Metropolis Commission 4
“Urban Mobility Management”

Financing Urban Mobility

Documentation

of the joint meeting of
Commission 4 “Urban Mobility Management”
and
Commission 2 “Financing Infrastructure and Services”
in Seoul, 14 and 15 June 2007
Metropolis Commission 4

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* edited transcript of the original speech held / presentation given at the meeting in Seoul
Preliminary Remarks

The document at hand contains information on the progress and results of the joint meeting of Metropolis Commissions 4 and 2 in Seoul, 14 – 15 June 2007.

The overall topic of the meeting was “Financing Urban Mobility”. A collaboration of the two Commissions on this subject promised to create synergies, both as regards contents and organisation. Therefore, it also benefited the Metropolis network as a whole.

The meeting was part of a larger event called the Metropolis Mobility Week.

On Monday, 11 and 12 June, a Training on Mass Transit Planning was held, targeting fast growing cities predominantly in developing countries that are currently in the process of establishing a public transport network. In addition, on Tuesday, 12 June, a Seminar on Transportation and Air Quality addressed environmental and health issues and introduced transport measures to improve urban quality of life. Wednesday, 13 June, was reserved for a Study Tour and Technical Visits for conference participants to various transport related spots and institutions around the City of Seoul. The week, thus, built up to the Commission’s Meeting as the highlight of the five-day event.

The meeting had been organised as a combination of keynote speeches, case studies and discussion rounds. Three thematic blocks structured the inputs according to three main issues of concern with regard to transport financing.

- Financing of transport infrastructure;
- Financing of public transport services;
- Public Private Partnership.

As a fourth topic, the Decision Makers’ Point of View was also explored in order to generate findings on political aspects of transport financing. Such a four pillar conference structure was recommended by the results of the survey, which had been carried out in preparation of the conference. In the survey, Metropolis member cities outlined their approaches on financing urban transport, yet they also freely stated their problems and issues of concern. The meeting had been organised based on the stated demand for inputs and discussions in order to allow for practical and relevant debates.
The survey results were published as an input paper for the conference and distributed widely within the Metropolis network. It is also available for download on the Metropolis homepage.

The survey as well as the meeting in Seoul revealed once again the diversity of the Metropolis cities as regards urban administrative and decision making structures, financing mechanisms and state of the transport network. Since the attainment and allocation of budgets generally may be referred to as an expression of political will and priority setting, any information provided by a city needs to be discussed with reference to the specific local context.

Therefore, the aim of the meeting was not to generate common guidelines on financing, but to inform on the various financing possibilities open to cities, including their specific characteristics and requirements, and to discuss on how these may best be put to use.

The documentation at hand is a collection of the speeches and case studies provided in Seoul. A number of speakers and presenters have contributed to this documentation by providing an abstract, or indeed a full-length article on their presentations. In general, these are incorporated in the documentation as submitted. In some cases, the submitted articles have been slightly edited in order to fit the overall framework of the documentation.

All editorial changes have been made with extreme caution and respect to the original text. They were authorised for publication in the documentation by Commission 4. The original authorship is being respected and stated for each article.

For each part, the copyright of pictures, graphs, tables, etc. remain with the authors and presenters from Seoul respectively.

The complete presentations are made available on the documentation CD-ROM. There, by clicking on the headlines of the speeches, the presentations will open automatically.

The presidency of Commission 4 as well as the authors of this paper would like to express their gratitude to all who contributed to the success of the conference as well as to the completion of this documentation.

¹The CD-ROM is available for free from metropolis@ivp.tu-berlin.de
Metropolis Mobility Week - Overview

Training on Mass Rapid Transit Planning

The training on Mass Rapid Transit Planning had been initiated by Commission 4 following its commitment to support capacity building in member cities. It was carried out by the GTZ (Deutsche Gesellschaft für Technische Zusammenarbeit – German Association for Technical Cooperation) in common with the Technical University Berlin.

The training was tailored to urban planners’ and other stakeholders’ needs as an introduction to possible solutions regarding planning, designing and implementing Mass Rapid Transit (MRT). In total, 64 participants from 23 countries in 4 continents took part in the training.

The trainer Mr. Paolo Custodio, a well-known expert in transport planning, had been involved in planning the Transmilenio in Bogota.

On the first day, the agenda provided for a comprehensive overview of bus rapid transit and recommendations for specific action to make the planning process a success. On the second day, detailed information, including infrastructure options, business and regulatory plan provision were provided. According to participants’ judgment, the training was a successful and efficient one, as shown in the graphs to the right.

Air Quality Seminar

On the second day of the Mobility Week, a Seminar on Transportation and Air Quality took place concurrently with the training. The seminar brought together around 80 participants, most of them from Asian cities, and among them distinguished experts on air quality, e.g. from the World Health Organisation as well as transport professionals.

The seminar aimed at comparing strategies to create less-polluting transport systems, thereby improving urban air quality. It centred on how to integrate transport management schemes into a proper tool for air quality control. Recent successful case studies were presented including value pricing (Atlanta, USA), congestion charging (London/UK, Stockholm/Sweden) and road pricing (Singapore), but also the launch of a low emission zone (Berlin/Germany) as well as the use of technical innovations, e.g.
telecommunication, information and vehicle technology (Global Clinton Initiative). The hosting city of Seoul presented its strategies of compact urban development and congestion pricing to the afternoon’s panel discussion on “Application of Air Quality Control Strategies to Congested Cities”.

**Technical Visits**

On Wednesday, 13 June 2007, technical visits were organised by the city of Seoul, in part as a tour by public transport to specific venues of relevance to the transport system. These included the transportation management centre TOPIS, Bus Median Lanes and Yeouido Transfer Centre as well as Metro stations. Lastly, in a presentation on the Han River re-naturation project required action was spelt out to improve cyclists’ and road-users’ conditions under aspects of leisure and everyday travel.

Throughout the guided tour, participants were able to gather insights into Seoul’s overall transport system from the angle of a transport expert as well as from that of an everyday road-user.

**Commissions’ Meeting**

As stated before, the Commissions’ Meeting aimed at addressing questions raised by member cities in the survey. In addition, it was attempted to bring together a number of case studies outlining the variety of possible financing approaches, including the specific advantages and disadvantages linked to each approach. What is more, the political sphere was to be addressed by the mayors and decision makers in their presentations and throughout the discussions. On international level, the World Bank and the UITP (International Union of Public Transport) provided valuable input and, thus, added yet another interesting perspective.

The programme of the two meeting days is provided on the following two pages. The list of speakers echoes the speaking order in Seoul. However, due to time and other restrictions that order did not always match the intended thematic structure. Thanks to the participant’s flexibility and openness this was not a problem during the conference. However, for the purpose of this documentation, the contributions will be grouped according to the thematic area they are concerned with.

Technical visits included the Bus Median Lanes (picture above) and the transportation management centre (TOPIS) (picture below)
## Programme: Thursday, 14 June 2007

### Morning Session: Decision Makers’ Points of View

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tr>
<td>9:00</td>
<td>Welcome Address</td>
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<tr>
<td></td>
<td>- Mr. Oh Se-hoon, Mayor of Seoul Metropolitan Government</td>
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<tr>
<td>9:10</td>
<td>Opening Ceremony</td>
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<td></td>
<td>President C4: Ms. Ingeborg Junge-Reyer, Mayor and Senator for Urban Development, Berlin</td>
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<td></td>
<td>President C2: Mr. Amara Ouerghi, on behalf of the Mayor of Montreal Gerald Tremblay’</td>
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<tr>
<td>9:40</td>
<td>Keynote Speech: Curitiba</td>
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<td>- Mr. Carlos Alberto Richa, Mayor of Curitiba</td>
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<td>10:00</td>
<td>Keynote Speech: World Bank</td>
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<td></td>
<td>- Mr. Shomik Rai Mehndiratta, Senior Transport Specialist, World Bank</td>
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<tr>
<td>10:20</td>
<td>Networking Break</td>
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<tr>
<td>10:40</td>
<td>Introductory Speech by the City of Seoul</td>
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<td>Vice – President C4: Mr. Jung Woo Chang, Director-General of Transportation, Seoul</td>
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<tr>
<td>11:10</td>
<td>Roundtable Discussion</td>
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<tr>
<td></td>
<td>- Ms. Ingeborg Junge-Reyer, Mayor and Senator for Urban Development, Berlin</td>
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<td></td>
<td>- Mr. Amara Ouerghi, Director of the International Institution of Metropolis</td>
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<tr>
<td></td>
<td>- Mr. Shomik Rai Mehndiratta, Senior Transport Specialist, World Bank</td>
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<td></td>
<td>- Mr. Kazunobu Onogawa, Director, United Nations Centre for Regional Development (UNCRD)</td>
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<td></td>
<td>- Mr. André Niemegeers, Director of the Knowledge &amp; Membership Department of UITP</td>
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<td></td>
<td>- Mr. Jurandir Fernandes, Jurandir Fernandes, Director-President of São Paulo’s Metropolitan Company of Planning (EMPLASA)</td>
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<tr>
<td>12:00</td>
<td>Open Discussion</td>
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### Afternoon Session: Financing Infrastructure

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<tr>
<th>Time</th>
<th>Case study</th>
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<tr>
<td>14:00</td>
<td>Case study 1: Bangkok</td>
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<tr>
<td></td>
<td>Mr. Panich Vikitsreth, Deputy Governor of Bangkok Metropolitan Administration, Thailand</td>
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<tr>
<td>14:30</td>
<td>Case study 2: Antananarivo</td>
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<td></td>
<td>Mr. Mamy Hery Rafalimanana, Mayor of Antananarivo</td>
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<tr>
<td>15:00</td>
<td>Case study 3: Tehran</td>
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<td></td>
<td>Mr. Mohammad Montazeri, Deputy Managing Director, Tehran Urban and Suburban Railway Co.</td>
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<td>15:30</td>
<td>Case study 4: Sao Paulo</td>
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<td></td>
<td>Mr. Jurandir Fernandes, Director-President of São Paulo’s Metropolitan Company of Planning (EMPLASA)</td>
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<td>15:50</td>
<td>Case study 5: Kathmandu</td>
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<td></td>
<td>Mr. Sushil Gyewali, Executive Secretary of Municipal Association of Nepal</td>
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<td>16:20</td>
<td>Discussion &amp; résumé</td>
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<td>16:50</td>
<td>Facilitator: Mr. Christoph von Marschall, Journalist, Berlin, Washington</td>
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## Preliminary Remarks
# Programme: Friday, 15 June 2007

## Morning Session: Financing Public Transportation Operations

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<tr>
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<th>Event</th>
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<tbody>
<tr>
<td>9:00</td>
<td><strong>Introduction</strong>&lt;br&gt;President C2: Mr. Amara Ouerghi, on behalf of the Mayor of Montreal Gerald Tremblay</td>
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<tr>
<td>9:10</td>
<td><strong>Keynote Speech: UITP</strong>&lt;br&gt;Mr. André Niemegeers, Director of the Knowledge &amp; Membership Department of UITP</td>
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<tr>
<td>9:30</td>
<td><strong>Case study 1: Berlin</strong>&lt;br&gt;Ms. Ingeborg Junge-Reyer, Mayor and Senator for Urban Development, Berlin</td>
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<tr>
<td>10:00</td>
<td><strong>Case study 2: Casablanca</strong>&lt;br&gt;Mr. Aziz Berrahou, Director of Transport, Casablanca</td>
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<tr>
<td>10:30</td>
<td>Networking Break</td>
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<td>10:50</td>
<td><strong>Panel Discussion</strong>&lt;br&gt;- Mr. Hong Seog Goh, Director Transportation Planning Division, Seoul Metropolitan Government&lt;br&gt;- Mr. Carlos Alberto Richa, Mayor of Curitiba&lt;br&gt;- Mr. Rafalimanana, Mayor of Antananarivo&lt;br&gt;- Mr. Amondji Pierre Djedji, Gouverneur of Abidjan&lt;br&gt;- Mr. Seyed Jafar Tashakori Hashemi, Deputy Mayor in Traffic &amp; Transportation, Tehran&lt;br&gt;- Mr. Mohamed Sajid, Mayor of Casablanca&lt;br&gt;- Mr. Michel Beaulé, Senior Policy Analyst, Montreal&lt;br&gt;- Mr. André Niemegeers, Director of the Knowledge &amp; Membership Department of UITP&lt;br&gt;Facilitator: Mr. Amara Ouerghi, Regional Secretary Metropolis - North America and Co-ordinator of Commission 2</td>
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## Afternoon Session: Public Private Partnership

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<th>Time</th>
<th>Event</th>
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<tr>
<td>14:30</td>
<td><strong>Case study 3: Hong Kong</strong>&lt;br&gt;Mr. Yam Pak Nin David, Deputy General Manager - International Business, MTR Corporation Ltd</td>
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<tr>
<td>15:00</td>
<td><strong>Case study 4: Montreal</strong>&lt;br&gt;Mr. Michel Beaulé, Senior Policy Analyst at the Montreal and Western-Quebec Directorate</td>
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<tr>
<td>15:30</td>
<td>Networking Break</td>
</tr>
<tr>
<td>15:50</td>
<td><strong>Case Study 5: Seoul</strong>&lt;br&gt;Mr. Dohun Ha, Deputy General Manager, POSCO Engineering &amp; Construction Co., Ltd</td>
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<tr>
<td>16:20</td>
<td><strong>Conclusions</strong>&lt;br&gt;- President C4: Ms. Ingeborg Junge-Reyer, Mayor and Senator for Urban Development, Berlin&lt;br&gt;- President C2: Mr. Amara Ouerghi, on behalf of the Mayor of Montreal Gerald Tremblay</td>
</tr>
<tr>
<td>17:00</td>
<td><strong>Closing Remarks</strong>&lt;br&gt;- Vice - President C4: Mr. Jung Woo Chang, Director-General of Transportation, Seoul</td>
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Part 1: Decision Makers’ Point of View

Welcome Address*

Mr. Oh Se-Hoon, Mayor of Seoul Metropolitan Government

* edited transcript of the original speech held at the meeting in Seoul

Metropolis Commission 4 on “Urban Mobility Management” already has been actively engaged in various activities to tackle the issues of acquiring mobility and financing through exchanges among Metropolis cities. Thus, it makes me all the more proud as the Mayor of Seoul to welcome you to the annual event of this prestigious Metropolis Commission.

Global cities are now faced with major problems of traffic congestion and air pollution due to increasing traffic volumes. In the future, cities will not be competitive nor sustainable unless these issues are successfully overcome. Therefore, Seoul Metropolitan City and Government have tried to be conducive to these problems by continuously increasing public investments in mass transit, thus operating convenient and green transportation systems.

