

Center for Clean Air Policy

Data and Capacity Needs for Transportation NAMAs

Report 3: Capacity-Building Needs

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Table of Contents

Executive Summary	Error! Bookmark not defined.
1.0 Overview of Transportation NAMAs	1
2.0 Overview of Technical Assistance and Capacity-Building Efforts	2
2.1 By Stage of Involvement	2
Development of Plans and NAMAs	3
Implementation of Policies, Programs and Projects	3
Measurement, Reporting and Verification Methods and Techniques	3
2.2 By Type of Activity	3
Guidebooks, Best Practice Case Studies, and Training Courses	4
Hands-on Assistance and Oversight	4
Conferences, Technical Meetings, and Peer Exchanges	5
Planning and Analysis Tools, Data, and Reporting Protocols	6
3.0 A Review of Technical Assistance and Capacity-Building Efforts	7
3.1 Guidebooks, Best Practice Case Studies, and Training Courses	7
Sourcebook on Sustainable Urban Transport	7
ADB-IDB Case Studies	8
International Council on Clean Transportation (ICCT) Information Center	8
UNEP/TNT Toolkit for Clean Fleet Strategy Development	9
Global Transport Knowledge Partnership (gTKP)	9
Rural Transport Knowledge Base	10
3.2 Hands-on Assistance and Oversight	10
Low Carbon Growth Country Studies Program	10
Carbon Assist Program	11
University of California at Berkeley Global Metropolitan Studies Program	11
Center of Excellence in Bus Rapid Transit	12
Regionally Environmentally Sustainable Transport (REST) Technical Assistance	12
World Resources Institute <i>EMBARQ</i> Centers for Sustainable Transport	12
Institute For Transportation and Development Policy (ITDP) Technical Assistance	13

	Energy Foundation China Sustainable Energy Program – Transportation Program	13
	World Bank Transportation Projects.....	13
	Asian Development Bank (ADB) Transportation Projects	14
	Sub-Saharan Africa Transport Policy (SSATP) Program	14
	US FHWA International Technology Transfer	15
3.3	Conferences, Technical Meetings, and Peer Exchanges	15
	Better Air Quality (BAQ) Conferences	15
	Transforming Transportation Events	15
	International Conference on Sustainable Transport (ICST).....	16
	World Conference on Transport Research Society (WCTRS) Conferences and Forum.....	16
3.4	Planning and Analysis Tools, Data, and Reporting Protocols Methodologies.....	16
	Clean Development Mechanism (CDM) Project Activities	16
	International Local Government Greenhouse Gas Emissions Analysis Protocol (IEAP)	17
	Transportation Emissions Evaluation Models for Projects (TEEMP).....	17
	GEF Transport Sector Project Analysis.....	18
	Effect Model.....	19
	Transport Data in Asia and Latin America (TDALA).....	19
	Partnership on Sustainable Low Carbon Transport (SLoCaT) Data Initiative.....	19
4.0	Technical Assistance/Capacity-Building Needs	20
	Engage in a Range of Capacity-Building Activities.....	20
	Tailor Capacity-Building to Local Needs	20
	Tie Local Capacity Building to a Specific Project.....	20
	Ensure that Technical Assistance Supports Long-Term Capacity- Building.....	20
	Local practitioners should be involved in decision-making about important project decisions so that they feel invested in the project and the selected methodology.If Possible, Start with A Sustainable or Low Carbon Development Plan	21
	Build Consulting Capacity	21
	Use University Partnerships to Train The Next Generation	21
	Involve a Full Range of Local Stakeholders.....	22
	Focus on Transportation Activity Data	22
	Coordinate the Development of GHG Analysis and Evaluation Methods	22

Executive Summary

This is the third in a series of three CCAP research reports assessing data and capacity needs for developing, implementing and evaluating successful transportation NAMAs. Report 1 focuses on current data availability, Report 2 focuses on data needs, and Report 3 focuses on technical assistance resources and needs.

This report reviews the technical assistance and capacity building needed to support development, implementation and assessment of transport nationally appropriate mitigation actions (NAMA) to achieve greenhouse gas (GHG) reductions in developing countries. Funders of NAMAs want to have confidence that their funds are being effectively used to achieve GHG mitigation benefits. However, as previous research conducted for this project demonstrated, the data needed for NAMA evaluation is often unavailable or of poor quality. Building capacity for local planning, implementation, and evaluation activities is therefore essential to increasing the effectiveness of NAMAs as well as providing funders with confidence that NAMAs represent a worthwhile investment of climate funds.

While the transportation NAMA concept is still nascent, various capacity-building efforts supported by development agencies, non-profit organizations and multi-lateral funding organizations have been in existence for many years through involvement with other targeted climate and sustainable transportation projects, as well as for the more general purposes of improving transportation planning capabilities. Some examples of existing activities include:

- **Guidebooks, best practice case studies, and training courses**, such as the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) Sustainable Transport Guidebook, the International Council on Clean Transportation (ICCT) information center, and the Global Transport Knowledge Partnership (gTKP) web portal;
- **Hands-on assistance and oversight**, such as *EMBARQ's* Centers for Sustainable Transportation, the Institute for Transportation and Development Policy (ITDP) technical assistance in non-motorized transportation projects, the World Bank stakeholder engagement in developing Low Carbon Development Studies, and efforts made by Energy Foundation China for bus rapid transit development;
- **Conferences, technical meetings, and peer exchanges**, such as the Better Air Quality conference hosted by the Asian Development Bank's (ADB) Clean Air Initiative-Asia, the World Conference on Transportation Research Society conference, Transforming Transportation hosted by *EMBARQ*, and university exchanges such as the Berkeley-Jinan University work conducted through the Global Metropolitan Studies program at University of California, Berkeley;
- **Checklists, methodologies and protocols for planning, implementation, or evaluation**, such as protocols developed through the Clean Development Mechanism (CDM) and Carbon Assist programs, efforts through the Partnership on Sustainable Low Carbon Transport, and the ICLEI International Local Government Greenhouse Gas Emissions Protocol; and

- **Planning and analysis tools**, such as the data collection efforts of the ADB - Inter-American Development Bank (IDB) initiative for improving transport in developing countries, as well as a set of user-friendly spreadsheet tools such as the Transportation Emissions Evaluation Models for Projects (TEEMP), the United Nations Environmental Program (UNEP)/TNT Toolkit for Clean Fleet Strategy Development, and the World Bank EFFECT model.

