



Better mobility for people worldwide

Making tomorrow today

Mapping the progress in sustainable development in the public transport sector 2005-07



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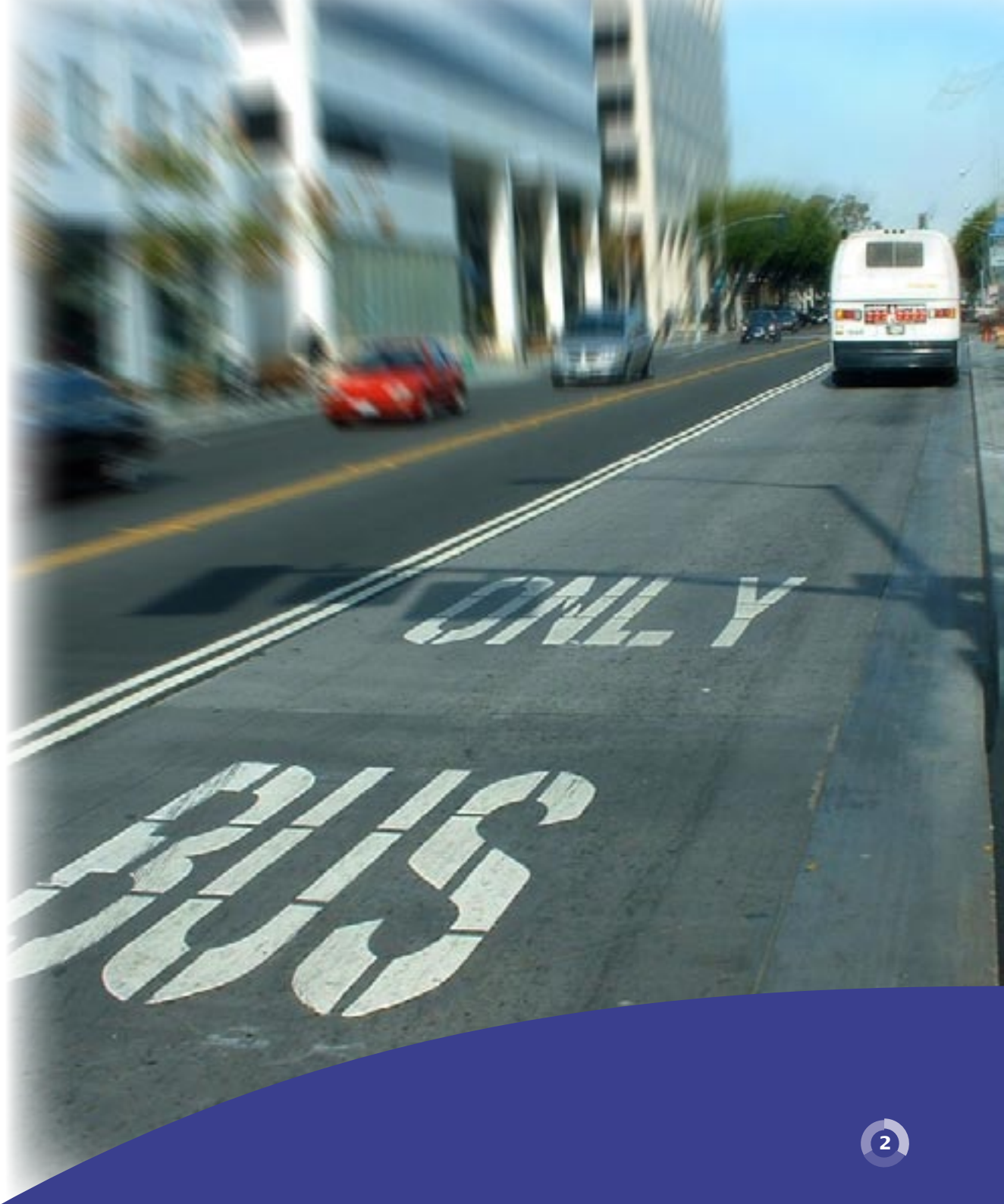
Complete information on charter signatories
can be found on the UITP web sites and more
detailed information on the case studies can be
found on the UITP electronic database Mobi+.

Information on how to access this is available on
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List of charter signatories

Full Signatories

- Alcan Inc.
- Alstom Transport, France
- AnsaldoBreda S.p.A., Italy
- ATAC – Agenzia per I Trasporti Autoferrotramviari del Comune di Roma
- ATCM – Azienda Trasporti Collettivi e Mobilita, Modena, Italy
- ATM, Azienda Trasporti Milanese SPA, Italy
- Azienda Perugina della Mobilità, APM, Italy
- Berliner Verkehrsbetriebe (BVG), Berlin, Germany
- Bombardier Transportation, Germany
- Bovis Lend Lease, Australia
- BSAG Bremer Strassenbahn AG, Germany
- Communauté Urbaine de Nantes, France
- Compagnia Trasporti Pubblici, Napoli, Italy
- Dresdner Verkehrsbetriebe, Germany
- Electricité de France (EDF), France
- FirstGroup plc, UK
- GMPT - Greater Manchester Passenger Transport Executive, UK
- Hamburger Hochbahn, Germany
- HTM Personenvervoer N.V., The Hague, The Netherlands
- Keolis, France
- Knorr-Bremse, Germany
- KVB – Kölner Verkehrs-Betriebe, Germany
- Land Transport Authority (LTA), Singapore
- Leipziger Verkehrsbetriebe, Germany
- Merseytravel, Liverpool UK
- Metro Bilbao, Spain
- Metro de Lisboa, Portugal
- Metro West Yorkshire Passenger Transport Executive (WYPTE), UK

- MTA New York City Transit, USA
- MTR – Mass Transit Railway Corporation, Hong Kong
- Münchner Verkehrsgesellschaft MVG, Germany
- Oslo Sporveien, Norway
- Parsons Brinckerhoff, Australia
- Parsons Brinckerhoff, (Headquarters USA)
- Provincie Gelderland, Arnhem, The Netherlands
- Provincie Noord Brabant, The Netherlands
- Queensland Rail (QR), Australia
- RATP, Régie Autonome des Transports Parisiens, France
- Rheinische Bahngesellschaft AG, Germany
- Siemens Transportation Systems, Germany
- Stadtwerke Augsburg, Germany
- Stadtwerke München GmbH, Germany
- STIB, Société des Transports Intercommunaux de Bruxelles, Belgium
- TMB- Transports Metropolitans de Barcelona, Spain
- The Kowloon Motor Bus Co., (1933) Ltd. KMB, Hong Kong
- Transdev, France
- Transport for London, UK
- Transports Publics Genevois, Switzerland
- üstra Hannoversche Verkehrsbetriebe AG, Germany
- Veolia Transport, France
- Verkehrs-Aktiengesellschaft (VAG), Germany
- Yarra Trams, Melbourne, Australia
- YTV Helsinki Metropolitan Area Council, Finland

Pledge Signatories

- Aare Seeland Mobil AG, Switzerland
- ACFT, Ferrara, Italy
- Action Authority, Canberra, Australia

- Agence Métropolitaine de transport, AMT, Canada
- Azienda Napoletana Mobilità, ANM, Italy
- Brisbane Transport, Australia
- Bristol Electric Railbus, UK
- Companhia Carris de ferro de Lisboa, Portugal
- Companhia do Metropolitano de Sao Paulo, Brazil
- Consorcio Transportes de Madrid, Spain
- Denkstatt Umweltberatung und Management GmbH, Austria
- Departamento de Movilidad del Ayuntamiento de San Sebastián, Spain
- Dublin Bus, Ireland
- Ferrocarrils de la Generalitat de Catalunya, Spain
- Ferrocarrils de la Generalitat de Valenciana, Spain
- Hampton Roads Transit, USA
- Helsingin Kaupungin Liikennelaitos - Helsinki City Transport HKL, Finland
- Istanbul Ulasim A.S., Turkey
- Jönköpings Länstrafik AB, Sweden
- Lancashire County Council, UK
- Lohr Industrie, France
- Met.Ro, Italy
- Metro de Madrid, Spain
- Metro de Santiago, Chile
- Metro Mondego, Coimbra, Portugal
- Metrô Rio, Brazil
- Metrorex, Bucarest, Romania
- Mosgortrans State Unitarian Enterprise, Russia
- Moskovsky Metropoliten, Russia
- Nexus, Newcastle, UK
- PostAuto Schweiz AG, Switzerland
- Queensland Transport, Australia
- Regionalverkehr Bern-Solothurn, Switzerland
- Seoul Metropolitan Government, Korea
- Scheidt & Bachmann, Germany
- SÉMITAG, Grenoble, France

- Skybus Super Shuttle, Australia
- Société des Transports Abidjanais (SOTRA), Côte d'Ivoire
- Société de transport de Montréal (STM), Montréal, Canada
- Stadtbahn Saar GmbH, Germany
- Stuttgarter Strassenbahnen AG, Germany
- Syndicat mixte des transports en commun clermontois, France
- SYTRAL, Lyon, France
- TEC Liège-Verviers (TEC), Belgium
- Trambus, Italy
- Transport de l'agglomération de Montpellier, France
- Transpole - Transport en Commun de la Métropole Lilloise, France
- Utah Transit Authority, USA
- Verkehrsbetriebe Karlsruhe GmbH, Germany
- Verkehrsverbund Ost-Region GmbH, Vienna, Austria
- Vossloh Kiepe GmbH, Germany
- VVM De Lijn, Belgium
- Yapi Merkezi, Turkey
- Wiener Linien, Vienna, Austria

Association Signatories

- ANTP, Brazilian Public Transport Association
- APTA, American Public Transit Association
- ASSTRA, Italian Public Transport Association
- Bus Association of Victoria, Australia
- CUTA, Canadian Urban Transit Association
- SLTF, Swedish Public Transport Association
- UATP, Union Africaine des Transports Publics, Côte d'Ivoire
- UNIFE, European Rail Supply Industry Association
- URTP, Romanian Public Transport Association
- UTP, Union des Transports Publics et Ferroviaires, France
- VDV, Verband Deutscher Verkehrsunternehmen, Germany



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1. Introduction

UITP¹ launched its Sustainable Development Charter in 2003 after taking part in the World Summit on Sustainable Development in Johannesburg. The concept of sustainable development and the term itself was first coined in the Report of the Brundtland Commission, [Our Common Future](#), published in 1987 prepared for the Earth Summit (United Nations Conference on Environment and Development (UNCED)) held in Rio de Janeiro, Brazil, in June 1992. Agenda 21 was adopted there by more than 178 Governments², UN organisations and major groups in every area in which human impact on the environment.