It was back in 2004 when Seoul first established a median bus lane system over a total length of 40 miles. In addition, we introduced a public transportation transit system linking buses and subways so that the citizens can travel the city from anywhere to anywhere at the mere cost of about 1 Dollar. Also, based on the high-tech IT and GPS technology of Korea, we are managing the bus operation system scientifically so that we can provide more convenient and safe public transportation services.

The existing old city buses were replaced by CNG (Compressed Natural Gas) buses, and diesel powered buses were equipped with Digital Particulate Filters. Hybrid cars were chosen to be purchased whenever there was a need.

At the same time, low floor buses were introduced as a part of our policy to care for the socially weak groups, so that they will not be isolated from the transportation system.

In order to complete such a system throughout the city, we are planning to make a 1.3 Billion Dollar investment by 2010.
These initiatives will directly encourage corporate technology development and financial investments.

Jim Collins, the author of “From Good to Great”, said that what is good is the enemy of the great. So, our improvement policies on the transportation system are an effort to move from a good to a great city.

I truly hope that the past experiences of Seoul can be utilised as a good seed to the blossoming of the efforts and objectives of this meeting of the Metropolis Commission cities’, so that they become dynamic cities with a mixture of history and high-tech.

I wish you can have a memory to last.
Opening Remarks by the Presidency of C4
Ms. Ingeborg Junge-Reyer, Vice-Mayor and Senator for Urban Development, Berlin

It is a pleasure for me to welcome all of you today to the joint meeting of the Commission 4 and 2 here in Seoul. This is the second time that the two Commissions are organising a joint session, following our successful cooperation during last year’s meeting in Toronto.

This year’s topic of the meeting “Financing Urban Mobility” is of great relevance to both Commissions. That is why it has been most indicated to join forces. Let me therefore bid a warm welcome to the representatives of Commission 2 who have joined us here today. I should like to extend my welcome also to the representatives of international institutions like Mr. Menhdiratta from the World Bank and Mr. Niemeggers from the UITP. We are very glad that you can be with us today and tomorrow and support our efforts with your knowledge and expertise.

I would also like to express my heart-felt thanks to the city of Seoul for hosting and organising this major meeting. Seoul can really be seen as the “home” of this Commission. Five years ago, it was here that the Commission was set up. Issues of urban transport have been an ongoing concern for policy-makers already before. This Commission was the right platform to cope with transport issues with greater coherence. So you see, we have come a long way.

From my point of view, this year’s meeting is a very special one. I think, it is quite unique to see our meeting organised along with a range of activities that make up the Metropolis Mobility Week. In organising this one-week event it was our aim to combine various sessions that can meet the ever increasing demand for sharing information and learning. It is due to manifold challenges, our cities are faced with, in this so-called “age of the metropolises”.

The training on Monday and Tuesday focused on planning and organising mass rapid transit systems. Based on the work of previous years, we thought this would be of prime importance, especially to fast growing cities. For they need efficient transport networks to be built at lower costs and within quite short periods. As I have heard, the training was well attended. I have no doubt, its participants will have a large amount of perspectives and innovative approaches, which they can use for urgent tasks in their home countries.

Part 1: Decision Makers’ Point of View
In addition, Tuesday’s seminar on Transport and Air Quality dealt with environmental impacts. At present, this is a most topical issue for leaders worldwide. It is essential to assess the quality of our transport systems, not only in terms of their immediate performance. Besides, their far-reaching impacts also need to be taken into consideration. In this regard, the seminar could show the extent of environmental impacts on our cities, and instruments that are being used to cope with them.

After those two days of intensive learning and exchange, it was time for practical experience. The study tours provided some interesting insights into Seoul’s advanced transport system. All of them were excellently organised by our hosting city. Many of us have been greatly impressed. It was also a welcome opportunity to discover and experience this great city.

Nevertheless, now it is time to get back to work, namely to financing of urban mobility. Without money, none of our plans could ever come true. And all these great ideas how to improve transport systems would be empty words. Yet, it is often easier said than done to get the necessary funds and to use them most efficiently.

Our survey we conducted earlier this year among Metropolis and Commission 4 member cities clearly revealed the following. Even cities with well functioning investment mechanisms are looking for further options and solutions.

For your information, the analysis of the survey results is being distributed in the course of this meeting. It is also already available on the website. Just have a look at it and use it as an input for the following discussions.

For this meeting, we were able to arrange an agenda of high-quality keynote speeches and case studies from cities of all over the world. We hope their informative examples will be a meaningful input for your discussions.

Financing urban mobility has been one of our aims set out in the agenda of Commission 4 during the World Congress in Berlin in 2005. For the agenda of our meeting, we also have had to bear in mind the Declaration on Sustainable Urban Mobility, adopted during the World Congress. Therein, we had declared our firm intention to seek innovative mechanisms for financing both infrastructure and public transport services. Furthermore, it was our aim to take advantage of cooperation with international institutions and the private sector. Let me remind you here: we have committed ourselves to giving priority to the interests of citizens and users of public transport. Therefore, we need to consider environmental and social impacts as much as transparency and economic efficiency.

When looking at the agenda of today and tomorrow you will see a mix of presentations, case studies and discussion forums that will meet these requirements. Therefore, I am looking forward to experiencing with you these two days of exchange and learning.

I do not want to take up your attention any longer. But, before closing my remarks, let me thank all of you for coming to Seoul, for playing an active part in the work of our Commissions and for helping us to make this meeting a successful and stimulating one.

I would now like to give the floor to Mr. Ouerghi, the representative for the Presidency of Commission 2.
I would like to welcome all of you to this Metropolis Commission 4 and 2 meeting in Seoul.

First, I would like to pass on the Mayor’s of Montreal, Mr. Gerald Tremblay, profoundest regrets that he is not able to be here today. Prior arrangements and important political engagements unfortunately kept him from coming here today. Nevertheless, he asked me to pass on his warmest salutations and wishes for a successful meeting to the Mayor of Seoul and to all of the participants.

Secondly, I would like to thank Seoul Metropolitan Government and the Transport Division as well as Seoul Development Institute for their warm hearted welcome, their hospitality and their great generosity.

In particular, I would like to express my gratitude to all of the personnel, who is competent, patient, persistent and friendly, and who makes our stay here agreeable and memorable.

I am sure it will be as memorable as it was in 2002, when we had another congress here. Thank you again, Mr. Oh-See Hoon, and thank you Seoul.

Moreover, I would like to also say thank you to the City of Berlin, and particularly to Mr. Klaus Wowereit, Mayor of Berlin, and to Ms. Ingeborg Junge-Reyer, who made our previous congress in Berlin in 2005 a great success.

There are many commonalities between the City of Berlin and the City of Seoul.

- they both lead Commission 4;
- they both hosted a Soccer World Cup, which is the greatest event in sports around the globe;
- they both obtain elaborated and efficient transport systems;
- and, of course, they both have a lot of experience with the subject of financing.

Unfortunately, this is not the case with all other cities and metropolises, even though securing financing is one of the major concerns for all cities. It is because of this that Metropolis initiated a Commission on “Financing of Services and Infrastructures”.

Amara Ouerghi, Regional Secretary Metropolis – North America and Co-ordinator of Commission 2

Thereby, Montreal has the great privilege of heading the work of this Commission together with Sao Paolo, holding the vice-presidency.

The tasks of Commission 2 are:

- To properly determine the financial problems of the cities while distinguishing the national and regional characteristics;
- To examine the various taxation policies in force and the reforms planned in...
order to enhance tendencies and good practices;
- To examine the cities distinct ways of preparing their financial frameworks and especially of ensuring services of quality and establishing manoeuvring margins;
- To examine the taxation and non-taxation sources of income;
- To analyse the ways in which cities plan their investments and finance their projects of infrastructures;
- To bring the cities closer to the international investment funds;
- To contribute to the development and, if necessary, to the realisation of the Bank of Cities project.

Currently, about 20 cities are members in Commission 2.

The principal stages of the Commission are the following:
- Approbation of the proposals made by the Metropolis Board of Directors;
- Elaboration of the terms of reference;
- Appeal to cities and international organisations to participate in the Commission;
- Development of an diagnostic survey in order to gather data;
- Analysis and synthesis of the replies in order to attain a better comprehension of the situation;
- First meeting of the Commission for the distribution of information, the exchange of facts and the validation of attained comprehensions;
- Preparation of a preliminary Commission report;
- Stipulation of case studies;
- Second meeting of the Commission for the presentation of case studies;
- Preparation of a synthesis report containing best-practices and trends;
- Preparation of a first draft of the final report;
- Circulating the draft among members for comments and suggestions;
- Preparation of the final report;
- Presentation of the Commission’s conclusions and recommendations at the next congress.

Regarding the Commission’s meeting, the following should be noted:
- The first meeting of the Commission already took place in Toronto in June 2006;
- The second meeting takes place here in Seoul, together with Commission 4;
- The third meeting will take place in Antananarivo, Madagascar, in September 2007;
- The fourth and last meeting will take place in October 2008 in Sydney, where the Commission will submit its final report.

It is commonly known that the connected questions of financing and taxation are very concrete issues, with which local and regional authorities are faced today. Within this framework, the Commissions proposes quite a pragmatic approach towards obtaining information and understanding as well as best-practice-cases, exchanging experiences and transmitting useful knowledge to support problem solution.

Therefore, the following elements have been proposed:

**Work of the Commission:** Presentation of case studies and best-practice-examples. Since the field of work of the Commission is horizontal, and because the majority of the other Commissions are also concerned with financial and taxation aspects, it is proposed to work in selected collaborations with the other Commissions and to initiate joint meetings.
Training: The Commission organises training sessions adapted to the requirements of the member cities. These sessions convey tools and techniques of financial planning, budgeting, financing, public-private-partnerships, the involvement of markets, debt management and principles of good financial government.

I would like to seize this occasion to present you with a short report of the meeting in Toronto, where, in fact, 12 case studies were presented:

1. Highway 407 in Toronto;
2. Medical Centre in Abidjan;
3. Renewal of the streets along the river Pearl in Guangzhou;
4. Health Centre in Brampton (Canada);
5. Water treatment plant in Halifax (Canada);
6. Development of a “Green and Blue Metropolitan Area” (Barcelona);
7. Public infrastructure in Bamako;
8. Rapid train connection between Vancouver airport and city centre for the Olympic Winter Games 2010;
9. Renovation of the Atomium in Brussels;
10. International Quarter in Montreal;
11. Public fiduciary funds in Argentina;

At the start of this conference, some facts should be mentioned:
- There is a high and ever increasing demand for investment in different domains: transport, water, health, education, housing. For example, in Paris, the Regional Council envisages to double the investments in the transport sector, which adds up to 1.5 billion Euro per year for the next 10 years.
- All across the world, local resources are insufficient.
- Revenues from taxation are under national regulation.
- Local taxation is still infant in many cities.
- Many cities live on support from the State.
- Consequently, a situation arises in local authorities that I call “AN EMERGENCY”.
- Even in cities in rich countries, balanced budgets are often not achieved, so that they need to cut back in services (schools, housing, culture, transport).
- Many cities actually neglect the maintenance of equipment and infrastructure.

Fortunately, there are chances to solve these problems. First, on a macro level, there is hope for a real decentralisation, where competences and also financial and tax resources are being transferred.

Regional and local authorities require adequate financial resources, and genuine financial autonomy to manage services, build up infrastructure and ensure their development.

At the same time, the reduction of investment capacities of public authorities induces them look for new alternatives for financing infrastructure and structural projects.

There are different kinds of public-private partnerships for many projects, including economic mixtures, joint ventures, concessions, BOT (Build, Own, Transfer), BOO (Build, Own, Operate), to only name a few.

Project financing may also be based on local actors together with international partners.

The financial participation of the private sector, thus, may take on different forms.
Furthermore, one may think about other ways of project financing:

- Public financing: Financing is sometimes realised with fiscal support from the municipalities.
- Government bonds, which are for example used to finance the World Exhibitions.
- Private banks may step in and issue loans.
- Selling shares of private building associations on the stock market.

In any case, implementing large scale projects requires the mobilisation of considerable amounts of capital.

Economic stability, the high mobility of financial markets, competition between major urban centres as well as the increasing participation of private investment are all factors that render the conceptualisation and implementation of large-scale projects even more complex and difficult. In addition, economic fluctuations affect the implementation of large infrastructure projects. In certain cases, they may hold up the projects.

Likewise, these detentions themselves may be a matter of expense if bonds have been issued.

In other cases, they may induce the Metropolises to modify important components of the projects.

Abrupt economic turnarounds also have the power to stop some of the most important projects.

So this means that large projects contain specific risks with regard to financing, duration, viability, economic fluctuations, and also political changes. In order to face those risks, those responsible tend to spread the investments over time, to carry out the implementation coherently and stepwise and to maintain a financial flexibility.

All these aspects are essential parts for the development of infrastructure projects. All these aspects and their options are part of the work of the Commission today, tomorrow and after Seoul.

These aspects will be worked on today and tomorrow. I hope that the case studies and the exchanges will not only yield influential inspiration but that they will also retain as valuable lessons and reveal advice and interesting directions for the other metropolises.

In the spirit of mutual learning I should tell you that I believe in the conception of know-how. The metropolises, their representatives and administrators are rich in experiences. The numerous projects are bearers of knowledge and of valuable lessons for the cities and their decision making processes.

Operating methods and modes of intervention are in a process of transformation about everywhere. In the future, intervention capacities will be improved through the utilisation of experiences and the partly observance of best practice examples. It is in this context, in which our Commission meets today, and will meet in the future with a view towards fulfilling its mandate.

There are high expectations in our Commission, and I am certain that we can fulfil these expectations, so that we can deliver a set of conclusions of our work at the next congress of Metropolis 2008 in Sydney, Australia.

For my part, I can assure you of my support and that of my team regarding our cooperation, and also of the support of our Commission.

All that is left for me to do now is to wish you a successful exchange and debate.
In the speech he made in Seoul, the mayor of Curitiba, Beto Richa, spoke about the importance of public and private investments in efficient mass transit systems as a way of reducing emissions of polluting gases and, in a final analyses, of contributing to the preservation of biodiversity.

The mayor placed emphasis on the need to, during a term of office, prioritize medium and long term actions driven by urban and administrative planning, in balance with solutions to the city’s more pressing problems.

In this sense, the pragmatic appeal of immediate, quick-win actions should be disregarded, since it is not rare for them to impair strategically planned initiatives.

