

# International Assistance for Low-Emissions Development Planning Coordinated Low Emissions Assistance Network (CLEAN) Inventory of Activities and Tools—Preliminary Trends

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## List of Acronyms

ADB	Asian Development Bank
CCAP	Center for Clean Air Policy
CDKN	Climate and Development Knowledge Network
CDM	Clean Development Mechanism
CIF	Climate Investment Funds
CIFF	Children’s Investment Fund Foundation
CLEAN	Coordinated Low Emissions Assistance Network
DOE	U.S. Department of Energy
ECLED	Enhancing Capacity for Low Emissions Development
ECN	Energy Research Centre of the Netherlands
EFFECT	Energy Forecasting Framework and Emissions Consensus Tool
EGTT	Expert Group on Technology Transfer
ERC	Energy Research Centre (University of Cape Town)
ESMAP	Energy Sector Management Assistance Program
EU	European Union
GEF	Global Environment Facility
GHG	greenhouse gas
GoSK	Government of South Korea
IEA	International Energy Agency
IISD	International Institute for Sustainable Development
JIN	Joint Implementation Network
LCDS	low-carbon development strategy
LCG	low-carbon growth
LCGP	low-carbon growth plan
LDC	least-developed country
LEDS	low-emissions development strategy
MAPS	Mitigation Action Plans and Scenarios
MENA	Middle East and North Africa
MRV	monitoring, reporting, and verification
NAMA	nationally appropriate mitigation action
NREL	U.S. National Renewable Energy Laboratory
REEEP	Renewable Energy and Energy Efficiency Partnership
SPP	sustainable public procurement
TAMP	Transport Activity Measurement Toolkit
TAP	technical assistance program
TNA	technology needs assessment
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
USVI	U.S. Virgin Islands

# 1 Introduction

Current patterns of global economic development are increasing greenhouse gas emissions due to greater energy demand and changes in land-use. At the same time, all countries have opportunities to reduce increases in greenhouse gas emissions by pursuing sustainable land-use initiatives and economic growth pathways that promote use of clean energy.<sup>1</sup> Several international donors and technical organizations are working to coordinate their approach to assisting developing countries with low-emissions development planning, capacity building, and implementation to advance these goals of economic development and sustainable growth in a less carbon intensive manner.

A growing number of international programs provide technical assistance to developing countries for low-emissions development plans and projects. Assistance includes support for low-carbon growth, low-emissions development, and green growth strategies, technology needs assessments (TNAs), nationally appropriate mitigation actions (NAMAs), and technology development and deployment roadmaps, as well as other similar activities to support deployment of low-carbon technologies and initiatives.<sup>2</sup> Though this is a positive trend, there is an opportunity for increased impact through enhanced harmonization<sup>3</sup> of technical support.

Coordinating activities around international assistance can help to leverage the expertise and tools developed by organizations involved in similar efforts, achieve efficiency in resource use, and capture lessons learned across organizations.

This opportunity for coordination was the impetus for the creation of the Coordinated Low Emissions Assistance Network (CLEAN), a voluntary network of practitioners of low emissions planning activities created in November 2009. The network was developed to facilitate partnership, reduce duplication of efforts, and improve the quality of support provided by technical organizations to developing countries through sharing project information, tools, best practices and lessons, and by fostering harmonized assistance to countries. For example, CLEAN partners are collaborating on user guides for low-emissions planning methods and on improving analytical tools for evaluating economic, environmental, and social development impacts of low-emissions technologies and programs. More than 30 international organizations currently participate in CLEAN. The partners have developed a set of shared principles to help inform their collective low-emissions planning activities. See the appendix for more information on CLEAN, including current partners.

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<sup>1</sup> International Energy Agency, World Energy Outlook 2010 Factsheet

<sup>2</sup> These support activities are referred to collectively throughout the paper as low-emissions planning activities.

<sup>3</sup> The term harmonization is used throughout the report, and it is important that readers have a clear understanding of what it means in the context of both CLEAN and low-emissions development planning assistance. Harmonization of technical assistance seeks to bring into congruence and reduce inconsistencies amongst methods, tools and activities. Harmonization of technical support can include on-the-ground assistance in a particular country. For example, organizations within a country could develop different components of a low-emissions development strategy (LEDS), which could be combined into a comprehensive strategy. Harmonization can also include broader development of common frameworks and metrics for planning or sharing of expertise, tools, and other information resources to support planning and capacity building; CLEAN focuses most on these broader harmonization activities.

CLEAN has developed an inventory of international technical support and tools for low-carbon planning activities in developing countries.<sup>4</sup> This report presents a preliminary analysis of the inventory to help identify trends in the assistance activities and tools available to support developing countries with low-emissions planning. The inventory is a work in progress, and the trends presented here reflect incomplete data. Refinement of this mapping exercise to better reflect ongoing activities is welcomed. It is hoped that this inventory will guide practitioners as they seek to develop and expand international collaborative efforts to support low-emissions development planning.

## **2 Overview of Inventory**

The purpose of the CLEAN inventory is to provide a comprehensive picture of support by international technical organizations for low-emissions development planning. The inventory can be used as a planning tool to encourage collaboration in this space and to promote better understanding of the synergies between activities. It can also be used to analyze gaps in the planning process in individual countries or in relation to available tools to support the process. Understanding these gaps can inform collaboration on planning of future assistance programs and developing of new and innovative tools to support planning.

The operating definition of low greenhouse gas (GHG) emission development planning established by CLEAN is the preparation and implementation of action plans by countries to achieve development goals while reducing growth in greenhouse gas emissions across all sectors of the economy. Assistance activities include support for green growth, low-emissions or low-carbon growth plans, TNAs, NAMAs, and technology roadmaps. Table 1 compares some of the types of international instruments used to support low-emissions planning.

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<sup>4</sup> The Coordinated Low Emissions Assistance Network (CLEAN) inventory is located at <http://openei.org/CLEAN>.



**Table 1. Comparison of Technology Needs Assessments (TNAs), Nationally Appropriate Mitigation Actions (NAMAs), Roadmaps, and Low-emissions development Strategies (LEDS)**

<b>Program</b>	<b>Background</b>	<b>Key Questions Addressed by Host Country</b>	<b>Primary Products</b>
<b>TNAs</b>	<p>TNAs are an approved element of United Nations Framework Convention on Climate Change (UNFCCC) technology transfer framework under Article 4.5.</p> <p>The Global Environment Facility (GEF) has provided TNA support to more than 90 countries and has initiated support for more in-depth TNAs to about 30 countries.</p>	<p>What are the priority mitigation and adaptation technologies to achieve climate and development goals?</p> <p>What portfolio of domestic programs and projects and international cooperation will facilitate implementation of these technologies?</p>	<p>Description of priority adaptation and mitigation technologies</p> <p>Action plan for domestic programs to advance technology deployment</p> <p>Potential projects for international support to advance technology deployment</p>
<b>NAMAs</b>	<p>NAMAs were adopted under the Bali Action Plan as a mechanism for developing countries to undertake voluntary projects to reduce GHG emissions with international support.</p> <p>The Copenhagen Accord notes that countries should describe NAMAs in their national communications and establishes registry of NAMA projects proposed for international support.</p> <p>The COP 16 draft decision notes that NAMAs should “include information on mitigation actions, the national greenhouse gas inventory report, including a description, analysis of the impacts and associated methodologies and assumptions, progress in implementation and information on domestic measurement, reporting and verification and support received...”<sup>5</sup></p>	<p>Which projects and programs are the priorities for reducing GHG emissions and achieving development goals?</p> <p>What domestic action can be undertaken to advance these mitigation measures?</p> <p>What international technology, financing, and capacity building support are needed to implement these projects?</p>	<p>Description of priority mitigation projects</p> <p>Proposals for international support for mitigation projects that would be combined with domestic action</p>

