) ▪ Institutional Capacity Building to bring forward the urgency of tackling the HIV/AIDS pandemic ▪ Organisational CB: establishing global, regional and national training providers (multipliers)
Methods/ Approaches	<ul style="list-style-type: none"> ▪ Global Leadership, strong Partnership and Advocacy: Using existing expertise and training material at regional, national level to build upon; Using existing regional offices and local partners and networks to disseminate training material ▪ Simplified Standardized Tools for Delivering Training: simplifying and standardising treatment regimes, making available training packages, adapt training packages to country needs ▪ Urgent, sustained Country Support: establish local mechanisms for training certification and quality control, include HIV/AIDS training modules to the curricula in academic (medical) institutions ▪ Rapidly identifying and reapplying new knowledge and successes (“learning by doing”).
Tools/Instruments	<ul style="list-style-type: none"> ▪ Compilation of existing resources: collection, review and joint publication of training material, adaptation of material to country needs ▪ International Capacity Building Helpdesk ▪ Development of a Training Resource Inventory (Capacity Needs Assessment) ▪ Continuous Review and Adaptation of Training Material (Monitoring and Corrective Actions) ▪ Certification of Trainees (quality control)
Implementation	<ul style="list-style-type: none"> ▪ The number of people on antiretroviral therapy (ART) in low- and middle-income countries nearly doubled in 2005 alone (to about 20% of those needing treatment). However, this was less than half of what “3 by 5” set out to achieve. ▪ The “3 by 5” Initiative substantially contributed to promoting the right to health for people with HIV/AIDS (PLHA). It established antiretroviral treatment (ART) as an essential element of public health.
Strengths/ Weaknesses	<ul style="list-style-type: none"> ▪ According to the results of the external evaluation of “3by5” (see ... 2006), better results could have been achieved if WHO would have taken a more systematic approach at exploiting partnerships and networks. It seems that coordination among the different AIDS initiatives within the UN Institutions and other global health initiatives was limited, which lead to efficiency losses and not achieving the target. ▪ Recent literature and the WHO HIV/AIDS website show no evidence that the International Capacity Building Helpdesk was established. Nonetheless, WHO published basic training packages for ART and other HIV/AIDS treatments, as well as statistics on the spread of the disease. Prevention information, strategic information and other relevant issues that contribute to CB on their website
Documents/Links	http://www.who.int/hiv/pub/me/3by5evaluation/en/index.html

e) National Capacity Self-Assessment (NCSA) Global Support Programme - UNEP, UNDP, GEF

Objective	<p>The purpose of the NCSA is to enable each participating country to</p> <ol style="list-style-type: none"> 1. review the global environment issues that require its priority attention, particularly, but not exclusively, with regard to issues covered by the Rio conventions; 2. determine what capacity development is needed to strengthen management of these issues; and 3. prepare a national plan of capacity development actions. <p>Subsequently, beyond the NCSA, countries will be able to implement their capacity development plans, leading to systematic strengthening of management systems and institutions to address the environmental issues identified.</p>										
Target	Governments (to formulate and implement CD plans in all 3 levels of CD)										
Methods/ Approaches	<ul style="list-style-type: none"> - Each country prepares a NCSA proposal (plan and budget), supported by one of the GEF implementing agencies - GEF provides financing if proposal is approved - The NCSAs are then implemented according to guidelines developed by the GEF-Secretariat and IAs, as a standard sequence of analysis and planning steps: <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Formulation</td> <td>Country drafting and GEF approval of the NCSA proposal</td> </tr> <tr> <td>Inception</td> <td>Organization of the country Enabling Activity</td> </tr> <tr> <td>Capacity needs assessment</td> <td>Stocktaking and analysis of capacity needs</td> </tr> <tr> <td>Action Plan preparation</td> <td>Drafting and approval of a plan for developing country capacity</td> </tr> <tr> <td>Completion</td> <td>Final reporting and closure of the Enabling Activity</td> </tr> </table>	Formulation	Country drafting and GEF approval of the NCSA proposal	Inception	Organization of the country Enabling Activity	Capacity needs assessment	Stocktaking and analysis of capacity needs	Action Plan preparation	Drafting and approval of a plan for developing country capacity	Completion	Final reporting and closure of the Enabling Activity
Formulation	Country drafting and GEF approval of the NCSA proposal										
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Capacity needs assessment	Stocktaking and analysis of capacity needs										
Action Plan preparation	Drafting and approval of a plan for developing country capacity										
Completion	Final reporting and closure of the Enabling Activity										
Tools/Instruments	<ul style="list-style-type: none"> ▪ Capacity Assessment Methodologies: <ul style="list-style-type: none"> - NCSA Resource Kit - UNDP Capacity Assessment Practice Note - UNDP Capacity Assessment User's Guide - GEF Guide for Self-Assessment of Country Capacity Needs for Global Environmental Management ▪ Other documentation related to CA available at their website ▪ Workshops ▪ NCSA Teams Network ▪ Reference List to relevant Documentation on CD 										
Implementation	<p>The NCSA has published a set of Lessons Learned and Best Practices on their website. Lessons learned are divided into two categories: 1. LL during the preparation of the NCSAs and 2. LL from the Implementation of the NCSAs</p> <ol style="list-style-type: none"> 1. LL during the preparation of NCSAs <ul style="list-style-type: none"> ▪ The CA process needs to be systematically organised: the process was the most successful where participants had agreed on a clear strategic purpose and work programme and included substantial efforts in stakeholder consultation, desk studies, expert review, complex analysis and priority setting 										