Beto Richa reaffirmed Curitiba’s commitment to environmental preservation. A commitment that has been reiterated in several occasions – like in March 2006, when the city hosted the COP/MOP, and in March of this year, when Curitiba received mayors from every continent to debate actions with a view to COP nine, convened by the UN to be held in May 2008, in Bonn, Germany – and is crystallized in practice, through a set of actions.

The mayor reflected that Curitiba has a tradition of excellence in mass transit since the 70s. Since then, the city has adopted urban, street grid, legal, environmental and administrative measures for the purpose of continually enhancing and modernizing the transportation system.

Initiatives of this nature have assured fast, comfortable and safe transportation, stimulating citizens to changing from individual or alternative means of transport to the public system and affording a consistent reduction of the emissions of pollutants.

The Mayor of Curitiba reported on his most recent actions, like for example, the beginning of the Works on the Green Line, a new 10-km long transport axis in the first stage.

The Green Line, which will be concluded in mid-2008, will create a biological diversity corridor, landscaped with indigenous species, comprising a linear park covering 21 km², with bicycle lanes and exclusive bus lanes, significantly increasing and improving the capacity of the system, which currently transports two million passengers a day.
The Green Line project is integrated into the context of a more ambitious program called BioCity, the scope of which is related to the preservation of green areas, to the quality of air and water and also to subprograms linked to education, health, housing and leisure.

In addition, the Green Line will induce the orderly occupation of a broad region of the city that was undergoing a process of urban degradation. This will allow matching the expansion of the supply in mass transit with the city’s socio-economic development.

Beto Richa also talked about his administration’s actions in modernizing the city’s street grid and urban infrastructure, measures that have resulted in increasing the number of users of the mass transit systems to 12 million users a year, revitalizing the system as a whole, thanks to decisions like, for instance, reduction of bus fare prices and creation of a special USD 0.50 fare for Sundays, stimulating leisure and family life for the poorer families.
Good morning all, it is a pleasure to be here and to get a chance to talk to all of you about the Bank’s strategy on urban transport. I would like to express my thanks to the government of the city of Seoul for its hospitality and to Seoul and the Cities of Berlin and Montreal for inviting us to be here.

I work on urban transport issues in East Asia – focusing on China and Vietnam – and it is particularly a privilege to be here and to see many of the very impressive things that Seoul is doing – rightly providing a model for the rest of Asia – on issues of urban mobility. I have been very impressed by what I have seen here – not just with the subways, the bus lanes and the TOPIS – but in the manner in which sidewalks and pedestrian crossings are organized and the clarity in the vision of the government - in providing pedestrians safe, quality facilities across the city. It is an experience I hope to demonstrate to many of the city governments I work with.

But this talk is not about East Asia or the work I do – I am here to present the key elements of the Bank’s urban transport strategy – a strategy the Bank is in the process of formally adopting.

Let me start by briefly describing what the Bank does – for those in the audience unfamiliar with us.

We are a multi-lateral international development financing institution – we provide advisory services and concessional loans (and some grants) to developing countries across the globe.

Much of our investment in transport is in the form of specific investment loans – concessional loans that are made for a specific project that has been appraised by the Bank and where the money has to be spent only on that project following a fairly complicated set of procurement, financial management, environmental and social policies of the Bank set down by the Bank’s board – which includes representatives of both donor and borrower governments.

Urban transport is a small but growing and important element of the Bank’s lending: about US$250 million committed annually, about 10 projects under preparation at present, about 4 or 5 of those taking place in East Asia – mainly China and Vietnam.

Why the Bank retains an interest in urban transport should not be surprising – the Bank’s mission is to reduce/eliminate poverty and making cities work is an essential element of that:
The growth model in Asia – China and India now, Korea, Thailand, Malaysia, Singapore, for some time – has been very urban focused.

Even in countries that are not seeing the same level of growth – and certainly in South Asia regardless of the economic conditions – the cities have always been magnets for the poor – attracting the poor.

So – urban transport brings together many of the essential elements the Bank helps governments with, including poverty reduction and equity; air quality, safety and other essential liveability concerns; and national concerns about energy use and increasingly global concerns about climate change.

That said, our strategy very much follows from the Bank’s strategy for transport in general – which highlights: Clean, safe and affordable transport for development.

In cities the challenge is how to deliver that strategy in the face of severe population and spatial growth, as well as rapid motorization, which is in some cases driven by rapidly rising incomes. But in the worst cases, there are situations where the economy is not rising very fast, but motorization nevertheless is.

Let me start by outlining some of the key objectives of the strategy. First and foremost – perhaps most importantly – the focus is on providing accessibility and mobility for all. The “all” is critical, since it includes the poor, the elderly, the disabled and other vulnerable groups, such as migrants in Chinese cities, which are often not fully provided for in some of our client countries.

In practice, in Asia that means providing for the 60% or more of the trips made by cycle and walking in more or less every city we work in. It means principally providing safe and convenient pedestrian and walking facilities.

It also focuses very much on improving and delivering high quality public transport. Nevertheless, facilities for car drivers, who remain a small but important and very influential part of the cities, are taken into account as well.

Fundamentally, we are talking about a vision of a sustainable city that tries to manage motorization and comes to terms with the fact that cities can’t and probably should not try to accommodate motorization.

In a world dealing with rising motorization together with a fundamental realization that even if everybody could afford a car, the densities of most of our cities just don’t allow for a city to operate sustainably based on an auto orientation.

In reality, for reasons of equity – environment – safety – and ultimately mobility – there is a need to offer an alternative vision – a vision based on promoting the absolute and relative attractiveness of non-motorised and public transport. Thus, an aligned objective is to reduce a city’s urban transport system’s environmental footprint, which means in principal to reduce air pollution and to minimize the carbon footprint. Cities often do not yet realise that reducing their carbon footprint as an explicit goal is pretty consistent with the overall mobility objectives that I have talked about. In addition, there are a lot of financing opportunities available with climate change mitigation.

Other issues that are important but less fundamental include:

- more efficient flow of goods;
- ensuring that the public and private sector both play their respective roles, commensurate with their competitive
advantages, and in manners that align their risks and their incentives

Underlying it all, and supporting the development of processes that are inclusive and sound, our belief is that if the processes are sound cities will get to the solutions most appropriate for them.

Let me provide some examples of concepts that operationalize this strategy and then talk briefly about some actual projects that typify it.

There are three elements to any transport operation – assistance package – we are involved in:

1. A set of investments we finance, typically including support for some institutions (initiating institutions that don’t yet exist, or supporting their training) and processes (encouraging cities to work through them during preparation and implementation);

2. Working with cities to identify complementary policies that would make an investment work – and maximize its benefits;

3. There are many models of the process – but where I work – cities present a vision – usually focused on a set of investments – and then we work together to identify the investments that are economically and financially sustainable and that maximize environmental and social benefits, minimize disruption; and identify policy changes and institutional development steps that would allow the cities to realize the benefits they expect.

It’s these policies, institutions and investments that are really at the heart of how we try and achieve our objectives.

Thereby, the key policies are:

1. Fundamentally providing on-street priority for public transport and non-motorized vehicles (NMV), such as bus lanes, sidewalks, safe pedestrian crossings;

2. Supporting regulated competition in public transport, which means not unregulated ‘free entry’ or competition in the market – which produces safety problems, congestion problems, and environmental problems, but managed competition – through competitive tendering – for rights to operate in a market as a franchisee;

3. We support a strong role for government in planning and regulating a system – but not as a operator – the private sector has the potential to be more efficient and more adaptable; and if there are several private operators – it maximizes the cities interest and those of its citizens;

4. Supporting fare policy in public transport that is integrated, financially sustainable (so that subsidies are targeted, if operations are non-self financing then there is financial stability in operations); and

5. Finally supporting mobility management, which includes aggressively supporting parking policies that limit on-street parking and encroachment; parking enforcement, parking fees; as well as user restrictions – with a primary focus on use.

To be effective these policies need strong institutions – and to be accepted they need sound planning processes. so let’s talk a little about what we support:

- Strong institutions to manage traffic and implement a vision focusing on people rather than vehicles
- To manage and regulate public transport operations
- To manage transport planning, policy and operations metropolitan area wide
At the national level – supporting thinking that clarifies the national interest in all of this and how to achieve it.

Sound process is

- Inclusive, and integrated across modes and integrating land-use with transport plans. Too often cities generate land-use plans independently of their transport plans, thus, not fully appreciating that any set of transport investments really does a lot to define the land-use one will get. So your vision for land use and for transport need to be compatible.

- Process that is not focused on justifying pre-determined solutions, such as a particular road investment or rail investment, but one that rather works systematically through understanding the problem, defining objectives and options before focusing on solutions.

Let me focus a little more on the inclusive process. When properly implemented, our experience is that a broad consultation process has many advantages. First, it identifies and weeds out projects that concentrate disruption or concentrate the burden on any section of society. Second, it provides a voice to the vulnerable, who are otherwise often left out by the formal technical planning analysis, and it also helps to identify very small, low cost solutions that provide benefits. In China this kind of analysis has strongly highlighted the importance of toilets, benches and trees when we implement roads. Third, it gives city leaders a direct, political manner to understand priorities across sections.

Investments we finance are a combination of:
1. Supporting the city’s vision
2. Addressing the Bank’s assessment/diagnosis of the issues
3. Results of a technical feasibility analysis; and
4. A consultative effort

For example, we support investments that would increase the quality of the NMT infrastructure – sidewalks, separated bike lanes, traffic signals to create safer crossings. Other traffic equipment, a variety of investments in public transport infrastructure, and, finally, investments to create new roadway capacity are also supported by the Bank.

Let me now talk about one specific example, the case of Hanoi, where I have managed a project that is coming to the Bank Board in the next 2 weeks.

There, we are supporting an ongoing transition from an SOE public operator to managed competition in bus transport, supporting the establishment and training of a public transport authority that would manage and regulate public transport in an integrated manner. In addition, the project supports the following measures:

- Establishment of a BRT system on two key corridors,
- Traffic management and traffic police,
- Investing in a new road that would open up the city’s west and north-west and supporting that investment with support for the urban planning agency to develop a public transport development vision,
- Supporting the air quality management efforts – monitoring and initial steps towards motorcycle emission control.

What is more, the project is supported not only by a Bank loan, but a substantial (10m) GEF (Global Environment Facility) grant to support the activities that would support public transport and NMV.

Let me finish now by saying that the Bank’s role and influence in this sector is small. We are a small player, and our
resources are limited. We think that partnerships are critical, for example partnership with organizations such as Metropolis, other International Funding Institutions and other relevant organizations.

We help clients achieve a vision of sustainable transport that is responsive to the needs of all the cities’ citizens, and that is socially, environmentally and fiscally sustainable. In order to do so, we use different tools – a combination of investments, support for policy changes and supporting institutions and processes as well as looking for partnerships to scale up and replicate this work.
Because of the heavy concentration of population in the centre, Seoul has had to deal with a drastic increase in traffic congestion. As a result, the average speed in the city centre is at only 14 km per hour while the average travel speed in the Metropolitan Area is at 29.9 km per hour.

In order to overcome the negative effects arising from the congested transportation conditions, a new system of public transportation was introduced in 2004. The Public Transport Reform consisted of four primary measures:

1) A reform of the bus routing /operating system, including:

2) Infrastructure measures, such as expansion of median bus lanes, creation of transfer centers and purchase of high quality buses;

3) Supporting system, for example IT based measures for improving fare setting and collection system;

4) Achievement of a social consensus on the transport reform.

Some measures are still continuing, for example the number of median bus lanes will be increased to 12 (today: 7), covering 170.6 km (today: 67.9 km) by 2010.

The reform can be rated successful, since between 2004 and 2006 we achieved:

- an increase in bus passengers (from 3.8 Mio. to 4.5 Million a day),
- an increase in fare revenues (from 2.5 Million Won to 2.7 Million Won),
- a 38.6% decline in bus accidents,
- and an increase in citizens satisfaction (Figure 1).

For the future, Seoul Metropolitan Government (SMG) has set up three major directions for the transportation sector:

1) Transportation projects for air quality improvement;

2) Enhancement of public transportation services;

3) Travel demand management in order to reduce the number of private automobiles on the streets.
In addition, an ITS base should be established.

The ultimate goal of these projects is to make Seoul a clean, attractive, global city that is public transportation oriented.

Regarding the financing scheme for the necessary measures, three operational principles have to be obeyed:

1) Improvement of financing soundness:
   - Consistently promoting non-tax incomes for stable financial support;
   - Focusing on financial investment & loan funds, minimizing municipal bonds;
   - Result-oriented financial operation system establishment.

2) Effective financial distribution
   - Strategic financial distribution to increase jobs and productivity;
   - Increasing investment for poorly advanced regions;
   - Clarifying main roles of public businesses to minimize unnecessary financial expenditure.

3) Introduction of business management means to control financial expertise
   - Establishment of Mid-term financial plan;
   - Investment evaluation to guarantee transparent adjustment;
   - Establishment of the financial operation basis.

As of today, the total budget for SMG is 16.7 Billion USD. Out of this amount, a share of about 15% goes to the transportation sector. Social welfare and environmental preservation also receive 15% of the SMG’s budget. Expenditures for these sectors will increase also in the future, however, for transportation we expect spending to remain stable. In addition, new investments will be concentrated on service improvements instead of on facilities and infrastructure (Figure 2).

Transportation revenues amount to around 2.5 billion USD per annum. The total budget for transportation is 2.5 billion USD per annum. These revenues result from the following sources:

- Transportation-related Taxes: 386 Million USD (national and local fuel taxation, urban planning tax);
- Charge for cause providers: 96 Million USD (congestion charge, traffic inducement charge, wide-area facility charge);
- National subsidy: 336 Million USD.

The distribution of expenditures may be analysed as follows:

- Construction Sector: 1,448M USD
- Wide Area Transportation: 159M USD
- Bus-related Business: 293M USD
- Taxi-related Projects: 304M USD
- Parking related business: 105M USD

Figure 1: Results of Bus Policy Reform: Increase in bus passengers and fare revenues.
Despite this financial situation, we still have some challenges to solve. Briefly speaking, one of the biggest problems is the high dependency on public financing. Private capital promotion still generates insufficient results, and the return rates of cause provided charging are too low. Nevertheless, some PPP projects are already underway.

In relation to this, another problem is the insufficient support by the national government (Figure 3).

Lastly, the facility-oriented financial operation is also a problem. 60% of the total transportation-related budget go to infrastructure and facilities, such as subways, roads, etc. Support for the operation of taxis, buses, parking lots, bicycles, etc. is relatively insufficient.

Due to the irrational financing system, the financial structure deteriorates. We need new ways of financing, and we need to increase efficiency in financing operations.