<sup>5</sup> Draft decision -/CP.16.Outcome of the work of the Ad Hoc Working Group on long-term Cooperative Action under the Convention. #64. Pg. 10. [http://unfccc.int/files/meetings/cop\\_16/application/pdf/cop16\\_lca.pdf](http://unfccc.int/files/meetings/cop_16/application/pdf/cop16_lca.pdf)

<b>Program</b>	<b>Background</b>	<b>Key Questions Addressed by Host Country</b>	<b>Primary Products</b>
<b>LEDS/ LCDs</b>	<p>As first noted in the Copenhagen Accord, the COP 16 draft decision states that “a low-carbon development strategy is indispensable to sustainable development”<sup>6</sup> and encourages developing countries to prepare low-carbon development strategies.<sup>7</sup> The draft decision presents an awareness of the need to provide incentives to support development of LEDS, although details are not yet specified.</p> <p>Pilot projects to assist countries with LEDS development have been initiated by the United States, Netherlands, European Commission, and others.</p>	<p>What are the near and long-term development and low-emissions goals and benefits?</p> <p>Which technology and market pathway will best achieve these goals?</p> <p>What portfolio of policies and measures will yield low-emissions growth?</p> <p>How can these policies and measures be implemented and the plan monitored and refined?</p> <p>What international support is needed?</p>	<p>Development and low-emissions goals and benefits for the country and by sector</p> <p>Pathway for low-emissions development</p> <p>Action plan of low-emissions policies and measures</p> <p>Process for plan implementation, monitoring, and refinement</p> <p>Proposals for international support for low-emissions development</p>
<b>Roadmaps</b>	<p>A technology roadmap is a specialized type of strategic plan that outlines activities an organization can undertake over specific time frames to achieve stated goals and outcomes.</p> <p>Technology-specific roadmaps are intended to support the development of specific types of technologies. The roadmaps serve to achieve consensus on low-carbon energy milestones, priorities for technology development, policy and regulatory frameworks, investment needs, and public engagement.<sup>8</sup></p>	<p>What is the status of the technology in question?</p> <p>What is the potential for the technology in question?</p> <p>What goals and milestones should be established for the specific technology?</p> <p>What are the gaps and barriers to deployment of the technology?</p> <p>What action items can overcome these barriers? Which are highest priorities? What is the timeline?</p> <p>How can these actions be effectively implemented and monitored?</p>	<p>Quantified goals for each technology or sector of interest</p> <p>Timeframe of milestones for achieving interim targets</p> <p>Identification of gaps and barriers to deployment of the technologies</p> <p>Identification of action items to address the barriers</p> <p>Prioritized actions, timeline for implementation of the actions and tracking system to assess progress</p>

<sup>6</sup> Draft decision -/CP.16.Outcome of the work of the Ad Hoc Working Group on long-term Cooperative Action under the Convention. #6. Pg. 2. [http://unfccc.int/files/meetings/cop\\_16/application/pdf/cop16\\_lca.pdf](http://unfccc.int/files/meetings/cop_16/application/pdf/cop16_lca.pdf)

<sup>7</sup> Draft decision -/CP.16.Outcome of the work of the Ad Hoc Working Group on long-term Cooperative Action under the Convention. #65. Pg. 10. [http://unfccc.int/files/meetings/cop\\_16/application/pdf/cop16\\_lca.pdf](http://unfccc.int/files/meetings/cop_16/application/pdf/cop16_lca.pdf)

<sup>8</sup> Text from Antonia Gawel of the IEA

Though the effort to inventory low-emissions planning activities occurs within the context of CLEAN, the inventory necessarily includes relevant activities of both CLEAN partners and organizations outside the network. In addition, the inventory includes programs and tools that support both comprehensive low-emissions planning and specific stages of such planning.

Common stages of a low-emissions planning process are presented in Figure 1, including baseline analysis and projection, techno-economic and market assessment, scenario development and impact assessment, policy and program design, and implementation and finance. Figure 1 is followed by general descriptions of these stages, which are meant to provide a general overview of the activities associated with the stages and are not exhaustive. In addition, countries undertaking low-emissions planning processes will likely organize and time these elements differently based on their unique domestic requirements.



**Figure 1. Common stages of a low-emissions planning process**

**Baseline Analysis and Projection:** This stage involves developing a business-as-usual scenario incorporating data and projections for economy and development, energy demand and supply for the electricity and transport sectors, land use, GHG emissions, and future climate conditions. Greenhouse gas inventory data are a necessary input in developing such projections, and in some cases, this stage might require significant technical assistance and capacity building to develop an inventory. Different methodologies and assumptions are applied in developing baseline scenarios; this report does not discuss the different methods for this analysis but instead indicates the number of analytical tools available to support this stage.

**Techno-Economic Assessment:** This stage involves determining energy and landscape (e.g., water, forest, and agriculture) resource availability to support low-emissions development within techno-economic constraints.

**Market Assessment:** This stage involves evaluating general market conditions in the country, as well as market viability of technologies and initiatives to support low-emissions development over a longer time horizon.

**Scenario Development and Impact Assessment:** Based on techno-economic and market assessments, this stage involves developing scenarios with different projections for future economic and climate conditions based on the technology deployment and land-use pathways considered. Impacts of alternative scenarios are then assessed to determine a recommended mix of actions. Impacts beyond GHG emission reduction, often termed co-benefits, to be considered in this stage include economic, social, environmental, and security benefits.

**Policy and Program Design:** This stage involves providing support for policy design through assessing the applicability and impact of different energy, efficiency, and land-use policies and programs. Policy best practices as well as lessons learned and examples of successful programs in similar countries are important in helping countries design effective policy mechanisms.

**Finance and Implementation:** This stage involves moving plans to action. Important aspects of this stage are ensuring that the necessary institutional infrastructure is in place to support implementation of the plan and working to catalyze public and private sector investment and finance. This stage also involves preparing a plan for monitoring and reviewing low-emissions development actions.

For the inventory, the CLEAN partners provided information on their respective activities and tools using a common template within OpenEI,<sup>9</sup> an open-data wiki-based platform; the open-data<sup>10</sup> wiki-based<sup>11</sup> platform makes it easy for organizations to add, tag, and update programs and tools. Data about activities and tools were collected for non-CLEAN partner organizations from relevant websites and databases. Activities and tools were tagged in relation to geographic location, topic (see Figure 1), sector and subsector, and resource type (e.g., software tool, data set, guide, best practices).

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<sup>9</sup> The low-emissions planning activity inventory is currently located on the Open Energy Information or OpenEI website (<http://openei.org/CLEAN>), a linked open-data platform developed to connect the world's energy data and bring together energy information to provide improved analyses, visualizations, and real-time access to data. OpenEI follows guidelines set by the White House's Open Government Initiative (<http://www.whitehouse.gov/open>), which is focused on transparency, collaboration, and participation. Although OpenEI's primary purpose is to store and connect energy data, it has been used in this case to more broadly inventory not only clean energy projects but also forest and agriculture activities that can support low-emissions development. The OpenEI platform (<http://openei.org>) is useful because it allows users to easily add or update current information and data; where "open data sets" are available, this information can be linked and automatically updated.

<sup>10</sup> Open data are data that are freely available to all, without restrictions such as [copyright](#) or [patents](#).

<sup>11</sup> A wiki is website that can be edited by anyone given access to it.

### 3 Limitations of Inventory Data

The CLEAN inventory has several data limitations. The most significant limitation relates to incomplete data input, reflecting the voluntary contributions of CLEAN partners. Efforts were made to collect data on relevant activities from both CLEAN and non-CLEAN institutions, but because of limited resources and in some cases because of limited availability of public information, the inventory does not present the full scope of activities supporting low-emissions planning. In addition, some errors might have been made in categorizing these activities along the definitions outlined above.