<http://www.un.org/esa/sustdev/documents/agenda21/index.htm>

¹ UITP is the international association of public transport (www.uitp.org) with 2 900 members in 90 countries. It represents public and private operators of all modes of public transport, organising authorities, the service and supply industry, and academics and research institutes.

² The implementation of Agenda 21 was intended to involve action at international, national, regional and local levels. Some national and state governments have legislated or advised that local authorities take steps to implement the plan locally. Such programmes are often known as 'Local Agenda 21' or 'LA21'. The number 21 refers to the 21st century.

³ UNHABITAT

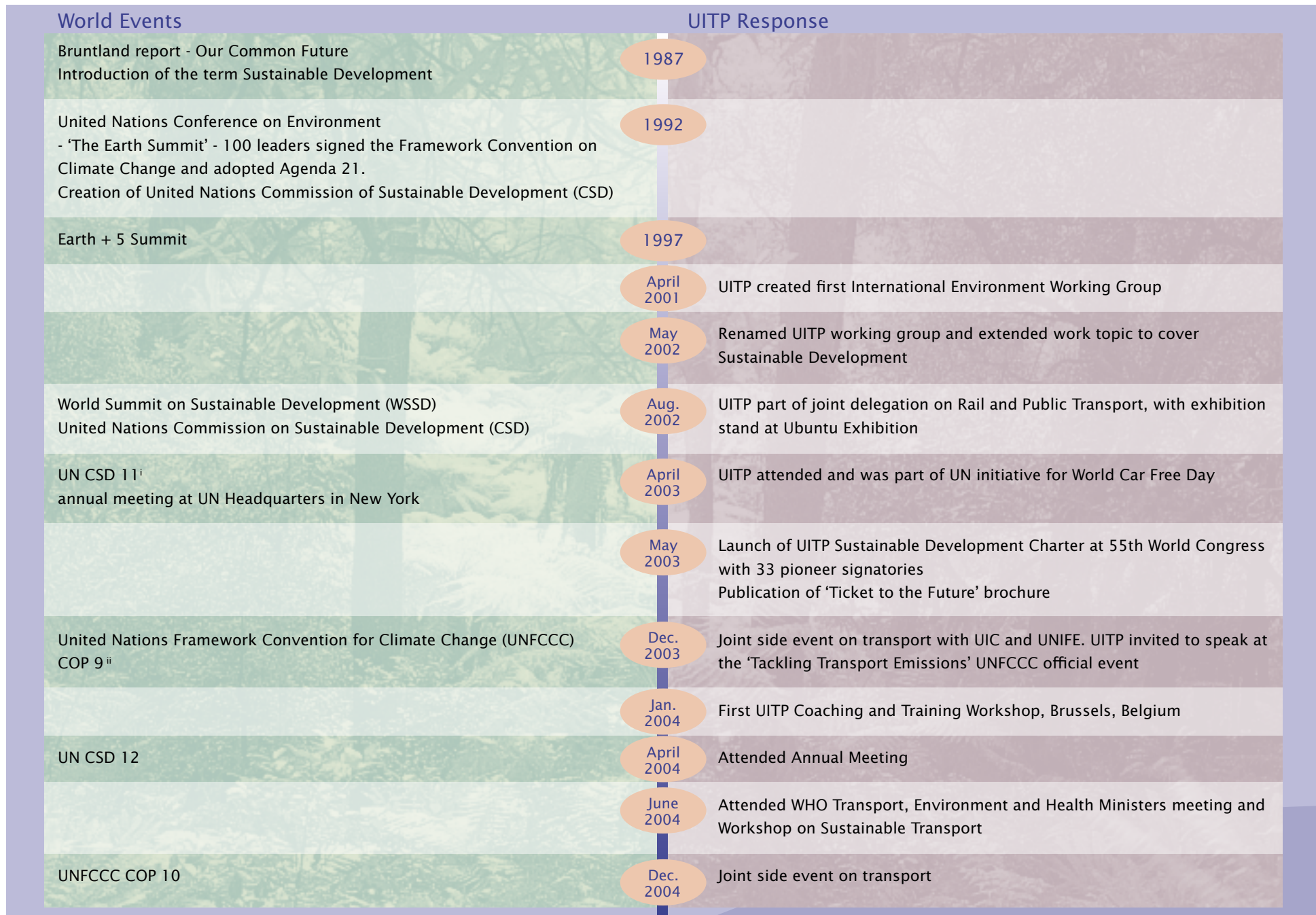
Natural capital and its derived goods and services are the preconditions or the basis for economic development. It is not possible for human ingenuity to create 'human-made' capital without the support of this natural capital and furthermore, it is not possible to approach sustainability by only focusing on the interdependence of two of these factors. A third dimension is required, one that could be called *cultural capital*; and these three types of capital are strongly interrelated, forming the basis for guiding society towards sustainability.

We are quite possibly at a pivotal point in our history. As human population increases and become more urban, consumption levels of the Earth's natural resources have reached unprecedented levels.

2007 saw us reach the tipping point when more people now live in cities than in rural areas³.

Since 2002 and the World Summit of Sustainable Development, there has been an accelerated awareness and acceptance that our present way of life is unsustainable and that we need to make far reaching life style changes. In addition, all types of pollution are at their highest; overloading natural ecosystems, depleting resources further and having very tangible negative impacts on human health.

The journey of sustainable development



ⁱ CSD Commission of Sustainable Development
ⁱⁱ COP Conference of the Parties

ONGOING

World Events

UITP Response

	Jan. 2005	2 nd Coaching and Training workshop for Charter Signatories
Signed a Memorandum of Understanding with United Nations Environment Programme on World Environment Day	June 2005	Published 'Bringing Quality to Life' report on public transport's contribution to sustainable development
	July 2005	UITP President met with Joanne diSano, Director of the Division of Sustainable Development, UNDESA (Department of Economic and Social Affairs – the secretariat for the Commission on Sustainable Development)
	Oct. 2005	1 st Meeting of UITP's newly formed Sustainable Development Commission
UITP stand at the UNEP Global Forum for Ministers of the Environment (GMEP) attended by Kofi Annan, Dubai, UAE	Jan. 2006	
Joint workshop with World Bank, United Nations Development Programme (UNDP) & International Institute for Energy Conservation (IIEC), New Delhi, India		
UN Commission of Sustainable Development meeting CSD 14	May 2006	Joint UNEP /UITP side event on energy with Phillippe Attey, UITP Vice President
	Sept. 2006	Special session on sustainable development at Africities Congress, Nairobi with UATP First signatories to the charter from Africa Meeting of the UITP Secretary General with Achim Steiner, Executive Director of UNEP, Nairobi
	Oct. 2006	1 st UITP Study Tour visiting 5 leading cities and 1 st UITP Conference on Sustainable Development 'Sustainable Cities and public transport – Bringing Quality to Life, Bilbao, Spain
UNFCCC annual meeting	Dec. 2006	Joint UITP/UIC/ UNIFE side event to present UITP's official position on climate change
February 2, 2007, the Intergovernmental Panel on Climate Change (IPCC) released a summary of the current science of climate change. The summary, directed at policymakers, is based on six years of review of scientific literature by experts from around the world. The report calls the evidence of climate warming "unequivocal" and that human activities have caused most of the changes observed in the past 50 years.	Feb. 2007	
CSD 15	April 2007	Progress meeting on UITP/UNEP MOU between UITP Secretary General and Sylvie Lemmet, Director of UNEP, DTIE
	May 2007	Publication of progress report 'Making tomorrow today'

ONGOING

Nature can usually keep up with the demands of human economic activity as long as this activity stays within the regenerative capacity of the biosphere: the living part of the planet. Ecological footprint accounting measures the extent to which the ecological demand of human economies stays within or exceeds the planet's capacity to supply goods and services. These accounts help individuals, organisations, and governments to frame policies, to set targets, and to track progress towards sustainability.

The ecological footprint measures how much land area is required to sustain a given population at present levels of consumption, technological development and resource efficiency, and is expressed in global-average hectares (gha). The largest component elements of Footprint are the land used to grow food, trees and biofuels, areas of ocean used for fishing, and - most importantly - the land required to support the plant life needed to absorb and sequester CO₂ emissions from fossil fuels.

Our ecological 'footprint' is now well over what this planet can regenerate so we are already using up our ecological 'capital'.

Personal mobility is a key issue not only for the future but also in today's society. Value is created by people and there is a simple basic need for them to move. It is perfectly clear, however, that our present mobility patterns are unsustainable and it is necessary for us to change. Behaviour must generally shift from individual to more collective forms of transport, creating a huge opportunity for public transport.

UITP's International Advocacy

Public transport itself, in all its forms, must also improve its own performance and become more attractive, environmentally efficient and socially acceptable in order to be able to more fully serve the growing mobility needs of people, from all levels of society and in all corners of the world.