Thus, in the future we plan to re-establish the financial procurement structure by strengthening the cause provider and beneficiary charging principle. We will also develop new financial procurement methods and make more efficient use of financial resources, e.g. by minimising facility construction and by preferring investments in sustainable transport areas, such as public transport, pedestrians and cyclists.

Furthermore, in the future we will support bench-marking through international exchange of experiences, for example in conferences such as this one here today.

We will also set up various promotion cases for using private capital. In addition we have to carry out more research on mid- and long-term financing methods, for example on finding ways to finance the renovation of the old subway facilities.

**Figure 2: Transport revenues and expenditures**

**Figure 3: Use of national subsidies in Seoul’s transportation sector.**
Part II: Financing Infrastructure

Bangkok

Mr. Panich Vikitsreth, Deputy Governor of Bangkok Metropolitan Administration, Thailand

Financing of Infrastructure in Thailand is usually allocated through tax and levies collected from the citizens and various businesses. Growing demand for infrastructure to facilitate good living quality and support commercial, business, etc. in Bangkok Metropolis needs immediate implementation. With limited sources of funding from taxation, Bangkok City seeks various financing schemes.

This presentation showed the present financing of the Bangkok Bus Transit System (BTS) and Mass Rapid Transit (MRT) implemented by different agencies and financing schemes and the on-going government decision on immediate mass transit projects. A case study of the Bangkok Bus Rapid Transit (BRT) project as a feeder system and temporary low capacity mass transit lines were also introduced.

Top: Bangkok Metropolitan Area’s policy on transportation infrastructure is to:
“Provide a hierarchical network of trunk lines and feeder lines in order to integrate passengers from various transportation modes in the network efficiently and conveniently.”

Bottom: Related Future Rail Mass Transit Projects
Antananarivo, the capital of Madagascar, is home to about 1.27 Million inhabitants. The city covers an area of about 78 sq. km. The city can be characterised by a complex geographical situation. It is located on a plateau in the central highlands of the island. To the east it is protected by a dam along the river Ikopa. The juxtaposition of hills and flat areas renders the city at the same time picturesque and challenging.

Antananarivo is expecting a population increase to about 3.5 million inhabitants within the next 20 years. The reasons for the population increase include natural increase, but also migration gains because of the enhancement of economic activities, schools and social and cultural opportunities.

Regarding urban transport, this means that the current number of 4 million trips per day will be doubled. This might cause a number of problems, since already now the saturation point is almost met.

The city had been originally designed for a population of about 300,000, which, as I said before, is already exceeded.

In 2003 there were 110,000 private vehicles in Antananarivo, for which 250 km of asphalted roads exist. Already now this is not enough to cover for all those vehicles. In addition, the mass transit system is not sufficiently developed at all, and it is not catching up with the needs and demands of the general public.

In order to solve all these problems, the city came up with three ideas for the transport sector:

1. The installation of an urban train;
2. Enhancement of public and private investments;
3. Increase the infrastructure of the city itself.

We have a lot of new investment programmes, including PPP, international assistance as well as loan procuring projects, and so on.

As regards the new urban train, we expect it to have great advantages as serving device for the public. We would like to increase the punctuality for people and businesses, clear up congestion, and reduce the pollution level of the city.

In order to build the urban train, however, we have to overcome some stumbling blocks. First of all, the investment costs are very high. Second, there are problems at the technical level. Third, not only installation, but also operation, maintenance and management of the train system are currently difficult areas to handle. Right now, we are thinking of introducing PPP to help us overcome some of those problems. There is a company called Madarail, and this company is an expert in city development.

Once the project is launched, it will be divided into three phases. The first phase will include the expansion of the existing network from a total length of 16 to 30 kilometres. In addition, the Central Business District in the city will be made accessible by the new line, providing
transport services for the main commercial area of the city.

I would like to take this opportunity to say a few words to the World Bank. The World Bank is currently in a process of bidding, and we are very much interested in the potential of the urban train project to participate in the bidding process. In this regard, we are thinking about two issues. The first one is the installation of one additional train line, and the second is the installation of a new train platform.

Thereby, one of the main issues is the provision of electric power for running the trains. In fact, we have the trains and the tracks, however, our biggest problem is the costs that occur from power usage. Thus, we would be very much interested in getting assistance in order to reduce electric power consumption and, thus, to reduce current electricity costs and the amount of subsidies needed to cover them.

Another important proposal as regards urban transport is the re-organisation of the public bus system. The present bus lines in the city should be restructured and reorganised, so that buses will travel around the whole metropolitan area. Thus, we need to develop a scheme to reinstall all the bus lines. There are two ways to do so: One is to renovate the existing lines, the other one is to build new lines. In addition, we need to replace the existing bus fleet. Right now we have about 2,000 long outdated, very old models of buses that were imported from European countries. What is more, already when we bought them they had been outdated. While it is now high time to replace those old models, the new buses might actually also be second hand.

In order to rejuvenate the bus fleet, we would also like to get assistance from the World Bank.

With these projects in mind, I would like to address some of the major concerns for developing countries in terms of transportation. First of all, the financial burden is a problem. Given the current financial capability we do not have anymore leeway to make investments into the public mass transit system. Furthermore, we do not have the right policies nor the right level of awareness among the general public as regards the transportation system.

As a conclusion, in our country’s case, transportation in itself is a major challenge. Without the help of the World Bank we can not ever change the transportation system and catch up with other countries.

Map showing the first three phases of the new urban train network
Tehran

Implementation of Transit Oriented Development

Mr. Mohammad Montazeri, Deputy Managing Director, Tehran Urban and Suburban Railway Co.

Tehran should undoubtedly benefit from the experiences of other large cities throughout the world for development of metro and increasing the output of this efficient urban transportation system. One of the most important experiences that are increasingly considered in the world is the concept that is referred to as Transit Oriented Development (TOD) or Transit Focused Development (TFD).

The method of "Development of City with Centralization of Public Transport" aims to, in addition to playing the traditional and conventional role of metro in transporting the masses of passengers, provide attractive urban functions at the location and surrounding areas of stations (and establishment of the terminal complexes) in order to be accountable for many daily requirements of the public and omit unnecessary trips while doubling the productivity of this system.

Implementation of this essential system is only possible by attracting the cooperation and participation of the private sector and through two methods. Firstly, through settlement of these functions on the lands next to the stations, the owners of which are the government or public organs. Secondly, through defining the function and creating attraction on the lands next to the stations that are owned by private owners. Naturally, the profits gained from this participation shall be used in the direction of development and operation of metro system.

TOD seems to be economically logical:
- TOD shall quickly attract the buyers, tenants of houses and employees in respect of comfort and convenience of travelling by metro;
- Metro shall gain customers (passengers) consisting of individuals who work, purchase and exercise within the new stationary boundaries;
- Metro shall achieve financial resources from leasing and selling the lands and will reserve the profits or contribute to operation costs.

Development scheme for a new underground station complex in Tehran
São Paulo
PPP Turning Line 4 into reality
Mr. Jurandir Fernandes; Director-President of Sao Paulo’s Metropolitan Company of Planning (EMPLASA)

São Paulo’s metropolitan underground network – named METRO - consists of four subway lines, each one named after a different colour, with a total extension of 60 kilometres of rails that transport 2.6 millions passengers every day. The oldest subway (the Blue line), began construction in 1968, and started operation in 1974. At present it carries one million passengers every day. Integrated to this network are the trains of CPTM, the São Paulo Metropolitan Train Company, carrying 1.6 million passengers every day on 270 kilometres of rails.

The construction of Line 4, YELLOW, of São Paulo’s METRO started at the end of 2004, but its importance was pointed out in urbanism plans for the city since 1940. Figure 1 demonstrates the importance of the Line 4, showing that it is linked practically to all other METRO lines and railroads of the City of São Paulo.

Line 4, YELLOW, in Figure 1, shall be extended from the central region of the city of Sao Paulo until the neighbouring town Taboão da Serra. This line shall be implemented in two phases:

Phase I shall include the construction of 12.8 kilometres of underground rails, 6 stations, the structure of another 3 intermediary, incomplete, stations, the operational systems, and a depot and maintenance patio. This phase will be completed at the beginning of 2009 when the operation of the Line will start.

Phase II will encompass turning operational the unfinished stations of Phase I, the construction of 2 additional stations, and finishing the depot and other complementary systems. The second phase will be undertaken from 2009 to 2012.

The extension of Line 4 to Taboão da Serra will start in 2012.

The Financing of Line 4

The search and securing of financial resources for the implementation of Line 4 demanded many efforts. The international financial crises in the 90’s overturned the financing conditions that hitherto had been utilised for the other lines of São Paulo’s METRO, all of them built solely with public sector resources. Starting with this funding crisis, after 1995 a new model of financing infrastructures was developed, including now participation of private sector resources.

Figure 1
At the same time, the Government of the State of São Paulo, majority shareholder of the METRO system, began negotiations with the World Bank (BIRD – International Bank of Reconstruction and Development) and the Japan Bank for International Cooperation (JBIC), to make viable the financing and the construction of the new line. Studies and agreements took place until 2000, establishing that part of the needed total sum of US$ 1.3 billion, would come from a loan of US$ 418 millions from those banks. The BIRD and JBIC contracts were signed in 2001, and the international bidding for contracting the construction of the line also occurred in that year. The contracts were signed in 2003, in turnkey mode, and construction was begun in 2004.

A thirty-year concession, starting at the time Phase I became operational, was devised for the two Phases, contemplating the investments listed below.

In parallel, discussions began on the participation of private capital, through a PPP (Public Private Partnership). They were concluded with the concession of Line 4 to a private concessionaire having the following model:

- Private capital was responsible for the investments in rolling material and systems of signalling, of control of the patio, control and central supervision, as well as mobile communication of voice and data, for both Phases I and II;
- The concession comprehends the stated period of 30 years, counting from the beginning of operation of Phase I, for the exploitation of the services of the transport of passengers of Line 4 – YELLOW, in all its extension.

Operational characteristics of the future Line 4

The operating characteristics of the two phases of implementation of Line 4 are the following:

- In the first stage, Line 4 will operate with 14 trains to take care of a foreseen demand of 700 thousands passengers/day. It will have 6 stations and shall be integrated to the other lines of the METRO and to the metropolitan trains (CPTM). The beginning is foreseen for 2009.
In the second phase, foreseen to start in 2012, the line will have 5 more stations and 15 more trains. The foreseen total passenger demand then will be of 970 thousands passengers/day.

The extension of Line 4 in both phases will be of a total of 12.8 kilometres. Figure 2 shows Line 4 with all eleven stations to be constructed in Phases I and II.

Public and Private Sector Participation
Investments for the construction of Line 4 are, in synthesis, those of the following schedule:

<table>
<thead>
<tr>
<th>Investments</th>
<th>US$ (2003 prices)</th>
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<tbody>
<tr>
<td></td>
<td>Phase I</td>
</tr>
<tr>
<td>State Government</td>
<td>734</td>
</tr>
<tr>
<td>Concessionaire</td>
<td>184</td>
</tr>
<tr>
<td>Total</td>
<td>918</td>
</tr>
</tbody>
</table>

Revenues
The amount of the fare to be paid by the users will be defined by the State Government. The tariff of remuneration of the concessionaire at first will be equal to the public fare established by the Government of the State of São Paulo, adopting as a base date, the month of February 2005.

The remuneration fare of the concessionaire will be annually readjusted, in accordance with the rules established in the Contract of Concession, independently from the readjustments made in the fare paid by the users. This avoids the risk to the concessionaire of the political use of tariff readjustments, below inflation indexes. In the first 15 years of the concession, the readjustments in the remuneration of the concessionaire will take into account the variations of the rates of exchange between the dollar and the Brazilian currency (the Real).

The division of the fare revenues between the concessionaire on one hand and the METRO/CPTM system on the other, shall be made in the following manner:

- Passengers travelling exclusively on Line 4: 100% of these fares will go to the concessionaire;
- Passengers travelling on Line 4 and on the same trip in other METRO lines, and/or in the CPTM trains: 50% of the fare will go to the concessionaire of Line 4, and 50% to the METRO/CPTM system.
- Revenues coming from the operation of Line 4, other than those revenues obtained from fares, will go to the concessionaire.

There will be a central system of collection of all revenues, operated by an organization independently from the Government of the State of São Paulo, as well as from the METRO and the CPTM (metropolitan trains).

Operational performance
The concessionaire performance will be assessed by means of operational performance indicators.

The concessionaire payment will be variable as a function of these performance indicators.

Risks and their alleviation
One of the risks of bigger impact to the economic balance of a concession is when the realized demand is significantly lower than the foreseen demand. In the case of Line 4, for example, we are foreseeing a demand of 700 thousands
passengers/day in its first year of operation (2009). In case this does not occur, a mechanism of attenuation of the economic impact is foreseen, when differences of more than 10% are verified between the foreseen demand and the demand that is realized. This mechanism will only be applied during Phase I.

There is no protection against the risk of a low demand, relative to the estimated demand, if the difference is less than 10%. Then, for bigger over estimations of demand, two bands of protection will exist:

- The first one, from about 10% to about 20% of the deficit in demand, the Government of the State of São Paulo shall cover 60% of the occurred loss or, in the case there is excess in the real demand over what was foreseen, the Government shall hold back 60% of the exceeded value.

- The second band, if the variation of the estimated to realized demand is more than about 20%. For this, the Government shall cover 90% of the loss (in case of demand deficit), or hold back 90% of the realized revenue because of the demand excess.

These bands are limited, positively or negatively, to 40% of the projected demand.

Another kind of risk, which is taken into account, is that deriving from delay a in the foreseen periods of the construction, for which the Government of the State of São Paulo is responsible. In order to mitigate this risk, the contract of the concession of Line 4 foresees the following.

The Government of São Paulo State shall communicate the intended beginning of operations of the Line to the concessionaire 2 years before, and it will offer warranty of fulfilment of this commitment.

In a similar way, the concessionaire will offer warranty to the Government of the State of São Paulo that its investments and commercial transactions will not suffer delays, and that the Line will begin exactly in the stated period.

Also the risks and corresponding attenuation measures have been considered regarding the overlapping of urban lines of buses and Line 4 at the time of starting its operation in 2009. An overlap certainly would provoke significant reductions in the projected demand.

The Government of the São Paulo State will have to implement the division of routes of bus lines, under concession of the State, to avoid competition with Line 4, YELLOW. These bus lines will be integrated to the Line 4 without any additional costs to the users.

### The Regulatory Agency of the Concession

All the responsibilities and commitments of both parts, the public company in charge and the concessionaire, will be monitored and inspected by an independent Regulatory Agency.