Second, the activities presented in this report do not provide a balanced representation of international low-emissions planning programs in developing countries across sectors and country types. Current data in the inventory are heavily focused on crosscutting and energy-sector activities, as these data were the most easily accessible for the preliminary data input process.

Third, because the inventory is on an open platform with multiple users, consistency of data input cannot be guaranteed. Activities that are comprehensive in scope might not map well to the categories offered in the inventory, and users might interpret categorizations differently.

Fourth, the low-emissions planning space is rapidly evolving, and ensuring all data are current is difficult. Further, many activities in this space have not yet been publicly announced and thus cannot be included in the inventory.

Fifth, the inventory does not consider domestic activities in developing countries undertaken independent of international partnerships. Many countries have already developed low-emissions plans, TNAs, and NAMAs, and future international assistance activities can complement these efforts. Though domestic activities will inform this type of planning, cataloguing all countries' relevant domestic policies and programs, including those at sub-national levels, was beyond the scope of the initial exercise described in this report.

Due to the above limitations, the findings in this report should be considered to represent only a preliminary analysis of a partial data set. CLEAN continues to expand and refine the inventory and welcomes feedback on how the inventory can be made more useful.

## 4 Results of Inventory Analysis

This section presents results of the inventory analysis to provide a picture of where internationally supported comprehensive low-emissions planning activities are occurring.<sup>12</sup> This section also provides information on tools available to support the low-emissions planning process; this information is intended to promote harmonizing of low-emissions planning support and sharing of tools and resources available.

### 4.1 Examples of Internationally Supported Low-Emissions Development Planning Activities—Narrative Descriptions

Several governments have produced low-emissions development strategies or similar plans. These governments represent first movers in the low-emissions development planning space, and they have a wealth of knowledge to provide to the international community on this topic. CLEAN recognizes these national efforts and works to learn from the experiences of these countries. However, CLEAN partners are practitioners involved in the low-emissions development planning space, not government entities. Therefore, the inventory analysis considers only activities to assist or support development of these plans not the actual strategies or plans that have been produced.

A number of examples of support for low-emissions planning are presented here. The data points considered below are practitioner activities to assist with developing these plans and strategies. These activities are, in most cases, listed in relation to practitioner organizations providing the assistance not the government or donor partners. The examples of international support for comprehensive low-emissions planning in developing countries that are listed below represent a partial list of some of the most prominent programs based on information in the CLEAN inventory.

**Climate Change Capacity Building Program:** The European Commission and United Nations Development Programme (UNDP) are working with five countries on scoping activities to assess capacity buildings needs for LEDS, NAMAs, and monitoring, reporting, and verification (MRV) in the public sector as well as capacity building needs in the private sector to implement actions. During the three-year program from 2010 to 2013, the European Commission and UNDP seek to develop strong GHG inventory systems, develop NAMAs, and improve MRV.<sup>13</sup> The Energy Research Centre of the Netherlands (ECN) is also supporting this program through developing a capacity-building program to complement the MRV recommendations and proposals.<sup>14</sup>

**Climate Investment Fund (CIF) Activities:** The World Bank and regional development banks are working with a number of practitioners to support countries in the development of programs and plans associated with CIF funding instruments. These include the Climate Technology Fund and the Strategic Climate Fund, which supports the Forest Investment Program, the Pilot

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<sup>12</sup> This section does not consider stage-specific assistance activities presented in Figure 1, however, a future version of the paper will provide this further analysis. The activities presented are considered more comprehensive low-emissions planning assistance programs.

<sup>13</sup> Climate Change Expert Group, National communications – lessons learned from capacity building initiatives (April 2010), Baptiste Legay, European Commission, DG Climate Action.

<sup>14</sup> [http://en.openei.org/wiki/MRV\\_capacity\\_building\\_for\\_developing\\_countries\\_\(ECN\)](http://en.openei.org/wiki/MRV_capacity_building_for_developing_countries_(ECN))

Program for Climate Resilience, and the Program for Scaling Up Renewable Energy in Low Income Countries.<sup>15</sup>

**Developing Countries Project:** Since 2005, the Center for Clean Air Policy (CCAP) has worked with five developing countries to assess GHG mitigation opportunities that will have the greatest economic impact and other co-benefits. The center also seeks to assist countries in participating in the UNFCCC process.<sup>16</sup>

**Enhancing Capacity for Low-emissions Development:** The U.S. Agency for International Development and the U.S. Department of State are working with several other U.S. agencies and national laboratories to support the creation of LEDS in developing countries. Assistance will build on current low-emissions planning efforts in the countries to enhance capacity to design, assess, and implement these strategies. The strategies will be country-led and action-oriented with a strong focus on each country's development objectives.<sup>17</sup>

**Green Growth Strategy Support:** The recently established Global Green Growth Institute, an initiative of the Government of South Korea and ClimateWorks Foundation, will be assisting developing countries with the development of "green growth strategies." They will be working with a diverse mix of countries to demonstrate that climate-resilient, low-emissions development is possible across circumstances and sectors. Methodology development will focus on development, mitigation, and climate resilience. Phase 1 country support will begin in 2010, and Phase 2 will begin in 2011.<sup>18</sup>

**International Low-Carbon Energy (IEA) Technology Platform:** The Technology Platform's central aim is to accelerate and scale-up action for the development and deployment of clean energy technologies. A forum is being developed to bring together stakeholders working to catalyze partnerships and activities to enhance the development and implementation of low-carbon energy technology strategies and technology roadmaps at regional and national levels. The forum will allow for sharing of experience on best-practice technology policy and will build capacity on technology policy planning methodologies to enable more efficient and effective policy development. The forum will also review progress on low-carbon technology deployment to help identify key gaps in low-carbon energy policy and international cooperation, and it will support efforts to address these through relevant international and regional fora.<sup>19</sup>

**Low-Carbon Growth Country Studies Program:** Since 2007, the World Bank's Energy Sector Management Assistance Program (ESMAP) program has worked with seven emerging economies to prepare these studies, which were country-led and tailored to different economic circumstances. The ESMAP developed a process framework that included these elements: support national goals, scope a low-carbon growth study, mobilize resources, build capacity, model low-carbon pathways, identify GHG mitigation options, and implement strategies. The program is using lessons from the program to develop a suite of "knowledge products,"

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<sup>15</sup> <http://www.climateinvestmentfunds.org/cif/>

<sup>16</sup> <http://www.ccap.org/index.php?component=programs&id=41>

<sup>17</sup> <http://openei.org/LEDS>

<sup>18</sup> [http://www.gggi.org/menu03/m3\\_2.php](http://www.gggi.org/menu03/m3_2.php)

<sup>19</sup> <http://www.iea.org/platform/> (Text from Antonia Gawel of the IEA)



including best practice documents, guides, e-learning, and interactive training and modeling toolkits.<sup>20</sup>

**Low-Carbon Growth Planning Support:** ClimateWorks Foundation, the European Climate Foundation, Project Catalyst, and McKinsey & Company supported twelve countries with low-carbon growth planning activities prior to the 2009 UN Climate Change Conference of Parties (COP 15). This assistance focused on sustainable development, GHG mitigation, and climate resiliency based on country priorities and a strategic vision. Example activities included assistance with development of marginal abatement cost curves and assessment of economic impacts.<sup>21</sup>

**Low-Carbon Development Strategies Project:** The World Watch Institute (WWI) is working with two regions on policy development to complement low-carbon development strategies. The WWI plans to extend this work to other countries, regions, and municipalities.<sup>22</sup>

**Mitigation Action Plans and Scenarios (MAPS):** This program, operated by SouthSouthNorth, implemented by the Energy Research Centre (ERC) at the University of Cape Town and in-country institutions, and funded by the Children's Investment Fund Foundation (CIFF), will support four Phase 1 countries and Phase 2 countries with the development of mitigation action plans and scenarios from 2010 to 2013. This program focuses strongly on stakeholder engagement and on sharing of lessons and knowledge across developing countries.<sup>23</sup>