	<ul style="list-style-type: none"> ▪ Stakeholder engagement – Institutional Coordination, Leadership and Participation: Extensive consultation was a feature of many of the completed NCSAs, seeking to gain diverse inputs to the needs assessment and planning exercise, and to secure stakeholder interest and commitment to subsequent capacity development. ▪ Information Management during the CA Process: The NCSA process is complex, dealing with a broad range of issues and involving diverse institutions, consultative processes, data-gathering and analyses. It is important to adequately record the results obtained. To handle the volume and diversity of inputs from respondents, it is good practice for the NCSA team to prepare in advance for the data handling and processing that will be required, and to devise a transparent mechanism for the resolution of multiple and conflicting views into a coherent strategy. Many NCSA teams also report that increased information exchange and networking beyond the government sector were among the good practices they adopted. A number of NCSAs developed their own communications strategies and used them throughout the process to target a diversity of selected audiences with suitable products, events and media. This proved an effective means of strengthening engagement in the initiative. Several NCSAs produced informative and educational materials on substantive matters of concern, in addition to publicity for the project. Useful outputs from many of the completed NCSAs are Web-based resource materials; these can be used to develop a national environmental database to serve longer term needs for capacity development in environmental management. ▪ Building Capacity for the CA itself: locally people need to be trained to be able to carry out CAs independently. <p>2. LL from the implementation of the NCSAs:</p> <ul style="list-style-type: none"> ▪ Capacities in the Managerial System: the interconnected set of capacities held by stakeholder institutions form the enabling environment for CB. The NCSA process entails developing a detailed understanding of the functioning and interconnection of these capacities to diagnose strengths and weaknesses in the country's environmental management system, and prescribe CB actions to address critical needs ▪ CD requires substantive objectives: The NCSA process involves confirming the country's substantive strategic priorities; determining the capacities needed to manage them effectively; and developing a suitable plan of action. It is important to retain the logical connection between the set of proposed capacity actions and the planned higher objective: each should be specified in the CD action plan in some form of logical framework with targets and indicators. ▪ Build upon existing processes, documentation, instruments: The important lesson is to review, connect with and build upon the results of other Enabling Activities; and not to simply repeat their assessments. Applying this lesson enables the NCSA to devote its limited resources to the main task of analysing the capacity constraints that underlie the priority issues identified by the other Enabling Activities. ▪ Integrated National Environmental Planning and Mainstreaming: An important lesson is that capacity development strategies and actions need to be designed as integral parts of country programmes and enhanced regular projects.
Strengths/Weaknesses	MEF can draw upon lessons learned from the NCSAs process and profit from existing methodologies
Documents/Links	http://ncsa.undp.org/index.cfm (main page), http://ncsa.undp.org/report_detail.cfm?Projectid=206 (lessons learned), http://ncsa.undp.org/report_detail.cfm?Projectid=207 (capacity assessment methodologies), http://ncsa.undp.org/report_detail.cfm?Projectid=211 (reference list CD)

f) Technology Needs Assessments (TNA) – UNFCCC

Objective	The purpose of a TNA is to identify, evaluate and prioritize the technological means for achieving sustainable development in developing countries, increasing resilience to climate change, and avoiding dangerous anthropogenic climate change. Part of the TNA involves capacity needs assessments in developing countries. Findings can be the basis for a portfolio of projects using environmentally sustainable technologies (ESTs) and programmes which can facilitate the transfer of, and access to, feasible technologies.
Target	Decision and policy-makers and relevant stakeholders from all levels in non-Annex I countries.
Methods/ Approaches	<ul style="list-style-type: none"> - TNA are seen as country-driven activities to identify mitigation and adaptation technology priorities - They involve different stakeholders in a consultative process to identify the barriers to technology transfer - They should further identify measures to address these barriers through sectoral analyses - These may include soft and hard technologies, regulatory options and fiscal and financial incentives as well as capacity-building - Capacity development in the TNA process is seen as a possible mean to accelerate and facilitate technology transfer, and is understood as a system-wide issue with entry points at all levels (micro, meso, macro)
Tools/Instruments	<ul style="list-style-type: none"> - TNA handbook: developed by UNDP (2010) to help countries conducting TNAs, leads through the participative and iterative decision process and the elaboration of the final TNA report - TNAssess: supporting software tool for undertaking the country and sector prioritization process - ClimateTechWiki: provides detailed descriptions of ESTs for different sectors and categories - TNA formulation aid: assists in recording the outputs from the TNA exercise in a standardized fashion
Implementation	<p>To date, around 70 TNAs have been reported, including more than 200 project proposals. The proposals will be listed in a comprehensive database, which will be featured on the TT: Clear web site (http://unfccc.int/ttclear). The main objective of the database will be to facilitate project search through relevant criteria as sector, project size, budget, and timing of the project, including the planned start of project operation.</p> <p>The UNFCCC secretariat, in cooperation with UNIDO, UNEP and CTI, is organising a series of trainings of project champions to prepare bankable project proposals, in order to transform project ideas into feasible proposals, and to assist the financial assessment necessary for implementation. The secretariat also prepared 2 synthesis reports on technology needs identified by non-Annex I Parties based on the TNAs available and on the technology needs identified in their National Communications (NC). Furthermore, a number of workshops have been held to share lessons learned in conducting TNAs and assist parties with the elaboration of TNA reports.</p>
Strengths/ Weaknesses	TNAs can provide a comprehensive overview of required technologies and capacity needs in the countries. The process can provide a final list of technology needs in the areas of climate change mitigation and adaptation through an analysis that takes account of national development plans and strategies, in accordance with a wide range of interests and stakeholders in the countries. However, as most TNA re-ports were written before the UNDP handbook was available, they vary considerably in size and quality and structures and methods used.
Documents/Links	<p>TT : Clear web site: http://unfccc.int/ttclear</p> <p>TNA country reports: http://unfccc.int/ttclear/jsp/TNAReports.jsp</p> <p>TNA Handbook (UNDP): http://unfccc.int/ttclear/jsp/TNAHandbook.jsp</p> <p>UNDP Lessons learned from TNA: http://unfccc.int/ttclear/pdf/TNA/UNDP/UNDP-TNA-Report.doc</p> <p>UNEP Lessons learned from TNA: http://unfccc.int/ttclear/pdf/TNA/UNEP/UNEP-TNAReports.pdf</p>

ANNEX II - Extensive List of the Capacity Building Programmes/Initiatives/ Projects Reviewed

