Sustainable Urban Transport in Asia
- Making the Vision a Reality -

Part II: Sustainable Urban Transport Resources: a Review

MAY 2005
I. INTRODUCTION

1. The Partnership for Sustainable Urban Transport in Asia (PSUTA) has been collecting, reviewing, organizing, and disseminating information on sustainable transport in Asia, in order to improve sustainable transport policy processes and outcomes. The review of existing related documents is one of the project's key outputs. Since sustainable urban transport is a relatively new field, there has to be a systematic overview of the kind of information that is available. Decision makers need to have easy access to such information, which are important and relevant to the formation of good transport policies. Unfortunately, information that aids sustainable transport development are still currently missing or fragmented.

2. The main rationale of this exercise is to document resources on sustainable urban transport in Asia and make them available to a wider audience through the CAI-Asia website. This information can potentially be used in policy formulation and development planning to create a paradigm shift towards improved transport sustainability. Although there are existing websites that provide such information, many of these websites usually offer only their own outputs and/or have not documented information from outside sources (see comparative assessment of websites in Section C below). The PSUTA web page in the CAI-Asia website aims to fill this gap,\(^1\) and to become a sustainable transport data and information hub.

II. PROCESS

3. To achieve this objective, the PSUTA project team developed an MS Access database\(^2\) to act as an intermediate repository of data that will later be published on the CAI-Asia website. The entire website is maintained through a content management system (CMS).

   A. What is being collected

<table>
<thead>
<tr>
<th>Category of Information (Document Type)</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key Resource Persons</td>
<td>To select about 50 key decision makers or &quot;thinkers&quot; on sustainable transport in Asia and the rest of the world who are involved in fresh, detailed conceptual approaches to transport planning.</td>
</tr>
<tr>
<td><a href="http://www.cleanairnet.org/caiasia/1412/article-60096.html">http://www.cleanairnet.org/caiasia/1412/article-60096.html</a></td>
<td></td>
</tr>
<tr>
<td>Key Research Institutes</td>
<td>To identify the leading institutions in Asia and elsewhere that have a proven research capacity on sustainable urban planning and management.</td>
</tr>
<tr>
<td><a href="http://www.cleanairnet.org/caiasia/1412/article-60099.html">http://www.cleanairnet.org/caiasia/1412/article-60099.html</a></td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) See http://www.cleanairnet.org/caiasia/psuta

\(^2\) Prior to the MS Access database, records were kept using MS Excel
### Projects
http://www.cleanairnet.org/caiasia/1412/article-60098.html

To identify current projects in Asia and in other parts of the world that can be used to provide guidance and inspiration in the development of a conceptual approach to sustainable transport planning and management in Asia.

### Studies
http://www.cleanairnet.org/caiasia/1412/article-60097.html

To document innovative concepts and find out what are the common directions promoted and what are the quantitative bases for these approaches.

### Indicators
http://www.cleanairnet.org/caiasia/1412/article-60115.html

To develop a set of reliable and accurate indicators that would help assess the level of sustainable transport management in specific areas.

### News
http://www.cleanairnet.org/caiasia/1412/article-60094.html

To select relevant news articles and links about current developments in the sustainable transport arena, and include them in the CAI-Asia website and the PSUTA e-news digest.

### Events
http://www.cleanairnet.org/caiasia/1412/article-60100.html

To document conferences, workshops, and forums about sustainable urban transport in Asia, and include new announcements on the Calendar of Events in the CAI-Asia website.

## B. How was it being collected

4. Data gathering was conducted through personal and electronic communications, workshops, questionnaires, print media, and online research. This information was encoded into the MS Access database, starting in June 2005. The data was classified according to its appropriate sustainable transport topic/sub-topic. The system of classification (or "taxonomy") that was used also allowed cross-referencing by document type (i.e., contacts, research institutes, projects, studies, documents, news, etc.) and by country or city.

5. Reference details such as the contact person and its web page were included whenever possible. Before the information was published on the website, the taxonomy had to be revised to fit topics on sustainable transportation into the CMS. The contents of the MS Access database were then migrated into the CAI-Asia website while some existing web pages in the CAI-Asia website were re-classified to fit the new taxonomy.³

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³ See www.cleanairnet.org/caiasia/1412/propertyname-1893.html
C. Who are the persons responsible

6. Karl Fjellstrom developed the database forms using MS Access. Aurora Fe Ables and Michael Co reviewed its contents and structure, particularly the topics that were included and other technical issues. The revision of the taxonomy was done by Aurora Fe Ables and Michael Co, with inputs from Wei-Shiiuen Ng. Data collection was mostly done by Aurora Fe Ables and Karl Fjellstrom. Uploading and reclassifying of documents on the website was done by Aurora Fe Ables with assistance from Michael Co. The activities were done under the supervision of Cornelius (Cornie) Huizenga and Lee Schipper who both led the project team.

III. OUTPUTS

A. Databases

7. One of the key objectives of PSUTA is to record existing information about sustainable transport into a database. It was observed that throughout the project, the term "database" has been used interchangeably with the term "website." While a websites may give the impression that it is also a database, the two terms are technically different. The main purpose of a database is to record and store information, while the purpose of a website is to disseminate or publish information.