**NAMA Templates:** Ecofys is working with Mexico on NAMA templates for the transport and building sectors. Ecofys has used this work to produce a report providing guidance and general conclusions about sectoral NAMA development presented in the Section 4.3.<sup>24</sup>

**Operationalising NAMAs:** The International Institute for Sustainable Development (IISD) is working with two countries on NAMA development. Assistance is particularly focused on Sustainable Public Procurement (SPP), energy efficiency, fossil fuel subsidy reform, and agriculture. The institute is also exploring options for supporting least-developed countries (LDCs) with development of NAMAs.<sup>25</sup>

**Paving the Way for Low-Carbon Development Strategies (LCDS):** The ECN is working with two countries to understand better the national circumstances relating to low-emissions development planning. This program seeks to support the development of country-tailored LCDS methodologies.<sup>26</sup>

**Quantifying Emission Reduction Opportunities in Emerging Economies:** Ecofys worked with five emerging economies to develop emission reduction scenarios and to assess current

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<sup>20</sup> Low Carbon Growth Country Studies Program: Getting Started – Experience From Six Countries, ESMAP, 2009

<sup>21</sup> Low Carbon Growth Initiatives presentation, ClimateWorks Foundation, Metz, CLEAN expert meeting (Oct. 2010)

<sup>22</sup> <http://www.worldwatch.org/node/6427>

<sup>23</sup> [http://www.ssnafrika.org/MAPS\\_General\\_Presentation.ppt](http://www.ssnafrika.org/MAPS_General_Presentation.ppt)

<sup>24</sup> [http://en.openei.org/wiki/Mexico-Ecofys\\_NAMA\\_Activities](http://en.openei.org/wiki/Mexico-Ecofys_NAMA_Activities)

<sup>25</sup> Operationalising NAMAs, Peter Wooders, Climate Change, Energy and Trade, IISD, CLEAN expert meeting (Oct. 2010), <http://openei.org/CLEAN>

<sup>26</sup> [http://en.openei.org/wiki/Paving\\_the\\_Way\\_for\\_Low\\_Carbon\\_Development\\_Strategies\\_\(ECN\)](http://en.openei.org/wiki/Paving_the_Way_for_Low_Carbon_Development_Strategies_(ECN))



national policies to support low-emissions development. Ultimately, this study was used to compare the “climate performance” of these countries.<sup>27</sup>

**Roadmap Development Assistance:** The International Energy Agency (IEA) has produced several technology roadmaps to provide information on technology development, policy, regulatory and legal needs, finance requirements, public participation, and international cooperation. The IEA is also now assisting individual countries with development of technology roadmaps and has produced a guide to support the development that is presented in Section 4.3.<sup>28</sup>

**Technology Needs Assessments and Technology Actions Plans:** The United Nations Development Programme and the United Nations Environment Program-Risoe Centre are supporting several countries to assess climate mitigation and adaptation technologies that are most suitable to their national circumstances. These TNAs will inform the development of technical assistance programs (TAPs) to support transfer of these technologies. The program began in 2009 in fifteen countries and will assist up to 45 countries during the three-year program period.<sup>29</sup>

## **4.2 Internationally Supported Low-Emissions Development Planning Activities— Geographic Representation**

This section presents a geographic breakdown of internationally supported low-emissions planning activities. The planning activities considered include international programs providing support for low-emissions or low-carbon planning, technology needs assessments (TNAs), nationally appropriate mitigation actions (NAMAs), and technology roadmaps.

The activities presented below represent only donor-supported practitioner efforts included in the CLEAN inventory; the many national efforts that developing countries are pursuing independently are not reflected in this analysis.

Boxes 1–5 present internationally supported low-emissions planning activities by region and country. Practitioners providing support for these activities are noted in parenthesis. The maps (Figures 2–9) below the boxes graphically represent the regional support activities with darker green areas reflecting a greater numbers of activities.

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<sup>27</sup> [http://en.openei.org/wiki/Ecofys - Quantifying Emission Reduction Opportunities in Emerging Economies](http://en.openei.org/wiki/Ecofys_-_Quantifying_Emission_Reduction_Opportunities_in_Emerging_Economies)

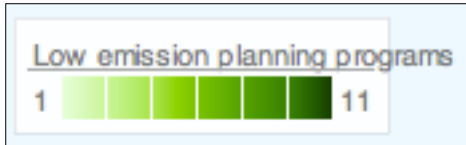
<sup>28</sup> [www.iea.org/roadmaps](http://www.iea.org/roadmaps)

<sup>29</sup> [http://en.openei.org/wiki/Technology\\_Needs\\_Assessments](http://en.openei.org/wiki/Technology_Needs_Assessments)

**Box 1. Examples of international support for low-emissions planning in Latin America and Caribbean reflected in current CLEAN inventory**

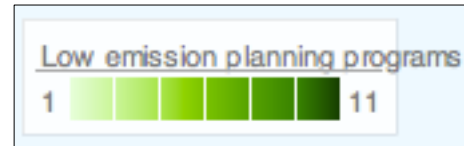
*Information is partial and does not capture all activities.*

Argentina	TNA and Technology Action Plan (TAP) support (UNEP-Risoe)
Brazil	Low-Carbon Growth (LCG) Country Studies program (ESMAP), low-carbon growth plan (LCGP) support (ClimateWorks/Project Catalyst/McKinsey), Green Growth Strategy support Phase 1 (3GI/Korea-ClimateWorks), Forest Investment Program (World Bank), Mitigation Action Plans and Scenarios Phase 1 – MAPS (SouthSouthNorth/ERC), Quantifying Emission Reduction Opportunities in Emerging Economies (Ecofys), Developing Countries Project (CCAP)
Bolivia	Pilot Program for Climate Resilience (World Bank)
Caribbean	Pilot Program for Climate Resilience (World Bank), U.S. Virgin Islands (USVI) Economic Development in Island Nations (DOE/NREL), Low-Carbon Energy Roadmaps for the Greater Antilles (WWI)
Central America (Regional)	Low-Carbon Energy for Central America: Building a Regional Model (WWI)
Chile	Mitigation Action Plans and Scenarios Phase 1 – MAPS (SouthSouthNorth/ERC)
Colombia	Clean Technology Fund (World Bank), Mitigation Action Plans and Scenarios Phase 1 – MAPS (SouthSouthNorth/ERC)
Costa Rica	TNA and TAP support (UNEP-Risoe)
Guatemala	TNA and TAP support (UNEP-Risoe)
Guyana	LCGP support (ClimateWorks/Project Catalyst/McKinsey)
Honduras	Program for Scaling Up Renewable Energy in Low Income Countries (World Bank)
Mexico	Low-Carbon Growth (LCG) Country Studies program (ESMAP), NAMA support (Ecofys), LCGP support (ClimateWorks/Project Catalyst/McKinsey), MRV/NAMA/LEDS Capacity Building Needs (EU, UNDP), Clean Technology Fund (World Bank), Forest Investment Program (World Bank), Quantifying Emission Reduction Opportunities in Emerging Economies (Ecofys), Developing Countries Project (CCAP)
Peru	TNA and TAP support (UNEP-Risoe), MRV/NAMA/LEDS Capacity Building Needs (EU, UNDP), Forest Investment Program (World Bank), Mitigation Action Plans and Scenarios Phase 1 – MAPS (SouthSouthNorth/ERC)



**Figure 2. Regional support activities in South America**

Darker green areas reflect greater numbers of activities.



**Figure 3. Regional support activities in Central America**

Darker green areas reflect greater numbers of activities.