Organisation	Programme/Initiative/Project	Description	Links	Comments
EU	Africa-EU Energy Partnership	<p>The AEEP is a long-term framework for structured political dialogue and cooperation between Africa and the EU on energy issues of strategic importance, reflecting African and European needs. Through the Partnership, Africa and Europe will work together to develop a shared vision and common policy answers, and to stimulate specific actions that address the energy challenges of the 21st century.</p> <p>The Partnership will strengthen the existing Africa-EU dialogue on access to energy and energy security, at the local, national, regional, continental and global levels. The AEEP aims at mobilising increased financial, technical and human resources in support of Africa's energy development, scaling up European and African investments in energy infrastructure and in energy interconnections within Africa and between Africa and the EU. AEEP actions will address both institutional and capacity issues, as well as investments in infrastructure. AEEP actions include promoting renewable energy and energy efficiency, improving the management of energy resources, and mainstreaming climate change¹ into development cooperation.</p>	<p>http://www.africa-eu-partnership.org/partnerships/energy</p> <p>http://www.africa-eu-partnership.org/sites/default/files/eas2007_action_plan_2008_2010_en_6.pdf</p> <p>http://www.africa-eu-partnership.org/sites/default/files/aEEP_road_map_en.pdf</p>	Included in Analysis, see Annex I
GEO	GEO Capacity Building Strategy	<p>The Group on Earth Observations is coordinating efforts to build a Global Earth Observation System of Systems, or GEOSS.</p> <p>GEO was launched in response to calls for action by the 2002 World Summit on Sustainable Development and by the G8 (Group of Eight) leading industrialized countries. These high-level meetings recognized that international collaboration is essential for exploiting the growing potential of Earth observations to support</p>	<p>http://www.earthobservations.org/index.html</p> <p>http://wiki.ieee-earth.org/</p> <p>http://www.earthobservations.org/geoss_dsp.shtml</p> <p>http://www.earthobservations.org/documents/work%20plan/geo_wp0911_rev2_091210.pdf</p> <p>http://www.earthobservations.org/</p>	Included in Analysis, see Annex I

		decision making in an increasingly complex and environmentally stressed world.	.org/documents/geo_iv/23_Mobilizing%20resources%20for%20implementing%20GEOSS_The%20Seville%20Roadmap.pdf	
IMET, TMIE, ANME	MEDREC	<p>The Italian Ministry of The Environment and Territory (IMET), the Ministry for Industry and Energy of Tunisia (TMIE) and the Tunisian National Agency for Energy Efficiency (ANME), signed on January 26, 2004 a Memorandum of Understanding for establishing in Tunis a Centre for training, information dissemination, networking and development of pilot projects in the field of renewable energies (MEDREC).</p> <p>The mission of MEDREC is to develop regional competencies through the transfer of technologies, the training of human capacities, the dissemination of information in the field of renewable energies (REs) and The enhancement of the positive role of “Tradable Renewable Certificates” (TRECs) and “Certified Emission Reductions” (CERs) in boosting private sector investments in the Region, through:</p> <ul style="list-style-type: none"> ▪ The promotion and development of projects in the field of RE in the Mediterranean Region. ▪ The deployment of financing sources and mechanisms’ options for the financial support of RE projects ▪ The networking between the different countries of the region through the exchange of experiences, the capitalization of the know-how and the transfer of technologies issued from the projects results 	http://www.medrec.org/en/about_medrec.php	
REEEP	1 – RETscreen 2 - CB Toolkits 3 - reegle (database)	The Renewable Energy & Energy Efficiency Partnership (REEEP) was created 2002 and is a non-profit, specialist change agent aiming to catalyse the market for RE and EE, with a primary focus on emerging markets and developing countries.	http://ted.reegle.info http://www.reeep.org/122/build-your-capacity.htm www.reegle.info www.retscreen.net	Included in Analysis, see Annex I

		<p>It is now comprised of 300 partners including 45 governments as well as a range of private companies and international organisations.</p> <p>REEEP is supported primarily by governments (Australia, Austria, Canada, the European Union, Germany, Ireland, Italy, Netherlands, New Zealand, Norway, Spain, the US and the United Kingdom) and by contributions from the private sector.</p> <p>REEEP provides and/or supports a wide range of online tools, news items, publications, its website and events.</p> <p>Toolkits Project outcomes of REEEP projects are made publicly available online. A toolkit website forms a valuable resource for project developers and other stakeholders.</p> <p>reegle is a search engine designed to provide easy access to the world's best databases and information on renewable energy and energy efficiency, by only accessing those data sources with the most accurate and up-to-date information. It was developed by REEEP in collaboration with REN21, and was funded by the governments of Germany, Netherlands, UK</p> <p>RETScreen REEEP supports the clean energy project analysis tool www.retscreen.net, which seeks to build the capacity of planners, decision-makers and industry to implement renewable energy and energy efficiency projects. It is made publically available free of charge by the Canadian government, and REEEP has helped support its translation into 35 languages</p>		
Regional Environmental Centre (REC) for Central and	Climate Change Topic Area	The REC supports efforts to respond to the challenges of climate change, including both mitigation and adaptation by: Identifying capacity-building needs;	http://www.rec.org/topicarea.php?id=11	

Eastern Europe		Communicating those needs to the international climate change community; Supporting the development of policies and measures to achieve compliance with GHG emission reduction targets; Providing a forum for stakeholder dialogue; Strengthening regional cooperation; Fostering the exchange of good practices and experience; Promoting transparency and public participation in climate-related decision making.		
UNESCO	Education for All	The Programme aims at meeting basic learning needs for children and adults by universalising access to and promoting equity in education.	http://www.unesco.org/en/efa/	Included in Analysis, see Annex I
UNESCO	GREET	Recognizing that the supply of a skilled workforce is a critical element in the transfer of technology and due to the enormous needs for institutional and human resource development especially in the developing countries, UNESCO launched the Global Renewable Energy Education and Training (GREET) Programme as an instrument to help the international community address this issue. The GREET programme strategic objectives and main activities aiming to promote institutional and human capacity building reflects the need, especially in developing countries, for education in fundamental disciplines and specialised training for professionals at different levels of responsibility.	http://portal.unesco.org/science/en/ev.php-URL_ID=7866&URL_DO=DO_TOPIC&URL_SECTION=201.html	Very little information can be found on the GREET Programme in the Internet
WHO	"3 by 5" Human Capacity Building Plan for Scaling up HIV/AIDS Treatment	"3 by 5" is a programme of work over a two-year period from December 2003, undertaken by WHO in collaboration with UNAIDS and other partners "to support the expansion of access to ART to 3 million people with HIV/AIDS in developing countries by the end of 2005". The "3 by 5" target was based on the belief that it would be feasible to provide ART to 50%	http://www.who.int/hiv/pub/me/3by5evaluation/en/index.html	Included in Analysis, see Annex I