8. Since June 2004, information was collected and recorded in a separately maintained MS Access database. This database was designed as an intermediary step to facilitate the acquisition and retrieval of documents that are of interest to PSUTA before they are uploaded to the CAI-Asia website. This is because it is easier and faster to edit records in MS Access than it is to modify files that have already been uploaded on the web. For this reason, the MS Access database contains more records on sustainable transport than what has actually been uploaded on CAI-Asia's web server.

B. Website

9. Information generated by PSUTA is documented in the special section of the CAI-Asia website. The CAI-Asia website is jointly maintained by the CAI-Asia Secretariat of the World Bank and Asian Development Bank, although 100% of PSUTA-related work is handled by the team based in ADB.

10. The type of PSUTA-related content that are being uploaded on the website can be classified into two broad categories: (a) information exclusive to PSUTA, and (b) general sustainable urban transport information that can be accessed from other sections of the site. All information belonging to the first category can be accessed from the PSUTA page and its respective sub-pages. However, on some situations, information belonging to the second category are also given a special section of their

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4 http://www.cleanairnet.org/psuta. This section is also accessible by clicking on Activities, then selecting Pilot Projects. The page can also be accessed from the Sustainable Transport topic page: http://www.cleanairnet.org/caiasia/1412/propertyvalue-13809.html
own, as in the case of the Bus Rapid Transit web page. Information for these sections were also collected by the PSUTA project.

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**Bus Rapid Transit (BRT): Breaking New Ground in Asia**

In December 2004, Enrique Peñalosa -- former mayor of Bogota, Colombia -- was invited to ADB Headquarters to talk about his experiences in implementing TransMilenio, a successful BRT system. Filipino representatives from the transport planning and air quality management sector were impressed with his speech, and initiated a process to look into the possibility of a BRT pilot program in Metro Manila. The PSUTA project has been instrumental in collecting information about BRT in preparation for a pre-feasibility study that would identify appropriate bus corridors in the city. This will pave the way for a full feasibility study that would examine the socio-economic impacts in greater detail. If approved, Metro Manila will become the third country in Southeast Asia to adopt BRT.

More information about BRT can be found in the BRT section of the CAI-Asia website: http://www.cleanairnet.org/caiasia/1412/article-59592.html

For more information about Enrique Peñalosa, go to: http://www.cleanairnet.org/caiasia/1412/article-59077.html

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2. How information appears in the website

11. To document this information on the CAI-Asia website, a PSUTA section was created under Activities > Pilot Projects. The PSUTA section of the CAI-Asia website is the primary entry point to the information being collected for this project (Fig.1).

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5 www.cleanairnet.org/psuta
12. The PSUTA web page consists of five main sections: (a) Introduction to PSUTA; (b) Sustainable Transport Resources; (c) Indicators and City Case Studies; (d) Strategic Framework; (e) Related Links on Sustainable Transport. A special navbar on the right margin allows users to quickly switch from one section to the other. Below is an overview showing how the PSUTA website is structured (each box represents a separate web page that contains the different PSUTA outputs):

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6 It is important to present PSUTA outputs coherently, yet at the same time integrate them well with the rest of the CAI-Asia website. This is why a special navigation menu was inserted in the right margin.
RELATED LINKS ON SUSTAINABLE TRANSPORT

- Sustainable transport
  - Governance and sustainable transport in general
    - Sustainable transport policy
    - Bus rapid transit
    - Rail and metros
    - Taxi cars and vans
    - Non-motorized transport
    - Two and three wheelers
    - Pedestrian planning
    - Ferries
    - Road infrastructure
  - Environment, health, and safety
    - Vehicle emissions and improvements
    - GHG emissions
  - Economic aspects
    - Urban transport financing
    - Regulation, costs, subsidies
    - Urban transport institutions
  - Social aspects
    - Public participation
    - Urban road safety
    - Poverty alleviation and gender
    - Transport demand management
  - Sourcebook

Fig. 2: Screenshot of lower half of the PSUTA web page
(also depicts sustainable transport taxonomy)
13. The right hand navbar conveniently summarizes the main sections of the PSUTA website. Although the PSUTA site has 16 separate pages, for space considerations the current version of the navbar shows 12 of the most important sections. However, more elements can be added to this navbar in the future. The main outputs under the document review component of PSUTA (component A) is found under the section called "Sustainable Transport Resources." These include links to key resource persons in sustainable transport; key research institutions; sustainable transport projects in Asia; sustainable transport studies; news; and events (Fig. 3):

![Fig. 3: Sustainable Transport Resources](image)

14. Some of PSUTA outputs are available as an aggregated list (downloadable file) to help distinguish them from other similar categories found in the CAI-Asia website. This approach also allows for easier review and maintenance (Figs. 4 and 5).^7

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^7 An *eidox* is a term that is used internally by CAI-Asia web editors. It refers to any type of information that can be uploaded as a single web page, although in practice, some web pages can be made up of several eidoxes.
Location: Asia in General

**KEY RESOURCE PERSONS IN SUSTAINABLE TRANSPORT (PSUTA)**

This list is being compiled by the Partnership for Sustainable Urban Transport in Asia (PSUTA) project. It represents key decision makers or “thinkers” on sustainable transport in Asia and the rest of the world who are involved in fresh, detailed conceptual approaches to transport planning.

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**Fig. 4: Key Resource Persons**

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Location: Asia in General

**SUSTAINABLE TRANSPORT PROJECTS IN ASIA (PSUTA)**

The Partnership for Sustainable Urban Transport in Asia (PSUTA) project aims to identify current projects in Asia and in other parts of the world that can be used to provide guidance and inspiration in the development of a conceptual approach to sustainable transport planning and management in Asia.