These initiatives have made a significant impact on the planning and implementation of low-carbon transport in the developing world. Given the scope and magnitude of transport challenges in developing cities and countries, however, much more remains to be done. There is a great need to broaden transport planning capabilities in cities and regions throughout the developing world, as well as to build more expertise specifically on developing sustainable, low-carbon transport plans, policies, and projects. Recommendations for future technical assistance and capacity-building activities include:

- **Engage in a range of capacity-building activities.** It is impossible to generalize as to which types of capacity-building activities are most needed or useful. General tools – such as calculation methods, checklists, decision support tools, and best practice case studies – that can be adapted to local situations are helpful. At the same time, these tools will be most effective when combined with hands-on, in-person assistance to train local practitioners in their use. Assistance is needed at all stages – planning, implementation, and evaluation.
- **Tailor capacity-building to local needs.** Each region will have different needs depending upon the specific types of projects or programs being considered, existing local knowledge, fiscal capacity, institutional relationships, and other factors. Capacity-building efforts focused on specific countries or regions should begin with an assessment to determine the most critical local needs.
- **Tie local capacity building to a specific project.** Local practitioners need concrete examples to which to test and apply planning, implementation, and monitoring practices. “Learning by doing” is often the most effective form of education.
- **Ensure that technical assistance supports long-term capacity-building.** Not all technical assistance activities build capacity. For technical assistance efforts to effectively build capacity, local practitioners should be given increasing responsibility for carrying out specific activities, should have an understanding of *why* they are doing something, and should be involved in making important project decisions.
- **If possible, start with a sustainable or low carbon development plan.** Developing a low-carbon or “sustainable” transport plan is an important initial step in helping local practitioners and other stakeholders identify and understand the more specific actions upon which they should focus that may qualify as NAMAs. It also fills the critical function of examining transport GHG reduction actions within a broader perspective of other transport goals such as safety, mobility, and economic development.
- **Build consulting capacity.** Most local agencies will rely on consultants to support some or most of their transport planning and implementation activities. Furthermore, with hundreds if not thousands of cities throughout the developing world, it will be impossible

to provide hands-on assistance to local staff in all of these cities. Training local consultants who work in many cities can leverage the resources of international organizations.

- **Use university partnerships to train the next generation.** Partnerships with universities can help to train university researchers – who often work with directly with local agencies – as well as students who will become the next generation of local staff and consultants.
- **Involve a full range of local stakeholders.** Planning and implementation activities will be more self-sustaining if a broad range of stakeholders are invested in them, including transport planners at various levels of government, land use planners, elected officials, citizen and business groups, and other interests.
- **Focus on transportation activity data.** Good data is essential to making good decisions, and high-quality transport data in particular is lacking in most developing countries. Capacity-building should focus on helping local agencies develop programs to routinely collect and update key data items (such as traffic counts, speeds, trip lengths, and mode shares) as well as to ensure the quality of data.
- **Coordinate the development of GHG analysis and evaluation methods.** To minimize redundancy and inefficiency, it will be essential to ensure close coordination among lending agencies to provide a common resource/methodology for NAMA evaluation that is used by both the agencies and local project sponsors.

1.0 Overview of Transportation NAMAs

This report reviews the technical assistance and capacity building needed to support development, implementation and assessment of transport nationally appropriate mitigation actions (NAMA) to achieve greenhouse gas (GHG) reductions in developing countries. This report is the third in a series of CCAP reports addressing transport NAMA GHG evaluation, following two other reviews:

- *Data & Capacity Needs for Transportation NAMAs - Report 1: Data Availability* which evaluates the availability and quality of different types of transport-related data in developing countries; and
- *Data & Capacity Needs for Transportation NAMAs - Report 2: Data Selection*, which presents recommendations and guidelines for the type and quality of data needed to evaluate transport NAMAs.

The NAMA concept developed as an alternative to the Clean Development Mechanism (CDM) framework for providing assistance to developing countries' GHG reduction efforts. A CDM project is a clearly-defined action with GHG benefits quantified using a prescribed approach. In contrast, a NAMA may be construed as a broader set of actions for which the precise GHG benefits are not necessarily well known, although the general direction and order of magnitude can be estimated. NAMAs may include individual projects (such as a bus rapid transit project or alternative fuel fleet purchase), policies (such as a national fuel efficiency regulation), or plans that represent a collection of projects and policies (such as a region-wide low-carbon transport plan).

Funders of NAMAs want to have confidence that their funds are being effectively used to achieve GHG mitigation benefits. However, as previous research conducted for this project demonstrated, the data needed for NAMA evaluation is often unavailable or of poor quality. Furthermore, many developing countries have limited institutional and resource capacity to collect data, conducted assessments required for both pre-project planning and post-project evaluation, and even to effectively implement the project or program. Building capacity for local planning, implementation, and evaluation (monitoring, reporting, and verification or MRV) activities is therefore essential to increasing the effectiveness of NAMAs as well as providing funders with confidence that NAMAs represent a worthwhile investment of climate funds.

The remainder of this report focuses on two topics:

- A review of existing capacity-building and technical assistance efforts provided by international funding and research agencies; and
- An assessment of the most significant priorities for additional capacity-building to improve the state of practice in NAMA planning, implementation, and evaluation.

The report was developed based on a review of Internet research and recent conference programs and papers, as well as conversations with several experts at a variety of multilateral lending and nonprofit agencies.

2.0 Overview of Technical Assistance and Capacity-Building Efforts

Technical assistance and capacity building may be directed at three different stages of project and program development – (1) planning, (2) implementation, and (3) monitoring, reporting, and verification (MRV). The transportation NAMA concept is still nascent; however, efforts supported by development agencies, non-profit organizations and multi-lateral funding organizations have been in existence for many years through involvement with CDM and other targeted climate and transportation projects, as well as for the more general purposes of improving transportation planning capabilities and supporting other objectives (such as economic development or safety). This section summarizes the state of the practice in technical assistance and capacity-building by stage of involvement (planning, implementation, MRV) as well as by type of effort. While the particular focus of this report is on efforts focused at improving planning, implementation, and MRV capabilities for projects and programs that support GHG reduction, efforts are also discussed that are generally oriented towards sustainable transport, or on improving capabilities in the transport sector in a way that supports a low-carbon future.

The terms “technical assistance” and “capacity building” are used almost interchangeably throughout this report. While related, however, they are not identical in meaning. *Technical assistance* implies outside assistance to a local organization to support the effective completion of a particular project or activity that the organization is undertaking. In contrast, *capacity building* implies that the outside assistance is directed at building the local organization’s capability to undertake not only this particular project, but also similar activities in the future. Technical assistance may or may not help build capacity, depending upon the extent to which the knowledge brought by outside organizations is transferred to and retained by the local organization. Frequently in the developing world, outside organizations have brought in staff or consultants to conduct or support a project, without sufficiently engaging and training local professionals. Technical assistance may be important for accomplishing a particular project’s objectives, but it should be conducted in a way that builds long-term capacity, and in conjunction with broader capacity-building efforts. That said, no effort is made in this report to distinguish existing efforts based on their effectiveness at building long-term capacity.

2.1 BY STAGE OF INVOLVEMENT

Some technical assistance and capacity-building activities focus on one stage of the planning, implementation, and evaluation process, while others span two or the three stages. By focusing on one stage of involvement, the organization can be more targeted at delivering results that are connected to their own goals and objectives. As a community, the combination of efforts by the dozen or so active players in offering transportation technical assistance and capacity-building provides developing countries a wide-range of support for transportation NAMA development.

Development of Plans and NAMAs

Several capacity-building initiatives ensure that transportation NAMAs fit within the context of low carbon transportation plans. The World Bank has recently completed six comprehensive country-level low carbon development studies. Within each is a statement about transportation goals and initiatives. Organizations such as the Partnership on Sustainable Low-Carbon Transport Data Initiative (SLoCaT) and the International Council on Clean Transportation (ICCT) first prioritize strategies at the planning level before targeting specific technical assistance at the project level. Discussions in the 2010 conference circuits at Better Air Quality, Transforming Transportation, and the International Conference on Sustainable Transport include discussion on low carbon transportation plans as a primary theme.