Revolution means change and change, whether economic, organizational or personal, is always a challenge. This can only happen if there is a clear vision of the future, a sound understanding of the first steps to take and the inspiration to take them. In the past few years, UITP has strongly promoted the sustainable benefits of public transport to increase the awareness and understanding in the international business and policy arena.

The input from the charter signatories has been vital in this aspect and by using up-to-date examples from them, the image of public transport as a dynamic, modern and responsible business sector has been improved in a wider audience beyond those directly responsible for transport either on a national or local level.

UITP has also engaged with other organisations in several regions of the world to co-host joint events or conferences to help increase the awareness of sustainable development and public transport; and give support to signatories, unable to come to Europe for other events. Building this foundation with key players globally – major businesses and national, state and city governments – helps to create a better understanding of the potential of public transport in today's economies. UITP's members bring current state-of-the-art organisational and operational expertise to this debate, UITP is able to use this to bring public transport to the attention of other international organisations. For example concrete actions and transport expertise has been put behind the 'Memorandum of Understanding' signed in June 2005 with the United Nations Environment Programme (other MOU's are in preparation).



Three types of capital

<http://www.footprintnetwork.org/>

List of activities:

Joint Workshop with GTZ, Bangkok, October 2005
Joint Workshop with IEEC, New Delhi February 2005
Joint UNEP side event at CSD 14, April New York 2006
Joint UATP/PDU session at Africities, Nairobi, September 2006
Joint UIC/UNIFE workshop at UNFCCC conference in December 2006 to present the UITP Climate Change position
Joint GTZ/CAF workshop Guayaquil, March 2007

All presentations are available on Mobi+, UITP's E-Library.
For more information, please contact the Information Centre
(thierry.marechal@uitp.org; gaelle.nevens@uitp.org)



Best Practices One Planet Business

One Planet Business

WWF-UK has collated a global evidence base to measure

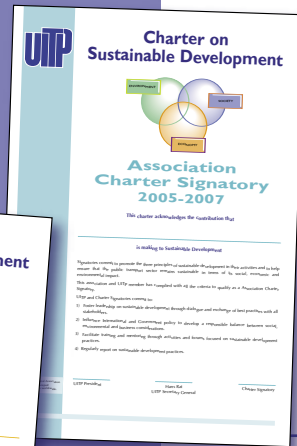
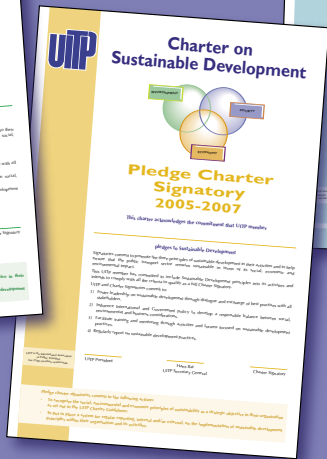
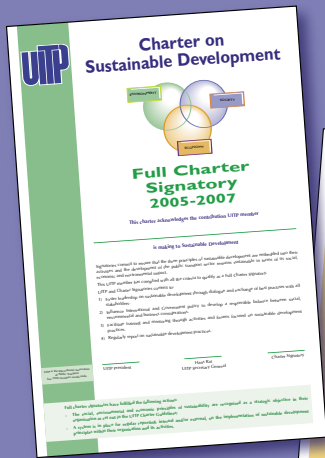
- the aggregated global impact of human consumption
- the impacts associated with underlying human demands
- the industries and value chains that meet these demands
- the impacts of individual companies to meet these demands

The undeniable conclusion of this research is that to avoid ecological catastrophe, business and its stakeholders must find ways to meet human demand within the limits of the one planet. This is particularly true for three areas of demand that place the most strain on the Earth: housing, transport and food which together account for 72% of the world's material use and 65% of total CO₂ emissions.

UITP is collaborating with WWF on the stakeholder discussions of their personal mobility project for One Planet Business.

www.wwf.org.uk/oneplanetbusiness





⁴ Public transport is the public offer of transport services by either publicly organised enterprises or privately run businesses in the area surrounding an urban area. It does not include air travel, intercity rail or coach services nor taxis. It does include all modes of transport (rail, bus, ferry) as well as car sharing. More full description of what public transport is according to the CEN (European committee of standardization).

[More - Full description](#)

⁵ Ticket to the Future – three stops to sustainable mobility was the first report and set out the pathway towards sustainable consumption and production of public transport.

2. The UITP Sustainable Development Charter

UITP Charter on Sustainable Development

By signing the UITP Charter on Sustainable Development organizations commit to:

1. Foster leadership on sustainable development through dialogue and exchange of best practice with stakeholders.
2. Influence international and government policy to support public transport and develop a responsible balance between social, environmental and business considerations.
3. Facilitate training and mentoring through activities focused on sustainable development practices.
4. Report regularly on sustainable development practices.

www.uitp.org

An international commitment

The charter is a voluntary, measurable commitment to monitor and report on an organisation's performance in economic, social and environmental terms. This charter can only be signed by UITP members (some 2900 mobility actors world-wide) who are willing to engage actively in the programme. There are three main types of signatory: Full, Pledge and Association. Signatories must demonstrate their commitment to sustainable development, have policies and measures in place and also show that they are reporting on the three pillars of sustainability; pledge signatories commit to putting this in place within a reasonable time frame and association signatories work with UITP via events and workshops to increase the awareness in their regions on this topic.

From an initial group of 33 pioneer signatory to the charter, there are now over 120 signatories to the charter, from all types of organisations active in providing public transport services ⁴ from all over the world.

This is the first progress report on the commitment of the sector and the organisations that have signed the charter, and it is illustrated with examples and best practises. It complements the report published in 2005 entitled 'Bringing Quality to Life'⁵ which focussed on the processes and management of sustainable development and the first report 'Ticket to the Future; three stops to sustainable mobility (2003).




Making tomorrow today – mapping the progress in sustainable development of the public transport sector - builds on the 2005 report entitled 'Bringing Quality to Life'; illustrated with examples from 55 signatories (also available on this CD-ROM) and the first report 'Ticket to the Future: three stops to sustainable mobility' (2003) with their executive summaries.

This report, available on CD-ROM only, has been prepared as a tool box for those public transport actors wanting to deepen their knowledge and understanding about what it means to implement sustainable development in an organisation; and it is illustrated by best practices and examples from the present list of charter signatories (April 2007).

The information in this report is complemented with fact sheets and state-of-the-art thinking on certain topics such as climate change, energy and social inclusion with examples of best practices from our charter signatories.

We have also endeavoured to make it a dynamic document that will be updated electronically via the hyperlinks and UITP web site periodically during the next two years.

Bringing Quality to Life 

Ticket to the Future; three stops to sustainable mobility 



3. Definition of Sustainable Development

After four years of work with many different organisations the following definition has been accepted by charter signatories:

- Making decisions that take into account their impact in terms of:
 - Social Justice
 - Environmental Protection
 - Economic Sense

- Sustainable development is how you plan for the future while operating in the now.



4. Addressing Today's Global Challenges

Climate change

Mobility is liberating and it is empowering but it is also possible to have too much of a good thing. The enormous growth in mobility and transport over the past 150 years or so has led to levels of Carbon Dioxide (CO₂) that have never been experienced before.

The next five years will prove decisive for the world's climate. It's a small window of opportunity in which we need nothing less than a revolution: the world must begin to halt the rise in greenhouse gas emissions and move towards new ways of generating and using energy. Addressing personal mobility must be firmly on the political agenda. Concern over climate change has increased significantly in recent months.

New reports have highlighted the risks and economic costs of climate change, prompting many jurisdictions to re-set greenhouse gas emission reduction targets and become more active in developing more robust emission reduction plans.

The growing awareness of the risks of climate change has been fuelled by the unanimous acceptance by the scientific community that human activity is affecting the climate at the recent IPCC meeting held in Spring 2007. As Carbon Dioxide stays in the atmosphere for about 150 years, the present levels of CO₂ can no longer be ignored and the problem needs immediate attention. Greenhouse Gas (GHG)⁶ emissions from transport are growing faster than any other sector, offsetting these efforts and improvements.

These efforts can no longer remain entirely the realm of governments and international protocols, but must trickle individual responsibility and decision making. Historically, we have turned to technology to provide the answer but despite efficiencies and improvements this has had little effect and thirty years has been lost without any real progress. Innovative thinking is now required to identify the best transportation emission reduction strategies.

The UK government states that 44% of carbon emissions⁷ come from household decisions about transport buildings and electricity use/supply. Therefore a concerted raft of actions from everyone is required to reduce CO₂ in all areas and by taking more informed decisions.

⁶ GHG- there are 7 Greenhouse gases as defined by the UNFCCC of which carbon dioxide is the one that emitted most by transport

Methane is also a GHG and this may also spur increased interest in the production of bio methane and bio gas for transport purposes in the future.

⁷ BBC Radio interview April 2007 with a Member of Parliament (Conservative)

The argument that environmental protection is too expensive has been seriously challenged recently. Firstly in the recent Stern Report (Jan. 2007), commissioned by the UK government. It says that climate change, if left unchecked, will cost between 5% and 20% of worldwide GDP. Yet it would cost just 1% of GDP to correct according to the report. Another report by PricewaterhouseCoopers in September 2006 came to a similar conclusion. The International Energy Agency, a sister body of the OECD, in its latest World Energy Outlook, also warns of the dangers of following our current energy path and considers different policy scenarios. (www.iea.org) Finally, the scientific community at the IPCC meeting in February 2007 agreed unequivocally that the present levels of CO₂ in the atmosphere were mainly due to human activity and were having an adverse effect on the climate.