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**Fig. 5: Projects**
15. On the other hand, other PSUTA outputs such as news and events are better displayed as individual web pages or links to separate pages or external websites (Figs. 6 and 7). This allows the articles to be cross-referenced from other parts of the CAI-Asia website.
3. Progress to date

16. As of May 26, there are **392 documents** recorded in the MS Access database. Approximately **253 documents** are currently available on the CAI-Asia website and are classified under PSUTA. (Note: There are less than 50 documents related to sustainable transport that are available on the website, but have not yet been reclassified as PSUTA-related.) Projects and studies are currently available as DRAFT downloadable files, but separate web pages will be created for each of them in the coming weeks.

<table>
<thead>
<tr>
<th>Category</th>
<th>In MS Access</th>
<th>In Website</th>
<th>Web Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contacts</td>
<td>186</td>
<td>50</td>
<td>= 1 Downloadable PDF file</td>
</tr>
<tr>
<td>Institutes</td>
<td>62</td>
<td>21</td>
<td>= 1 Downloadable PDF file</td>
</tr>
<tr>
<td>Projects</td>
<td>42</td>
<td>42</td>
<td>= 1 Downloadable PDF file</td>
</tr>
<tr>
<td>Studies</td>
<td>43</td>
<td>43</td>
<td>= 1 Downloadable PDF file</td>
</tr>
<tr>
<td>News</td>
<td>59</td>
<td>156</td>
<td>Individual web pages or links&lt;sup&gt;8&lt;/sup&gt;</td>
</tr>
<tr>
<td>Event</td>
<td>N/A</td>
<td>6</td>
<td>Individual web pages&lt;sup&gt;9&lt;/sup&gt;</td>
</tr>
<tr>
<td>General SUT docs</td>
<td>N/A</td>
<td>133</td>
<td>Individual web pages or links</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>392</strong></td>
<td><strong>299</strong></td>
<td></td>
</tr>
</tbody>
</table>

17. To keep abreast of recent developments, projects, policy changes and documents on sustainable transport, a weekly digest was sent out. The digest originally contained only news articles but now includes alerts on upcoming events and newly posted documents at the CAI-Asia website that are related to sustainable transport. An average of ten summaries of news items are usually found in the digest, along with announcements of upcoming events and new reads.

18. Recipients of the digest includes the PSUTA team and mentors, and interested parties who had requested to have them delivered after announcements were made through the CAI-Asia listserv, Sustran e-group, and through CAI-Asia’s weekly AirE-news digest.

19. A monthly archive of articles that were included in the digest will be posted at the website as downloadable files.<sup>10</sup>

### e-News Digests (August 2004 to May 2005)

<table>
<thead>
<tr>
<th>Month</th>
<th>Digests released</th>
<th>Total news articles</th>
<th>News in CAI-Asia website</th>
<th>New reads in digest</th>
</tr>
</thead>
<tbody>
<tr>
<td>May-05</td>
<td>3</td>
<td>21</td>
<td>21</td>
<td>14</td>
</tr>
<tr>
<td>Apr-05</td>
<td>3</td>
<td>31</td>
<td>31</td>
<td>6</td>
</tr>
<tr>
<td>Mar-05</td>
<td>2</td>
<td>31</td>
<td>31</td>
<td>6</td>
</tr>
<tr>
<td>Feb-05</td>
<td>2</td>
<td>24</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Jan-05</td>
<td>4</td>
<td>43</td>
<td>10</td>
<td>-</td>
</tr>
<tr>
<td>Sep-04</td>
<td>2</td>
<td>13</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Aug-04</td>
<td>17</td>
<td>93</td>
<td>72</td>
<td></td>
</tr>
</tbody>
</table>

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<sup>8</sup> News articles are no longer stored in the MS Access database but are immediately posted on the website.

<sup>9</sup> Some events in the CAI-Asia calendar still need to be reclassified as SUT-related.

<sup>10</sup> See http://www.cleanairnet.org/caiasia/1412/article-59591.html
20. At the start, the PSUTA news digest was delivered on a daily basis. Starting on September 2004, it was made into a weekly digest. Although documents on sustainable transport were being posted on the CAI-Asia website regularly, it was not featured in the digest until early 2005. The same was true with the announcements on transport-related events.

**D. Other discussion forums, newsletters, and e-groups on sustainable transport**

21. The PSUTA newsletter (with more than 80 subscribers) is not the only electronically distributed news digest on sustainable transport. A number of organizations and projects have set up similar ways to communicate up-to-date information to a targeted audience:

<table>
<thead>
<tr>
<th>Name of E-Newsletter/Listserv</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SUSTRAN Network</strong></td>
<td>SUSTRAN-DISCUSS is a forum devoted to discussion of people-centered, equitable and sustainable transport with a focus on developing countries (the ‘Global South’). Because of the history of the list, the main focus is on urban transport policy in Asia. Discussions are well focused, expert-based and of very high quality.</td>
</tr>
<tr>
<td><a href="http://list.jca.apc.org/manage/listinfo/sustran-discuss">http://list.jca.apc.org/manage/listinfo/sustran-discuss</a></td>
<td>115 subscribers</td>
</tr>
<tr>
<td><strong>New Mob/World Transport Forum</strong></td>
<td>A “strictly business” one-way announcement list. This forum goes back more than a decade, and at present serves more than five hundred transportation experts, activists and policy makers worldwide.</td>
</tr>
<tr>
<td><a href="http://groups.yahoo.com/group/NewMobilityCafe/">http://groups.yahoo.com/group/NewMobilityCafe/</a></td>
<td>161 subscribers</td>
</tr>
<tr>
<td><strong>GATNET (gender and transport)</strong></td>
<td>This is the discussion group of a community of practice that began with a program on mainstreaming Gender into the World Bank's Transport Sector. It is open to all those who are interested in issues relating to improving mobility and access for poor women and men in developing countries.</td>
</tr>
<tr>
<td><a href="http://www.dgroups.org/groups/worldbank/GATNET">http://www.dgroups.org/groups/worldbank/GATNET</a></td>
<td>65 subscribers</td>
</tr>
<tr>
<td><strong>Sustainable Transport E-Update</strong></td>
<td>ITDP's e-newletter which is archived in their website. Sixteen issues have been posted so far.</td>
</tr>
<tr>
<td><a href="http://www.itdp.org/STe/index.html">http://www.itdp.org/STe/index.html</a></td>
<td>? subscribers</td>
</tr>
<tr>
<td><strong>WBCSD Sustainable Mobility</strong></td>
<td>Official sustainable transport newsletter of the World Business Council for Sustainable Development. The WBCSD has an impressive, content-rich website. Its Sustainable Mobility newsletter reinforces the WBCSD project by providing information on worldwide sustainable transportation, including infrastructure, policy measures, fuels and new technology. However, it has primarily been used to announce Sustainable Mobility News. While having over 4500 subscribers, only 12 messages have been posted so far.</td>
</tr>
<tr>
<td><a href="http://www.wbcsd.org/plugins/MyWbcsd/Register.asp">http://www.wbcsd.org/plugins/MyWbcsd/Register.asp</a></td>
<td>4500+ subscribers</td>
</tr>
<tr>
<td><strong>Sustainable Transport Coalition</strong></td>
<td>Online discussion forum, but not very active. Only 42 posts have been made in its section on General Transport.</td>
</tr>
<tr>
<td><strong>Car Free Discussions</strong></td>
<td>Discusses and explores issues related to eliminating or reducing one's reliance on automotive transport. Celebrates non-polluting forms of transportation such as walking and bicycling while encouraging the use of mass transit as well as other life style changes providing an alternative to auto-centric perspectives. Very personal and laid back approach.</td>
</tr>
<tr>
<td><a href="http://groups.yahoo.com/group/CarFree/">http://groups.yahoo.com/group/CarFree/</a></td>
<td></td>
</tr>
<tr>
<td><strong>Transportation Communications Newsletter</strong></td>
<td>The Transportation Communications Newsletter is a free daily e-mail publication which provides news and information related to all aspects of communications in the transportation field.</td>
</tr>
<tr>
<td><a href="http://finance.groups.yahoo.com/group/transport-communications/">http://finance.groups.yahoo.com/group/transport-communications/</a></td>
<td></td>
</tr>
</tbody>
</table>

11 See [http://www.ecoplan.org/wtpp/general/discussions.htm](http://www.ecoplan.org/wtpp/general/discussions.htm) for more examples
E. Comparison of websites

22. There are a number of regional programs with a substantive Asia presence that focus on some aspect of sustainable transport. Below is a brief review of the websites of several of these organizations. In addition to the regional programs there are also national organizations/programs with a well established website. This includes organizations like TRIPP at IIT in Delhi.

23. To accommodate PSUTA documents, the CAI-Asia website substantially modified its taxonomy to include topics and sub-topics on sustainable transport in Asia. These additional topics are highlighted in yellow.