		<p>of those who needed it. The programme was pursued through five strategic objectives that reflect core functions of the institution:</p> <ul style="list-style-type: none"> i. global leadership, strong partnership and advocacy; ii. urgent, sustained country support; iii. simplified, standardized tools for delivering ART iv. effective, reliable supply of medicines and diagnostics; and v. rapidly identifying and reapplying new knowledge and successes (“learning by doing”). 		
Winrock International India	Solar Finance Capacity Building Initiative	Winrock International India (WII) and Winrock International India (WI) worked together with a team of local and international experts to implement the Solar Finance Capacity Building Initiative (SFCBI) that would enhance financing opportunities for renewable energy projects, especially in solar energy, in India.	http://www.winrockindia.org/comp_proj_ene_sfcbi_26.htm	
World Bank	Energy Sector Management Assistance Program (ESMAP)	ESMAP was established in 1983 and aims at helping its client countries to increase their know-how and institutional capacity to achieve environmentally sustainable energy solutions for poverty.	http://www.esmap.org/esmap/	Included in Analysis, see Annex I

ANNEX III - Renewable Energy, Wind Technology and Solar Technology Centres in the World

Country	Name of Centre	General Information	CB Activities	Links
Renewable Energy				
Algeria (active nationally)	Centre de Développement des Energies Renouvelables (CDER).	CDER was founded 1988 with the aim to develop and implement research and technology programmes in the areas of solar, wind, geothermal and biomass energy.	All projects include CB activities and they organise seminars to topics related to RE and EE	http://www.cder.dz/
Argentina (active nationally)	Fundación Bariloche	Energy Programme: development of basic and applied research activities, training, dissemination and technical assistance in the field of economics, energy planning and policy.	Various seminars and short courses related to Energy, e.g. currently: Seminar on LEAP	http://www.fundacionbariloche.org.ar/english/index_en.html Member of GNESD ³ Network
Argentina (active nationally)	Instituto Nacional de Energías No Convencionales (INENCO)	1981 INENCO, founded in 1981 by UNSA and the National Council of Scientific and Technical Research (CONICET) conducts research on non-conventional energy.	Organise seminars and courses in their areas of competency and publish research.	http://www.inenco.net/
Bolivia (active nationally)	Centro de Información de Energía Renovable (CINER)	CINER was established in 1991 as a working unit within the Program for the dissemination of RE supported by GTZ. In 1997, CINER became an NGO and promotes sustainable development, providing advice, information, and training of HR in energy related issues, and through: Formulation of policies and strategies, planning, Technical development, Project design and execution, Project management, M&E	Offers training in RE Technologies, Planning and Monitoring, among others. Organises events in RE topics	http://www.ciner.org

³ The Global Network on Energy for Sustainable Development (GNESD) is a UNEP facilitated knowledge network of Centres of Excellence and network partners worldwide. The main objective of GNESD is to carry out policy analysis on thematic energy issues which can facilitate in reaching the Millennium Development Goals (MDG).

Country	Name of Centre	General Information	CB Activities	Links
Renewable Energy				
Cape Verde (active in West Africa)	Centre for Renewable Energy and Energy Efficiency (ECREEE),	The ECREEE, founded in June 2010 (supported by UNIDO and the Government of Austria, Cape Verde and Spain), is a specialized agency of the Economic Community of West African States (ECOWAS), based in Praia. Its aim will be to help develop RE and EE markets in West Africa, formulate policy, build capacity and quality assurance mechanisms, as well design financing plans. The centre will also implement demonstration projects with potential for regional scaling up.	CD, training, awareness raising, knowledge management in RE subjects. The target group are policy makers, energy services companies, private sector, national institutions, research institutions, etc.	http://www.ecreee.org/ http://ecreee.vs120081.hl-users.com/website/index.php?aid=12
Cuba (active nationally)	Centro de Estudios de Tecnologías Energéticas Renovables (CETER)	CETER is a research centre of the University "Instituto Superior Politécnico José Antonio Echeverría" in La Habana	No detailed information available on the website	http://www.cujae.edu.cu/esp/paginas/investigaciones/centros_investigacion.html Member of the WWEI Network ⁴
Czech Republic (active nationally)	Centre for Transport and Energy	The Centre for Transport and Energy is a non-profit non-governmental organisation founded in 2000 that focuses on the environmental impacts of transportation and energy production, especially on the Earth's climate. Its goal is building and reinforcing a wide platform of groups and individuals who are interested in working towards sustainable transport and energy future.	Promotion and Awareness Raising Activities for RE	http://cde.ecn.cz/english.shtml

⁴ The World Wind Energy Institute (WWEI) is a worldwide decentralized network of training and research centres specialising in wind energy and for most centres also other renewable energy technologies. The eighth WWEI centres are located in four continents and provide postgraduate training focusing on renewable energy research, development and implementation to facilitate both access to modern energy services, and the crucial transition from fossil fuels and atomic energy to 100% renewable energy sources.