Implementation of Policies, Programs and Projects

Several initiatives focus on the development and implementation of specific projects, which could be considered as spanning both of these first two categories – planning and implementation. Organizations such as the World Bank, the Asian Development Bank (ADB), *EMBARQ*, and the Institute for Transportation and Development Policy (ITDP) take a very hands-on and resource intensive approach to implementation of transportation projects in developing countries. Project work is tailored to local conditions and requires the buy-in of a multitude of stakeholders from a diverse array of departments and crossing government, non-profits, and private entities. *EMBARQ*'s Center of Sustainable Transport model shows that capacity-building is meant to be a multi-year investment with capacity-building for local support that can stay long after the initial external funding is drawn down. Other efforts such as ITDP's project-level capacity building as well as multi-year commitments by universities to send students on a peer exchange to work on sustainable transport projects are examples of applying technical assistance to the implementation of policies, programs and projects.

Measurement, Reporting and Verification Methods and Techniques

The international lending community is particularly interested in including MRV methods in the NAMA framework. At his time, this category of capacity-building is the least developed of the three and there are few examples of the MRV of GHG reductions in developing countries, or even in developed countries. Historically, the main reason for verifying the GHG reductions from a transportation project has been if the project received financing through a carbon offset program, such as the CDM. In addition, the United Nations Environmental Program (UNEP) Global Environment Facility (GEF) has been pushing to developing a standardized method for GHG ex-ante evaluation of GEF projects and recommendations for ex-post evaluation. The result will provide guidance and spreadsheet tools to the GEF Standing Technical Advisory Panel on how best to measure the GHG impacts of road transportation projects.

2.2 BY TYPE OF ACTIVITY

The agencies involved in transportation NAMA development have been working at the nexus of transportation and climate change for many years, and thus, the technical assistance tools have been created and adapted over time to meet the needs of activities ranging from advocacy and education on sustainable transportation, CDM methodology development, application of

the GHG protocol and inventory, and analysis of project-specific work in developing countries. The primary categories of technical assistance and capacity building are reviewed below.

Guidebooks, Best Practice Case Studies, and Training Courses

Guidebooks provide a step-by-step approach to accomplishing a particular task or objective, while best practice case studies show how other practitioners have approached the task. Guidebooks may be published in printed or electronic format. Case studies may be published as stand-alone documents or incorporated into a guidebook, training course, or conference presentation. Their value as a stand-alone capacity-building tool depends upon the initiative of local staff to seek out and follow guidance and examples. In general they are most effective when combined with hands-on training and guidance.

Training courses on particular topics can be through in-person group sessions that may last 1-3 days or more, or through on-line (self-directed) courses. “Webinars” are an increasingly popular variation that involve a one to three hour presentation and question and answer session over the Internet. Web-based training has the potential to avoid travel costs and reach more people, although it requires self-direction and is likely to be less effective than in-person training. It also may not be an option in locations with poor Internet connections. In the United States, the U.S. Department of Transportation’s National Highway Institute and National Transit Institute develop and conduct training courses (both in-person and on-line) on a wide variety of transportation topics.

A number of guidebooks and case studies used in the developing country context can assist in the planning stage of transportation NAMA development. For instance, the GTZ Sustainable Transport Guidebook provides a wealth of information on best practices for sustainable transport projects, including several modules focusing on GHG reduction. These training modules can help developing country policy-makers understand the universe of efforts underway worldwide. There are also web portals such as the United Kingdom Department for Transport’s Global Transport Knowledge Partnership (gTKP) which are hubs for document libraries, case studies and interactive discussion boards. The ICCT information center provides policy level guidance with the design, implementation and enforcement of vehicle efficiency and fuel standards and shares best practices from the eyes of senior regulators from the auto industry’s leading nations.

Recently, the ADB and IDB have jointly developed four case studies that step through how to apply and implement a NAMA in a project context including a transportation demand management (TDM) NAMA in Jakarta, Indonesia; a programmatic CDM in Hefei, China; a transport policy public transport NAMA in Mexico; and a transport policy non-motorized transportation NAMA in Porto Alegre, Brazil. The results of these case studies will be shared later in 2010.

Hands-on Assistance and Oversight

When funding a transport project or program, an international agency will often provide staff or consultant resources to work with local staff and consultants. The level of involvement and oversight by outside vs. local staff may vary, but to be considered technical assistance, local staff must bear substantial responsibility for the project work. The outside experts may help to

develop and approve methodologies, monitor progress, identify solutions to problems, provide feedback on products, etc. Assistance and oversight may be done through a combination of on-site work (site visits or temporary on-site position) and remote consultation via telephone, email, etc.

Examples from the research include the two year effort by the World Bank to develop low carbon growth studies in six developing countries, with each effort including hundreds of stakeholders from the country to develop strategies and analytical methods in all areas of development including transportation. The IDB is also providing hands-on technical assistance through its Regionally Environmentally Sustainable Transport (REST) program focused on helping Latin American countries implement and monitor climate change benefits relating to transportation projects. This program uses planning and analysis tools and case studies, but is meant to provide a more active engagement to apply tool development in specific countries.

Several non-profit agencies have also determined that hands-on assistance is the most effective way to follow project work to implementation. From *EMBARQ's* Centers of Sustainable Transport in Mexico, Brazil, Turkey and India, to ITDP's on-the-ground project work on bus rapid transit and non-motorized modes in Indonesia and several African countries, to the Energy Foundation's consultations with dozens of cities in China on bus rapid transit, this is a field that is gaining in popularity. With donors interested in seeing projects built and tangible results from project implementation, local assistance over a multi-year span has the potential to provide greater returns on investment. With *EMBARQ's* model, the creation of a physical center in the developing country of interest then provides an exit strategy for *EMBARQ*, allowing local centers to then spread capacity building work to other institutes within the localized context. The Mexico Center of Sustainable Transport is one of the most successful examples of this approach.

Conferences, Technical Meetings, and Peer Exchanges

Conferences and technical meetings bring people together to share ideas, learn about best practices, and identify peers who can be consulted for advice. A peer exchange is a variation involving a smaller group of people who have been identified as "peers" in a particular topic of current interest. These peers come together for one to three days to present practices and share and discuss ideas on the topic.

One barrier to use of in-person events for capacity-building is that many local agencies may not have the financial resources to send delegates. To reach the broadest range of practitioners, conferences and meetings need to be held at different geographic levels - international, national, regional. Conferences and technical meetings have been effectively used in the developed world. For example, the Institute of Transportation Engineers sponsors not only an annual international conference but also regional (multi-state) gatherings in the United States focused on technical topics of particular interest, which reach practitioners who cannot attend the international gathering.

The transportation NAMA work has benefited from existing regional conferences such as Better Air Quality (hosted by Clean Air Initiative-Asia), and International Conference on Sustainable Transport (hosted by Center for Sustainable Transport-Mexico) which serve as a meeting point for researchers and policy-makers working on transportation, air quality and climate change

issues. Global conferences such as WCTRS and the Conference of Parties also provide a venue for exchange, although these are generally focused at a higher level of discussion rather than the project level discussion centered around a specific issue or country.

This review revealed that university centers are very effective ways to build a foundation for transportation NAMA development. Peer exchanges with professors and students on specific projects such as the Berkeley-Jinan exchange and the MIT-Mexico City exchange are lower cost than other forms of technical assistance that build capacity and serve an educational goal as well. Students help collect data, conduct analyses, and create methodologies that can be applied in multiple contexts. Based on the success of existing programs, it is possible that the transportation NAMA field will continue to benefit from more of these university exchanges in the years to come.