<table>
<thead>
<tr>
<th>Organization</th>
<th>Remarks</th>
<th>Est. number of relevant documents (as of March 2005)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EMBARQ/WRI</strong> embraq.wri.org</td>
<td>The main focus of EMBARQ has been in cities in developing countries. Current projects are in Latin America and Asia. EMBARQ is also working with CAI-Asia on the PSUTA project in China, Vietnam and India. Its website is very simple but easy to navigate. Most of the available documents is in the form of News (18 docs), Projects (2 docs), Events (7 docs), and Contacts (web page with 14 names).</td>
<td>Approx. 27 to 30 docs</td>
</tr>
<tr>
<td><strong>Interface for Cycling Expertise (I-CE)</strong> <a href="http://www.cycling.nl">www.cycling.nl</a></td>
<td>I-CE promotes non-motorized transport. Its website resembles a brochure and introduces I-CE. I-CE currently works in India and Sri Lanka. Aside from a web page of related links, it does not have a lot of information about NMT in general. I-CE has a tie-up with <a href="http://www.velo.info">www.velo.info</a> but the latter site is still under construction (as of Mar 2005).</td>
<td>Link page contains 19 links.</td>
</tr>
</tbody>
</table>
| **Energy Foundation China** www.efchina.org | Energy Foundation's work in Asia is solely in China. Strong support for BRT in China, but weak linkages with other Asian countries. The website contains documentation on at least 38 special reports, each having at least one downloadable file (some with 7 downloadable files). The website is simple yet focused, and easy to navigate. Structure:  
  - Home
  - Application Guidelines
  - Programs  
    - Low-carbon development paths
    - Transportation
    - Buildings
    - Industry
    - Electric Utilities
    - Renewable Energy
  - Links (19 links)
  - Resources  
    - 38 Special reports that can be sorted by date or group (see programs)
  - Contact Us  
    - Staff Directory
    - Board of Directors
    - Advisors  | 38 special reports (each with several downloads) plus 19 related web links |
| **ITDP** | ITDP has a fairly well established presence throughout Asia and has activities in various countries. It has hands-on experience with BRT projects. Website contains numerous articles from its sustainable transport e-update newsletter (15 issues). It also contains documents about its programs and sustainable transport in general. Also includes financial statements from 2000-2003. Press release section was last updated in April 2004. Materials are general with part focusing on Asia. One drawback of the site, however, is that all the pages are coded by hand, i.e., *does not use a content management system*. Neither does it have a search engine.  
**Structure:**
- Home (links to featured stories)
- Our Mission
- Who We Are
- Programs
  - BRT (16 docs)
  - Bike Industry (7 docs)
  - NMT Planning (4 docs)
  - Transport Policy (4 docs)
- Publications (25 docs)
- Press Room (17 docs)
- Links (66 links) | At least 88 docs, including publications + 66 links |
| **EST - UNCRD** | UNCRD's EST program mainly targets ASEAN countries plus Japan, China, Korea, and Mongolia, under the first phase of the project. The website provides information on various national and regional activities carried under the program, including the intergovernmental forum on environmentally sustainable transport, national EST formulation process, papers/presentations from EST-UNCRD events and inter-governmental policy dialogues, outline of EST training course, a list of 19 experts with contact details, list of national government partners, etc.  
Papers/presentations made at the Manila Policy Dialogue, Jan 2004  
Course outline of the EST training course  
List of national government partners  
Contact information of 19 experts  
Links to partner organizations | |
| **SUTP** | Good coverage of sustainable transport and many useful links. The download section requires login. Current version does not have a search engine.  
**Structure:**
- Daily News (32 items as of Mar 30, 2005)
- News Archive
- Events (8 events)
- Past events
- Download section *(login required - links to 21 sourcebook modules, BRT material, and resources from past events)*
- Resources
  - Sourcebook (same as download section)
  - Training Materials (same as download section)
  - Transport Photo CD
  - Publications
    - SUTP-Asia presentations and project documents (9 docs)
    - Sustainable Transport: a Sourcebook for Policy-makers in Developing Cities (1 doc)
    - Bangkok bus sector reform project (2 docs)
    - Presentations at the 'Eco-cities' seminar in April 2003 (3 docs) | 20 PDFs for the Sourcebook + 32 news + 8 events + 25 publications + one web page containing approx. 444 web links (with duplication/overlap) |
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**Draft Report May 2005**

**Not for Circulation**

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- Reports from GTZ’s Sustainable Urban Transport Project in Surabaya, Indonesia (20 docs)
- General GTZ urban transport-related reports (4 docs)
  - Other resources
- BRT resources
  - BRT webpage
  - BRT presentations
  - BRT links
  - BRT documents
- Transport web links divided into topics *(note: there is some duplication and overlap, e.g. Victoria Transport Policy Institute appears in several areas)*

**Institutional and policy orientation**
- Urban transport & development policy (15)
- Urban transport institutions (12)
- Economic & fiscal instruments (19)
- Private sector participation (6)
- Sustainable transport advocacy (18)
- Public awareness campaigns (16)
- Working with the media (3)
- Car free zones / days (10)
- Transport and poverty (4)
- Transport and gender (5)
- Transport and global warming (13)

**Land use planning and transport demand management**
- Land use and regional planning (13)
- Housing, Community, and urban planning (15)
- Mobility management (30)
- Road infrastructure (5)

**Transit, walking and non-motorised vehicles**
- Public transport - General (8)
- Mass transit options (15)
- BRT links (separate page, 40 links)
- NMT - general (13)
- NMT planning and regulation (6)
- Bicycle facilities and incentives (14)
- Pedestrian facilities and incentives (7)

**Vehicles and Fuels**
- Cleaner fuel and vehicle technology (15)
- I&M (7)
- Two-three wheelers (4)
- Natural gas vehicles (11)
- Driver training (10)

**Environmental and health impacts**
- Air quality management (12)
- Road safety (19)
- Noise abatement (8)

**Resources**
- Internet resource centers (34)
- Audio-visual resources (6)
- Transport research - general (12)
- Periodicals (13)
- Mailing lists (6)

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**CAI-Asia**
Cleanairnet.org/caiasia

Focus is on air quality management in Asia on a regional, country, and city basis. Site can be browsed by country or by topic. Search engine helps users find documents quickly.