Country	Name of Centre	General Information	CB Activities	Links
Renewable Energy				
Denmark (active internationally)	UNEP Risø Centre	Facilitate a shift towards cleaner and more efficient energy systems and support climate resilient sustainable development, mainly in DCs; through providing research, policy analysis and CB.	Several CDM related CB activities, capacity enhancement and mobilisation for energy, etc.	http://uneprisoe.org/ Member of GNESD Network
Denmark (active internationally, have two dependencies in Mali and Uganda)	Nordic Folkecenter for Renewable Energy	The Nordic Folkecenter for Renewable Energy is a non-profit, independent, organisation that provides R&D of technology, training and information, Industrial innovation and implementation of RE technologies and energy savings in Denmark and throughout the world. It is supported by local authorities, national/ international agencies, and industry.	Offer training for staff of RE systems (manufacturing, procurement of components, assembly, testing) A number of publications and other downloads are available on their website.	http://www.folkecenter.net/gb/ http://www.malifolkecenter.org/ Member of the WWEI Network
Egypt (active in Egypt, Algeria, Jordan, Lebanon, Libya, Morocco, Palestine, Tunisia and Yemen)	Regional Centre for Renewable Energy and Energy Efficiency (RCREEE)	RCREEE is an independent regional think tank based in Cairo, dedicated to the promotion of RE and EE. RCREEE formulates and disseminates policies in support of RE and EE and provides a platform for regional exchange on policy issues and technological questions. In addition, RCREEE encourages the participation of the private sector in order to promote the growth of a regional RE and EE industry.	None specified on their website	http://www.rcreee.org/index.aspx
Germany (active nationally at a regional level with a few projects on a European level)	The European Centre for Renewable Energy (EEE)	The. EEE, founded in 1996 in Güssing, develops regional and community-based concepts for energy conservation and for the generation and use of RE. It carries out research and development and project management and it organises lectures and training in the field of RE.	Offers training and further education of several topics in the RE sector	http://www.eee-info.net/cms/EN/

Country	Name of Centre	General Information	CB Activities	Links
Renewable Energy				
Germany	Renewables Academy (RENAC)	RENAC offers trainings for technicians and engineers, developers and investors, lawyers and decision makers on the fundamentals about RE and EE. RENAC specializes in the conveyance of experience and knowledge on the production, planning and engineering of RE technologies, their financing, marketing and sales, and the opening up of international markets for RE and EE technologies. RENAC training is demand-oriented. Clients include companies in the RE Industry, decision-makers in policy-making and administration and students. RENAC has a Training Center for practical exercises based in Berlin and an energy reference library.	RENAC offers training in renewable energy in general, photovoltaic technologies, wind technologies and solar thermal technologies. They do not only cover the technical aspects but also other relevant topics such as calculation of profitability and financing, project management, international market development, marketing and sales.	http://www.renac.de/en/home/
Ghana (active nationally)	Energy Foundation Ghana	The Energy Foundation Ghana is a non-profit, private sector institution, devoted to the promotion of EE and RE established in 1997. It is particularly strong in the following areas: Public Education and Awareness Building, Institutional Development and Capacity Building for EE, Policy Advocacy for the adoption of EE as a National Strategy, among others	CB and trainings mainly in the area of EE	http://www.ghanaef.org/
Hungary (active in central and eastern Europe)	Renewable Energy, Energy Efficiency Training and Demonstration Centre	REC is working on establishing this Centre in the city of Szentendre in Hungary	Not specified yet	http://documents.rec.org/about/STRATEGY_2006-2010.pdf
Kenya (active in the African region)	AFREPREN/FWD	Strengthen local research capacity and harness it in the service of energy policy making and planning.	Disseminate information about current CB activities in the African region. Currently involved in the project CoGen (GEF)	http://www.afrepren.org/index.htm Member of GNESD Network

Country	Name of Centre	General Information	CB Activities	Links
Renewable Energy				
Liberia (active nationally)	Center for Sustainable Energy Technology (CSET)	The CSET is a non-profit, non-political, and non-governmental development organisation involved in energy and development research, and related policy interventions for sustainable development and poverty reduction in Liberia. CSET is involved in advocacy, public awareness programs and conducting workshops/seminars for the spread of information on the use of clean and sustainable energy technologies in Liberia.	Institutional and human capacity development and policy reforms No details available as page is under construction	http://csetliberia.org/
Lithuania (active nationally)	Renewable Energy Information Consultation Centre (ATEIK)	ATEIK is an independent non-profit NGO established in 2002. The main aim of ATEIK is to further the sustainable development, evolving and promoting RE, by: Informing and educating society about RE development, researching and analysing RE application options, developing demonstration projects and building bridges between manufacturers, researchers and RE users.	No own website available	http://www.ateik.info/
Mali (active nationally)	Mali Folke Center	Mali Folkcenter Nyetaa (MFC) was founded in 1999. The purpose of the MFC is to increase awareness and use of RE. MFC has done many projects in cooperation with foreign donors in photovoltaic, vegetable oil, fighting climate change, CB.	CB in communities, especially PV	http://www.malifolkecenter.org/
Mediterranean Region (Algeria, Egypt, Libya, Morocco, Tunisia)	MEDREC	Develop regional competencies through the transfer of technologies, the training of human capacities, the dissemination of information in the field of RE	A variety of courses, CB Programmes and trainings on RE topics. Currently, e.g. training of trainers in SWH	http://www.medrec.org/en/index.php Member of GNESD Network

Country	Name of Centre	General Information	CB Activities	Links
Renewable Energy				
Palestine (active nationally)	Palestinian Energy and Environment Research Center (PEC)	PEC is a national R&D institution responsible for RE and EE, established in 1993. The main responsibilities of PEC are: Efficient utilization of RE resources and raising its contribution in the energy balance sheet, Raising the EE, scientific and technological research facilities that encourage research and investment in clean and efficient technologies, Awareness dissemination, know-how transfer and upgrading of technical capacities.	Organise events and hold workshops in solar applications, wind applications, manufacturing of solar water heaters, among others Courses and technical consultancy to decision makers, end users and interested bodies in public and private sectors.	http://www.perc.ps/index.htm
Russia	InterSolarCentre (ISC)	The ISC is a non-commercial organisation established in 1994 with the support of the Ministry of Industry and Technologies, the Ministry of Energy of the Russian Federation (RF), and the Russian Academy of Agricultural Sciences (RAAS) and supported by UNESCO. Its main objective is to integrate intellectual and financial resources in Russia to solve problems of RE application and establish contacts with international organisations for development and realisation of RE projects.	Provide information and training on RE sources, Provide information and consultancy on RE for the political decision-makers on a local, regional, national and international level, Publish information material on RE, Organize national and international RE conferences etc.	http://www.intersolar.ru
Russia	International Sustainable Energy Development Centre (ISEDC)	The Centre was founded as an international forum to foster dialogue of all stakeholders on a wide range of issues in energy field, for the benefit of global energy security and EE, as a guarantee of sustainable economic and social development in the world. The Centre has a status of international organisation operating under the auspices of UNESCO.	ISEDC Training Programme: grants to attract international professionals in the energy field to work in Russian companies or Higher Educational Establishments. Conferences and Seminars, mainly for the industry, on sustainable energy development.	http://www.isedc-u.com/index.php?lang=en