As a provisory measure, the Government of the State of São Paulo installed a Committee for Concessions and for Public Utility Permission. This Committee will act until the Regulatory Agency is constituted, which will happen until 2009, the year of the beginning of the operation of Line 4.
Basic geographical facts and local government system
Nepal, a south Asian country with an area of 147,181 sq km, is located between China and India. Within an average breadth of 193 km Nepal offers a dramatic range of altitude from 70 m to 8850 m (Mount Everest) above the average sea level. Ecologically, Nepal has three regions namely mountain, hill and Terai (plains). Kathmandu Metropolitan City (KMC) and Bergen cities are located in the hills and terrains respectively.
Nepal has two tiers of local government, where District Development Committees are in the upper tier and Municipalities (urban sector) and Village Development Committees (rural sectors) are in the lower tier. There are 1 metropolitan city, 4 sub-metropolitan cities and 53 municipalities in the country. Besides, there are more than 100 small towns, which have not been declared as municipalities (urban) yet.

Migration and Urbanization
The primary settlements grew in the hills and mountains, but for various reasons they expanded into the flat terrain. Among the three ecological zones, mountains and hills suffered a loss of population (15% and 48% respectively) whereas the Terai experienced a net in-migration of 63%. Census 2001 reveals that out of a total of 2,929,062 migrants 25% migrated from rural to urban; 3% from urban to urban; 68% from rural to rural; and 4% from urban to rural. The net effect to urban areas was an increase of about 830,000 residents. The percentage of urban dwellers from 1952/54 to 1991 increased from 3% to 10%. However, KMC, the capital city of Nepal has continuously been attracting people from hills and also Terai making it the primary city.
The present population of KMC is 671,846 with the population growth rate of around 4.8 % per annum against the national population growth rate of all cities, which is around 3.6 % per annum. The estimated population of KMC is around 849,329. Around 0.03 million population can be floating population.

Transportation situation
The length of motorable road is 16,834.5 km, which consists of 28.4% blacktopped, 26.8% gravelled and 44.8% earthened². Yet there are numerous settlements in the hills and mountains, which are connected by foot and mule trails offering the adventure of a week-long walk. There are some air-routes connecting the remote settlements. Due to horizontal expansion of cities, the need for urban transport is ever increasing.
All over the urban areas of Nepal including Kathmandu, there is neither the availability of water transportation services nor of the transportation services of train, tram, underground metro and cable car. The major bases of transportation services are road and air.
Hence, the transportation linkage with the capital city from different parts of the country is by road and air. More than 90% of the people use road transportation
services. There is a variety of road transportation services in the cities of Nepal varying from public bus, micro-bus, trolley-bus, taxis, motorbike, auto-rickshaw, three-wheeler rickshaw, bicycle to horse-cart as well.

Regarding the transportation infrastructure situation, KMC has public bus parks, truck/carrier parks, roadside parks, a number of urban motorable roads of about 1,000 km and a ring road surrounding the core areas of the city. The vehicles that come from different parts of the country use the ring road to go to the public bus parks from where the people use the city vehicles to get to their destinations.

The ring road of KMC (42.2 km), national highways and some of the other major roads are under legal ownership of the central government. Source of financing for the construction and maintenance of such roads is central budget i.e. the treasury of the road board raised through the collection of vehicle tax in national highways and tax on fuel and also the financial support from the international donor agencies. Now, the Government of Nepal has taken the initiative for handing over the urban roads under their jurisdiction to the local government with some financial support for their maintenance as well.

The existing transport system is not sufficient for commuting masses in the cities. In the similar manner the financing mechanism for transport infrastructures needs to be reviewed and developed in a cost recovery concept. This has been an impeding challenge of the cities.

Financing of municipal transportation infrastructure

There are three major approaches of financing of municipal transportation infrastructure in Nepal. KMC has adopted these three approaches of financing according to the situation and demand from the community. Sources for the financing for the construction and maintenance of most of the urban roads are municipal funding, community participation (cost sharing projects between municipality and related community) and public private partnership. The municipal sources for financing on urban transportation infrastructure are local development fees, local revenue, vehicle registration tax, road tax, parking fees and funds from the road board.

1. The first approach of financing the municipal roads is through the municipality directly, which gets the service fees in the future to recover the cost. But the recovery rate is very low and it has not been effective.

2. Another major approach for transport infrastructure especially for roads is community participation with partnership of municipality with 40% cash contribution from beneficiaries and 60% from the municipality. This has been popular among the community people and also cost effective.

3. PPP concept for financing municipal transport infrastructures.

KMC started with public private partnership projects in the budget of the fiscal year 1998/99 and about 30 projects were identified. Mass transit, new bus park management, eastern bus park, truck park, auto parking, vehicle tax collection, tourist bus park, traffic islands, operation of trolley-buses and overhead bridges were some of the examples of public private partnership projects initiated during last 5 or 6 years' time frame. KMC has gained rich experiences after initiation of these projects and now
can go further for bigger infrastructure financing schemes using PPP models. Public funding in land pulling project areas is popular because of its self-funding nature. Formulation of projects and implementation are not only by municipalities or central government, but it is rather a completely participatory urban development approach, in which different raw and irregular land parcels of a certain area are converted into the developed residential plots with the provision of basic infrastructure like road, drainage, drinking water, open space, etc. Each owner of the scheme area has to contribute an equivalent portion of their land to build infrastructure.

**Proposed future course of actions**

Among the above approaches, KMC has intended to promote the following two models of financing on transport infrastructure projects in the future:

a) Further enhance the community participation with partnerships of municipalities

b) Continue existing and initiate new PPP models in transport financing

I. Outer ring road: bigger project (selected schemes of PPP)

II. Some key flyover roads: bigger projects (selected schemes of PPP)

III. Continue management of small urban transport facilities (selected schemes of PPP)

References:

1. Statistical Year Book of Nepal, 2005
2. Statistical Year Book, 2005

Map showing urban expansion of Kathmandu until 2010 in a “do nothing” scenario as well as existing inner (red) and planned outer (blue) ring road
1. The first financing source for public transport is **fare collection**. However, pricing policies are often defined by public authorities and are designed to meet different objectives than profitability. One of the consequences is that the fares’ structures do not necessarily reflect full commercial costs. Moreover, authorities impose public service requirements (PSR) on operators such as special fares for designated groups, stringent environmental and accessibility requirements, commercially unviable routes and time schedules, etc. Authorities often impose maximal prices that will often not enable the recovery of fixed costs, certainly in the case of modes with high infrastructure costs such as rail.

2. The second financial resource for public transport networks is **charging third parties for services** such as advertising or property rentals (particularly shops in and around public transport stations).

The amount of expenditures covered by these two sources of revenue varies from one system to the other but in any case they do not fully cover the functioning cost and the infrastructure costs.

3. As recognition of this situation, public transport financing will also include **public funding**. These compensations need also to take into account that public transport faces the competition of private road transport which does not incur the full costs it generates for society (infrastructure, wear and tear, pollution, noise, congestion, accidents) and which is not accessible to all.

4. Public-private partnerships (PPP) have now also become a familiar tool to fund large infrastructure works. Compared to traditional public funding of infrastructure, PPPs are characterised by the relatively long duration of the relationship, involving cooperation between the public partner and the private partner on different aspects of a planned project (design, completion, implementation, funding). The public partner concentrates primarily on defining the objectives to be attained in terms of public interest, quality of services provided and pricing policy, and it takes responsibility for monitoring compliance with these objectives.
5. Finally, instead of funding PT from the general public budget, it is also possible to use earmarked taxes imposed on the beneficiaries of PT supply (employers, retailers, real estate owners). One example is the Versement Transport paid by employers in France.

It is also possible to earmark revenues through the establishment of systems such as congestion charging systems (cf. London, Stockholm, Singapore), parking charges and fuel taxes which may fulfil the double objective of discouraging the use of private transport and find new resources.
During the years following the German reunification we invested large amounts of money into the transport system in order to overcome the gaps and disconnections caused by 40 years of separation (Figure 1). Thanks to these investments, Berlin now possesses one of the most modern and up-to-date public transport systems in Europe. We have an extensive and refined network of road and rail operated public transport, which is supplemented by quite a good walking and cycling network. The conditions for car based transportation are equally satisfactory.

Despite currently increasing passenger numbers in public transport the car still is a favourite mode of daily travel for many Berliners. This causes a number of problems, including congestion, air pollution, noise and accidents.

Supplying high-performance and high-quality public transport in Berlin, therefore, is vital because of environmental and social reasons. About 80 per cent of households in the inner city do not own a car. In addition, low incomes and an increasing amount of elderly people that is expected in the future emphasise the importance of creating and retaining equal mobility chances. In order to do so, fare levels are determined in such a way that they do not exceed socially acceptable rates. As a result, revenues generated from public transport generally only cover about 50 to 70 percent of operational costs, which is a common situation in Berlin and other German cities.

Despite all this, financial support for transport operations needs to be reduced as Berlin’s public budget is under a lot of pressure. However, this does not imply that we are terminating all investments. It does mean, however, that we apply coherent financial analysis and verification in order to ensure most efficient use of the available money.

Against this background there has been a debate going on in Berlin focusing on the tram. The tram network mostly exists in the Eastern part of the city, with few newly built routes in the Western part.
The question now is whether to trim down the existing network, to keep it at its current size, or to extend it.

This debate, the opposing positions as well as the methodological approach towards solving the conflict and finding the best solution provides the framework for the Berlin case study.

The track in question is the existing tram line no. 1 at the northern edge of the city (Map 1). Three alternative scenarios were developed in order to find out whether investments in the tram line would be worth their while from an economic, transport and social point of view.

These scenarios were:

1. Increasing the efficiency and attractiveness of the line by means of repairing and upgrading the existing connection.
2. Upgrading the existing line and extending it by 2.5 km in order to create a link to the underground and urban railway system.
3. Terminating the tram service on certain sections parts and replacing it with a bus line.

Scenario 1 and 2 comply with the plans of the city and are also included in the Integrated Urban Transport Plan. In contrast to that, Scenario 3 is in accordance with the plans of the service provider (Table 1).

The method that was used in order to solve the conflicting positions had been developed by the Federal Ministry of Transport and has been in use in Germany for quite some time already. The so-called “Standardised Assessment for Investments in Public Transport Tracks” aims at calculating the overall economic benefits of a project scheme. In order to do so, immediate investments as well as long-term costs for operation and maintenance are being taken into account. In addition they are weighted against the overall profits from benefits like reduced travel times in the network, accident prevention, reduction of energy use and environmental advantages.

The method is based on a comparison of the situation in the area with and without the implementation and construction of the planned track. Thus, the assessment of the project is based on the expected changes in transport and traffic, which will be achieved by the measure as compared to the situation that will arise without it. The assessment, thereby, has to take into account the situation for every year during the lifecycle of the infrastructure.

Table 1: Different views about the future of line according to the city and the transport operator

<table>
<thead>
<tr>
<th>City</th>
<th>Transport Operator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Line:</td>
<td>should remain</td>
</tr>
<tr>
<td>Upgrading planned (est. costs 6 Mio.€)</td>
<td>Tram 1 to be closed down substituted by bus service</td>
</tr>
<tr>
<td>Planned Extension</td>
<td>No extension</td>
</tr>
</tbody>
</table>
Regarding the case of the tram line 1, investment and operation costs for all three scenarios were by and large known. The transport impacts were first calculated and then monetarised. This means that the expected demands were translated into realistic financial figures so that comparisons could be made on a quantitative basis. In fact, transport demand expressed in trip numbers, travel times and the overall car use in the area were thus assessed.

The rationale is that when costs and benefits are being weighted against each other, the benefits must excel the costs. In technical terms this means that the derived benefit-cost-indicator must at least be one or higher. This is also the precondition if the project is to be further pursued.

In the example considered here, only scenario 1 and 2 derived positive results regarding transport effects (Table 2). Most noteworthy were the positive impacts that derive from an expected increase in the number of trips by public transport. In contrast to that, bus service (scenario 3) will lead to a reduction of passenger numbers. Travel times for both adults and school children will only be decreased in scenarios 1 and 2. The bus service in scenario 3 will, in contrast, increase travel times mainly because of the necessity to change for a different transport means in the course of the trip.

To summarise the results briefly:
- the termination of tram service generates the worst results from an overall economic point of view;
- the largest benefits are to be expected if the existing line is being continued and upgraded;
- the extension of the line together with the renovation and upgrading of the already existing segments of the track generate the most positive effects regarding especially the prospective reduction of accidents and decrease of environmental impacts.

Table 2: Outcome of the first step of the Standardised Assessment procedure:
Assessment of the planning alternatives as compared to the future situation of the line in a do-nothing scenario

<table>
<thead>
<tr>
<th>Costs</th>
<th>Transport Effects</th>
<th>Monetary Benefits of Transport Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Investment (Mio. € / a)</td>
<td>Operation (T € /a)</td>
</tr>
<tr>
<td>1</td>
<td>Renovation and upgrading of existing line</td>
<td>6.63</td>
</tr>
<tr>
<td>2</td>
<td>Extension of line (including upgrading)</td>
<td>2.20</td>
</tr>
<tr>
<td>3</td>
<td>Termination of tram service and closure of part of existing line</td>
<td>3.94</td>
</tr>
</tbody>
</table>
Building on these results, we demand from the transport provider to keep the service on the tram line and to invest into the upgrading. In addition, we aim at enabling the extension of the line, however, this can not be done immediately. Nevertheless, we will keep it in our plans for the future.

The second step of the assessment, which is the calculation of follow-up costs, is currently being carried out. We do expect that in this calculation the third scenario will actually achieve the most positive results. However, we are convinced that the advantages of the tram service for passengers and the people who live in the area are worth the expenses. Therefore, the operational deficit that the transport provider is nevertheless expecting might have to be balanced by subsidies.

The case of Berlin’s tram line no. 1 showed that even though money for investing into transport is often tight, it might in the end cost more not to finance operation of existing services or even extensions. If, for example, service on tram line 1 would be abolished or replaced by bus service, we would have to expect a decrease in ridership numbers. This might lead to higher car use and finally to increasing pollution and accident rates. Remedying these negative effects would generate high costs to the public and, thus, to the city and the public authorities in charge.
Public transit financing in the Montréal Metropolitan area will be presented in four stages:

- first, a description of the organizational structure to find out who does what;
- second, a presentation of financing sources;
- a few indications of some of the results obtained;
- in conclusion, lessons learned from the situation in Montréal and in other major Canadian metropolitan areas.