The transportation sector is the largest consumer of petroleum in the United States of America – accounting for 70 percent of America’s petroleum consumption – and about one-third of American greenhouse gas (GHG) emissions. In an ICF International report entitled Public Transportation and Petroleum Savings in the U.S.: Reducing Dependence on Foreign Oil, it calculates that public transportation today reduces petroleum consumption by a total of 1.4 billion gallons (5.3 billion litre) of gasoline each year. Clean technologies for transport show a lot of promise, but before they can become mainstream the potential of modal shift in reducing levels of CO₂ needs to be more explored fully. Here public transport services, cycling and walking all have a role to play in reducing the number of car trips and increasing the efficiency of collective transport.

All fossil fuels (including CNG) emit carbon dioxide when converted into energy. Rail based systems are the lowest emitters and depend on the supply of electricity, and there are now several metro and light rail systems that are run on electricity from renewable sources.

The greatest gains are undoubtedly to be found in increasing the efficiency of all types of transport. However it will take a while for these to become widespread enough to make a difference and policies and measures to encourage modal shift to more energy efficient public transport can bridge the gap.

The time for concerted action

The following measures all reduce CO₂ emissions from transport.

1. Measures to reduce traffic as the number of motorized trips world-wide is growing faster than improvements in energy efficiency;
2. Technical improvements to increase vehicle energy efficiency, environmental performance through eco-procurement and alternative fuels;
3. Optimal choice of transport for that trip by all citizens including choosing a non motorized mode such as walking or cycling for short distances;
4. Maximizing efficiency for each mode per vehicle/ km;
5. Reduce total journey distances and total number of trips (cutting out unnecessary trips);
6. More energy efficient mobility behaviour and eco driving training.



UITP position on Climate Change



UITP Toolkit



[American Public Transport Association \(APTA\) Energy position](#)

[Global warming mitigation facts – average amounts of CO₂ emitted](#)

[Greenhouse gas protocol](#) (presented at the 1st meeting of the Sustainable Development Commission, Paris, Autumn 2005)

[Eco-driving fact sheet](#)

[Cities for Climate Protection](#)



Stockholm city – on its way to becoming fossil fuel free by 2050 and all public transport in Stockholm City today is already 100% powered by renewable energy. This will be done with a combination of ‘push and pull’ policies and measures focussing on heating (buildings) and transport. The national target of 4 tonnes of CO₂ per capita has already been achieved in Stockholm (3.9 tonnes in 2005) (Provided by SLTF – the Swedish Public transport association)

[Presentation](#)



TPG the Transport publics genevois, Geneva, Switzerland UNIRESO – ‘abonnement Chorophylle’ introduced a 3 month ticket (June to Sept) at basic price of 190 CHF. It was launched to support the region and its plan Ozone with a concrete offer and to create an event around a product. Transport services provided by TPG (Transport Publics Genevois) Geneva, Switzerland represent 0.35% of the total consumption of diesel and 0.047% of CO₂ emissions from all sectors in Switzerland. Small improvements in performance and running at capacity, when it means other motorized trips have not been taken all help.



Transport for London, UK. London emits about 42 million tonnes of carbon dioxide each year. The transport sector, excluding an allocation of emissions from aviation, accounts for about 20 percent of this or about 10 million tonnes. Road transport - in one form or another - is responsible for about 80 percent of CO₂ emissions. Car use in London emits almost 5 million

tonnes of carbon dioxide each year and freight is responsible for a further two and a half million tonnes. Public transport provides 9 million trips daily produces only about 2 million tonnes of CO₂ and the split of this is relatively evenly spread between buses, the Underground, heavy rail services and taxis.

In February 2007 the Mayor of London launched a Climate Change Action Plan setting a target of a 60% reduction in total CO₂ emissions by 2025. This means ground based transport would have to emit 7.1 million tonnes less CO₂ per annum by 2025.

Since TfL was formed in 2000, there has been a modal shift of four percent from car usage to public transport, walking and cycling saving around 400,000 car journeys per day, and an estimated 145,000 tonnes of CO₂ emissions per year.

In 2003 a central London Congestion Charging zone was created and alongside significant improvements in public transport reduced congestion by 22% and CO₂ emissions by 16% (between 2002 and 2003) within the zone. Please see TfL’s “Congestion Charging Fourth Annual Monitoring Report, June 2006”.

<http://www.tfl.gov.uk/assets/downloads/corporate/FourthAnnualReportFinal.pdf>

In February 2007, the zone was extended west of Central London. Initial monitoring shows that congestion has fallen 13 percent during charging hours in the first month. A more detailed analysis will be available in June 2007 in the Congestion Charging 5th Annual Monitoring Report.

[Bilbao Conference presentation](#)

<http://www.tfl.gov.uk>



Münchner Verkehrsgesellschaft (MVG) has started a comprehensive program of mobility management in co-operation with the City of Munich. This includes an information package and a 3-6 months individualised mobility plan for all new residents, mobility management for companies and a number of activities at schools. The aim of all projects is to change behaviour in the short and middle term in favour of non-polluting modes such as walking, cycling and public transport. After a number of pilot projects and their evaluation both in terms of traffic and cost, it has been decided to make these activities permanent. Only the direct effects of the new resident’s project will save some 12.000 tons of CO₂ per annum simply by reducing car traffic by 7%.





Integrating Kyoto Protocol goals into the environmental objectives of **Lisbon Metro**. The National Sustainable Development Strategy (ENDS) for Portugal included, as its 4th aim, the focus on:

- New transport solutions in conurbations to cut congestion and environmental degradation without committing to heavy infrastructure investment;
- technological innovation - in motorisation and fuel, and
- new organizational solutions in the use of collective transport.”

The summary report calls for an overall 24 to 27,000,000 tonnes CO₂e (carbon-dioxide equivalent) reduction in the Portuguese transport sector (from 1990-2010). This will require a reduction of energy intensity of passenger public transport and a modal shift from individual to collective transport within the Lisbon Metropolitan Area. It is explicitly stated in the report, 20,000 tonnes CO₂e reduction between 2008 and 2010 (some 1% of global necessary reduction in the transport sector forecasted for the twenty years, 1990-2010) will be secured only by the present ML network extensions planned to open by 2008.

The Global Energy Situation

Energy is the heartbeat of growth and development. Most of our present energy is vulnerable, highly polluting and we do not pay a fair price for it. The end of the oil age may not be here but the end of cheap oil probably is. In the next 25 years over 70% of new energy demand will come from developing countries, with a third of that coming from China. Despite this economic activity in developed countries will remain a major source of emissions.

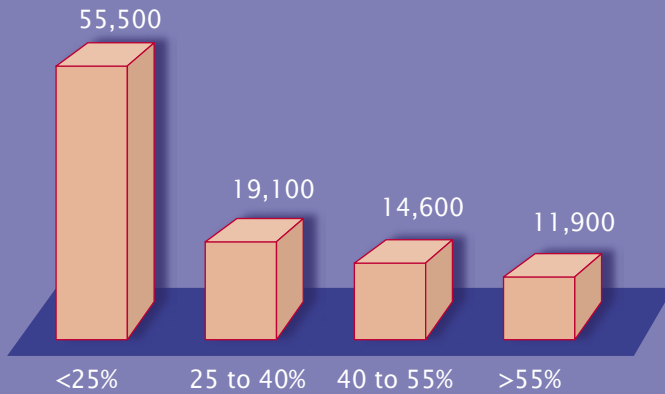
Energy has moved to the top of policy agendas, and with good reason. First, there is the price of oil, which has fallen a little recently, remains historically high. This has pushed up costs for producers and consumers alike. Demand for all energy is rising so devising new energy strategies will demand international co-operation and the introduction of attractive incentives to change our present energy choices.

EU transport emissions went up by 32% between 1990 and 2004 while all other sectors of the EU economy reduced theirs; and by 2020 the EU will have to import 86% of its oil. At the present levels transport guzzles 71% of EU oil and rising. It is easy to blame China and India when the real problem is probably much closer to our own doorstep.

The global energy situation is quite vulnerable and the issue of security of supply should not be neglected, as conflicts and geopolitical uncertainties threaten oil and gas flows in particular. But the stakes are high to move away from oil and fossil fuel, as more than 25% of GDP in 25 countries world-wide come from oil.⁸ UITP produced its Millennium Cities Database in 2001 looking at mobility data in 100 cities world-wide. This has now been updated and complemented with in depth information on 120 urban mobility indicators collected in 50 cities worldwide. These indicators included information on urban mobility policies for metropolitan areas, with comparisons between 1995 and 2001.

⁸ TT30 – Club of Rome Think Tank

Energy Consumption⁹ for Transport (MJ/ person/year) vs Modal Share of Public Transport, Walking and Cycling



Source: UITP Mobility in Cities

In those 50 cities, energy consumption per person is lower in dense cities with a higher modal share of walking, cycling and public transport. Cities with a high modal share of public transport and cities relying mainly on the private car use 500 to 600 litres of petrol per inhabitant per year less than cities where the majority of trips are made by car. This means that the cost of transport per household is less, making mobility more available to all.

Most buses or rail cars bought today will still be in use in 2020, therefore the public transport sector must also take its responsibility for devising new energy strategies. Fortunately, the technologies to make energy smarter, cleaner and more cost-effective are already available, and are becoming more affordable. The choice of energy used for public transport has two direct impacts – on a local level in terms of

Nitrous oxides, hydrocarbons and particulate matter (with PM¹⁰ and the even smaller PM^{2.5} being the most dangerous for human health as they get deep into the respiratory channels and cause the most problems). Energy choices also has an impact on CO₂ emissions and therefore long-term on the climate.

Each type of energy has its positive benefits and its negative side. Electric energy is the cleanest in operations (for light rail, tram and trains) but the indirect emissions depend entirely on the national production of electricity, which is not in the hands of the transport sector.

⁹ Energy consumption for transport includes public and private modes. Electricity consumption is counted at source.