Country	Name of Centre	General Information	CB Activities	Links
Renewable Energy				
Senegal (active in the African region)	Environnement et Développement du Tiers Monde (ENDA)	ENDA's Energy Program aims at contributing to a better technical, economic and socio-cultural understanding of energy issues in Africa and increasing access to affordable energy services and EE technologies for the underprivileged. ENDA also works with assisting energy professionals and strengthening cooperation and dialogue between countries.	Webpage not accessible	www.enda.sn/index.html Member of GNESD Network
South Africa (active in the African region)	Energy Research Centre (ERC)	Seeks to be a leading energy and energy policy research, development and CB institution by undertaking research on the energy needs, problems and challenges in Africa, contributing to transformation, improved social equity, economic efficiency and environmental sustainability, educating, training and developing human resources in the energy sector.	Masters and PhDs in Energy Technology or Energy Policy Short courses and seminars to RE related topics, including wind and solar	http://www.erc.uct.ac.za/ Member of GNESD Network
Spain	Centro de Investigaciones Energéticas Medioambientales y Tecnológicas (CIEMAT)	CIEMAT generates knowledge and technology in the field of energy, both from renewable and conventional resources. The centre carries out research development and demonstration programmes in concentrating solar energy, an area, in which it can be considered a European centre of reference, as well as wind power, photovoltaic and biomass. It supports the Ibero-American Network of Experts which aims to encourage knowledge and best practices exchange and to strengthen the member institutions by generating knowledge via networking.	CIEMAT transfers knowledge and capacities within its research projects and trainings. It supports a data base for research and education: http://www.energiasrenovables.ciemat.es CIEMAT hosts a virtual classroom (Aula Virtual), which supports training courses on solar PV and wind and online courses on RE Management.	http://www.ciemat.es

Country	Name of Centre	General Information	CB Activities	Links
Renewable Energy				
Spain (active internationally)	Centro Integrado de Formación en Energías Renovables (CENIFER)	Supported by the government of Navarra, CENIFER reacts to the capacity needs in the RE sector by offering training courses in EE, wind power, solar geo-thermal, and many more. It is involved in various European projects, such as Earth-Care, ECO-City, e-Windtech, etc.	It offer CB to companies, professionals, technicians, individualised trainings, tailor made trainings, etc.	http://www.cenifer.com
Spain (active nationally)	Escuela de Organización Industrial (EOI)	EOI was founded in 1955 as the first school offering business administration training in Spain. For more than 5 decades, EOI has taught over 50,000 students who now hold positions of high responsibility in companies and institutions in Spain. The school is a pioneer in the transmission of business management and organisational skills, and has played a crucial role in the modernisation and professionalization of Spanish economy and industry. EOI stands for its solid commitment to knowledge and entrepreneurial spirit. It offers graduate programmes for young professionals with over 5 years of experience, as well as a number of other programmes and specialised courses within the areas of business management, technology, innovation, environment, sustainability and communications.	EOI offers a Masters in Renewable Energy and Energy Markets.	http://www.eoi.es/porta/quest/inicio

Country	Name of Centre	General Information	CB Activities	Links
Renewable Energy				
Thailand (active in the Asian region)	Asian Institute of Technology (AIT)	Aim at developing highly qualified professionals to play a leading role in the sustainable development of the Asian region. AIT consists of 4 schools, including the School of Environment, Resources and Development, which undertakes research and training on RE technologies, energy conservation, cleaner production, energy economics and planning, energy, environmental policies, power sector reform, environmental engineering,	Masters, PhDs, certificates, diplomas in the School of Environment, Resources and Development (focus on Energy related issues possible)	http://www.serd.ait.ac.th/ Member of GNESD Network
The Netherlands (active nationally and internationally)	Energy Research Centre of the Netherlands	Mission: Develop high-value knowledge and technology and bring it to the market.	Policy Advise	http://www.ecn.nl Member of GNESD Network
UK (active nationally)	Centre for Sustainable Energy (CSE)	The Centre for Sustainable Energy (CSE) is an independent, charitable company based in Bristol, initiated in 1979. Helps people and organisations from the public, private and voluntary sectors meet the challenges of rising energy costs and climate change by research, sharing knowledge and practical experience, advising and managing energy projects, and training	They offer a variety of training courses mainly on “Energy Awareness” and “Renewable Energy Essentials”	http://www.cse.org.uk/pages/
USA	National Renewable Energy Laboratory (NREL)	Develop RE and EE technologies and applications, advance science and engineering, promote technology commercialisation and deployment, and transfer knowledge and innovations to address key energy and environmental goals. NREL's programs advance domestic and international use of wind, biomass, PV, solar thermal, hydrogen, geothermal, small scale hydropower	Assistance in a variety of federally sponsored programs that build regional capacity to move clean energy technologies into the marketplace	http://www.nrel.gov/ Member of GNESD Network