Planning and Analysis Tools, Data, and Reporting Protocols

Because transportation NAMAs are a new framework for providing assistance to developing countries' GHG reduction efforts, having methodologies and protocols available, as well as standardized evaluation tools, can help guide policy-makers on how to determine GHG benefits for both project planning and post-implementation analysis.

For example, the GEF has long evaluated transportation projects based several key measures of effectiveness. Currently, ITDP is working for UNEP in developing a standardized method for GHG ex-ante evaluation of GEF projects which will dovetail into the transportation NAMA discussion. The ADB's Transportation Emissions Evaluation Models for Projects (TEEMP), developed in draft form, are based on similar methods. Methodologies developed through the CDM and Carbon Assist programs can also provide background on how to evaluate specific projects such as bus rapid transit and vehicle fleet conversions. GHG analysis tools also are under development by the World Bank and ICLEI. Such tools serve the dual function of establishing a robust calculation methodology and populating the methodology with default data which may be used in the absence of locally-specific data.

A major program launched through the Partnership on Sustainable Low Carbon Transport (SLoCaT) is a collaboration of over 50 organizations interested in developing a protocol on transportation NAMA development and implementation, providing policy frameworks starting from data collection, to designing a GHG methodology and establishing a benchmarking assessment for projects. The IDB and ADB are sponsoring a pilot project to improve transport data in general in Asian and Latin American countries.

Other types of decision support tools could also be developed. For example, GIS-based tools such as the INDEX and iPLACES models in the United States help visualize and provide indicators of the impacts of different transportation and land use alternatives.

3.0 A Review of Technical Assistance and Capacity-Building Efforts

This section reviews existing capacity-building and technical assistance activities conducted by international funding and research agencies based on a review of Internet research and recent conference programs and papers, as well as conversations with seven experts at a variety of multilateral lending and nonprofit agencies. Each description includes the following details:

- **Lead Agency:** This is the sponsoring agency or the organization that was the primary funder or organizer of this activity or tool.
- **Description:** This includes details about the type and quality of technical assistance and capacity-building effort. The description provides information about whether there is specific geographic or thematic focus, if the project has been completed or ongoing, whether the information was developed through another effort (e.g. CDM) and when applicable, results of the effort.
- **Website Link or Key Contact:** When possible, a website link for more information is provided. Because transportation NAMA methodologies and projects are still under development, many efforts are not documented through website links. Thus, a key contact is given when a link is not provided.

While the activities are organized by the four activity types discussed in Section 2, many do not fall neatly within one category and may include multiple types of assistance. For example, the UNEP GEF evaluation methodologies and SLoCaT initiative are directed at both creating a standardized approach or protocol (similar to CDM) and improving data or evaluation methods. The “hands on assistance and oversight” programs discussed in Section 3.2 are general assistance programs focused on development and implementation of specific plans or projects, which may include other capacity building methods such as data improvement and tool development. Also, the inventory is undoubtedly not comprehensive, and there may be other programs (for example, by individual developed country governments or university partnerships) that are not included.

A copy of the interview questionnaire used can be found in Appendix B. A table listing summary information from the internet literature reviewed can be found in Appendix C.

3.1 GUIDEBOOKS, BEST PRACTICE CASE STUDIES, AND TRAINING COURSES

Sourcebook on Sustainable Urban Transport

Lead Agency: Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ)

Description: The Sourcebook is a series of more than 26 modules that covers areas pertaining to sustainable transport policy and is intended for policy-makers in developing cities. This is a comprehensive set of material that can be adapted for training and curriculum courses, as well as to provide policy tools for application in developing cities. The material includes case studies from countries on all continents and for various modes and policies. The entire sourcebook is in English and Chinese.

Website: <http://www.sutp.org>

ADB-IDB Case Studies

Lead Agency: Asian Development Bank (ADB) and Inter-American Development Bank (IDB)

Description: Four case studies were conducted and will be published in 2010 that step through how to apply and implement a transportation NAMA in a project context. The examples highlighted include.

- *TDM NAMA – Jakarta, Indonesia.* Implemented by the Transport Research Laboratory, the case study develops a NAMA around the concept of travel demand management (TDM).
- *Programmatic CDM, Hefei, PRC.* The Wuppertal Institute is conducting a case study to develop a CDM project consisting of a bundle of activities focused on strengthening public transport.
- *Transport Policy NAMA, Mexico.* ECOFYS, in consultation with local stakeholders, is developing a transport NAMA for Mexico which focuses on public transport to reduce GHG emissions.
- *Transport Policy NAMA, Porto Alegre, Brazil.* EMBARQ, WRI is conducting a case study on public and non-motorized transportation.

Key Contact: Cornie Huizenga, SLOCAT and Vera Lucia Vicentini, IDB

International Council on Clean Transportation (ICCT) Information Center

Lead Agency: ICCT

Description: The Information Center and accompanying technical assistance includes policy level guidance with the design, implementation, and enforcement of vehicle efficiency and fuel standards in the countries responsible for 80 percent of the global auto market.

The ICCT, which includes senior regulators from the auto industry's leading nations, shares best practices with these policymakers, facilitates collaboration, and provides top-notch technical support. By assembling a small group of about 30 top regulators and policymakers from the 10 largest motor vehicle markets – which together account for 85 percent of the world's new car and truck sales – and providing these members and other interested parties with accurate information about research, best practices and technical resources for improving the efficiency and environmental performance of cars, trucks and other vehicles, ICCT helps accelerate the transition to sustainable transportation.

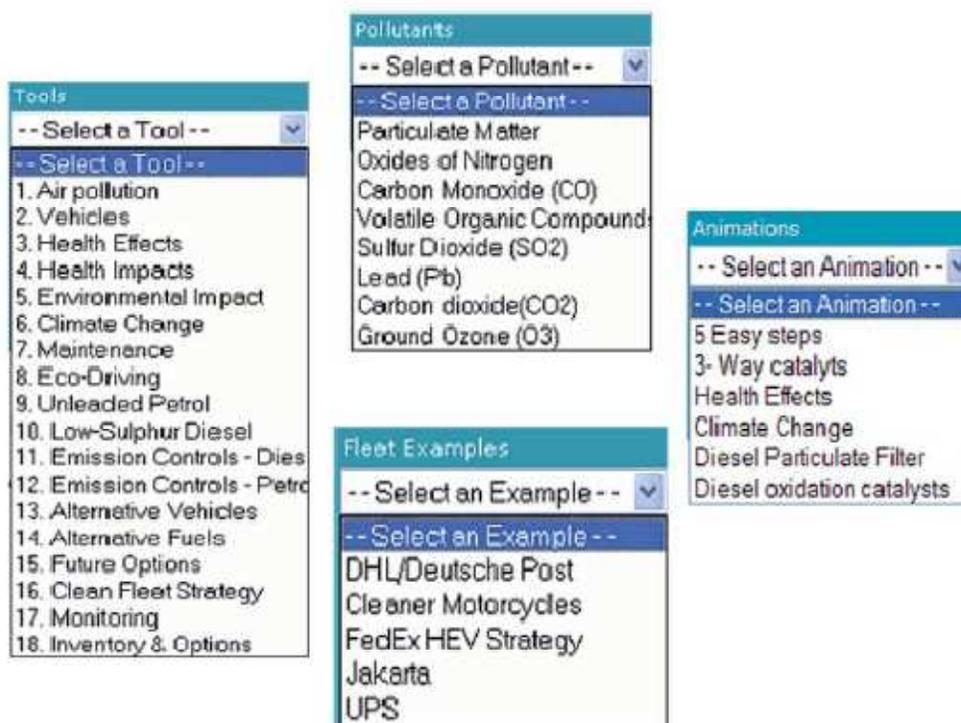
Website: <http://www.theicct.org/information/>

UNEP/TNT Toolkit for Clean Fleet Strategy Development

Lead Agency: United Nations Environment Programme (UNEP) and TNT Turkey

Description: This toolkit contains a series of tools and guidance that will inform fleet managers of the environmental impacts of vehicle emissions, outline the practical and cost-effective solutions available, help assess the impacts of a fleet, and develop and implement a strategy to minimize emissions while improving fuel efficiency (TNT Turkey is a Turkish logistics firm). There are 18 tools to (1) evaluate the effects of fleets on the environment and human health and (2) develop a cleaner management strategy for corrective and cost-effective action - from eco driving and improved maintenance to advanced fuels and technologies. The toolkit takes fleet managers and those interested in learning about lowering emissions from road transport through a step-by-step system that is accessible to both experienced managers and beginners. Figure 1 shows a screen shot from the toolkit.