EDF, Électricité de France, UITP member is supporting electric transport options, particularly from renewable sources. There are now 60 electric buses in operation in France with a further 15 coming in service (2007). There are other ways to stimulate the market for electricity from renewable sources – such as the light rail network in Calgary, Canada (see best practice). BVG in Berlin and some other networks are employ an ‘energy broker’ to help them maximize the options both for buying all types of energy at an affordable price but also sometimes to sell to others and benefit from windfall gains.



Azienda Trasporti Milanese SpA, Italy in spite of the continual increase in related costs, has chosen clean electric power as their main source of energy for their services. In 2005 65% of total kilometres were covered using electrically -powered vehicles. ATM has begun to implement a series of controls on suppliers and their working procedures by inserting special contractual clauses and performing audits to check that the relative work processes comply with environmental legislation in purchasing electricity. Not all services can be run on electric traction in Milan and buses are a fundamental part of the network. ATM began to renew its urban fleet in 1997 and has now replaced all old generation vehicles (EURO 0). Today it has the youngest urban fleet in Italy with an average age of 4.3 years. In 2005 455 vehicles complying with EURO 3 standards, fitted with CRT filters for treating exhaust gases that reduce pollution emissions levels to EEV standard.

At the end of 2005 approximately 1000 buses were using emulsified and sulphur free diesel oil (576 of which were also fitted with CRT filters) while the rest of the fleet is powered by sulphur free diesel. In the field of the company’s research development and innovation activities the INTELLIBUS diagnostic system will be extended both to newly purchased vehicles and to the existing ones. This system monitors the main operating parameters of buses in real time in order to improve performances, also as regards limiting polluting emissions. Trolley bus: Milan ha a “traditional” trolley bus network with 48 vehicles: ten Cristalis trolleybus featuring a new concept and an innovative design have been delivered and a 24 months programme has been launched to replace the current trolleybus points in order to adapt them to changing traffic conditions.

Diesel is, of course, the cheapest type of fuel at present for transport purposes and will remain the workhorse of the industry in the foreseeable future. There are now improvements in making diesel cleaner such as low and ultra low sulphur content diesel as well as proven technology of mixing additives.

CNG (compressed natural gas) has proved to be a good compromise, particularly to reduce local pollution. However vehicles are slightly higher in capital costs (average + 15%), operational (fuel consumption if drivers are not properly trained and maintenance) and distribution costs (costs of fuelling stations) with CNG.

CNG is already a well established fuel for bus use outside of Europe.

Natural gas buses world-wide (outside Europe)

Country	Buses
Austratia	870
Bangladesh	1.023
China	32.369
Egypt	5.367
India	12.000
Iran	2.494
Japan	1.242
Korea	11.40
Malaysia	38
Philippines	25
Singapore	12
Taiwan	4
Thailand	140
Total	66.708



Beijing, China



Argentina



CNG Bus, India



Iran

Source: ENGVA, 2004 presented at the 4th Sustainable Development Coaching and Training Workshop




- Environmental Policies and performances in 26 EU cities including transport activities
http://www.ambienteitalia.it/chisiamo_eng/

pdf

- Results of the UITP bus questionnaire (March 2007)

- UITP Position paper on Fuel Choices (December 2006) 

- Article PTI 06/2006 

- UITP SORT – Standardised On Road Test Measurements for Fuel Consumption 

- UITP is a partner in the Starbus project (EU) – a software tool that calculates all emissions in real conditions for all types of energy used in bus operations. www.starbus-project.eu





Diesel improvements and diesel-electric hybrids are proving to be robust, affordable and efficient option

Hybrids are now in service in many cities overcoming earlier technical problems; **New York City Transit** has possibly the largest diesel-electric hybrid bus fleet in the world with 428 (with more to be delivered in 2007)¹⁰ out of the total bus fleet, some 4117 buses. A ‘clean-up’ programme started in 1996. 2 800 buses were retrofitted with particulate filters, 900 new diesel buses were ordered and ultra low sulphur diesel introduced. Older buses were either repowered or retired. In 1998 10 hybrid diesel electric (Orion) buses were put into service to pilot the technology. A series hybrid is used providing optimal fuel efficiency in ‘stop and go’ dense urban traffic. Reliability is now stable and higher than for conventional diesel buses. Reduced wear (brakes) and maintenance (transmission) costs have also been measured. On average a 25-30% decrease in pollution levels over conventional diesel of Nox, Particulates, CO and CO₂ despite the heavy duty driving environment. Other benefits include a quieter and more comfortable ride, no special driver training is required and the buses can be used from any depot. Acquisition costs work out at about 150 -175K US\$ more than standard (clean) diesel buses and 125-150 K US\$ higher than CNG buses. These costs are reducing as more hybrids are being put into service (1300 in 50 different transit agencies by end of 2006). As NYCT uses 41.1 Millions of gallons of diesel and 7.2 Millions of gallons of CNG annually any reduction in fuel is of interest. The higher capital costs can be recouped by the 30% fuel savings from the hybrid buses.

¹⁰ Presentation made to UITP Policy Board Autumn 2006 available via Mobi+



Dresden’s DVB **Dresdner Verkehrsbetriebe**, Germany received its first hybrid propulsion buses in November 2006. The bus is based on as Solaris Urbino 18 with a EUR 4 diesel engine and an Allison (USA) hybrid unit. During acceleration the two electric motors assist the diesel engine and when the bus brakes the electric motors turn into generators and charge the battery located on top of the roof.



Trolley buses

There are more than 100 well established trolleybus networks in Europe 27 (plus Switzerland) such as in Geneva (TPG) and Naples. ATCM Azienda Trasporti Collettivi e Mobilità – S.p.A, Modena, Italy has chosen to operate CNG and Trolley buses.

UITP Trolley bus working group
www.uitp.org



Ethanol use

SL, Stockholm has been using ethanol for buses for several years. Biofuel is already being used in national distribution in Sweden for cars so it is a natural extension to use ethanol and biogas to power the bus system in Stockholm. Costs and consumption are slightly higher but there are clear gains in terms of air quality and CO₂ emissions (if the production of the ethanol has been done in a sustainable fashion). An ethanol engine with catalyst and EGR filter fulfils EURO V standard and engine tests by Scania and MTC in Stockholm show:

	Nox	CO	HC	PM
ESC (European Steady Cycle)	-28%	-80%	-50%	-60%

Total addition costs for ethanol buses work out at about 11 000 – 12 000 € (100 000 SEK) corresponding to a 3-4% increase in total operating costs. The present challenges for this technology is to standardize ethanol bus fuel and to get more bus manufacturers into the market (at present there is only one – Scania).





New technologies

Lille and Stockholm are leading the way in using biogas from urban waste to power buses. **Transpole - Transport en Commun de la Métropole Lilloise**, France, a Keolis partner, operates public transport in the northern French town of Lille was host to the UITP Sustainable Development Study tour (October 2006). The bus fleet will use biomethane (biogas) from waste organic matter from the city.



A state of the art bus depot for 194 buses has been built just near the biogas treatment plant, which itself has been located on the outskirts of Lille with access by canal (as well as road) so the sludge and organic waste can be brought by barge prior to treatment.



A pilot production unit for biogas has been operational since April 1995 from waste water treatment. In 2007 the main facility will be put into operation to fuel

- 194 gas buses on a total fleet of 338
- New buses corresponding to EEV Label
- Metro + Tramway + Gas Buses means 90% of clean public transport journeys made with clean vehicles

3 more depots are planned based on the success of this project.



CPT, Naples, Italy has installed photovoltaic panels at its Teverola bus depot which provides enough electric energy to run 4 of its methane/electric hybrid buses over a year. The hybrid bus has lower emission rates than EUR 5. Both have been made possible with regional financing as the buses cost 346,000 € (and they were 50% financed) and 75% of the photovoltaic installation was covered (some 457, 000 €). They have also found that water based diesel mix used in their standard buses has resulted in lower local emissions and also reduced the overall use of fuel. These trials are on going.



BVG Berliner Verkehrsbetriebe, is trying different energy types and also employs an 'energy broker' who helps manage and resell energy quotas allocated to BVG. BVG were partners in the European CUTE project to trial hydrogen powered buses with 10 other European cities and now in the Hyfleet project.

[Case study](#)



Combining energies

A combination of fuels such as CNG and electricity make bus and tramway a good option - **Versorgungs- und Verkehrsgesellschaft Saarbrücken, VVS, Germany** has one of the largest CNG bus fleets, is trialling a hybrid series CNG/diesel engine and its modern light rail vehicle 'The Saarbahn' also runs on heavy rail tracks outside the city.

[Case study](#)



Reducing energy from light rail

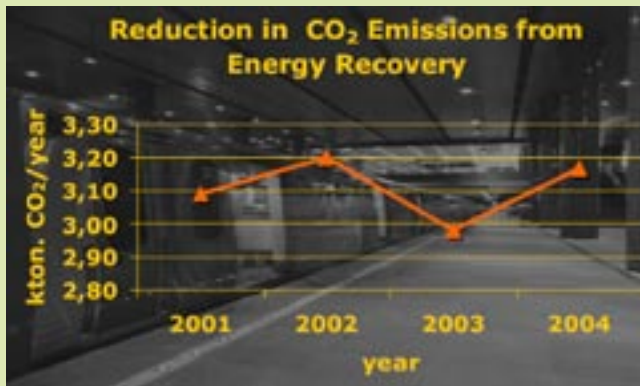
Istanbul Ulasim, (Turkey) the light rail operator's energy efficiency policy has reduced total energy consumption by 5.3% in 2006 bringing a reduction of 17% in energy spend (compared with 2005). A further 5-7% target of reduction in energy for 2007 is planned. Detailed studies of optimized energy use for all the LRT lines have shown gains of 2.5% reduction of traction energy due to paralleling catenary lines. Energy consumption over the whole LRT network has been optimised by reducing maximum speed from 80 KPH to 70-75 kph and introducing a driver assisted system.