Country	Name of Centre	General Information	CB Activities	Links
Renewable Energy				
Vietnam	Centre for Sustainable Energy (VSED)	VSED is a NGO network of organizations, institutions and individuals in Vietnam, who work in the fields of RE, EE and energy conservation. VSED works for implementing sustainable energy solutions through consultancy on technology transfer, supporting the development of RE, energy conservation and EE, exchange of information, formulation and implementation of sustainable energy strategies and policies.	They have no own website VSED provides services for organising training courses, seminars and workshops on sustainable energy development at national, regional and international levels.	http://www.biogas.org.vn/ (one of the projects of VSED)
Solar Technologies				
India	Renewable Energy Centre MITHRADHAM	The Trust Mithradham was founded in 1998 under the Sacred Heart Province of the Congregation of the Carmelites of Mary Immaculate (CMI), which is engaged in future oriented education in India.	Offers local (community level) solar PV trainings in partnerships with various German Universities and Institutions.	http://www.mithradham.org/live/welcome.php
Israel	The Ben-Gurion National Solar Energy Center	The Center was inaugurated in February 1987 and since July 1991 the Center has been operated by Ben-Gurion University's Jacob Blaustein Institute for Desert Research. The Center was originally established to advance and assess promising alternative energy technologies, particularly those involving solar electric power generation. Since its transfer to Ben-Gurion University, the main emphasis has been research, but component and system testing still plays a significant role in the Center's activities.	The Center is actively involved in a number of educational and out-reach projects aimed at increasing public awareness of the importance of solar energy. They offer hour-long demonstration tours to group and offer advice to the public on how to go about becoming "solarized". They also organize and host regular Symposia on Solar Electricity Production, every 18 months.	http://cmsprod.bgu.ac.il/ENg/Units/bidr/Departments/EnvironmentalResearch/solarcenter/default.htm

Country	Name of Centre	General Information	CB Activities	Links
Solar Technologies				
Spain	Plataforma Solar de Almería	It is the largest European centre for research, development and testing of concentrating solar technology and belongs to CIEMAT. It is involved in the SFERA EU-funded project that aims at boosting scientific collaboration among the leading European research institutions in solar concentrating systems, offering European research and industry access to the best research and testing infrastructure and creating a virtual European laboratory.	Organisation of training courses and schools to create a common training framework, providing regularised, unified training of young researchers in planning and operating of concentrating solarfacilities	http://www.psa.es
Wind Technologies				
Africa (active Africa wide)	African Wind Energy Association (AfriWEA)	AfriWEA was founded in 2002, to encourage manufacturers, developers, governments, RE owners and individuals to promote and support wind energy development on the African continent. AfriWEA aims to become an influential umbrella organisation representing the wind energy sector in Africa, assist interaction and cooperation between all energy players and promote the development of and investment in wind energy on the continent.	The Associations activities are limited to what they can do with their currently limited resources, but there are many goals for the future, such as the organisation of national and international conferences, workshops and training courses.	http://www.afriwea.org

Country	Name of Centre	General Information	CB Activities	Links
Wind Technologies				
Argentina (active nationally)	Asociación Argentina de Energía Eólica	Association of stakeholders in the wind energy sector.	Support CB but no activities are specified	http://www.argentinaeolica.org.ar/portal/index.php?option=com_frontpage&Itemid=1 Member of the WWEI Network
Argentina (active nationally and internationally)	Centro Regional de Energía Eólica (CREE)	CREE bundles knowledge about wind technology, applies it and exchange information with other entities in the field. Activities include project management, technical studies, permits and licenses, quality certification, design of wind parks, etc.	Capacity Building for professional in the wind sector Organise seminars and courses at national and international level	http://www.eolica.com.ar/
Brazil	Eólica Tecnologia	Eolica Tecnologia is a private wind energy development and consultancy company founded in 2000. It is the leading company in the wind sector in Brazil.	Provides a number of publications on topics of wind energy on their website.	http://www.eolica.com.br/home/index_eng.php Member of the WWEI Network
China	China Wind Power Centre (CWPC)	The China Wind Power Center (CWPC) is a platform for information on wind power in China. It is supported by the Sino-German China Wind Power (Research & Training) Project (CWPP) and administered in cooperation with the Chinese Electric Power Research Institute (CEPRI). Objective is to increase transparency in the wind power sector and provide a platform for the free collection, exchange and access of authoritative information on wind power in China.	Provide information on the existing wind power education and training programs in China (special wind power degree programs, wind power-related courses or active in research and development) e-learning programs (basic and advanced levels on Wind Power) programs are being developed and will be accessible on their website.	http://www.cwpc.cn/cwpc/ http://www.cwpc.cn/cwpc/en/training
Country	Name of Centre	General Information	CB Activities	Links
Wind Technologies				

China	Suzhou Longyuan Bailu Wind Power Vocational Training Centre	The Suzhou Longyuan Bailu Wind Power Vocational Training Center was established as a joint venture between CLYPG and Suzhou Nuclear Power Institute. The centre has been operating since February 2007 and regular technical training courses and specialised courses for engineers are offered by the centre's instructors, foreign experts and experts from the local Chinese and foreign wind-power industry.	Technical Training for the planning, operation and maintenance of wind power plants.	No website, refer to CWPC website for more information
Egypt	African Wind Energy Training Centre	No detailed information available	No detailed information available, no own website	http://www.mans.eun.eg/english/ Member of the WWEI Network
Germany	ForWind	Research in Wind Energy, scientific back-up of industrial projects and capacity building. Focus: Off-shore wind Projects	Offers wind power related seminars to professionals (further education) – German and English Language:BSc. and MSc. Study Courses and PhDs at the Universities of Oldenburg, Hannover and Bremen	http://www.forwind.de/forwind/index.php http://www.forwind-academy.com/
India	Indian Center for Wind Energy Technology (CWET)	Established in Chennai in 1998, as an autonomous R&D institution by the Ministry of New and Renewable Energy (MNRE), it is a knowledge-based institution that offers services and seeks to find complete solutions for difficulties and improvements in the wind energy sector by carrying out further research. It has a Wind Turbine Test Station (WTTS) at Kayathar with technical & partial financial support of DANIDA, Govt. of Denmark.	They offer various wind related national and international trainings and short courses. They also prepared a M.Tech. Wind Energy Course (Masters) that is currently being revised by the ministries for its inclusion in the academic programme of the Jadavpur University in Kolkata.	http://www.cwet.tn.nic.in/Default.htm
Country	Name of Centre	General Information	CB Activities	Links
Wind Technologies				