Structure (relevant topics only, with available documents; web site can also cross-reference by country, document type, author, institution, date of publication, etc. but these have not been included to save space. Section on sustainable transport has been highlighted.):

**Monitoring (108)**
- Standards, methodologies and guidelines (9)
- Air quality information systems (13)

The CAI-Asia website contains 1897 documents that are classified by at least one of these topics +

560 additional BAQ-related web pages and presentations
### Part II: Sustainable Transport Resources: A Review

**Draft Report May 2005**

*Not for Circulation*

#### 15

- **Air quality data (48)**
- **Modeling (18)**
  - Applications (1)
  - Emissions inventories (28)
  - Methodologies (3)
- **Measuring impacts (47)**
  - Health impacts (67)
  - Economic impacts (14)
  - Environmental impacts (9)
- **Climate change (97)**
  - Co-benefits approach (1)
  - Clean Development Mechanism (CDM) (15)
  - Global Environment Facility (GEF) (3)
- **Transboundary Air Pollution (11)**
  - Regional haze (4)
    - Brown cloud (1)
- **Policies and instruments (231)**
  - Dialogues and consultation processes (7)
  - Strategic frameworks and policy guidelines (4)
  - Action plans and commitments (36)
  - Government initiatives and regulations (40)
  - International agreements (9)
- **Mobile sources (228)**
  - Emissions standards (87)
  - Cleaner vehicles (61)
    - New vehicles (9)
    - In-use vehicles (19)
      - Inspection and maintenance (26)
      - Replacement programs (1)
      - Retrofit systems (15)
      - Conversions (1)
      - Mandatory scrappage (9)
    - Buses (16)
    - Trucks (1)
    - 2-3 Wheelers (40)
  - Cleaner fuels and energy sources (78)
    - Alternative fuels and energy sources (37)
      - Compressed Natural Gas (CNG) (41)
      - Liquified Petroleum Gas (LPG) (17)
      - Methanol and ethanol (8)
      - Hydrogen and fuel cells (13)
      - Biodiesel (12)
      - Electric vehicles (15)
    - Conventional fuels (54)
      - Gasoline (8)
      - Lead phase-out (16)
      - Diesel (19)
      - Desulphurization (5)
  - **Sustainable transport (150)**
    - Governance and sustainable transport in general (11)
      - Sustainable transport policy (5)
      - Bus rapid transit (38)
      - Rail and metros (32)
      - Taxi cars and vans (2)
      - Non-motorized transport (21)
      - Two and three wheelers (1)
      - Pedestrian planning (4)
      - Ferries (2)
      - Road infrastructure (pending)
      - Good governance (pending)
      - Higher institutions (pending)
    - Environment, health, and safety (1)
      - Vehicle emissions and improvements (1)
      - Air quality management (pending)
      - GHG emissions (pending)
      - Testing facilities (pending)

An estimated 253 documents have also been classified under one of the sustainable transport sub-topics (which includes publications).
### Stationary sources (84)
- Standards and guidelines (3)
- Cleaner production (7)
- Environmental management systems (1)
- Energy efficiency (3)

### Indoor air pollution (38)
- Improved cooking devices (4)
- Cleaner and multiple energy sources (1)

### Area sources (20)

### Education and awareness (36)

### Socio-economic context (40)
- Economic context (2)
- Social context and demography (1)
- Geographical context (2)

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24. Based on the preliminary assessment of websites above, there are two possible scenarios: (a) individual organizations can continue to collect and store information in their own separate websites; or (b) they can collect/generate information and store information directly relevant to their operations in their own website but at the same time contribute to a “common” website (while retaining credit/ownership of the material).

#### a. Separate websites

25. While there is absolutely nothing wrong with establishing separate websites for programs, projects, and sustainable transport activities, the challenge for the development community is to come up with better ways of helping their target audience (decision-makers, policymakers, specialists, etc.) find the information they need.

26. Search engines like Google and Yahoo have made this task easier over the years, but users are still faced with the daunting task of examining the search results for websites that are relevant to them. There is evidence to show that users often focus on the top 30 websites, and the lower ranked a website is, the less likely new users will be able to access it. But search engine rank is not a guarantee that users will be able to find the information they need, and neither does it mean that the information is still relevant and up-to-date.

27. If an organization would like to promote its website, one effective way to do so is to make sure that other websites include links to it. This is called "reciprocal linking." In short, the more sites that link to your website, the more likely it will be consulted.

28. Some organizations have the budget and capacity to keep their sites up-to-date, while others allow their sites to fall into disuse. In either case, users are constantly faced with islands of fragmented information. The solution is to combine resources and avoid undue duplication. By identifying common goals with respect to knowledge management on sustainable transport, some programs can focus their efforts on generating new knowledge instead of worrying about collecting existing knowledge while others focus on presentations, links, news items, and events.

Note: The sustainable transport topic is a recent addition, and work continues in reclassifying existing documents and collecting new information.
documenting and organizing knowledge. This kind of division of labor can free up time, energy and funding so that programs and initiatives can focus on what they do best.

b. Storing information in a single website

28. Another alternative is for organizations to focus their efforts in collecting or generating new information and uploading this to a common "umbrella" site. In such cases, the source of the information will be clearly attributed and (if applicable) a link to the institution that sponsored the report will be included. This approach is particularly helpful for organizations that do not have enough resources to maintain their own website.

29. CAI-Asia has always offered its members this option. Because the website uses a content management system (CMS), it is relatively easy to add, modify, and restructure content according to the needs of the members and target audience. The nature of the organization makes it possible to engage a full time webmaster and resources are available for continuous improvement of the website. Also, its efforts to set up local networks with secretariats offers a good chance that information is coming in from a large number of different locations in Asia.

30. The CAI-Asia website has a simple approach to navigation, as evidenced by its topic tree. Using a "table of contents" approach, this structure can be changed at any point using the CMS, thus, providing enough flexibility for institutions that may have unique taxonomies. Also, the CAI-Asia CMS allows for categorizing information according to topic and/or country/city. This is especially important if the amount of information and the number of documents stored on the website increase.