Energy is a strong focus for **Metro Rio, Rio de Janeiro, Brazil**- already about 84% of electricity in Brazil is hydro electric power but there is still need to reduce overall consumption. Metro Rio energy action plan includes: replacing lighting to low energy consuming bulbs in tunnels and stations, 3rd rail feeding system, on board flywheel, reducing use of emergency braking, efficient driving techniques. These actions have been supported by an internal awareness raising campaign about saving energy.



Metro Lisbon, Portugal estimates that the global energy recovery rate from recuperating braking energy is around 14%. This also means a reduction of CO₂ emissions.



Ride the Wind in Calgary, Alberta Canada. Calgary Transit is the first transit system in North America to power a light rail system of 100 cars by wind generated electricity. This programme was developed in partnership with Vision Quest Windelectric an Enmax making the system 100% pollution free. Vision Quest installed 12 additional wind turbines at its southern Alberta wind farm which it sells to Enmax, Calgary Transit's energy provider. This is communicated to C-Train light rail customers with the slogan 'Ride the Wind'. Not only does this provide pollution free energy the contract has established a 10 year pricing structure that has given the transit agency increased budget stability. However at present there has been a small increase in operating costs (around 1%) which is considered acceptable taking in the other environmental benefits and reduction in local pollution.

Patronage on the light rail system has meant 7.5 million private vehicle trips have been avoided and therefore 26,000 tonnes of CO₂ did not go into the atmosphere that would have been if fossil fuels had been used to generate the electricity. (CUTA, Canadian Urban Transit Association).

[Case study](#)





Dhaka



Shanghai

Developing sustainable cities

We have already hit the point that for the first time in human history more people are living in cities than in rural areas. However this growth in urban population is not evenly distributed – and according to UN HABITAT - 27 countries will account for 75% of the world's urban population, with all but seven of the world's megacities being in the developing world.

The Millennium Development Goals (www.un.org) set out to halve the number of people living on less than 1 US\$ a day. Despite many efforts, there are more than a billion slum dwellers still today and almost all of these disadvantaged people live in slums on the edges or in parts of fast growing cities. For example, the slum of Kibera, in Nairobi Kenya is one of the largest on the African continent is home to over 700,000 people.

Large cities – and especially megacities with more than 10 million inhabitants - such as Manila, Shanghai, Dhaka, Karachi, Istanbul or Lagos – have a bigger challenge to address in terms of providing transport infrastructure and being competent to provide organised, sustainable mobility options.

Better integration of all levels of planning from regional and urban planning to the most detailed layout of cities must be taken more seriously, so that public transport can be as functional, efficient, comfortable and attractive as possible.

In fact, even today a city cannot function properly if it does not have a robust, integrated public transport system. The private car on its own simply cannot provide the mobility required for large cities. In many cities in the developing world facing serious congestion, statistics show that only 10-15% of the population are able to afford a car.

In Asia, a large part of the problem lies with the availability and cost of two wheelers rather than cars.

Recent examples from large cities



MetroVia, Guayaquil, Ecuador recently (July 2006) started BRT operations. Ecuador already has a long tradition of provision of quality, efficient public transport as Quito, the capital has been famous for 'El trole' (an efficient trolley bus system that serves 260 000 people per day). Guayaquil was suffering from high levels of congestion, noise and pollution due to an obsolete bus fleet (average age 18 years) and inadequate infrastructure. In addition 25% of traffic accidents involved public transport vehicles. Partly financed by the World Bank 3 lines are planned and the well designed, but affordable infrastructure has improved mobility for all in down-town Guayaquil.

Joint UITP/GTZ SUTP/ CAF workshop March 2007
All presentations are available on Mobi+, UITP's E-Library. For more information, please contact the Information Centre (thierry.marechal@uitp.org; gaelle.nevens@uitp.org)



An articulated bus at one of the new interchange stations in Guayaquil



Metro Sao Paulo, provides 2.7 million people trips per day in one of the largest and most densely populated cities in the world. It is also run following the highest standards and became a charter signatory in 2005.



Metro Santiago and Transantiago, Santiago de Chile, Chile
Not everything runs smoothly when ambitious projects need to be aligned with political pressure and timing. Transantiago is a new public transport system for Santiago de Chile, a city with a population of 5 million. When fully implemented it will certainly bring tangible benefits to mobility in the city but it is not easy to successfully coordinate all aspects that includes improvements to infrastructure (roads, bus stops and transfer stations), an extension to the metro, a new bus network, a new framework for bus management, an integrated smart card ticket, a new type of passenger information and renewal of the existing bus network. A project of this magnitude needs to be carefully implemented in phases with appropriate planning, using proven technology and allowing suitable trial periods to introduce each phase.
[Case study](#)

Crystallising the current mobility dilemma

The average European travelled about 5 miles (12 km) a day in 1950, this has now increased to 50 miles (120 km) and is set to double by 2025. Yet the time he or she takes to travel this increased distance has stayed at between 50 and 70 minutes.

Yet despite a tenfold increase in car ownership since 1950 due to population increase there are now more people than ever that do not own a car (more than 6 billion).

UITP's Mobility in Cities Database found that:

- Frequentation of public transport remained stable at 360 journeys/person/year.
- Volume of supply by inhabitant increased by 7.5%.
- Length of reserved routes for public transport increased by 9% (and speed by 3%).
- Production cost (per vehicle x km) and investment remained stable.

(More information on Mobility in Cities Database can be found on www.uitp.org)

Where there is a quality service, people are using public transport in increasing numbers. This is even the case in the United States – where ridership has increased by 25% in ten years between 1995 and 2005; growing at a higher rate than the American population (1.1%). Public transportation is a US\$43 billion industry employing more than 359,000 people.
[APTA \(American Public Transit Association\) brochure](#)

With today's technologies it is no longer necessary to actually own a car to be able to benefit from the advantages of using a car when needed. Car pooling (when an owner shares the trip with others in a planned fashion i.e. work colleagues share the daily home/work trip for example) has been around for a while, and now car sharing is becoming more popular. This is when people join a type of car club for an annual, or monthly fee and they are able to prebook and use several different types of vehicle.

Several public transport operators are now also offering this service to clients – increasing the attractiveness of using public transport for most trips but having the facility and freedom of the use of a car when needed. Such as the STIB/MVIB in Brussels and UITP itself has seen this as being an added competence for operators and has started a car sharing platform (details on the web site).



Ultra light Rail Vehicles are now a reality (**Bristol Electric Railbus Ltd.**) These bring several advantages such as no overhead power lines or earth rail as they use on an board energy supply, reduced construction costs as typical axle weights are between 2.5-5 tonnes or about 25% lower than a traditional light rail system. A successful pilot project in operation with Centro, Birmingham carrying 1500 passengers daily has shown a high level of reliability, making it an affordable rail option for a low environment impact service in medium sized cities.



DVB - Dresdner Verkehrsbetriebe, German operator in the city of Dresden offers such a service. Since 1998, regular customers (holders of a monthly or yearly ticket) of the DVB can rent a car or van for personal use at reduced prices, this is now an added incentive to buy a season ticket. Both public transport and the car become are used more efficiently. In addition, the city benefits from the reduced local polluting emissions normally associated with motorized individual transport as most trips are done by public transport and the gains in the use of urban space. Emissions and energy consumption in general (correct tyre pressure etc) is as efficient as possible as the cars or vans are shared they are maintained at optimal levels. Even socially deprived households thus have extensive mobility possibilities.



ÜSTRA Hannoversche Verkehrsbetriebe AG, Hanover Germany offers a multimodal access card to public transport season (annual) ticket holders. For an extra 6.50€ per month they can add on various other advantages such as a 25% on German national rail reduction, electronic payment for taxis (electronic purse); and be a member of a car sharing club. There are now 700 customers for this product (launched November 2004). This has led to a 40% increase in car sharing customers overall and 30% comes from people choosing to car share rather than buy another car, with some having given up their car completely. 36% of the customers of this product did not previously have an annual pass.

There are other innovations in vehicle technology that are coming on board all the time. Some are proven and some are still on trial. In every industry those that are the 'early adopters' of any new technology pay a higher price and this is no different in the public transport sector.



ATM, Milan offers a wide range of mobility solutions to help lower the environmental impact and is a player in the car sharing sector and in logistic projects. It owns shares of GUIDAMI, a company established to provide car sharing services in Milan and created CityPlus a logistic section that proposes additional services designed to develop new commercial opportunities and to satisfy the environmental requirements of the city, limiting the entrance of large commercial vehicles into the city and carrying out several collections and deliveries along computerised routes.



The Province of North Brabant in The Netherlands took the plunge with the introduction of the 'Phileas' system in Eindhoven, with it's highly attractive vehicle, looking something between a tram and a bus. But Phileas is more than just an innovative vehicle, it runs on dedicated travel lanes with electronic guidance with priority at junctions and also can move sideways to fit into the kerb better at stops. The ultra light vehicle is equipped with a hybrid engine, a LPG engine drives a generator which provides energy for electric motors on every wheel and the braking energy is recuperated.

[Case study](#)



Metro Bilbao

5. Implementing Sustainable development



The world is your home - Look after it



Managing and implementing sustainable development into a company requires it to be an integral part of business planning and strategic development. All of this is well and good, but it is difficult to persuade governments and the business community to opt for sustainable and environmentally-friendly transportation unless it is also a viable business proposition.