Figure 1 UNEP/TNT Toolkit Screenshot



Website: <http://www.unep.org/tnt-unep/toolkit/>

Global Transport Knowledge Partnership (gTKP)

Lead Agency: United Kingdom (UK) Department for International Development (DFID)

Description: The gTKP is a web portal and repository of event information, knowledge library, and training material meant to support sustainable and efficient transport in developing and transition countries by providing free access to the best available information and expertise, as well as free technical advice. The gTKP is a partnership of global organizations, local policy-

makers, experts and interested users working to make effective use of international transport knowledge and technical assistance.

Website: <http://www.gtkp.com>

Rural Transport Knowledge Base

Lead Agency: World Bank and UK DFID

Description: The Rural Transport Knowledge Base, published in 2001, is a set of reference and training material on the state of the practice in rural transport. The material draws on experience, publications, and case study examples to facilitate the dissemination of best practice to policy makers, planners and practitioners in the developed and developing world. The Knowledge Base is structured in five modules, and encompasses all aspects of rural transport, including the policy, management and financing of rural transport infrastructure, transport provision, and related non-transport interventions.

Website: <http://www4.worldbank.org/afr/ssatp/Open.aspx?id=45>

3.2 HANDS-ON ASSISTANCE AND OVERSIGHT

Low Carbon Growth Country Studies Program

Lead Agency: World Bank, Energy Sector Management Assistance Program

Description: The World Bank is working on a low carbon development study in a number of countries including Brazil, Mexico, China, India, Indonesia, and South Africa. Individual country studies have been managed by World Bank operational teams, but the governments of these countries have initiated assessments of their goals and development priorities, in conjunction with GHG mitigation opportunities. In addition, these studies examine the additional costs and benefits of lower carbon growth. This requires analysis of various development pathways—policy and investment options in different sectors, including transportation, that contribute to growth and development objectives while moderating increases in GHG emissions. An Excel-based accounting model has been developed to estimate GHG emissions for the different options. This project was started about two years ago and the cost was approximately \$8 million for this first set of low carbon development studies and prioritized list of actions, with one of the sectors being transportation. The tool is developed through a consensus based approach with many stakeholders. The intent is that the lessons learned from this first set will allow future low carbon development studies to be completed for approximately \$600,000 each.

Example of Low Carbon Development for Mexico: Mexico is an example of a country that has completed a low carbon development plan with assistance from the World Bank. This plan describes a number of strategies in different sectors, including transportation, to limit the carbon intensity of development activities. Nine transportation strategies are examined including bus rapid transit (BRT), bus system optimization, railway freight, nonmotorized transport, fuel economy standards, and others. The plan estimates costs and benefits of all strategies, which includes important co-benefits such as time savings and health impacts. It also discusses barriers to mitigating greenhouse gases, including a lack of coordination between agencies, required negotiations with current private transit providers, and a lack of enforcement of federal environmental regulations.

Source: http://www.esmap.org/filez/pubs/526201013944_FINAL_LCCGP-MX_Briefing_Note003-10.pdf

Website: http://www.esmap.org/filez/pubs/1016200941528_FINAL_LCCGP_Paper1.pdf¹

Carbon Assist Program

Lead Agency: World Bank Carbon Finance Unit

Description: Created to be the technical assistance and capacity-building arm for CDM projects, this program also includes resources and methodologies that help in support of development of transportation NAMAs. CF-Assist is a capacity building and technical assistance program established by the World Bank in fiscal year 2005 to enable the full engagement of developing countries and economies in transition in the carbon market. As part of the World Bank's endeavor toward market development, CF-Assist is aimed at assisting interested countries in the development and implementation of projects under the CDM and JI (Joint Implementation), or to access International Emissions Trading (EIT) of the Kyoto Protocol. This program does not specifically target transportation initiatives and has been critiqued for not being able to adequately support funding sustainable transportation projects.

Website: <http://wbcarbonfinance.org/Router.cfm?Page=CFAssist&ItemID=24694&cp=24694>

University of California at Berkeley Global Metropolitan Studies Program

Lead Agency: University of California at Berkeley (UC-Berkeley)

Description: This multi-disciplinary strategic initiative at UC-Berkeley supports research on the implications of urbanization around the world. The implications studied include the environmental challenges caused by urban transportation systems. One current research area is sustainable metropolitan development and greenhouse gas reduction for developing countries. This work has included case studies and methodologies for considering greenhouse gases from transportation sources in developing countries.

¹ Additional descriptions can be found at <http://blogs.worldbank.org/climatechange/supporting-low-carbon-development-six-country-cases>

Website: <http://metrostudies.berkeley.edu/index.html>

Center of Excellence in Bus Rapid Transit

Lead Agency: Pontificia Universidad Catolica (PUC) in Chile

Description: The Volvo Research and Education Foundation (VREF) awarded a \$3.5 million, five-year grant to create the Center of Excellence in Bus Rapid Transit, a consortium of researchers from four universities and *EMBARQ*, the World Resources Institute (WRI) Center for Sustainable Transport. The consortium is headed by Juan Carlos Muñoz of the Pontificia Universidad Católica de Chile (PUC) and the other participating universities include Massachusetts Institute of Technology (MIT) in the United States, Portugal's Instituto Técnico Superior de la Universidad Técnica de Lisboa, and the University of Sydney's Institute of Transport and Logistics Studies in Australia. MIT's participation in the center draws on the new Transportation@MIT initiative, a collaboration between the School of Engineering, the School of Architecture and Planning and the MIT Sloan School of Management. In addition to providing research and analysis, the center will produce case studies, educate practitioners, and develop guidelines on how cities and transit agencies can plan, design, finance, implement, and operate successful BRT systems. Research at the center will also explore how BRT systems interact with other elements of urban transportation, such as cycling lanes and pedestrian spaces.

Website: <http://web.mit.edu/newsoffice/2010/rapid-transit-grant.html>

Regionally Environmentally Sustainable Transport (REST) Technical Assistance

Lead Agency: IDB

Description: The overarching objective of REST is to help Latin American countries develop effective strategies to strengthen the environmental sustainability of land transport, both in terms of climate change as well as other environmental issues. REST will encourage countries and cities in the region to identify and propose projects of strategic importance for the development of REST in Latin American countries, and will contribute to the development of the mechanisms for their implementation and monitoring of climate change related benefits, including specific methodologies, technical tools, guides and manuals, and other measures that will support LAC countries' efforts in acknowledging environmentally sustainable activities in the transport sector. This will include the identification of suitable IDB financial and non-financial instruments and actions to make full use of those tools.