31. CAI-Asia is also able to provide information without forcing users to register or pay subscription fees. Its focus is to share knowledge and experience. Some other websites choose to store the information they produce in their own servers but allow CAI-Asia to either (a) include a copy of the document in the CAI-Asia server, or (b) provide a direct link to the document. The first option ensures that the document is still accessible in case the original file is inaccessible; it also helps promote the file/document to a wider audience. The second option keeps the file in a single server (the source) but ensures that only one "official" copy of the document is available so that revisions and updates are easy to make, but limits the access to and dissemination of information.

32. In both cases, the fundamental principle is focus on disseminate existing information to as many people as possible, while the institutions can work toward generating new information through groundbreaking research or dialogue.

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IV. STRENGTHS AND WEAKNESSES

A. PSUTA information clusters

33. Information on sustainable transportation may generally be clustered into five clusters: (i) policy and governance; (ii) environment, (iii) health and safety; (iv) economic and financial aspects; and (v) social aspects.

- Governance and general policy aspects cover planning and implementation of systems and regulations on transport modes both public and private as well as the description of the systems themselves. This includes overall transport and land use planning, bus rapid transit, rail based technologies and high-occupancy vehicles, taxi cars and vans, non-motorized transportation, two- and three-wheelers, pedestrian planning, ferries, and road infrastructure.

- Environment and health aspects are generally on the impacts of transportation systems toward air quality, GHG emissions, and health, and the measures to control and prevent further deterioration of their quality.

- Economic and financial aspects speak of urban transport financing, regulations, costs and subsidies. Road user pricing, franchising, transport fares, and general taxation related to transport are covered in this area.

- Social aspects are on public participation and awareness, urban road safety, poverty alleviation and gender, and transport demand management.

B. Assessment of information

34. For the governance and general policy cluster, information on the formal sectors is generally easier to collect than that for the informal sectors.

Strengths:

- Some modal split data are available for bus, rail, BRT, and private cars for several cities in China, India, Japan, South Korea, Singapore, and the Philippines but mostly dated.
- Total road vehicle registrations by type of motor vehicle are also relatively easily available from government offices.
- Road lengths and space for motor vehicles are usually documented and these can also be found on documents and proposals for road infrastructure improvements.
- Information on bus rapid transit systems in Asia is relatively sufficient, considering that this mass transit option is relatively new in the region. Best practices and lessons on unsuccessful BRT practices in Asia and elsewhere are also sufficiently documented.
- Rail and metros are also documented sufficiently. Comparative studies on rail systems and BRT systems are available if not in Asia then on regions with similar conditions as Asia (e.g. Latin Americas)
Among the informal sector, two- and three-wheelers have been discussed at length and some statistics are available.

As policies are usually announced to the public before their implementation, new policies are well-covered in the news archives.

**Weaknesses:**

- These modal split data need regular updates, often exclude contributions of non-motorized transport modes like cycling and walking, use different definitions and as a consequence make it difficult to draw up trends and comparisons between cities.
- Vehicle registrations may not reflect the actual vehicles on the road. Some Asian countries follow the practice of accounting for only the newly registered vehicles and as such, in-use vehicles that may have been scrapped are not reflected in the registry. New vehicles acquired through the black market most probably will not be reflected in these vehicle registers. These discrepancies can be addressed by GIS satellite images but these are costly to acquire and manual vehicle counts are usually limited to major thoroughfares and not updated regularly.
- Road facilities and their statistics for non-motorized forms of transportation such as walking and cycling are minimal if not completely nil for Asian cities.
- Information on the effects of transport policies and their implementation status are not usually monitored on a formal basis.
- While there are data on two- and three-wheelers, their vehicle technologies i.e. whether they use two- or four-stroke engines, are not properly documented and in most cases, two-wheelers are not separately counted from three-wheelers. (The black market also hints at increasing sales for these types of vehicles.)
- While policies documents are widely available it is more difficult to find information on the implementation status of policies.
- Data especially weak on NMT
- Limited data on freight transport

35. There is a wealth of information on environment and health due to vehicular emissions as their information collection has started even before the conduct of PSUTA project.

**Strengths:**

- Overall trends on air quality available
- Health impact studies of urban pollution are becoming more widely available
- Vehicle emissions reduction strategies and targets are available for most Asian cities and its summary is updated on a regular basis.
- As fuel standards as harmonized the environmental and health impacts resulting from their emissions are well-documented, especially for conventional fuels and gas(-derived) fuels such as gasoline, diesel, CNG, LNG, and LPG.
- Information on alternative fuels and biofuels continue to increase.

**Weaknesses:**
• Information on economic costs of health impacts due to vehicle emissions is minimal to nil. Accurate valuation of these costs requires updated emission factors and socio-demographic data.
• Detailed air quality data for especially secondary cities
• While emissions data for diesel and CNG are available, their comparative results vary among the studies. Emissions data for Asian biofuels are still minimal and biodiesel information is usually estimated on variants from other regions outside Asia.
• Asian emission factors are mostly out-dated by at least ten years. This affects subsequent studies made using these data (e.g. emission inventories, source apportionment estimates).
• The potential benefits of adopting environmentally sustainable transport studies are not well documented.
• A recent informal survey on vehicle statistics with respect to fuel usage shows that this information is not usually monitored. From the survey, only the Philippines, Singapore, and Sri Lanka have this information. These data carry information on conventional fuels only. Statistics on cleaner vehicle technology and alternative fuel usage are minimal and are usually not reflected on motor vehicle registrations that are segregated by type of motor vehicle.