**Box 2. Examples of international support for low-emissions planning in Sub-Saharan Africa reflected in current CLEAN inventory**

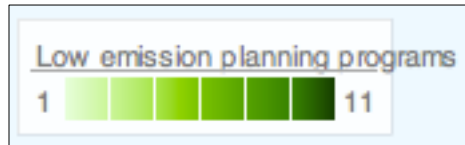
*Information is partial and does not capture all activities.*

Cote d'Ivoire	TNA and TAP support (UNEP-Risoe)
Burkina Faso	Forest Investment Program (World Bank)
Democratic Republic of the Congo	LCGP support (ClimateWorks/Project Catalyst/McKinsey), Forest Investment Program (World Bank)
Ghana	Paving the Way for Low Carbon Development Strategies (ECN), Forest Investment Program (World Bank)
Ethiopia	LCGP support (ClimateWorks/Project Catalyst/McKinsey), Green Growth Strategy support Phase 1 (3GI/Korea-ClimateWorks), Program for Scaling Up Renewable Energy in Low Income Countries (World Bank)
Kenya	TNA and TAP support (UNEP-Risoe), LCGP support (ClimateWorks/Project Catalyst/McKinsey), Climate Change Capacity Building Program (EU, UNDP), Program for Scaling Up Renewable Energy in Low Income Countries (World Bank)
Mali	TNA and TAP support (UNEP-Risoe), Program for Scaling Up Renewable Energy in Low Income Countries (World Bank)
Mozambique	Pilot Program for Climate Resilience (World Bank)
Niger	Pilot Program for Climate Resilience (World Bank)
Nigeria	Low Carbon Development planning in the power sector (ESMAP)
Senegal	TNA and TAP support (UNEP-Risoe)
South Africa	Low Carbon Growth (LCG) Country Studies program (ESMAP), Clean Technology Fund (World Bank), Quantifying Emission Reduction Opportunities in Emerging Economies (Ecofys), Long Term Mitigation Scenarios support (ERC)
Zambia	Pilot Program for Climate Resilience (World Bank)

**Box 3. Examples of international support for low-emissions planning in Middle East and Northern Africa reflected in current CLEAN inventory**

*Information is partial and does not capture all activities.*

Egypt	LCGP support (ClimateWorks/Project Catalyst/McKinsey), Clean Technology Fund (World Bank)
Morocco	TNA and TAP support (UNEP-Risoe), Clean Technology Fund (World Bank), Low Carbon Development planning in the power sector (ESMAP)
Yemen	Pilot Program for Climate Resilience (World Bank)
Middle East and North Africa (MENA) Regional	Clean Technology Fund (World Bank)



**Figure 4. Regional support activities in Africa and Middle East**  
Darker green areas reflect greater numbers of activities.

**Box 4. Examples of international support for low-emissions planning in Eastern Europe reflected in current CLEAN inventory**

*Information is partial and does not capture all activities.*

Georgia	TNA and TAP support (UNEP-Risoe)
Poland	LCG Country Studies program (ESMAP)
Turkey	Clean Technology Fund (World Bank)
Ukraine	Clean Technology Fund (World Bank)



**Figure 5. Regional Support Activities in Eastern Europe reflected in current CLEAN inventory**

*Information is partial and does not capture all activities.*

**Box 5. Examples of international support for low-emissions planning in Asia and the Pacific reflected in current CLEAN inventory**

*Information is partial and does not capture all activities.*

Bangladesh	TNA and TAP support (UNEP-Risoe), Pilot Program for Climate Resilience (World Bank)
Cambodia	TNA and TAP support (UNEP-Risoe), Pilot Program for Climate Resilience (World Bank)
China	Economics of Climate Change and Low Carbon Growth Strategies in Northeast Asia study (ADB and GoSK), LCG Country Studies program (ESMAP), China 2050 Wind Technology Roadmap (IEA), Low Carbon Development Zones in China (Chatham House), LCGP support (ClimateWorks/Project Catalyst/McKinsey), Quantifying Emission Reduction Opportunities in Emerging Economies (Ecofys)
India	LCG Country Studies program (ESMAP), LCGP support (ClimateWorks/Project Catalyst/McKinsey), Developing Countries Project (CCAP)
Indonesia	Paving the Way for Low Carbon Development Strategies (ECN), LCGP support (ClimateWorks/Project Catalyst/McKinsey), LCG Country Studies program (ESMAP), UNEP-Risoe TNA support, Green Growth Strategy support Phase 1 - Kalimantan (3GI/Korea-ClimateWorks), Climate Change Capacity Building Program (EU, UNDP), Clean Technology Fund (World Bank), Forest Investment Program (World Bank), Developing Countries Project (CCAP), NAMA support (IISD)
Kazakhstan	Clean Technology Fund (World Bank)
Lao PDR	Forest Investment Program (World Bank)
Malaysia	LCGP support (ClimateWorks/Project Catalyst/McKinsey)
Mongolia	Asian Development Bank (ADB) Economics of Climate Change and Low Carbon Growth Strategies in Northeast Asia study (ADB and GoSK)
Nepal	Pilot Program for Climate Resilience (World Bank), Program for Scaling Up Renewable Energy in Low Income Countries (World Bank)
Philippines	Clean Technology Fund (World Bank)
Papua New Guinea	LCGP support (ClimateWorks/Project Catalyst/McKinsey)
Pacific Islands	Pilot Program for Climate Resilience (World Bank)
Maldives	Program for Scaling Up Renewable Energy in Low Income Countries (World Bank)
Tajikistan	Pilot Program for Climate Resilience (World Bank)
Thailand	TNA and TAP support (UNEP-Risoe), Climate Change Capacity Building Program (EU, UNDP), Clean Technology Fund (World Bank)
Vietnam	TNA and TAP support (UNEP-Risoe), Clean Technology Fund (World Bank), NAMA support (IISD)

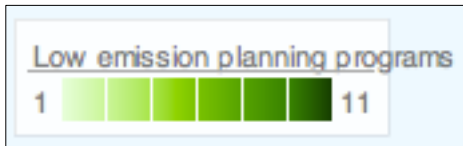
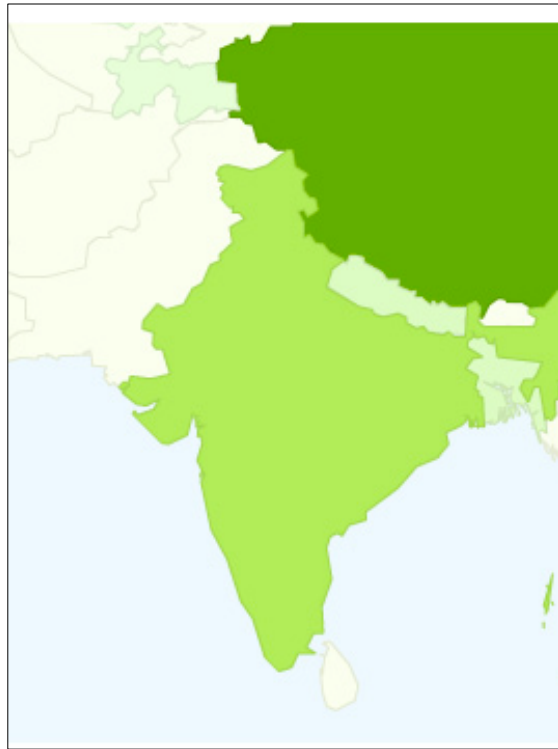