Key Contact: Vera Lucia Vicentini, IDB

World Resources Institute *EMBARQ* Centers for Sustainable Transport

Lead Agency: World Resources Institute, *EMBARQ*

Description: *EMBARQ*'s business model focuses on-site technical assistance to implement sustainable transportation projects. The core of the work is to foster government-business-civil society partnerships whose members are committed to finding solutions to the transportation-related problems in their cities. *EMBARQ* focuses on the establishment of a city partnership; the

creation of a city-based Center for Sustainable Transport in the partner city, staffed primarily by local transport experts; identification of a sustainable transport system appropriate to the partner city; the creation of an ambitious, achievable, work plan that measurably improves traffic congestion, air quality, and quality of life for the city's inhabitants; and the expansion of activities to other cities within the country or region to leverage the capacity and learning created through the initial partnership. The level of engagement is high for two to five years. Currently, *EMBARQ* has centers in Mexico City, Mexico; Porto Alegre, Brazil; Mumbai, India; Istanbul, Turkey; and in the Andean Region, Peru.

Website: www.embarq.org

Institute For Transportation and Development Policy (ITDP) Technical Assistance

Lead Agency: ITDP

Description: ITDP focuses on the promotion of environmentally sustainable and equitable transportation policies and projects worldwide. ITDP is currently providing on-site technical assistance mainly for new BRT systems in China, India, South Africa, Tanzania, and Senegal. ITDP also works with local experts to modernize cycle rickshaws in India and with local retailers to distribute high-quality bicycles in Africa.

Website: www.itdp.org

Energy Foundation China Sustainable Energy Program - Transportation Program

Lead Agency: Energy Foundation

Description: The China Sustainable Cities Program (CSCP) supports efforts to reduce carbon emissions and air pollution in new and existing Chinese cities by promoting sustainable urbanization and transportation systems development. The work focuses on development of comprehensive pilot projects that integrate sustainable urban planning and green transportation; national and provincial policy development and outreach to promote pilot replication; and enhancement of local technical capacity. The Transportation Program supports China's policy efforts to reduce carbon emissions and improve air quality from the transportation sector by promoting cleaner vehicles and alternative transportation options, including advanced BRT.

Website: <http://www.efchina.org/FHome.do>

World Bank Transportation Projects

Lead Agency: World Bank

Description: The World Bank's projects and operations are designed to support low-income and middle-income countries' poverty reduction strategies. The World Bank has traditionally worked with countries as their clients due to this focus in their founding charter. Transportation projects represent 20 percent of the World Bank's lending, which have typically focused on reconstruction and development of roads and ports important to national

governments. However, it has recently been increasing its portfolio of urban transportation projects that are more likely to deal with municipal governments. The World Bank participates in climate change mitigation by choosing to fund low carbon transportation projects that simultaneously accomplish development and climate change goals. These projects could fall under the World Bank's urban transport strategy, its environmental strategy, or be funded in cooperation with the UN's Global Environmental Facility.

Key Contact: Roger Gorham, World Bank; John Rogers, World Bank

Website: <http://go.worldbank.org/0SYVVJWB40>

Asian Development Bank (ADB) Transportation Projects

Lead Agency: ADB

Description: The ADB, a long-time funder of transportation projects to support development in Asia, is beginning to fund more sustainable transportation projects. The Bank would like to help developing countries leapfrog over a high level of individual car dependency to achieve sustainable transportation patterns that simultaneously provide for transportation needs, promote economic development, and limit GHG emissions from transport. So far, these have included urban transportation projects in Lanzhou, China; Pune, India; and Ho Chi Minh City, Vietnam along with railway projects in Afghanistan, Cambodia, China, and other countries.²

Example: Lanzhou Sustainable Urban Transport Project. This ADB funded project in Lanzhou, China will build BRT to connect two parts of the city. The project is currently applying to the Clean Development Mechanism (CDM) to receive carbon credits for the BRT system. If approved, the project would have to use GHG measurement and evaluation tools.

Source: <http://www.adb.org/Documents/RRPs/PRC/40625-PRC-RRP.pdf>

Key Contact: James Leather, ADB; Sharad Saxena, ADB

Website: <http://www.adb.org/Transport/default.asp>

Sub-Saharan Africa Transport Policy (SSATP) Program

Lead Agency: World Bank and over 35 stakeholder countries in Africa

Description: SSATP provides regional integration of transport initiatives in 35 African countries. Member countries of the SSATP are expected to commit to ensure that their transport sector strategies are fully anchored in poverty reduction strategies. The program is currently engaged in the implementation of its Second Development Plan, under which it conducts a number of activities including road management and financing, transport services, and transit transport. While poverty reduction is the major impetus behind the transport strategies

² Details also found at <http://www.adb.org/documents/papers/adb-working-paper-series/ADB-WP10-Rethinking-Transport-Climate-Change.pdf>

promoted, the SSATP recognizes the importance of several cross-cutting issues, including environmental impacts, and gives them special emphasis in the policy-making process.

Website: <http://go.worldbank.org/5GT0JCEDK0>

US FHWA International Technology Transfer

Lead Agency: U.S. Federal Highway Administration (FHWA)

Description: The FHWA Office of International Programs (OIP) sponsors several programs that provide for technology transfer between the United States and developing countries. Two main focus areas currently include India and China. The Global Technology Exchange Program (GTEP) focuses on government-to-government relations and activities designed to promote the safe, secure and efficient movement of people and cargo. The primary activities are technology exchange, information sharing, the establishment of Technology Exchange Centers and the facilitation of partnering relationships (twinning) between U.S. states and their counterparts in Africa, Asia, Europe and Latin America.

Website: <http://international.fhwa.dot.gov/outreach.cfm>

3.3 CONFERENCES, TECHNICAL MEETINGS, AND PEER EXCHANGES

Better Air Quality (BAQ) Conferences

Lead Agency: Clean Air Initiative-Asia (CAI-Asia)

Description: The BAQ conference is Asia's largest gathering of air quality stakeholders from government, civil society, academe, private sector, and the international development community. First organized as a local workshop by the Hong Kong Polytechnic University in 2001, BAQs have become major regional events through the efforts of the Clean Air Initiative-Asia Center and its partners. Held every two years, the BAQ conference regularly attracts close to a thousand participants from Asia and the rest of the world. It is an event for peer exchange for countries within and outside of Asia.

Website: <http://www.baq2010.org/>

Transforming Transportation Events

Lead Agency: World Resources Institute, *EMBARQ*

Description: The Transforming Transportation event has been held every January since 2003 in Washington, D.C. Organized by *EMBARQ* - The World Resources Institute Center for Sustainable Transport, the event has convened senior decision makers and professionals from across the country and around the world to share the latest experience, information and best practices in transportation, air quality, and climate protection. The event has covered a wide range of topics focused on the provision of safe, clean, and affordable transport services. The World Bank has been an annual partner in hosting Transforming Transportation, and increasingly, the event has been co-organized by other international development banks.

Partners in 2010 include the Inter-American Development Bank, the Asian Development Bank, and the Partnership on Sustainable Low Carbon Transport.