USA	National Wind Technology Center (NWTC)	Design review and analysis Software development, modeling, and analysis Systems and controls analysis Testing support Utility grid integration assessment Wind resource assessment and mapping	NREL publishes information and conducts outreach efforts to help industry stakeholders and the general public to understand the benefits of wind energy and the technical and nontechnical barriers that impede development. NREL publishes technical reports and papers that keep industry informed of its latest R&D efforts and accomplishments.	http://www.nrel.gov/wind/
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ANNEX IV – Terms of Reference for the Support in the Elaboration of GTZ's Inputs for the Implementation of MEF's Technology Action Plans

TERMS OF REFERENCE

für eine(n) Gutachter/In

für die Unterstützung bei der Erarbeitung der Beiträge der Deutschen Gesellschaft für Technische Zusammenarbeit (GTZ) zu der Implementierung der Major Economies Forum Global Partnership Technology Action Plans für Wind- und Solartechnologien, insbesondere bei der Aktivität „A Long-Term Strategy on Joint Capacity Building“.

Beschreibung und Ziele der Beratung

- 1. Analyse andere Initiativen und Prozessen im Umfeld der MEF TAPs, und Identifizierung von Anknüpfungspunkten und Überschneidungen mit einer Long-Term Strategy on Joint Capacity Building**
- 2. Beschreibung von möglichen Elementen einer globalen Capacity Building Strategie**
 - Erfassung und Aufarbeitung von vergangenen und gegenwärtigen globalen Capacity Building Initiativen und Strategien im Bereich Erneuerbare Energie und insbesondere darüber hinaus, sowie der gemachten Erfahrungen und erzielten Erfolge. Identifizierung und Erfassung von Erfolgsfaktoren, die für die Ausarbeitung einer langfristigen Strategie von Nutzen sein können. Entwicklung von möglichen Komponenten einer künftigen globalen MEF Strategie unter Berücksichtigung der Rahmenbedingungen.
 - Stärkung der Bedarfsorientierung der MEF “Long-Term Strategy on Joint Capacity Building” durch die Beschreibung des Vorgehens bei Capacity (Needs) Assessments auf nationaler Ebene. Hierzu soll die mögliche Ausgestaltung und Vorgehensweise bei der Durchführung von Capacity (Needs) Assessment auf nationaler Ebene skizziert werden und Best Practices ausgearbeitet. Weiterhin sollen die hierauf aufbauenden weiteren Schritte zur Entwicklung von Capacity Building Maßnahmen beschrieben werden.
- 3. Zusammenstellen der Erkenntnisse der GTZ in Bezug auf die Beschäftigungswirkung des Ausbaus von erneuerbaren Energien in Entwicklungs- und Schwellenländer**
- 4. Identifizierung von möglichen Finanzierungsquellen für die Entwicklung und Durchführung von Capacity Building Programmen**
- 5. Beratung bezüglich zu beachtenden Faktoren in dem weiteren Prozess der Ausarbeitung der A Long-Term Strategy on Joint Capacity Building“**
 - **Z.B.** Identifizierung der verschiedenen Akteure, die während des Prozesses der Strategiebildung sowie für die Implementierung der Strategie eine Rolle spielen.
- 6. Unterstützung in der Vorbereitung und Durchführung des MEF Workshops im**

November 2010 in Madrid

Produkte/Leistungen der Beratung

Zu 1.

- Bericht und Übersicht über relevante Initiativen im Bereich erneuerbare Energien mit Bezug zu Capacity Building (z.B. ESMAP, UNDP TNA, NREL Technologie Roadmaps etc.) – Beschreibung der Anknüpfungspunkte der MEF Strategie

Zu 2.

- Bericht und Referenzliste ähnlicher relevanter Ansätze globaler Capacity Building Strategien im erneuerbare Energien Bereich sowie darüber hinaus (z.B. WHO 3 by 5 HIV/Aids, UNESCO Education for All, GTZ Vorhaben etc). Identifizierung von Best Practices und Lessons Learned, Ableitung und kurze Ausarbeitung möglicher Komponenten der zukünftigen MEF Long-Term Strategy on Joint Capacity Building
- Skizze eines möglichen Vorgehens bei Durchführung eines Capacity Needs Assessments auf nationaler Ebene im Wind- und Solarenergiesektor (GTZ – Erfahrung). Beschreibung des hierauf folgenden weiteren Vorgehens bei der Entwicklung einer nationalen Capacity Building Response unter Berücksichtigung weiterer möglicher Komponenten der MEF Strategie.
- Erstellung einer Referenzliste mit Dokumenten, die für die Strategiebildung von Relevanz sein können

Zu 3.

- Zusammenstellung und Kurzanalyse der GTZ Erkenntnisse zur Beschäftigungswirkung des Ausbaus von RE in Entwicklungs- und Schwellenländern, hinterlegt mit Zahlen und Daten unter Berücksichtigung der Wertschöpfungsketten für Wind- und Solartechnologien wenn möglich. Abschätzung des entsprechenden den Bedarf an Arbeitskräften sowie Überblick über benötigte Fähigkeiten.

Zu 4.

- Recherche zur Identifizierung von Finanzierungsmöglichkeiten für CB Programme. Kategorisierung und noch zu definierende Darstellung der Ergebnisse. Ggf Erarbeitung von Vorschlägen zur Institutionalisierung des Wissens

Zu 5.

- Darstellung zu beachtender Faktoren bei (Weiter-) Entwicklung der „Long-Term Strategy on Joint Capacity Building“, unter Rückbezug auf GTZ Methoden und CapacityWORKS in noch zu definierender Form.

Zu 6.

- Unterstützung nach Bedarf (Vor- und Nachbereitung des GTZ Beitrags bei dem Workshop in Madrid)

Zeitraumen

13.09.2010 – 15.12.2010

Einsatzort

Home-office mit regelmäßigen Treffen im Hauptbüro der GTZ. Eventuelle Dienstreisen nach Berlin und/oder andere.

Berichtet an

Mike Enskat und Joscha Rosenbusch

Die erbrachten Leistungen werden in einem Kurzbericht dokumentiert.

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