Figure 6. Regional support activities in Southern Asia

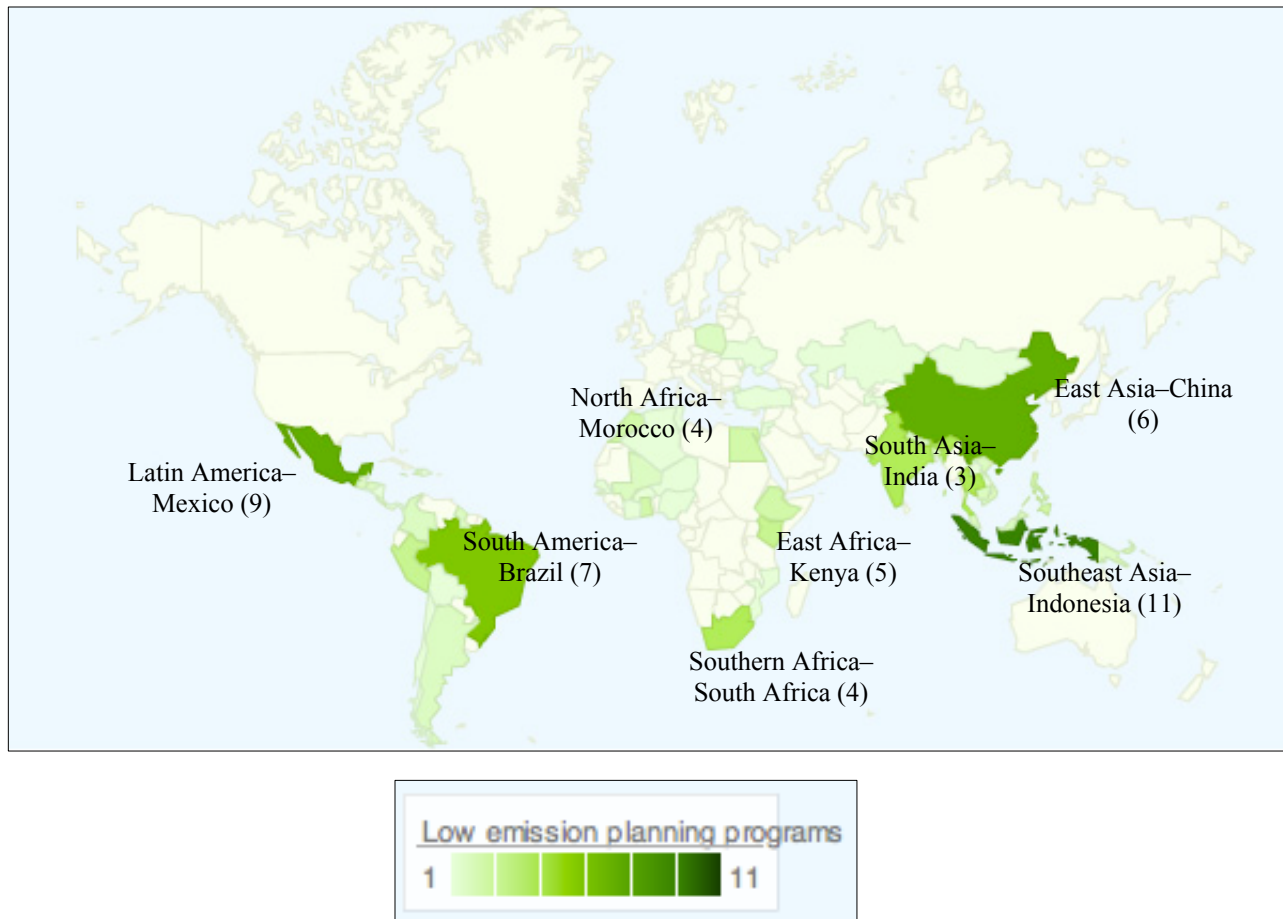


Figure 7. Regional support activities in Southeast Asia and Pacific



Figure 8. Regional support activities in Central and Eastern Asia





**Figure 9. Examples of international support for low-emissions planning in the world reflected in current CLEAN inventory**

*Information is partial and does not capture all activities.*

As can be seen from the previous boxes, ongoing related low-emissions planning support activities are occurring in many developing countries. According to the CLEAN inventory, approximately ten practitioner organizations entered this space in the last two years. Many of these organizations already have plans for Phase 2 countries, which are not yet reflected in the inventory, as the information is not yet public. Therefore, it is important to understand how these support activities can be linked and can be mutually reinforcing. To explore this subject further, CLEAN is developing a report on links between TNAs, NAMAs, LEDS, and roadmaps.

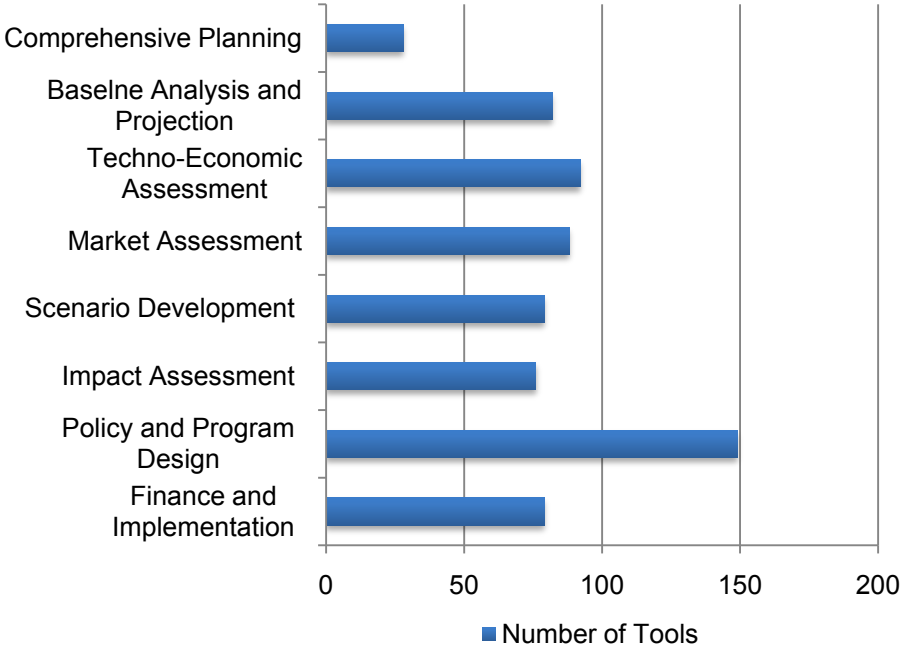
Regionally, several countries have experience in working on low-carbon planning activities (as presented in Figure 9). Lessons could readily be shared among countries in peer-to-peer exchanges, especially at the regional level, where similar geographic and other circumstances might be present. CLEAN partners will be working to support sharing of lessons, good practices, and information between these countries through online forums and peer-to-peer exchange. Various international programs are also considering forums, including regional or global workshops, to support this type of information exchange between countries.

The analysis of the inventory also finds that Sub-Saharan Africa is largely underrepresented in relation to low-emissions planning support activities while Latin America and Asia seem to have a far greater amount of assistance in this space. Regional leaders, in terms of assistance activities in Sub-Saharan Africa, such as South Africa, Ghana and Kenya, have an opportunity to share lessons; however, there may also be a need for practitioners to broaden their geographic scope of assistance activities.

Future versions of this report will also seek to draw conclusions about stage- and sector-specific activities and gaps. We ask that practitioners involved with low-emissions planning add to the inventory in order to support future analyses that are more robust.

**4.3 Low-Emissions Planning Tools**

The CLEAN inventory includes not only low-emissions planning activities but also tools and resources that are available to support these activities; tools are included in the inventory to make them more accessible and easily shared among partners and countries working in the low-emissions development planning space. Tools in the CLEAN inventory include data sets, software programs and models, guides and methods, good practices and lessons learned, and resources and training materials. Figure 10 shows the number of tools to support comprehensive and stage-specific low-emissions planning (Figure 1) included in the CLEAN inventory.



**Figure 10. Tools to support low-carbon planning in the CLEAN inventory**

Impact assessment is the least represented stage-specific tool in the inventory and could be a topic that needs more attention. Assessing economic, social, health, and other co-benefits of low-emissions actions can 1) help build political and public support for low-emissions planning, 2) help establish metrics to measure future impacts, and 3) ensure harmonization of low-emissions

planning with economic development goals. CLEAN is working to create a development impact assessment framework presented in the Section 5 to address this identified need.