Canada is the world’s second biggest country, with an area of over nine million square kilometers. Despite this vast territory, the Canadian population is concentrated in the major metropolitan areas, which have absorbed 90% of population growth between 2001 and 2006. The ten largest metropolitan areas alone accounted for 52.7% of the Canadian population, which totalled 31,612,897 in 2006. The Montréal Metropolitan area had 3,635,571 inhabitants. It is the biggest metropolitan area in the Province of Québec, with 48.2% of its population.

1. PUBLIC TRANSIT GOVERNANCE

Governance of public transit services in the Montréal Metropolitan area is primarily based on local organizations, of different sizes and missions, under municipal responsibility:

- the Société de transport de Montréal (STM) serves the downtown core, most of the central districts and the central part of the metropolitan area;
- the Société de transport de Laval (STL) and the Réseau de transport de Longueuil (RTL) serve the other two biggest cities of the metropolitan area respectively to the North and South of the city;
- ten intermunicipal transit councils (Conseils intermunicipaux de transport) and one municipality organize services in the suburban rings.

In addition, the Agence métropolitaine de transport (AMT), a Government of Québec agency\(^1\), provides commuter train services and coordinates the metropolitan area’s other public transit systems. The transit corporations directly operate most of the services they organize and perform most of the vehicle and equipment maintenance tasks in-house. Private service providers are called upon for adapted transportation for the handicapped, provided by taxis and by minibuses. Moreover, the STM concluded a limited partnership agreement with a real estate specialist in 2004 to increase revenues derived from commercial space leasing within subway stations.

The intermunicipal transit councils that organize bus transportation services in the suburban rings must entrust their operation to a public or private carrier. This mode of organization was specifically chosen to offer a minimum

\(^{1}\) “The Agency is a mandatory of the State.” (An Act Respecting the Agence métropolitaine de transport, section 2)
market for the private carriers. The contract can be awarded after a call for tenders or negotiations. Such municipalities prefer this operating mode because it allows municipal administrators to focus their efforts on defining services, financing strategies and evaluation of results, while leaving management as such to the carrier.

The AMT must outsource commuter train services to two railway companies, which have both the railway rights-of-way and the technical competency under Canadian legislation. The carriers under contract with the AMT and the intermunicipal transit councils of the suburban rings face one sole risk, however: control over their production costs. They assume no revenue risk and, in some cases, only a limited capital expenditure risk.

The AMT coordinates the systems by establishing integrated fares giving access to all transit systems, sharing the revenues from these fares, and deciding the transfer points. It provides and finances the equipment that previously was the focus of conflicts between the organizations, such as jointly used reserved lanes and terminals and incentive parking lots. Finally, the AMT grants financial support to the local systems for the metropolitan services they provide, particularly the subway and bus services to downtown.

Regarding the relative importance of the systems:
- the STM owns and operates the subway system (the Métro) and the biggest bus system; it carries 78% of passengers;
- the other two corporations operate bus systems considered to be medium-sized in Québec and carry 15% of passengers;
- the northern and southern suburban rings account for 20% of the population of the Metropolitan area and 6% of the public transit passengers;
- the AMT organizes five commuter train lines, which carry 4% of passengers.

### Public Transit Governance in the Montréal Metropolitan Area

<table>
<thead>
<tr>
<th>Authority</th>
<th>Population</th>
<th>Area (km²)</th>
<th>Ridership (000)</th>
<th>Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>STM</td>
<td>1,854,442</td>
<td>501</td>
<td>359,282</td>
<td>1575 buses / 4 subway lines, 68 stations, 759 cars</td>
</tr>
<tr>
<td>RTL</td>
<td>385,533</td>
<td>274</td>
<td>30,263</td>
<td>381 buses</td>
</tr>
<tr>
<td>STL</td>
<td>368,709</td>
<td>246</td>
<td>19,361</td>
<td>230 buses</td>
</tr>
<tr>
<td>CIT</td>
<td>1,317,057</td>
<td>15,978</td>
<td>15,978</td>
<td>327 buses</td>
</tr>
<tr>
<td>AMT</td>
<td>3,635,571</td>
<td>4,259</td>
<td>15,557</td>
<td>5 train lines, 50 stations, 193 pass-cars, 20 locomotives 58 parking lots, 25,000 spaces 26 reserved lanes, 83 km</td>
</tr>
</tbody>
</table>
In 2005, the public transit organizations of the Montréal Metropolitan area spent about CAD$1,310 million to finance service operations and repay loans contracted to finance equipment purchases. These expenditures were financed by five sources:

- directly-generated revenues;
- Québec Government grants;
- financial assistance from the Government of Canada;
- contributions from motorists;
- municipal contributions.

2.1. Passengers

Transit organizations in the Montréal region try to maximize passenger-revenues without jeopardizing ridership through fare increases. Annual fare increases, usually linked to the Consumer Price Index\(^3\), have been applied since 1980.

The monthly pass is the most widely used fare, for nearly 70% of trips. It generates about 60% of passenger-revenues.

Reduced fares are granted to students up to age 17 and seniors aged 65 and over. The reduction granted is on average close to 40%, but amounts to 46% for the STM after having exceeded 50% for a long time. Intermediate fares with a 20% reduction have been granted to students aged 18 to 25 for the past few years to counter the trend for very early use of a car as the main mode of transportation for young adults.

### Public Transit Financing in the Montréal Metropolitan Area in 2005

<table>
<thead>
<tr>
<th>Type of revenue</th>
<th>Société de transport de Montréal (STM)</th>
<th>Réseau de transport de Longueuil (RTL)</th>
<th>Société de transport de Laval (STL)</th>
<th>Réseaux de transport des couronnes</th>
<th>Agence métropolitaine de transport (AMT)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>000$ %</td>
<td>000$ %</td>
<td>000$ %</td>
<td>000$ %</td>
<td>000$ %</td>
<td>000$ %</td>
</tr>
<tr>
<td>Directly-generated</td>
<td>397 246 43,9%</td>
<td>40 044 40,4%</td>
<td>25 000 33,4%</td>
<td>37 146 49,6%</td>
<td>41 651 26,6%</td>
<td>541 088 41,3%</td>
</tr>
<tr>
<td>Québec Government</td>
<td>138 333 15,3%</td>
<td>10 799 10,9%</td>
<td>5 653 7,5%</td>
<td>18 674 24,9%</td>
<td>32 185 20,6%</td>
<td>205 643 15,7%</td>
</tr>
<tr>
<td>Govt. of Canada</td>
<td>27 192 3,0%</td>
<td>0 0,0%</td>
<td>0 0,0%</td>
<td>0 0,0%</td>
<td>403 0,3%</td>
<td>27 595 2,1%</td>
</tr>
<tr>
<td>Motorists</td>
<td>54 928 6,1%</td>
<td>4 360 4,4%</td>
<td>2 769 3,7%</td>
<td>2 357 3,1%</td>
<td>33 467 21,4%</td>
<td>97 882 7,5%</td>
</tr>
<tr>
<td>Municipalities</td>
<td>286 404 31,7%</td>
<td>43 834 44,3%</td>
<td>41 532 55,4%</td>
<td>16 692 22,3%</td>
<td>48 729 31,1%</td>
<td>437 192 33,4%</td>
</tr>
<tr>
<td>Total</td>
<td>904 103 100%</td>
<td>99 037 100%</td>
<td>74 954 100%</td>
<td>74 869 100%</td>
<td>156 435 100%</td>
<td>1 309 399 100%</td>
</tr>
</tbody>
</table>

Note: Regular transit service financing, not including special transit for the handicapped.

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2 In 2005, one Canadian dollar was worth 0.6627 Euro, US$0.825 and 845 Korean wons.
3 From 2000 to 2006, fare increases of the three corporations were twice the Consumer Price Index.
The three transit corporations apply a flat fare policy, regardless of distance or mode. This policy mainly results from the fact that property taxes financing public transit are also a flat rate within each corporation’s territory. Zone fares based on distance apply to commuter trains and bus services in the suburban rings, because of the longer trips they generate.

An integrated monthly pass, established for the three corporations in 1990 and extended to the whole region in 1998, gives access to all public transit systems in the metropolitan area. Its price varies according to the number of zones crossed, and thus the distance traveled. Sales revenues are divided based on usage of each transit system (about 30% according to the number of passengers and 70% based on passenger-kilometers).

2.2. Government of Québec
Québec Government’s financial assistance to public transit began in 1973. It was intended to support the public transit corporations’ recovery of transit systems, left in bad condition by private carriers, because of their shortfall in resources. New grounds for such assistance were subsequently added, notably the intention to contribute to urban quality of life.

The principal form of Québec Government’s financial assistance is its contribution to capital expenses incurred by the transit corporations and the AMT. This assistance is paid according to the following criteria:

- 50% of bus purchasing costs;
- 75% of the costs for garages, terminals, reserved lanes, innovative technologies, and renovation or replacement of the subway and commuter trains;
- 100% of the cost of subway, train and other guideway projects.

This assistance to capital expenses takes the form of a contribution towards repaying loans contracted to implement the equipment.

In the case of the intermunicipal transit councils, Government assistance is a direct financial support to operations because they have no equipment. Initially, this assistance to operations was based on passenger-revenues geared to optimize revenues through fare strategies and upgrade quality of service focusing on users’ needs. The grant cannot exceed 75% of the service deficit, requiring municipalities to assume a minimum cost. However, the amount of assistance to operations remained unchanged for several years after 1996, destroying the incentives it might have involved.

A new form of financial assistance will be introduced in the fall of 2007. Financed by an additional tax on petroleum products, assistance to the upgrading of public transit services will amount to about CAD$100 million per year. Its purpose is to increase ridership by 8% within five years through service improvements of up to 16%. The financial assistance will amount to 50% of the costs of service upgrades, measured in additional hours or kilometers. The transit system will have to finance the other 50% by means of additional passenger-revenues or a higher municipal contribution.

Other measures intended to reduce greenhouse gas emissions and mitigate climate change will also be applied. Walking, cycling and car pooling will be encouraged and improved vehicle energy efficiency will be favored.

The results of these measures will be evaluated annually and after a five-year
period. The Government will then decide whether the financial assistance should be maintained and which form it should take.

2.3. Government of Canada

In the year 2000, the Government of Canada started granting financial assistance to urban areas, among others, by creating an infrastructure fund. Through this fund, the STM received CAD$103 million over a five-year period to cover one third of the costs incurred for the first phase of the subway’s fixed equipment renewal.

In 2002, the Government of Canada created the Canada Strategic Infrastructure Fund, for the purpose of funding large-scale projects. The amounts available are now fully committed and the projects are in progress. The amounts Québec received were allocated to improvement of major highways.

The Government of Canada added an ad hoc assistance by contributing CAD$900 million from the surplus generated during its 2005-2006 fiscal year to a Trust fund intended to finance investments in public transit. This amount will be paid to provinces over the next few years based on their population.

The most important measure adopted by the Government of Canada is its decision to act on large municipalities’ demand to diversify their revenue sources. It is gradually transferring a portion of its excise gasoline tax, beginning with CAD$0.015 per liter in 2006 and reaching CAD$0.05 per liter in 2010, or about CAD$2 billion per year. The amounts from this transfer must be allocated to local infrastructure financing. The government thus recognizes that local infrastructure quality is essential to metropolitan areas, their economic development and social exchanges. The amounts are shared among the provinces by population and a 25% share must be allocated to public transit, as the biggest cities had asked.

Financial assistance coming from the transfer of the federal excise gasoline tax totals CAD$411 million for Québec’s public transit system over the 2006-2010 period. The Québec Government decided to add CAD$93 million to the Government of Canada’s contribution, bringing the assistance available under this program to CAD$504 million but required that municipalities pay a contribution at least equal to the government of Québec’s. The expenditures financed by this program thus benefit from assistance amounting to 69% from the Government of Canada, 15.5% from the Québec Government and 15.5% from the municipality.

The financial assistance granted by the Federal government is shared between the public transit corporations in proportion to their ridership. The STM thus receives 72.5% of the assistance from Québec while the metropolitan area transit organizations as a whole receive 86%.

The Government of Canada’s budget for 2007-2008 extends this transfer for four years until 2014; thus the municipalities can adopt a longer term perspective in planning their infrastructure expenditures.

2.4 Motorists

Motorists benefit indirectly from public transit, therefore they must contribute to its financing. Two sources were retained for this mode of transportation:

- an annual registration fee of CAD$30 per car in Québec’s six largest metropolitan areas;
a tax of CAD$0.015 per liter of gasoline, in the Montréal region, in addition to the tax applicable throughout Québec.

Revenues from the registration fee grow at the same rate as car ownership, or about 1.5% per year, while gas tax revenue is capped according to the increase in the price of gas. Revenues thus generated grow more slowly than public transit needs.

2.5. Municipalities

The municipalities bear the ultimate responsibility for public transit and assume operating deficits and the unsubsidized capital expenses. The property tax, the main source of municipal financing, serves to cover their portion of cost. For the past fifteen years, municipal contributions have been the main source in certain transit systems. In North America, the cities of Montréal, Laval and Longueuil are among those that bear the highest tax burden for public transit.

The municipal public transit effort is substantially higher in the three biggest cities than in the ring suburbs. This variance reflects the differences in service and public transit use, but it remains one of the main causes of differences in municipal tax burdens between the central cities and the ring suburbs.

Summary assessment

The evolution of financing sources (Figure 1) from 1991 to 2005 shows that:

- directly-generated revenues increased constantly;
- motorists’ contributions remained relatively stable;
- Québec grants declined for several years but then took an upward turn;
- municipalities, including Montréal, reduced their contributions for a few years, especially since 1996.

In 2005, the relative contributions stood at:

- 41.3% from directly-generated revenues, compared to 33% in 1991;
- 15.7% from Québec;
- 2.1% from the Government of Canada;
- 7.5% from motorists;
- 33.4% from municipalities.

Perspective

Even though the higher levels of government are increasing their financial assistance, the needs expressed by the operators and additional needs identified by the Ville de Montréal in its “Transportation Plan” of May 2007 are in fact double that of Québec’s financial capacity over the next ten years (see table on following page). The difference is due to the fact that the government will almost exclusively retain equipment rehabilitation needs, given its own budgetary constraints, while the operators and Montréal suggest adding new infrastructures.
3. USE OF FINANCING: PERFORMANCE

It is appropriate to study the results obtained and especially the organizations’ performance in using the amounts allocated to them. Measuring performance helps to highlight the best management practices so that other organizations can benefit from them. This was the spirit in which the international subway benchmarking group was created. For the same reasons, the STM joined this organization and then contributed to create an international benchmarking group for major bus systems. In 2005, the Québec transit corporations initiated their own benchmarking exercise.