Website: <http://www.embarq.org/en/transforming-transportation-2010>

International Conference on Sustainable Transport (ICST)

Lead Agency: Center for Sustainable Transport-Mexico

Description: ICST provides a forum for private and public sectors as well as for civil society to discuss, exchange ideas, and reach commitments to foster urban mobility and sustainable transport solutions. The conference, which focuses on Mexico and Latin America, discusses the theme “Low Carbon, Competitive Cities” to bring the most urgent issues on climate change, sustainable transport and urbanism together for the development of more mobility-oriented public policies. The conference aims to bring policy, practice and research closer together. The program is designed to maximize interaction between participants and discussion on the themes presented.

Website: <http://www.congresotransportesustentable.org/english/index.html>

World Conference on Transport Research Society (WCTRS) Conferences and Forum

Lead Agency: World Conference on Transport Research Society

Description: Every three years, the WCTRS holds a conference for peer exchange. The objective of the WCTRS is to provide a forum for the interchange of ideas among transportation researchers, managers, policy makers, and educators from all over the world, from a perspective which is multi-modal, multi-disciplinary, and multi-sectoral. The Society has become a primary forum for such international exchanges in transportation; the World Conferences are a place where leading transportation professionals from all countries convene to learn from one another.

Website: <http://www.wctrs.org/>

3.4 PLANNING AND ANALYSIS TOOLS, DATA, AND REPORTING PROTOCOLS METHODOLOGIES

Clean Development Mechanism (CDM) Project Activities

Lead Agency: United Nations Framework Convention on Climate Change (UNFCCC)

Description: This website provides access to approved methodologies and the methodological tools approved by the UNFCCC Executive Board on how to measure, report and verify GHG emissions from specific projects. There are only seven CDM methodologies specifically targeted to transportation projects to date; these include BRT, cablecars, low GHG vehicles, low GHG vehicle fleets, mass transit, plant oil for transport, and engine retrofit technologies.

Website: <http://cdm.unfccc.int/methodologies/index.html>

International Local Government Greenhouse Gas Emissions Analysis Protocol (IEAP)

Lead Agency: ICLEI - Local Governments for Sustainability

Description: The IEAP provides an easily implemented set of guidelines to assist local governments in quantifying the greenhouse gas emissions from both their internal operations and from the whole communities within their geopolitical boundaries. By developing common conventions and a standardized approach, ICLEI seeks to make it easier for local governments to achieve tangible reductions in greenhouse gas emissions. The standardized approach described in this protocol facilitates comparisons between local governments and the aggregation and reporting of results being achieved by the action of diverse communities. The IEAP is intended to establish the general principles and philosophy that any local government, regardless of location, should adhere to when inventorying GHGs from its government operations and community as a whole.

Website: <http://www.iclei.org/index.php?id=ghgprotocol>

Transportation Emissions Evaluation Models for Projects (TEEMP)

Lead Agency: ADB and Clean Air Initiative-Asia

Description: ITDP and ADB's Clean Air Initiative-Asia have developed a set of GHG evaluation models for ADB projects at both a project and portfolio level. The focus is on infrastructure investments with seven different models developed for different modes or roadway types (rural highways, BRT, non-motorized transport, railways, etc.) The models have been applied to evaluate the projects within the ADB portfolio and the toolbox is on the ADB website for public use and review.

TEEMP is an Excel-based spreadsheet tool with simple input/output tables that evaluate the likely impact of ADB's transport portfolio on carbon emissions. It provides examples of standardized methodologies for transport project carbon emissions impact assessment and portfolio benchmarking. Figure 2 shows an example of a screen shot from the tool.

Figure 2 TEEMP Screen Shot

Parameters - BRTS Project

Components of the BRTS Project

Select or check the components that are applicable to the BRT project

(note: the

	Description	RDL	Speed
1a. Infrastructure: Cross Section/ROW (pick one)	Dedicated right of way in central verge, w/ barrier	7	10
1b. Infrastructure: station/junction relation	Station separated from junction by min of 70 meters	3	10
1c. Road works at station (pick one)	Passing lanes at station stops, pphpd > 6000	8	10
2a. Station design (select all relevant)	Unique/attractively designed shelter	1	
	Weather protection at stations	1	
	Illumination	1	
	Security personnel at stations	2	
	Stations => 3.5 m wide	3	
2b. Stations: Bus docking interface	Multiple docking bays w/ space to pass, pphpd > 6000	6	10
	3 or more doors	0	
	Boarding platform level with bus floor	8	10
2c. Station Accessibility	Safe & attractive pedestrian access system and corridor environment	3	
	Bicycle parking at stations	1	
	Bike stations/bike rentals/public bikes at stations	1	
	Compliant w/ Access International BRT Accessibility guidelines	1	
	Bike paths leading to stations	1	
3. Operations	Service offered throughout day	3	
	High frequency service < 5 min. average	3	
	Off-vehicle fare collection	8	10
	On bus camera enforcement of ROW	2	10
	turning/restrictions across > 60% of intersections (high volume) or bus priority at junctions (low volume)	5	10
	Operational control system to reduce bus bunching	0	0
	Extensive feeder bus services integrated into BRT	5	
	Integrated fare collection with other public transport	5	
4. Passenger information and branding	peak-period pricing	0	
	Performance based contracting for operators	5	
	Passenger information at stops, headway > 5 min., info on vehicles	2	
	Quality branding of Vehicles & stations	1	
	Brochures/schedules	0	
		86	
Scaling factor for Land Use		0.86	
Scaling Factor for demand		1.22	
Scaling factor for dissemination		0.86	
Maximum speed w/ optimal station stop distance			30
Speed Scaling Factor			0.80
Projected Speed			24

Key Contact: Michael Replogle, ITDP and Sudhir Gota, Clean Air Initiative-Asia

Website: <http://www.adb.org/evaluation/reports/ekb-carbon-emissions-transport.asp>

GEF Transport Sector Project Analysis

Lead Agency: UNEP and ADB

Description: For UNEP, the Institute for Transportation and Development Policy (ITDP) is developing a standardized method for GHG ex-ante evaluation of Global Environment Facility (GEF) projects and recommendations for ex-post evaluation. The result will provide guidance and spreadsheet tools to the GEF Standing Technical Advisory Panel on how best to measure the CO₂ impacts of transportation projects. The project is building on the TEEMP tools being developed for ADB but with additional factors (e.g., for indirect replication benefits) and more focus on bus rapid transit, nonmotorized transit, and travel demand management rather than roadways. ITDP is now responding to comments on a peer review draft and hopes to have a revised report by mid-August, with approval by the GEF Council in late 2010 to be applied as the standard for the next GEF funding cycle (GEF-5).

Key Contact: Michael Replogle, ITDP

Effect Model

Lead Agency: World Bank and GEF

Description: The World Bank, working with GEF, is developing a model to assist in the analysis of transport carbon reduction projects. The model takes into account mobile source emissions as well as vehicle mortality, fleet changes and fuel technology standards. The EFFECT model is a forecasting framework, Excel-based and using macros, so that it is transparent, open to changing variables and applying it in many ways.

Key Contact: John Rogers, World Bank

Transport Data in Asia and Latin America (TDALA)

Lead Agency: ADB and IDB

Description: ADB and IDB are currently undertaking a scoping study for the development of an initiative to improve the availability and quality of transport data in developing countries (starting with Asia and Latin America). ADB and IDB are coordinating this study with the IEA, which to this point has been the lead organization for analyzing and disseminating transport data. The results and recommendations of the scoping study were anticipated to be presented for endorsement at various intergovernmental and other policy oriented meetings and forums in the period April – June 2010.