It is apparent from Figure 10 that fewer tools in the inventory support comprehensive low-emissions planning. This observation may suggest a need to develop more tools that bring together the individual stages in a comprehensive analytical structure to better understand how they are linked in this type of planning process. However, it might also represent a general lower level of demand for these types of tools or the difficulty of developing comprehensive tools that can be applied across countries.

Others might argue that the number of tools available for comprehensive planning is already a bit overwhelming in relation to the choice of tools and provides an opportunity to compare the available tools to determine applicability and usefulness in differing contexts. CLEAN partners will be comparing methods and tools for comprehensive planning under a project led by the Climate and Development Knowledge Network (CDKN), which is presented in Section 5.

Perhaps the most striking feature of Figure 10 is the large number of tools available to support individual stages on low-emissions planning. Choosing tools and assessing their applicability in country-specific circumstances could become quite confusing with so many available tools. CLEAN partners will be working to provide a decision guide for countries and practitioners to better understand which tools might be most appropriate in different contexts (e.g., in relation to purpose, data availability, training requirements, cost). In addition, the relative robustness, transparency, and quality of various tools have not been comprehensively assessed.

Examples of low-emissions planning tools included in the inventory are presented below.

### *Training*

**ESMAP E-Learning:** ESMAP will be releasing an e-learning course to support the low-emissions planning process and scenario modeling in the power, transport, and household electricity sectors. These e-learning resources will complement new tools that have been developed by ESMAP and the World Bank, such as the Energy Forecasting Framework and Emissions Consensus Tool (EFFECT), the Transport Activity Measurement Toolkit (TAMP) and a marginal abatement cost curve tool (MACTool) that will also be made available in coming months. The e-learning materials will focus on providing practical guidance on low-emissions planning and modeling drawing on lessons from the Low Carbon Growth Country Studies Program.<sup>30</sup>

### *Good Practices and Lessons Learned*

**Project Catalyst Good Practice Documents:** Project Catalyst, an initiative of the ClimateWorks Foundation, brings together policymakers, negotiators and thought leaders in an apolitical forum to discuss and produce analyses related to climate change issues in order to complement the UNFCCC process.<sup>31</sup> One topic of particular interest for the initiative is low-carbon growth planning. Drawing from the experiences and lessons of developing and developed

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<sup>30</sup> Jane Ebinger, presentation, Low Carbon Development: Experience and Knowledge Products

<sup>31</sup> <http://www.project-catalyst.info/>

countries that have produced these types of strategies, Project Catalyst has provided initial insight on good practices for this type of planning and successful inputs to the process.<sup>32</sup>

### **Low-Emissions Development Strategies (LEDS): Technical, Institutional and Policy**

**Lessons:** This document, prepared by the Organisation for Economic Co-operation and Development (OECD) and IEA Secretariats, provides an overview of LEDS and their potential purpose. It further offers information on strategies that have been developed to date and LEDS related assistance activities, as well as lessons learned from these experiences at technical, institutional, and policy levels.

### *Guides and Methods*

**Handbook for Conducting Technology Needs Assessment for Climate Change:** The United Nations Development Program (UNDP) worked with the UNFCCC Secretariat and the Expert of Technology Transfer (EGTT) to prepare this handbook, which provides information on how to prepare a TNAs in developing countries. It provides guidance on organizing the process, prioritizing adaptation and mitigation sectors and technologies, establishing frameworks to enable transfer of technology and capacity building, and moving from the planning process to implementation.<sup>33</sup> UNEP-Risoe Centre is preparing complementary sector-specific TNA guidebooks, curriculum, and training resources, including the recently published Guidebook on Coastal Erosion and Flooding.<sup>34</sup>

**Energy Technology Roadmaps:** The IEA recently published this guide to development and implementation to provide guidance on this subject in relation to increasing demand for roadmap development assistance. The document provides background on roadmaps, stepwise guidance on the development process, and information on how to tailor a roadmap to different country circumstances.<sup>35</sup> It has been used in Ireland to inform the development a national energy roadmap and is currently being applied to the wind sector in China, the first developing country to use the resource.<sup>36</sup>

**LEDS Framework:** This framework and related website, developed by the U.S. National Renewable Energy Laboratory (NREL) with support from the U.S. Department of Energy (DOE) are intended to inform the development of country-driven, development-focused LEDS and to support the objectives of the U.S. Enhancing Capacity for Low Emissions Development (ECLD) program. The framework builds on a review of similar methodologies and international LEDS experiences. To enable its portability in different settings, the framework emphasizes the purpose, resources, and products of each component. Thus, each country can customize its framework by selectively choosing the components and resources needed to achieve a comprehensive, integrated, and stakeholder-based action plan for high-priority sectors. The detailed steps within this framework, which provide a sample step-by-step process, are intended as guidance rather than as a prescriptive method. The LEDS toolkit is a complementary

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<sup>32</sup> Low Carbon Growth Plans – Advancing Good Practice (August 2009), <http://www.project-catalyst.info/images/3.%20Low%20carbon%20growth%20planning/Publications/Advancing%20good%20practice/090805%20Project%20Catalyst%20-%20LCGP%20paper%20-%20normal%20view%20-%20Ver%202.0.pdf>

<sup>33</sup> <http://ncsp.undp.org/sites/default/files/TNA%20Handbook%20English.pdf>

<sup>34</sup> [http://tech-action.org/Guidebooks/TNAhandbook\\_CoastalErosionFlooding.pdf](http://tech-action.org/Guidebooks/TNAhandbook_CoastalErosionFlooding.pdf)

<sup>35</sup> <http://www.iea.org/papers/roadmaps/guide.pdf>

<sup>36</sup> Information from Tom Kerr, International Energy Agency

resource to provide tools to support each stage of the LEDS process. A decision guide is being developed to help users understand better which tools might be most useful and applicable in different country settings.<sup>37</sup>

### **Databases**

**ClimateTechWiki:** This website is a joint initiative of UNDP, United Nations Environment Programme (UNEP), Renewable Energy and Energy Efficiency Partnership (REEEP), UNEP-Risoe, Joint Implementation Network (JIN), and ECN. It provides information on adaptation and mitigation technologies to support technology transfer and low-emissions planning. The portal is wiki-based and allows users to add technology case studies and to participate in forums related to these technologies. There is currently an emphasis on providing case studies to facilitate information sharing related to application of these technologies in different local circumstances.<sup>38</sup>

**IEA Policies and Measures Databases portal:** This portal provides access to databases compiling policies and measures related to renewable energy, energy efficiency and climate change in IEA countries and a number of emerging economies. The portal is complementary to the policy analysis work of the IEA and can be used by practitioners to assess the policy environments in various countries to support low-emissions planning.<sup>39</sup>

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<sup>37</sup> <http://openei.org/LEDS>

<sup>38</sup> <http://climatetechwiki.org/>

<sup>39</sup> <http://www.iea.org/textbase/pm/index.html>

## 5 Conclusions and Next Steps for CLEAN

Coordinating and harmonizing activities can enhance the work of practitioners supporting low-emissions planning. The CLEAN inventory of activities and tools supports the goal of harmonization by serving as a resource that international organizations can use to align their proposed work, ensure that efforts are not duplicated, and share existing tools and resources.

Though many internationally supported low-emissions planning activities are taking place, significant imbalances exist in relation to geographic reach. Once this inventory has been expanded and updated, a more thorough gap analysis could be performed to inform areas for collaboration to address gaps.

The inventory also shows that there are significant opportunities to share existing tools and resources to support low-emissions planning. CLEAN will continue to share these tools among practitioners and with partner countries in order to avoid duplicating resources already available.