The transit corporations’ performance since 1992 was significantly impacted by the end of government assistance to operations. Rationalization measures led to a reduction in revenue kilometers, especially during off-peak hours. In peak periods, the routes were reorganized to run buses in the main direction of trips and limit unproductive lag time returning buses to their departure point. Ridership declined, mainly due to the economic slowdown, but finally increased by 10.5% between 1992 and 2005 (Fig. 2).

Kilometers per bus operated in peak periods declined due to the reduction of total kilometers. This was because the number of buses in use remained stable to maintain service during this period, in which about two thirds of trips are concentrated (Fig. 3).

The ratio of operating expenses per bus revenue hour illustrates the magnitude of unavoidable costs in urban public transit:
- there must be one driver per bus;
- vehicle maintenance must be performed each day and mechanical inspections must be performed regularly;
- labor costs are the main cost and they are rising at close to the rate of inflation.

The changes of the past few years seem to indicate that rationalization measures can contain hourly costs for a certain time but that there will be a resurgence of upward pressures (Fig. 4).

Regarding use of rolling stock, the STM has succeeded in increasing passengers per bus revenue hour by 30%. The increase essentially comes from the service level reduction because ridership rose by 7% (Fig. 5).

The STM increased the share of its operating expenses covered by its operating revenues from 45% in 1993 to 59% in 2004. This increase is primarily due to operating expenses that grew slower than inflation, while operating revenues rose faster than inflation, with a 51% jump in fare revenues. Since 1996, the other two corporations suffered the effects of a less advantageous sharing of fare revenues from the integrated transit pass (Fig. 6).

In short, indicators show that some aspects of the Montréal area transit corporations’ performance are improving, while other aspects are stable or in difficulty. This initial exploratory analysis thus presents a qualified picture and illustrates the consequences of constraints specific to the urban public transit industry.

**CONCLUSION**

Four lessons can be retained from the public transit financing modes prevailing in Montréal and other large Canadian metropolitan areas.

Firstly, the higher levels of government have increased their financial assistance considerably over the past few years. This increase is essential to modernize the Montréal and Toronto subways. It is also essential to improve services in order to reduce greenhouse gas emissions and to provide new services, especially in Toronto and Vancouver with their fast-growing populations.
In fact, the needs are so great that the financial resources will not meet the needs identified by the operators and local governments.

Secondly, a portion of the revenues that governments collect from road users is now dedicated to local infrastructure financing. This is a major change in our public financing, in which tradition dictated that all revenues be paid into the general fund to leave the decision-makers full latitude. Acceptance of this dedication by the general public and motorists may be facilitated because the money goes to finance the road network as well as public transit. The sources retained can also be used eventually to manage transportation demand.

Thirdly, the Government of Canada is becoming a new partner in local infrastructure financing and its contribution to public transit could become significant over the next few years. Its commitment is medium term, for a ten-year period. Despite the size of its contribution, the Government of Canada did not impose conditions which would have led it to encroach on local and provincial jurisdictions.

Finally, local governments and the provinces rely on complementary strategies to optimize the return on public investments in infrastructure. In Vancouver, the organization and financing of arterial roads and public transit were entrusted to the same body covering the entire metropolitan area. Québec adopted a new planning and development framework for the Montréal metropolitan area. Similarly, Ontario has adopted a development and land use plan for the Greater Toronto area. For some, these decisions could do as much to favour public transit use as investments in this mode of transportation.
When it comes to public transportation policy, Casablanca tends to fall behind somewhat. Casablanca is a city that has expanded at a rapid pace, but unfortunately public transportation policy is lagging behind. Right now we are conducting a number of reforms, focussing especially on public private partnerships as well as co-operation between bus companies. The basic intend of Casablanca is to develop public transportation as much as possible.

The total population of Casablanca adds up to approximately 4 million; and the density is very high with about 4,000 inhabitants per sq. km. The city is the economic hub of Morocco, and it also provides for 40% of all exports. Thus, it is a node for goods exchange through the port, airport and railway network.

Within the city, 15% of the modal split is allocated to the car, while collective transport, i.e. buses, only make up 13% of the modal split. 53% of all travels are carried out on foot. On average, people walk about 1.5 km per day.

In the long term until 2030 we are going to reform the entire transport system. Once this is achieved, we expect about 7.8 million trips per day, starting from about 4.8 million daily trips today.

While Casablanca has no inner urban railway system, we do have about 100 bus lines, which are operated by a bus fleet of about 1,000 vehicles. There are also 130,000 taxis in the city, which are often very old, but they are quite extensively used as a public means of transportation.

Casablanca’s public transportation system runs at a large deficit. The Municipal Law determines that the municipalities are responsible for urban transport, but there is a clear overlap of competencies. The city shares the competency of operating the public transportation system with a number of private and municipal service providers. The city is feeling the need to establish a permanent management service for transportation not only in Casablanca but also in nearby cities that are within the commuter belt.

Until 1984 there had been a state monopoly on the transport sector, but it was then liberalised. In 1985, four private transport companies were established, but later on their number increased to 12 in 1987 and 22 in 1999. So right now, the public transportation system is operated both by the public and the private sector. There has been a large financial deficit in the transport sector, so in 2004 the Government transferred several of the services to the RATC (Régie autonome du transport de Casablanca, the Autonomous Transport Authority).

As a result, the public sector took over the management and 15 concession contracts were given out to private companies. Each contractor was given the right to operate one service, i.e. one defined line or route with a defined minimum and maximum of services. The concessions will expire after ten years, which will be over in 2009. Coming now to the end of the concession period, we see
one problem connected with the lack of long-term investments. Especially as regards the ageing of the buses, which are approaching the end of their lifecycle, we see a loss in comfort and service.

As of today we are thinking about delegating the management for the supply of transport services. In addition, the new contracts will require not only the operation of existing lines, but also the progressive (re-) opening of new and unused routes. Moreover, we are planning to carry out large investments of about 170 Million Euro for the acquisition of 1,000 new buses, out of which 200 have already been bought.

With these new PPP contracts we will be able to provide more comfortable vehicles, to reallocate bus stops and enhance travel information. All of this leads us to expect a clear increase in supply and demand.

Moreover, the city also has certain financial interests in the PPP experience, for example recapturing old salaries and having investments in rolling stock taken over by the concessionaire. The only costs for the municipality will arise out of the management of the contracts and ensuring control over tariffs and service provision.

In the past, many bus companies ran at a deficit, so that they had to lay off staff and, most noteworthy, bus drivers. Now, these drivers can be reemployed, which is yet another positive effect of the reform.

As a whole, the quality of services has improved and is going to be improved even more.

Nevertheless, one issue yet to be solved relates to the “Big” or “Luxury Taxis”, as they are called, which supply a means of collective transport and are beginning to compete with regular bus services.

In the future, Casablanca needs to develop a public transport network with enhanced capacity in co-operation with the private sector. The city has developed a new Urban Mobility Plan, which will address the existing problems with transport in the everyday life of the citizens of Casablanca. The Government is firmly committed to this initiative, which is also supported by a number of researchers.
As a result we have drawn up a plan for a clean transport in the city. We are taking a long-term vision and tackle several issues based on priority.

In order to implement the plan, the city is co-operating with many other companies including the bus companies to implement our vision. This relates for example to the TCSP network for a clean city, which involves railways going through Casablanca and connecting it with satellite cities. The network will be further promote buses and trains with a large capacity. We will also introduce tramway lines to ensure interconnection and regeneration of the urban area. The TCSP network is an ambitious plan. It will be comprised of 160 km of infrastructure, and the project budged is estimated with 5 billion USD.

The tramway will first be established at a length of 25 to 30 km with costs amounting to about 750 million US Dollars.
MTR Corporation Ltd. started in 1975 as a government agency to design and construct the first metro in Hong Kong. The organisation evolved from a railway planner to operator to investor and to international player. Throughout its course of expansion in Hong Kong, MTR adopted different financing schemes for different lines with the government to ensure that the IRR (internal rates of return) of the projects are acceptable. As MTR expands beyond Hong Kong, it sees and experiences different models of Public-Private-Partnership.

The presentation attempted to provide an overview on the financing structure of MTR for different new lines and to case-study MTR’s integrated railway property models in Hong Kong as a distinct finance vehicle. The presentation also provided an abstract on some other models of public-private-partnership in Asia.
Background
In order to carry out a private participated infrastructure projects (PPI) in Korea, we have to follow the rules according to the PPI Act. There are two ways of developing such a project. One is the Solicited Type Project, which is planned by the Government. The other one is the Unsolicited Type Project, which is developed by the private party.

In case of a Solicited Type Project, the Government prepares a feasibility study, and if it is promising they will prepare the basic project design and announce the request for proposal (RFP) for open bidding. According to the RFP, the private party will make a bidding proposal. Following the tender evaluation, the private partner will be designated as pre-concessionaire before entering into the negotiations with the government. Finally, the final concession agreement will be signed. After that, the final project design, including construction and financing as well as the operational plans will follow.

In the case of the Unsolicited Type Project, there are several more steps and people involved before the announcement of the RFP (Figure 1). At first, the private party will carry out a feasibility study. If the outcome is positive, they will draw up a basic project design and submit a proposal to the Government. There, the decision has to be made whether to go ahead with the project. If the proposal is granted, the procedure that follows is the same as for the Solicited Type Project.

Simple as the process sounds at the moment, it normally takes several years to complete it. The case of the Ui-Sinseol LRT Project was first submitted by POSCO E&C Consortium to Seoul Metropolitan Government in June 2003. After the evaluation, SMG announced the proposal for RFP in December 2006. The pre-evaluation and RFP preparations took more than three years. The main reason for that probably is that POSCO asked a Government subsidy of almost 50 per cent of the cost. Eventually, the Government reduced the subsidy to 40 per cent of the total project cost and announced it in the RFP. In April 2007 the tender, for which POSCO had submitted a revised proposal, was closed. Following the assessment of the tender by the Korea Development Institute, POSCO was designated as preferred concessionaire in May 2007. We now hope that we will be granted the final concession still within this year.

Figure 1: Procedure for an Unsolicited Type Project
General Characteristics of the Project

The Ui-Sinseol Light Rail Transport will connect the district of Ui-Dong with the district of Sinseol-Dong. Both districts are located in the north of Seoul City (Figure 2). As you may know, Seoul has a good subway network. However, the Ui-Sinseol Area has not been serviced by the subway for a long time. Residents in this area have asked the Government to solve the serious traffic problems arising from the lack of public transport. POSCO proposed the LRT system, because first, the costs are much lower than the costs of building a subway line, and second, regarding the transport demand the LRT is much more suitable. The total length of the line is 11 km, there will be 13 stations and one LRT depot. At three stations, passengers can transfer to other subway lines.

In the past, all of the subway lines have been planned and financed by the Government. Thus, the Ui-Sinseol project is not only the first Light Rail Project in Seoul, but it is also the first transport infrastructure project that is privately financed. The concession period will last for 30 years. Afterwards the facilities will be transferred to the Government.

A large fraction of the line is designed as an underground tunnel. The reasons for that are twofold. First, the area is highly and densely populated. The people who live there do not want the installation of the LRT concrete structure in front of their house. Second, the topography of the area is unevenly elevated (Figure 3). Thus, if we directed the line over ground, we would have to face high compensation costs.

Depending on the geological conditions, two types of construction methods will be used for the underground sections: tunnel construction and open cut construction.

A unique characteristic of the Ui-Sinseol line is that it will be a driverless system. There will be no train drivers and no staff working at the stations. Almost all of the facilities will be run by an automated system or by a remote operator. This kind of system will be expensive, but we expect that we can save operation and maintenance costs. However, safety is an important issue, which is why we had to ensure that the system meets the very high safety standards.

All stations will be underground, and they will be equipped with automatic screen doors, elevators, escalators and facilities for passenger convenience. The trains for the LRT were specifically designed by the main rolling stock manufacturer in Korea. Trains will arrive at the stations in defined intervals, for example every 2.5 minutes during rush hour in order to meet the traffic demand.
Construction works will be divided into four phases. All together it will take five years to complete the line, including equipment and performance tests for at least six months before starting with commercial operation.

**Financing Structure**

In my opinion, the financing structure of the Ui-Sinseol project is an outstanding example for joint financing between the Government and the private sector. According to the PPI Act of Korea, Government subsidies are decided on an individual case basis. That means that the subsidisation of projects might vary. Sometimes there are no subsidies at all for a project, for example in the case of an expressway expecting high traffic demand. At other times, subsidisation can be as high as 40 per cent as is the case with the Ui-Sinseol project. As you may know, public transport projects are rarely profitable, and it is not possible to raise the price of the fare to cover the costs for transportation.

In this case, the Government allowed the 40 per cent subsidy, which adds up to 323 million USD. However, the Government considerably reduced its risk by refraining from any additional guarantee, such as for operational income.

The estimated total project costs are 751 million USD, including the rolling stock and system. On the side of the private investor, 75 per cent of the project costs will be covered by loans, and 25 per cent by equity shares. Out of the latter, 10 per cent are taken over by construction contractors and suppliers, and 90 per cent by financing banks and funds that are also involved in the loan arrangements (Figure 4).

There are 17 consortium members involved in the financing of the project. POSCO, however, is not the biggest one, yet we are the leading consortium partner. The majority of the members belong to a group of construction companies. There is a second group of suppliers and engineering companies, and a third groups of banks and funds.

What brings the partners together is that they all have the same aim, but they all also want to minimise their risk.
Therefore, every party involved in the project takes over a certain kind of risk:
- The Government guarantees for subsidies;
- The construction companies guarantee for the construction costs and quality;
- The suppliers have to be responsible for the system performance;
- The financial funds and the banks have to take the risk of ensuring the financing arrangements;
- Every active shareholder has to take the risk of not reaching the operational income due to minor traffic volumes.

The next step of the project will be to enter into the negotiations between the Government and the private partners. As you can imagine, these negotiations will not be easy, since every party tries to minimise their risk as much as possible. However, we have to finalise the negotiations this year, because we all know that this system is essential for the area, and the residents insist on getting a new public transport system.

Following the negotiations and the signing of the concession agreement, we have scheduled one year for the detailed design and the closing of the financing, then five years for the construction. If everything goes according to plan, we expect to start with the commercial operation in December 2013. After the concession period of 30 years we will transfer to transportation facilities in good quality and manner to the Government.

Reference Projects
In addition to the Ui-Sinseol LRT project, we are currently involved in two other reference projects. One is the Busan-Gimhae LRT project. The line is currently under construction, and we will commence operation in 2010. It is also a driverless train system with a total length of 23 kilometres (18 stations, 1 depot). The line is constructed on an elevated bridge.