Key Contact: John Apelbaum, Apelbaum Consulting Group

Partnership on Sustainable Low Carbon Transport (SLoCaT) Data Initiative

Lead Agency: SLoCaT, a partnership of over 50 agencies; ADB, IDB, and International Energy Agency (IEA)

Description: This partnership of over 50 United Nations (UN) organizations, multilateral development banks, technical cooperation agencies, Nongovernmental Organizations (NGOs), and research organizations provides a forum for developing activities to improve the knowledge on sustainable low carbon transport, help develop better policies and catalyze their implementation. One of the first efforts to be completed in 2010 is a transport data initiative which includes a scoping study to improve the availability and quality of transport data in developing countries, starting with selected countries in Asia and Latin America. The data initiative includes country and city databases on air quality, climate change and energy, and transport (CitiesACT portal); a GHG assessment methodology, and a benchmarking assessment of sustainability in urban transport systems.

Key Contact: Cornie Huizenga, SLoCaT

Website: <http://www.sutp.org/slocat>

4.0 Technical Assistance/Capacity-Building Needs

This section provides an assessment of the most significant priorities for additional capacity-building to improve the state of practice in NAMA planning, implementation, and evaluation. Several key messages permeate through the review of information and interviews with experts.

Engage in a Range of Capacity-Building Activities

There are a wide variety of ways in which capacity-building can be accomplished, and a wide variety of focus areas for capacity-building. It is impossible to generalize as to which types of capacity-building activities are most needed or useful. General tools – such as calculation methods, checklists, decision support tools, and best practice case studies – that can be adapted to local situations are helpful. At the same time, these tools will be most effective when combined with hands-on, in-person assistance to train local practitioners in their use. Meetings and conferences are valuable for sharing best practices. Needs exist for all three stages of project or program development – planning, implementation, and evaluation.

Tailor Capacity-Building to Local Needs

Each region will have different needs depending upon the specific types of projects or programs being considered, existing local knowledge, fiscal capacity, institutional relationships, and other factors. Capacity-building efforts focused on specific countries or regions should begin with an assessment to determine the most critical local needs.

Tie Local Capacity Building to a Specific Project

Interviewees commented that general capacity-building efforts that are not focused on a particular project or program have not been very useful. Local practitioners need concrete examples to which to test and apply planning, implementation, and MRV practices. “Learning by doing” is often the most effective form of education. A real-world project also provides motivation since tangible outcomes and recognition can be achieved.

Ensure that Technical Assistance Supports Long-Term Capacity-Building

As discussed at the beginning of Section 2.0, not all technical assistance activities are focused on capacity-building. An outside consultant or international agency staff may be sent in to work on a particular project or program, but if they do this without working closely with local staff and other stakeholders, they are not building local capacity.

For technical assistance efforts to effectively build capacity:

- Local practitioners should be given responsibility for carrying out specific activities. While these activities should be supported and overseen by the outside organization or consultant, the local staff’s responsibilities should gradually increase;
- Local practitioners should be given an understanding of *why* they are doing something – not just told what to do – and of alternative ways that may exist of doing the same task, and the advantages and disadvantages of various approaches; and

Local practitioners should be involved in decision-making about important project decisions so that they feel invested in the project and the selected methodology.If Possible, Start with A Sustainable or Low Carbon Development Plan

Planning sets the context for implementation of specific projects and policies. Developing a low-carbon or “sustainable” transport plan is an important initial step in helping local practitioners and other stakeholders identify and understand the more specific actions upon which they should focus that may qualify as NAMAs. It also can fill the critical function of examining transport GHG reduction actions within a broader perspective of transport goals, identifying a set of actions that can collectively support mobility, air quality, safety, and economic development in addition to GHG mitigation. Building capacity for planning, including data collection, analysis methods, and planning methods, will also increase the capacity needed to plan for and evaluate specific projects.

Build Consulting Capacity

In the United States, planning and project implementation staff at public agencies (state departments of transportation, metropolitan planning organizations) are generally supported by consultants, especially at smaller agencies where the resources do not exist to develop enough in-house expertise for specialized activities (such as travel forecasting). This is true in the developing world as well. Furthermore, with hundreds of cities in the developing world just with population of over 1 million, and thousands of smaller cities, it will be impossible to provide hands-on assistance to local staff in all major cities in these countries. Training local consultants who work in many cities can leverage the resources of international organizations. Such training can occur through hands-on project work (from which experience can be transferred to other similar projects), as well as through more general activities such as workshops and training courses (particularly if professional accreditation and continuing education are required or encouraged in the country). Again, it is critical that knowledge be transferred to *local* consultants – rather than simply having an outside consulting firm come in for a particular project and complete the project without leaving anything behind.

Use University Partnerships to Train The Next Generation

A focus on post-secondary education is another important way to leverage capacity-building resources. Partnerships with universities can help to train university researchers – who often work with directly with local agencies – as well as students who will become the next generation of local staff and consultants. A number of partnerships are already in existence between universities in the developed and developing world, such as UC-Berkeley’s Global Metropolitan Studies program with Jinan University in China and MIT’s partnership with Regional Government in Mexico focused on air quality. Student and faculty exchange programs, joint research projects, class projects focused on real-world situations, and assistance with developing curriculum materials are all ways of increasing capacity through local educational institutions. International agency initiatives could also focus on standardized curriculum development and sponsored training for university staff.

Involve a Full Range of Local Stakeholders

Planning and implementation activities will be more self-sustaining if a broad range of stakeholders are invested in them. For example, planning for low-carbon transport should involve transportation planners at various levels of government (local, regional/state, national), local land use planners, highway and transit operations professionals, air quality agencies, elected officials, citizen, business, and advocacy groups, and even interests from other sectors such as housing and economic development. While transportation planners will have specialized roles to play (such as supporting data collection and analytical tools needed for planning), the more stakeholders gain an understanding of transport planning the more they will be invested in implementing a plan or project and ensuring successful outcomes. Advisory committees or working groups can engage stakeholders in a process while interactive decision support tools can help build understanding of the consequences of various actions.

Focus on Transportation Activity Data

Good data is essential to making good decisions. Data on factors such as travel patterns, traffic conditions, and vehicle emission characteristics is needed to identify the most effective GHG mitigation strategies and monitor the impacts of projects. Furthermore, much of the data required for GHG analysis is also essential for assessing other benefits and impacts of transportation projects and programs. Yet, as noted in Technical Report #1, even basic data items are lacking or of poor quality in most developing countries.

Respondents noted that for GHG analysis purposes, emissions characteristics are reasonably well-understood (and transferable from one situation to another) but local transportation activity data is essential. Capacity-building should focus on helping local agencies develop programs to routinely collect and update key data items (such as traffic counts, speeds, trip lengths, and mode shares) as well as to ensure the quality of data. Where resources are limited, programs should help agencies determine the most important data items to collect and appropriate frequencies and geographic coverage to do so.

Coordinate the Development of GHG Analysis and Evaluation Methods

International lending organizations including the IDB, ADB, UNEP, and World Bank are all working on GHG evaluation tools and methods, and some work on evaluation methods has also been conducted for the CDM. While these activities are to some extent being coordinated it will be essential to ensure close coordination in the future to provide a common resource/methodology for NAMA evaluation that is used by international agencies and local project sponsors. Interviewees noted that there is potential for confusion, waste, delay, and inefficiency if project sponsors need to use three or four different evaluation tools, all producing different results, for different funding sponsors.