36. Substantial information gathered on economic and financial aspects is generally weak for Asia, where most are in the form of news items.

Strengths:
• Information on road pricing and congestion charges is available for developed countries like Singapore and westernized regions,
• Information is available costs of different mass transit systems
• Information is available on the use of economic incentives for the introduction of cleaner fuels, and vehicles for both Asian and non-Asian countries.

Weaknesses:
• Limited data on the financial costs of public transport systems in Asia which are often operating partly or entirely in the informal sector
• Size and impact of public transport subsidies and fuel subsidies
• No data on the costs of congestion in Asian cities

37. For the social aspects of transportation, information on road safety and transportation demand management, including traffic management have been discussed sufficiently and as such, their data are more accessible than others.

Strengths:
• Road safety statistics and studies are available for the ASEAN member-countries, China and some South Asian countries.
• Transport demand management and traffic management practices and information are available for India, Korea, Philippines and Malaysia. Information from outside of Asia is also available. Health and safety impacts are also tackled in relation to TDM measures.
Weaknesses:

- In general, road safety statistics that are reported officially do not match the estimates made from transport studies.
- There is a potential wealth of resource on transport demand management in several research institutions (e.g. in East Asia) but the full papers or at least their abstracts are not readily accessible.
- Information on drivers’ and other road users’ (pedestrians, commuters, some road traffic enforcers) understanding and capabilities on traffic regulations, proper road behavior and their actual habits can be used as background data for transport planning activities, but these are not available at the moment.
- Information on gender and poverty alleviation and transportation has been discussed but these are not sufficient. Nuances on road behavior due to gender and local customs also have not been explored in detail, if at all.

C. Priorities for the future

38. The general concerns for future documentation exercises are on filling data gaps, providing updates, and providing/searching for analyses on these transportation themes.

39. On governance and general policy aspects, information on the informal sector and the modal shifts from private to public transport, and motorized to non-motorized transport must be given priority. A possible review of innovative policies that can be applied to the Asian setting can also be considered in this area. Information gathering on land use planning vis-à-vis general transportation planning can also be considered as a priority.

40. For environment, health and safety, priority should be given to getting information on health costs due to vehicle emissions, fuel use data for motor vehicles, and usage statistics on clean vehicles.

41. On the economic and financial aspects, much work has to be done on this area but added emphasis can be considered for information regarding stratified vehicle pricing and taxation (including green taxes), the role of franchising and its economic effects on the transport providers and users, land valuation due to transport system improvements, and avenues that can finance urban transport improvement projects.

42. For the social aspects, priority on transport demand management and road safety must be retained. Priority can be considered for information gathering on road discipline including driver education and pedestrian/commuter behavior and the possible nuances between genders, and data on facilities (road space, vehicle space, etc.) available for the disabled.

V. CONCLUSION

43. As the documentation of sustainable transportation resources is a dynamic process, we would like to continue this exercise in close coordination with institutions and individuals who are known to produce these outputs. More information, quantitative and qualitative, on current practices on the integration of air quality, access, safety,
poverty, land use and transportation in development planning are needed and from this, a survey of best practices on global sustainable urban transportation may also be conducted to complement the exercise. Indicator development may also be adjusted to provide information for local, national, and regional planning purposes.

44. The impact of this sustainable transport database will also depend on the relatively ease of access. The current challenge is to re-classify available documents and migrate them to the CMS that will provide a well-defined structure of existing materials. Maintenance of the database will depend on the type of information, e.g. contact information may be updated through periodic checks, while some statistics have to be checked on an annual basis only. The database will be maintained and updated internally on a regular basis. Therefore, the degree on influence of this database could still be further increased in the future as the scope of content expands.

45. Finally, concerted efforts will be made to disseminate the sustainable transport information to potential audiences such as decision makers, researchers and other stakeholders in all sectors once a well-classified set of database is created and made available online. A dissemination and promotion strategy will involve posting announcements in Sustran and other newsgroups, and creating reciprocal links with other websites.[w1] The PSUTA section of the CAI-Asia website will also be promoted during regional meetings and workshops (http://www.cleanairnet.org/psuta). [w2]

46. The information will be periodically updated by the CAI-Asia Secretariat through its full-time staff of transport researchers, who will continue to actively collect data on sustainable transport. The CAI-Asia local networks in China, Pakistan, Nepal, and Sri Lanka will also be engaged to help keep existing information current. Some types of information, such as news articles and events, will not be updated but will instead be archived on the website for reference. Other types of information, such as resource persons and research institutes, will be updated as the need arises. Updates to main PSUTA documents, such as the manual, indicators, and the three city profiles, will only be made after consulting with EMBARQ.
Annex 1:
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Annex 2: Summary of PSUTA-related documents (eidoses) that have been created for the CAI-Asia website (as of May 18, 2005)

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<th>Topic</th>
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<th>presentations</th>
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<th>conference proceedings</th>
<th>projects, programs and campaigns</th>
<th>case study</th>
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* Note: Eidoxes may be classified under multiple topics
Other web sites in Asia, or international? It might be helpful to pull in a few good international sustainable transport examples.

Press release?