As well as addressing environmental and social issues, UITP's approach to sustainability is thus also firmly rooted in the soundest business principles and practices, such as cost-efficiency, profitability and growth potential. At the first UITP conference on Sustainable Development 'Sustainable Cities and Public Transport – Bringing Quality to Life' hosted by the Metro Bilbao, Bilbao, Spain part of the opening session was dedicated to youth.

This brought together representatives from international youth organisations (aged 18-30) such as TT30 – the think tank of the Club of Rome, the TUNZA youth section of UNEP, AEISEC the largest international youth organisation and local representatives from Bilbao to bring their expectations from the sector in terms of energy use, climate change and quality of life. This has led to the UITP Sustainable Development Commission establishing a youth seat on their commission and the outcome of session has been combined with other activities and input to form a set of guidelines.

www.metrobilbao.net

Guidelines on expectations for the sector from youth world-wide. All presentations are available on Mobi+, UITP's E-Library. For more information, please contact the Information Centre (thierry.marechal@uitp.org; gaelle.nevens@uitp.org)



The government of Canada (with 80% of the 31 million population living in urban areas and one of the highest per capita energy consumption levels globally) has a robust sustainable development strategy for the country. The strategy is independently verified by a Commissioner for Sustainable Development whose role is to report on progress. It has also made a nation wide 'Clean Air Day' (1st Wednesday in June) that raises environmental awareness and local pollution issues.
http://www.ec.gc.ca/cleanair-airpur/Clean_Air_Day-WSB59A4A5F-1_EN.htm (provided by CUTA, Canadian Urban Transit Association)



The Provincie of Gelderland, The Netherlands – playing an important role on a regional level with its decisions to ensure sustainable mobility options are available for citizens. New services such as The 'Valleilijn' (operational 10/12/06 -literally translated means: The Valley Line) a rail and bus line along a valley. This lines have been completely upgraded during the period 2004 – 2006 and are now the main public transport facility in this part of the province of Gelderland (the Netherlands). The 'Valleilijn' is a new bus connection between two medium size cities (Wageningen and Ede) connecting by railway to the cities Ede - Barneveld- Amersfoort. An existing train station has been completely renovated and a new transfer interchange has been built offering car travellers an escape from the traffic jams on highway A1. The project offers a fast connection to the 'Randstad' (conurbation in the west of the Netherlands) and to the cities Arnhem and Nijmegen (in the east of the Netherlands). It also links Wageningen University

and Research Centre (where 4000 students and 4000 employees travel to and from every day) the train station of Ede-Wageningen via a (planned) bus route. Measures that has been taken:

- free bus lanes
- newly designed (bus) stops
- renovation of existing train stations and construction of parking facilities
- dynamic travel information
- purchase of 7 environmental friendly natural gas operated buses
- introduction of 5 new trains with modern comfort (1 September 2007)
- improving safety with the introduction of stewards, the use of cameras and illumination of bus stops
- equip trains and buses with infotainment.

The train stations and newly constructed bus stops of the 'Valleilijn' have this same design and identity and by September 2007 completely new, modern trains will be put into service on the 'Valleilijn'. Bus and train are being operated by various transporters, but the exterior as well as the interior of the rolling stock have identical layout and colours to ensure a strong visual identity.



The city of **San Sebastian, in northern Spain** has an entity entitled 'Cristina Enea' responsible for Agenda 21 that has carried out a Environmental Audit of the city in 1988. This has enabled a strategy with a set of actions to be developed in 5 key areas: energy, water, mobility, pollution of the atmosphere.



HTM, the public transport operator in The Hague, The Netherlands is a partner with some 480.000 inhabitants which is facing some serious challenges in regard to air quality, the amount of particulates and NO₂. In February 2006, HTM was one of the founding fathers of the Hague Sustainability Platform ('Platform Duurzaam Den Haag') bringing together some of the largest public and private parties in the city, with the joint objective of increasing the quality of urban life. The mere fact that these local parties now have a common platform increases the opportunities to find partners to sustainable development projects and making good use of their respective know-how and experience to improve the quality of life in The Hague.

The Hague Sustainability Platform is a purely voluntary initiative and, as such, a unique form of public-private partnership. Among its members are the local energy company, a large high-level educational institution, Shell Netherlands', headquarters of the well-known fuel producer, a major bank, the Dutch branch of Siemens, two large housing corporations, the municipality and HTM, the urban transport operator of the city. All partners play an equal role in the Platform. Over the past year, research has started into some remarkable sustainability projects, such as the building 'smart houses', the use of solar panels on rooftops, the permanent monitoring of air quality in the inner city, sustainable forms of vehicle traction in public bus transport and the construction of wind turbines on high buildings. In each of these projects, the most concerned parties are committed to work together. The Hague Sustainability Platform approaches sustainable development from the perspective promoting the awareness in the local

community, sustainable development gradually becomes a 'way of life' for all inhabitants of The Hague.



'Envision Utah'- it's quality growth strategy has helped form **Utah's Transit Authority's** role in building sustainable communities.

Transport forms the backbone of the local economy and movement of goods in Utah is a US\$ 100 billion a year industry but it is facing challenges in terms of increased urbanisation and an estimated million extra residents by 2030. TRAX, light rail line was started in 2000 and now carries more than double the projected ridership (some 58,000 daily trips (March 2006)). Trax is the only US transit agency certified with both ISO 9001 for quality and 14001 for environmental management. It's development is centred around three foundation value pillars – nature and the outdoors; safe and secure communities and education. Several scenarios were developed and the local communities invited to express their views and choice using television, radio and newspaper.



Ferrocarrils de Generalitat Valenciana (FGV), Valencia, Spain with the support of

Valencia University and a group of experts including, engineers, sociologist, philosopher, architects and environment experts, has developed its own Sustainability Charter, in order to promote sustainable development within the organization. The Charter establishes 12 points related with all 3 aspects of sustainability, in which FGV is committed to work to improve sustainability both internally and externally, within the company and in the society.



Metro Lisbon, Portugal set out a sustainable development vision in 2004 and signing the charter increased this commitment and accelerated the process to put the strategy in place. A new position of a manager responsible for sustainable development is planned for 2007 to help this process. ML's strategy focuses on operational excellence and economic efficiency responding to environmental concerns and being able to contribute positively to social responsibility in the city, aiming to enhance Lisbon as a globally competitive city, safeguarding the quality of life of those who live and work there. The strategy includes improving the Environmental Impact Studies and Assessments of all new projects; fully implement an integrated waste management and an environmental management system; increased productivity and other economic and social aspects. Notably, an in-house multi- discipline and mixed competence task force has been set up to help keep the company on target in its sustainable strategy.



A strong strategy based on Corporate Social Responsibility (most recent report 2005) has been in place in the **Metro Madrid, Spain** since 2003, using the balanced score card approach. Metro Madrid values guide the business culture and they are divided into three groups:

- Corporate (management excellence - for continual improvement in efficiency, reliability and reliability; public service reinforcing customer orientation and accessibility; dynamism and innovation promoting technologies, facilities and learning.)

- Organisational (results orientation with an appropriate system of recognition; cohesion transparency and collaboration; and flexibility with day-today learning, transversal development and participation in corporate projects
 - Personal (professional integration reinforcing commitment pride and identification; teamwork and multidisciplinary teams; and proactive participation valuing initiative as a key factor for development)
- Presentation at the Coaching and Training Workshop, Brussels, March 2007

[Case study](#)





Hamburger Hochbahn, a German public transport operator has invested to make its transport offer cleaner and also to live up to its social context within the community. This includes:

- 1) Fitting more or less 400 buses with diesel soot filters (until end 2007) making 73% of the bus fleet cleaner.
- 2) Reduction of electricity for metro use by 17% since 1995. This has been done by introducing more modern vehicles, driving and recuperating brake energy.
- 3) The safety of the workers at the workplace is very important to the Hochbahn. The number of working accidents has been reduced by 35% in the last 12 years. In 1999 & 2005, the Hochbahn received an award as company with a “exemplary work protection programme”.
- 4) For several years the Hochbahn has, in association with other Hamburg companies, trained disadvantaged youngsters who are turned away from most jobs and for whom the employment office can’t help at the “Hamburger training center HAZ”. The success rate is more than 80% (completion of training and placement in the employment market.)



February 2007

Full Signatories

- Alcan Inc.
- Alstom Transport, France
- AnsaldoBreda S.p.A., Italy
- ATAC - Agenzia per i Trasporti Autoferrotramviari del Comune di Roma
- ATCM - Azienda Trasporti Collettivi e Mobilità, Modena, Italy
- ATM, Azienda Trasporti Milanesi SPA, Italy
- Azienda Perugina della Mobilità, APM, Italy
- Berliner Verkehrsbetriebe (BVG), Berlin, Germany
- Bombardier Transportation, Germany
- Electricité de France (EDF), France
- FirstGroup plc, UK
- GMPTE - Greater Manchester Passenger Transport Executive, UK
- Hamburger Hochbahn, Germany
- HTM Personenvervoer N.V., The Hague, The Netherlands
- Keolis, France
- Knorr-Bremse Systeme Schienenfahrzeuge GmbH, Germany
- KVB - Kölner Verkehrs-Betriebe, Germany
- Land Transport Authority (LTA), Singapore
- MTA New York City Transit, USA
- MTR - Mass Transit Railway Corporation Ltd., Hong Kong
- Münchner Verkehrsgesellschaft MVG, Germany
- Oslo Sporveien, Norway
- Parsons Brinckerhoff, Australia
- Parsons Brinckerhoff, (Headquarters USA)
- Province Gelderland, Arnhem, The Netherlands
- Queensland Rail (QR), Australia
- RATP, Régie Autonome des Transports Parisiens, France
- Rheinische Bahngesellschaft AG, Germany
- STIB, Société des Transports Intercommunaux de Bruxelles, Belgium
- TMB - Transports Metropolitans de Barcelona, Spain
- The Kowloon Motor Bus Co (1933) Ltd. - KMB, Hong Kong
- Transdev, France
- Transport for London, UK
- Transports Publics Genevois, Switzerland
- Üstra Hanoversche Verkehrsbetriebe AG, Germany
- Veolia Transport, France
- Verkehrs-Aktiengesellschaft (VAG), Germany



6. Overview of the sector's commitment

Profile of the sector

There are many different actors all competing in today's market place to provide public transport. The traditional classification of operators, organising authorities and the supply industry has become fragmented into a multitude of organisations and players. Quality public transport is, by its very nature of transporting large numbers of people, more efficient in terms of resource use and land take per person transported but it is also important that its production is as sustainable as possible.