CLEAN welcomes data<sup>40</sup> inputs from organizations working on low-emissions planning activities, as well as feedback on inventory design in order to better support the community's needs.

### *Next Steps for CLEAN*

- **Continued improvements to the inventory:** CLEAN partners will continue to provide bimonthly updates on their low-emissions planning activities, and the CLEAN Secretariat will continue to collect this information for non-CLEAN partners. CLEAN will also work to further incorporate stage-specific activities<sup>41</sup> in the inventory to better understand how these efforts can complement low-emissions planning.
- **User Guide on LEDS Tools and Methods:** The Climate and Development Knowledge Network (CDKN) is leading the preparation of a guide for developing country analysts and officials on LEDS methods and analytic tools. This guide will provide a comparison of methods and tools and will help countries determine which approach and models are most appropriate given their circumstances. The network will establish a project team with other CLEAN partners who will work on a plan for this effort and preparation of the user guide. This might be supplemented later with training and outreach activities.
- **Enhanced Framework for Analysis and Communication of Development Benefits:** NREL and UNEP are leading an effort with other interested CLEAN partners to develop an improved portfolio of technical resources and communication tools that countries can use to characterize development benefits and educate key stakeholders of such benefits. This might include preparation of prototype curves that show development benefits relative to tons of carbon to complement the current use of marginal cost abatement curves.

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<sup>40</sup> Data inputs for low-emissions planning activities include topics covered, timeframe, geographic location, and a short summary of the activity. Activities can be added to the inventory at this website: <http://openei.org/CLEAN>.

<sup>41</sup> See Figure 1 for a list of stages to be considered.

- **Review of Linkages between Instruments:** The JIN is preparing a paper that reviews the relationship between LEDS, NAMAs, TNAs, and roadmaps, and the JIN presented initial findings during a recent CLEAN webinar. The paper will build on an earlier draft that NREL developed, and the improved product will be shared with CLEAN partners for review.
- **Coordinated Training:** NREL, UNEP Risoe, and other CLEAN partners will work together to compile information on current LEDS related training activities and resources and to explore opportunities for enhanced linkage of these training activities. CLEAN partners will also focus future webinars on technical aspects of LEDS planning and use of relevant tools.
- **Database Integration:** Several CLEAN partners (including JIN, REEEP, NREL, UNIDO, and CDKN) will hold further discussions to define how current climate technology databases and work on improved data sets can be linked to better address user needs and fill key data gaps through use of interoperable database formats and open data standards.
- **CLEAN Webinar Series:** CLEAN will hold webinars bringing together practitioners and in-country experts to discuss topics of most interest relating to low-emissions planning. For more information on the webinar series, visit <http://openei.org/CLEAN>.

## **Appendix. Coordinated Low Emissions Assistance Network (CLEAN)**

An increasing number of organizations are helping developing countries to prepare and implement low greenhouse gas emission development strategies. This includes support for low-carbon growth plans, technology needs assessments, national mitigation plans, and technology deployment roadmaps. In November 2009, the UN Environmental Program, in partnership with the U.S. National Renewable Energy Laboratory, created the Coordinated Low Emissions Assistance Network (CLEAN), a voluntary network of assistance organizations. CLEAN builds on past networks that successfully coordinated similar activities, such as helping countries to prepare climate change country studies and to sell carbon credits through offset markets. Table A-1 summarizes the CLEAN objectives, cooperative activities, and network activities on which CLEAN partners collaborate and interested partners team on in-depth cooperative initiatives where there is common interest. Network operations involve:

- Partnering on specific projects, and planning and coordinating activities through a shared website, frequent teleconferences, and occasional meetings. CLEAN partners also hold side events at UNFCCC negotiation meetings and conducts technical workshops and seminars (virtual and in-person) on key low-emissions development planning topics.
- Conducting outreach to donors and government agencies in developing and developed countries to inform them of activities of the network and to promote exchange of information amongst these organizations. CLEAN also offers donors and government agencies a way to ensure that technical assistance activities are harmonized and a forum to engage a wide range of organizations from around the world that possess extensive experience and expertise in delivering on-the-ground assistance in developing countries.
- Inviting other international organizations and centers in both the developed and developing world that provide assistance in low-carbon planning and implementation to join the network and participate in its activities.

### ***CLEAN Partners***

- Center for Environment and National Security at Scripps
- Centro de Energias Renovables
- Climate and Development Knowledge Network
- ClimateWorks Foundation
- Climate Technology Initiative
- Coalition for Rainforest Nations
- Ecofys



- Energy Research Center of the Netherlands
- Energy Sector Management Assistance Program–World Bank
- Environment and Development Action in the Third World
- German Aerospace Center
- German Technical Cooperation
- Global Village Energy Partnership
- Information for Development Program
- International Atomic Energy Agency
- International Energy Agency
- International Institute for Sustainable Development
- International Renewable Energy Agency
- Joint Implementation Network
- Kumasi Institute of Technology and Environment
- Latin American Energy Organization
- Organization of American States
- Organisation for Economic Co-operation and Development, Environment Directorate
- Regional Centre for Renewable Energy and Energy Efficiency
- Renewable Energy and Energy Efficiency Partnership
- Energy Research Centre for Sustainable Development at the Chinese Academy of Social Sciences
- The Energy and Resources Institute
- UK Climate and Development Knowledge Network
- UK Institute of Development Studies
- US Lawrence Berkeley National Laboratory
- US National Renewable Energy Laboratory
- UN Environment Programme
- UNEP Risø Center on Energy, Climate & Sustainable Development
- United Nations Foundation
- UN Industrial Development Organization
- World Watch Institute

**Table A-1. Objectives, Foundational Activities, and Cooperative Activities of the Coordinated Low Emissions Assistance Network (CLEAN)**

<b>Objectives</b>	<b>Foundational Activities</b>	<b>Cooperative Activities</b>
<p>Foster collaboration among international technical organizations supporting preparation of low-emissions development plans and programs</p> <p>Improve quality of the delivery of planning and implementation technical assistance</p> <p>Build capacity to conduct and implement low-emissions development plans</p> <p>Share information about projects, tools, and best practices and help inform the design of new initiatives</p>	<p>Establish and apply shared principles for low-emissions development technical assistance programs.</p> <p>Construct and maintain an inventory of country, regional, and global CLEAN partner activities through a website to promote awareness, coordination, and quality service.</p> <p>Share methods and tools through on-line forums, regional networks, meetings, and workshops that bring together developed and developing world officials and experts.</p> <p>Link to other international groups to provide developing country officials access to technical organizations, the private sector, donors, and NGOs that can provide advice and implementation support.</p>	<p>Methods and Tools Development. Team in improving methods and tools to support low-carbon plans, including assessment of technical and economic potential and development benefits, policy analysis, and design and implementation. CLEAN partners are establishing a common low-emissions planning tool-kit, teaming to improve methods and tools in use by CLEAN partners through peer reviews and joint work to fill key gaps, and conducting technical analysis of frameworks for strengthening support for low-emissions development plans.</p> <p>Collaborative Training and Technical Assistance. Coordinate across partners training and technical assistance programs on low-carbon technology assessment and planning that will transfer knowledge and skills to developing countries. This includes engaging common regional developing country technical institutions, conducting joint training workshops and on-line forums, and tapping a roster of experts across CLEAN partners to provide technical assistance.</p> <p>Harmonized Country Technical Support. Enhance implementation of assistance to specific countries by integrating delivery of technical assistance to countries among CLEAN partners. This could also include cooperation among CLEAN partners (and other international organizations) in piloting new programs, methods, and tools with countries.</p> <p>Expert Review of International Frameworks. CLEAN partners collaborate in conducting assessments and reviews of potential international initiatives to strengthen support for developing country low-emissions development plans and related technology cooperation programs.</p>

For more information, see the CLEAN website (<http://openei.org/CLEAN>)

# REPORT DOCUMENTATION PAGE

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