The second project is the Shinbundang Subway Project, located in the southern part of Seoul. It is designed as a heavy subway, which is currently under construction and will commence operation in 2010.

I hope my presentation could stimulate you with some ideas how to develop your city in co-operation with a private party.

**Table 1: General Figures for Ui-Sinseol LRT Financing Scheme**

<table>
<thead>
<tr>
<th>Items</th>
<th>Figures</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Project Cost (A)</td>
<td>751 million*</td>
<td>Estimated by Private Party</td>
</tr>
<tr>
<td>Government Subsidy (B)</td>
<td>323 million*</td>
<td>RFP condition by Government</td>
</tr>
<tr>
<td>Total Private Project Cost ©</td>
<td>428 million*</td>
<td>C = A - B</td>
</tr>
<tr>
<td>Equity (25%)</td>
<td>107 million*</td>
<td>C x 25%</td>
</tr>
<tr>
<td>Loan (75%)</td>
<td>321 million*</td>
<td>C x 75%</td>
</tr>
<tr>
<td>Price Escalation/year</td>
<td>4%</td>
<td>RFP condition</td>
</tr>
<tr>
<td>Interest/year</td>
<td>8%</td>
<td>To be negotiated with Banks</td>
</tr>
<tr>
<td>Traffic Demand/day</td>
<td>122,146 passengers</td>
<td>Estimated by Private party</td>
</tr>
<tr>
<td>Ticket</td>
<td>1.45 USD</td>
<td>1,350 won (Korean Currency)</td>
</tr>
<tr>
<td>Price/passenger</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current IRR</td>
<td>9.32%</td>
<td>After income tax</td>
</tr>
</tbody>
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All figures will be negotiated between Government and private party
*USD
Our meeting of Commissions 4 and 2 and, therefore, the Metropolis Mobility Week is coming to an end now. After five days of intensive exchange, work, talks, discussions and interesting presentations this would now probably be the time to recapitulate the meeting. However, I am sure you agree with me when I say that summarising the different events is, indeed, an impossible task. Let me therefore just focus on some issues, which I personally see as highlights of our meeting.

As Mr. von Marschall, the facilitator of yesterday’s session pointed out, there are many roads leading to Rome. Likewise, there appear to be many ways of obtaining finances for creating, maintaining and operating transport systems. And yet, just like every road has bends, slopes and sometimes also potholes, the road to secure financing also often has obstacles, barriers and insufficiencies.

It was the aim of this meeting to identify various solutions and possibilities to overcome these barriers. I would like to express my gratitude to all of the speakers, who provided frank and open insights into the situation in their cities.

We saw yesterday that cities are already looking at and partly even applying new financing and business models. I am truly sorry that in my following remarks I cannot mention all of them.

But just as an example, the case of Tehran showed that innovative business models that aim at attracting private sector investments may also be used to bring about developments in urban planning and local economy. Mr. Momtazeri, I wish you success with your ambitious plans.

And I think it was also a novelty for many of us to hear from Mr. Gyewali from Kathmandu how the general public there contributes to the creation of new and better infrastructure by donating their time, money, land and – most important – their good will to the projects you showed us. Additionally, you pointed out to us how important it is to have a sound legal foundation to get the grounds you need for providing infrastructure.

Mr. Richa from Curritiba and Mr. Fernandes from Sao Paolo showed that the road towards achieving sustainable transport systems can at times be a really long one. For all of us involved in the transport sector, it appears that we will never reach a situation where everything is achieved and nothing new needs to be done.

In addition to that, from yesterday’s session I will also take home with me the knowledge that just like in my own city other cities are currently engaged in the development of long-term visions that shift the focus away from infrastructure towards service provision. That such a vision also needs to be reflected in the re-distribution of finances was most evidently illustrated by the case study from Seoul, presented by Mr. Chang.
The importance of creating a vision that is not only pleasant but also realistic and achievable was strongly emphasized by Mr. Mehndiratta. His remarks on the World Bank policies and strategies for financing urban transport infrastructure are of great use to a number of the participants of our meeting. The many questions and remarks addressed to him also in the roundtable discussions deliver ample proof of that.

Today’s session added yet another level to the considerations on financing. Mr. Niemeggers presentation summarised the wealth of instruments available for financing. Thereby, his comments on how to exploit other sources, like advertisement and businesses, from my point of view were particularly helpful. Also, they supported some of the views on private sector involvement previously issued by other speakers.

What is more, the roundtable discussions were a reminder yet again of what a meeting of Metropolis Commissions really is about: the open exchange of views, problems and approaches, delivered honestly and without any attempt to paint a rosy picture.

Stimulated by the contributions of the roundtable disputants, the audience was not shy of asking questions that really were to the point. Thereby, the importance of political will and strong planning was repeatedly emphasised. We have learnt that as decision makers we are obliged to think ahead of political and election schedules and allow for comprehensiveness and continuity of plans while remaining flexible to integrate previously unforeseen developments.

The conclusion I draw from this is that policy has the responsibility to safeguard access to mobility in our cities. This holds true even though the views on how this responsibility should best be acted upon might differ. On one side, full public management and financing of the transport sector can be a solution. On the other side, the setting of framework conditions for the private sector, which then acts as the sole supplier of urban transport, might also be an option. Moreover, in between these two extremes there are a number of other possible approaches.

After having thus briefly looked back, we should now also dare to issue a glimpse into the future. The next meeting of Commission 4 is going to take place during the 9th World Congress of Metropolis in October 2008 in Sydney, Australia. From a geographical point of view it will nearly conclude the trip around the world that our Commission has embarked on ever since it had been established. After starting off in Seoul in 2002, Commission 4 has met every year in a different location. In 2004 we met in Paris and in Istanbul, in 2005 in Berlin, in 2006 in Toronto, and now Seoul again, and Australia at last. However, this upcoming meeting will have another, very special meaning for this Commission. According to our agenda, it will be the last meeting to be held for this Commission on Urban Mobility. Thus, part of the Sydney conference will have to deal with assessing the work of past years. What is more, we should think about how to continue the exchange between the cities following the Sydney event.

Which of the manifold challenges that cities are faced with are not yet considered within Metropolis? Are these topics that we would like to see discussed in a more intensive way? Is there a demand for establishing a new Commission, and if so, who would want to be in charge of enforcing and directing it?

These are questions that we will try to answer within the course of the next year.
We will contact the Metropolis cities and ask them for their opinion. In addition, there is still one topic left, which should be addressed in order to fulfil the agenda of this Commission 4. Until now we have predominantly concentrated on passenger transport. However, traffic in our cities consists of passenger and commercial transport. The movement of goods and the transporting of people for service and commercial reasons causes not only increased traffic volumes. It also affects the direction of traffic flows and traffic hours. Cities with large volumes of commercial and freight transport, moreover, experience their impact on the temporal appearance of traffic streams. Distinct peak traffic times are slowly dissolving into all-day traffic highs. As a consequence, urban roads are increasingly used to their capacity throughout the day by commuters, service providers and goods transporters.

Therefore, our next meeting shall be concerned with Commercial and Freight Transport Management. I know from my own city that this is an issue, which is quite difficult to deal with. The transporting of goods has very strong links to the national economy, to consuming patterns and to globalised freight streams. Likewise, commercial traffic derives from changing work patterns, division of labour and the alteration of service demands. Thus, we need to look beyond the boundaries of individual cities and beyond traditional areas of transport planning in order to fully understand the why and whereabouts of these streams and to find suitable ways of organising and managing them in the cities.

An interesting topic indeed, yet at this stage I shall not forego next year’s work. What is left for me to do now is to thank you again for coming here and for contributing to this meeting. I am looking forward to seeing all of you again in Sydney at the latest.
First, I would like to say that it had been an excellent idea by Berlin, Seoul and Montreal to organise this joint meeting with regard to such an important topic in transport. And it had also been a good idea to have this meeting in such a very dynamic city as is Seoul, which is well-known for its efforts in transportation.

It has been an enriching experience, because we opened up the two Commissions to each other, and we have worked well together both horizontally and vertically. For cities and especially for metropolises the transport sector is a neuralgic one and it requires substantial investments.

In this sector, financing is an inevitable problem. It involves a number of aspects, for example: taxes, debts, the involvement of the private sector and public private partnerships, to name only a few.

At this stage, I will not draw any conclusions, nor will I risk to issue a synthesis. However, I would like to mention some important aspects that have been mentioned during this joint Commissions meeting.

1. Political aspects: strong leadership has been emphasised as important by the city of Sao Paulo and the UITP;
2. Institutional aspects: organisation, consultation and co-ordination were highlighted by the city of Casablanca,
3. Financial aspects: financing demand and sources were illustrated by Hong Kong;
4. Human aspects: social requirements were identified by the World Bank;
5. Economic aspects: impacts of the transport sector as regards the creation of labour and employment, as shown by Singapore.

Naturally, the two days of the Commissions meeting were not sufficient to deal with all of these themes nor enough to go into detail. Thus, some more work needs to be carried out within the course of next year to issue a more substantial report.

One of the topics that should be further elaborated are the different models of public-private partnerships that exist for example in Bangkok, Seoul and Mumbai. In addition, cost-benefit analyses are important for the decision making process (as presented here by Berlin). We should also not forget about the important issue of revenues and cost-recovery-rates, which is of concern to the majority of transport authorities.

Yet these are only some of the elements, which where touched upon, and which should be further studied.

Lastly, I would like to emphasise my appreciation for the enriching experience of a joint Commissions meeting. I would like to thank all of the participants for presenting their experiences, for their comments, recommendations and suggestions.

We will now examine all of the materials, which will allow us to put together a comprehensive report that we will present at the Metropolis Congress in Sydney in October 2008.
Closing Remarks*
Vice-Presidency Commission 4
Mr. Jung Woo Chang; Director General of Transportation, Seoul

* edited transcript of the original speech held at the meeting in Seoul

I would like to start these closing remarks by briefly summarising the whole Metropolis Mobility Week.

On the first and second day of the Metropolis Mobility Week, the training seminar under the title of “Mass Rapid Transit Options and Planning” was successfully held. We had a large number of participants in this seminar, and they actively participate, raising questions and discussing their ideas and opinions. In the training seminar, participants were able to learn about scientific principles and experience on planning and building bus rapid transit systems.

On the second day of the Metropolis Mobility week we had a “Transportation and Air Quality Seminar” on the theme of “Strategies to Improve Air Quality in Congested Cities”. We had speakers from all around the world, who told us about their valuable experiences concerning ways to improve air quality in congested cities. Their input was very noticeable, and we learned a lot of lessons that we should keep in mind.

In particular, the speakers expressed the importance of travel demand management as a way of reducing traffic congestion and mitigating vehicle emissions in order to achieve a better urban life. What is more, they stated that an introduction of congestion charging can be a proper solution, from which we can expect a lot of benefits for a healthy city.

On the third day, participants had a chance to look around Seoul’s transportation system. As a citizen of Soul, I am really proud of the excellent system, and I hope participants could feel this excellence as I do.

Yesterday and today we had the Commissions’ Meeting with the theme of “Financing Urban Mobility”.

The first day of the meeting commenced with the keynote speech by the Mayor of Curitiba, Mr. Berto Richa, presenting his ambitious plan for a more livable city.

The second day of the meeting was opened by André Niemeggers from UITP delivering a keynote on funding and financing for public transportation.

Moreover, during the two days numerous valuable cases about financing urban transport were presented. Through the presentations we have learned about the difficulties in obtaining the necessary, substantial funds for the construction, maintenance and operation of urban transportation systems.

However, I felt that such difficulties may be overcome and mitigated by introducing innovative mechanisms, such as public-private-partnership. Although PPP can not be an absolute solution, it can be an option to fund transport projects. Nevertheless, these partnerships always need to be established and assessed with regard to the specific context and circumstances in the city.
I believe that the case studies presented in the two meeting days enhanced our knowledge about the state-of-the-art and the state-of-the-practice concerning financing of projects.

My special thanks should therefore be given to all of the presenters as well as to the participants of the round table discussions.

During the round table discussions, that involved mayors, vice-mayors, city representatives and experts from international organisations, meaningful debates were stimulated by exchanging ideas and experiences.

In addition to all of the activities in the meeting room, participants had a chance to informally exchange their ideas in the restaurants and hallways. Through these informal contacts and conversations participants came to know each other and exchange even more ideas. Consequently, I have no doubt that participants were able to build strong networks through the interactions over the past five days.

Because of all what I have just mentioned, I would like to rate this Metropolis Mobility Week as having been successful indeed.

In addition, the knowledge and know-how disseminated over the past week will help placing a corner stone to our transportation systems for the sake of the citizens.

Finally, I want to add that there are still a lot of unresolved issues concerning the financing of urban mobility as revealed by the case studies and presentations. Therefore, these unresolved issues should be addressed in the next meetings, which will be searching for new solutions.

I really appreciate that participants from cities from all over the world have travelled long distances to join the meeting despite their busy schedules.

Also I should express my sincere thanks to the organisation teams of Berlin and Seoul. Especially, I would like to express my gratitude for the organisational leadership of Ms. Ingeborg Junge-Reyer and Mr. Amara Ouergi. Without their dedicated efforts the success of this meeting would not have been achieved.

I hope all of you have a save trip home with a good memory of Seoul.
Part VI: Meeting Evaluation

In order to find out in how far the joint meeting of the Metropolis Commissions 4 and 2 succeeded in fulfilling the participants’ expectations, a brief questionnaire was sent out to the participants in the aftermath of the conference.

The questionnaire consisted of 10 multiple choice questions that aimed at getting an overall impression of the participants perception on both contents and organisation of the conference.

Seven questionnaires were returned, out of which the following results were derived.

Figure 1 establishes that speeches and presentations as well as the quality of facilities and the discussions were well perceived. In addition, participants were asked how much they learned during the meeting on a scale from 1 (nothing) to 10 (very much). Six of the returned surveys stated they learned a lot (8 and 9 respectively on the mentioned scale), while one participant said he had learned a bit (4 on the scale).

Apart from the multiple choice, there had also been some open questions. The following compiles the questions and the answers given:

**What did you like best about the meeting?**
- Presentations and observation tours
- The programme, quality of presentations and especially all of the case studies
- Meeting others; export and exchange of ideas
- Discussions and Q&A rounds
- The diversity of presentations and opinions
- Case study presentation
- Good organisation

**What did you like least about the conference?**
- Only few financing organisations were present
- Limitation to visit some sections of the city
- Interpretation only for French, English and Spanish

**Do you have any additional comments and/or recommendations?**
- Duration was a bit long; maybe shorten to 2-3 days
- Only few European cities participated.