By introducing the charter, UITP has been able to increase the awareness of what can be done at the supply end in the production of urban transport. It has stimulated a deeper commitment from a substantial number of major and minor players.

If efforts are made to monitor, measure and improve performance of the total life cycle of the provision of public transport, the overall contribution that public transport can make in achieving sustainable mobility will also be more robust.

Signatories to the charter come from all profiles in UITP's world-wide membership and the list is growing. In May 2007 54 organisations have signed as full signatories, 53 as pledge signatories and 10 national associations have signed. 92 operate on a national, city or country wide level and 15 are multinational companies working in more than one country with several working internationally on more than one continent.

[Link to list of charter signatories 118 organisations have signed](#)

Becoming a signatory is a true commitment. The different types of signatory takes into account differences in levels of developing strategies and measures, and allows some flexibility so that it is an inclusive process. However care is taken that the process remains credible and transparent. Every two years signatories are asked to renew their commitment. Most have done but some decide not to, or are asked to reconsider if they have not been able to be an active member of the network.

Each full signatory has to prepare a dossier to be evaluated by the UITP Commission of Sustainable Development, a group of international experts in sustainability from Europe, Asia and the USA. This dossier must demonstrate that the organisation is monitoring and measuring its own performance in economic, environmental and social terms and has

to be accompanied by a letter signed by the Chief Operating officer, Managing Director or a member of the board stating that sustainable development is a strategic objective of the organisation. This information is updated every two or four years according to the work programme.

Pledge signatories are offered support from the full signatories and can participate in a series of coaching and training workshops. Associations work jointly with UITP to increase awareness on a national level and help in the collect of sector specific statistics.



Coaching & Training workshops

15-16 January 2004, Brussels:

First Sustainable Development Workshop co-hosted with STIB (Palais d'Egmont)

23-24 September 2004, Rome:

Mid term assessment Meeting

28 February 2005, Brussels:

2nd Coaching and training Workshop

1-2 December 2005, Brussels:

3rd Coaching and Training Workshop

1-2 March 2007, Brussels:

4th Coaching and Training Workshop

Regional workshops

23-24 June 2004, Hong Kong:

UITP Asia Pacific Seminar on Sustainable Development

20-22 July 2005, New York:

APTA Sustainability and Public Transportation Workshop

20 September 2005, Stockholm:

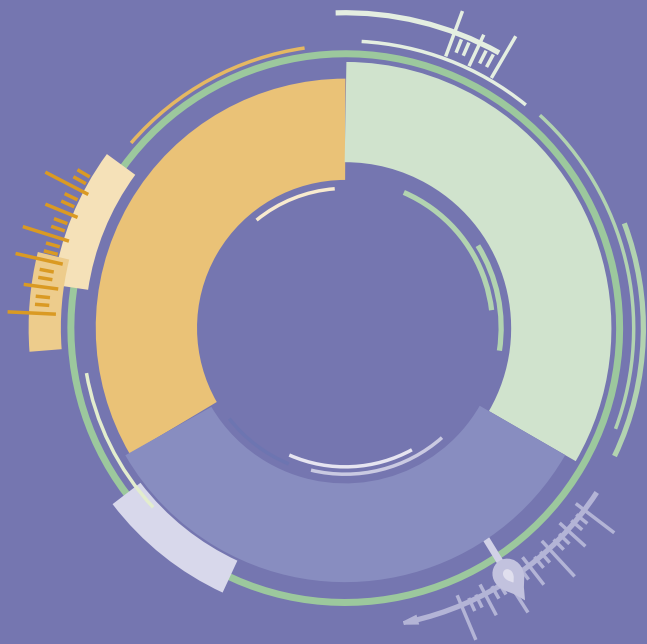
Joint UITP/SLTF Sustainable Development Regional Coaching and Training Workshop

23-24 February 2006, New Delhi:

Cities of Tomorrow – Choices for Sustainable Public Transport, air quality and energy

All presentations are available on Mobi+, UITP's E-Library. For more information, please contact the Information Centre (thierry.marechal@uitp.org; gaelle.nevens@uitp.org)
<http://www.uitp.org/mobi/index.cfm>.





Geographical segmentation of charter sigs
[link to list](#)



International aspect

The added complexity of connecting with UITP members in over 80 countries world wide has been addressed by holding a series of regional workshops and conference sessions.

Sustainable development makes economic sense Finding the right combination of environmental protection, social justice and economic viability is not always straightforward. From the charter work it is quite apparent that implementing sustainable development into organisations is not grounded in any form of public service obligation but it has to make economic sense as well. Charter signatories show that there is as much, if not more, interest in taking this type of approach and integrating it into general business processes by the private sector as with public bodies.

There are a variety of reasons to put processes in place that improve an organisation's performance and sustainability. There is certainly more and more pressure in today's competitive market for publicly quoted (i.e. privately funded) organisations to recognise and to incorporate the social, environmental and economic aspects into mainstream business planning and project processes.

Many large multinational organisations are strongly committed to their sustainable performance as they also see this as a competitive advantage and way of managing their risks. Companies include operators such as MTR Corporation, Hong Kong, the French groups Transdev and Veolia Transport, and UK's First Group; the rail supply industry such as Bombardier (Canada), Siemens and Knorr Bremse.

AnsaldoBreda, a major supplier to the rail sector based in Italy has issued and adopted a Code of Ethics setting out certain principles that all business must be complied with by all directors, employees and all suppliers. The Code of Ethics, first issued in 2003, revised in 2005 and is undergoing a further revision has been from the very beginning widely diffused among the workforce and collaborators, who are equally required to be aware of the principles contained therein and to respect them in full.

[Case Study](#)

The sample included 29 organisations that were public bodies and 15 privately owned organisations. Within those, 9 were quoted on a stock market and 4 of the 9 were quoted on a sustainable or ethical index such as FTSE4GOOD or DJSI (Dow Jones Sustainable Index).

Many sustainable or ethical indexes judge organisations use overall energy consumption as an indicator – but this is inappropriate for many transport companies offering a service to passengers as an increase in energy corresponds to an increase in service offer (usually). This is the present situation on the Chicago Climate Exchange, one of the few carbon trading mechanisms open to transport companies.

(source: APTA)



[Sustainable or ethical indexes](#)
[MTR Risk Management](#)



Siemens' inclusion in the Dow Jones Sustainability Index and in the Climate Leadership Index of the Carbon Disclosure Project (CDP) exemplifies Siemens' successful commitment to protect our climate and environment.



LVB, Leipziger Verkehrsbetriebe (LVB) GmbH, has used the well established, in-house competence of its own employees to build its own new trams. This home produced Leoliner-tram has successfully been introduced onto the Leipzig tram network. In addition Leoliners have been bought and ordered from other transport companies. This has increased local pride in the system and secured over 50 jobs at LVB and a further 200 jobs in and around Leipzig. Positive gains have been made due to lower costs of production in contrast to external contracts. The Leoliner have lower energy consumption and emissions than the older trams and as they were cheaper more of these low floor trams were able to be put in service quicker. ([Case study](#))



Procurement in Helsinki
Tendering principles at Helsingin Kaupungin Liikennelaitos HKL- Helsinki City Transport, Finland renewed in 2006, will be introduced from the beginning of 2007. The first group of bus lines which have been tendered with the new principles will start to operate in the beginning of 2008. The new principles put more weight to quality factors and sustainable development aspects of service – for the first time in Helsinki.



Companhia Carris de ferro de Lisboa, Portugal

Upgrading the bus fleet means that 408 new buses have been bought, replacing the old fleet (average age 16.5 years) with high maintenance costs, bringing the average age down to 5.6 years. Monthly monitoring of diesel use is now implemented. Despite the financial cost of this benefits have been measured in improved customer satisfaction rates (measured via European Customer Satisfaction Index (ECSI)) which have increased from 54.2% in 2005 to 60% in 2006 putting an end to the decrease in patronage of 6% per year to only 2.5% (an increase of 3.5%) decrease in 2006.



Developing a strategy

All signatories need to develop their own strategy and vision. A plan of actions needs to accompany this vision in order to make it a reality. UITP members have varying profiles – from regional and local governments responsible for the organisation of transport; private and public operators for all modes or public transport; the service and supply industry from multi-national world class rail vehicle suppliers, to system integrators and consultants.



Since 2004, **MTR Corporation Hong Kong** has used sustainability to develop an Enterprise Risk Management methodology, implemented across all business units to identify and prioritize risks. There is a quarterly review of risk register and effectiveness of mitigation measures with a listing of key business risks and indicators provided in the annual sustainability report. The information is confidential, but it has resulted in a noted reduction in insurance premium.



Transport for London established a new team in 2006, which is helping to mainstream sustainability within the organisation. The Sustainability Unit's work will include developing a sustainability framework and strategy for TfL, raising awareness, helping to embed sustainability in business planning and management processes, and developing reporting mechanisms.



STIB (Société Transports Intercommunaux de Bruxelles)

since becoming a Charter signatory, STIB created a new position to develop a Sustainable Development Action plan for STIB (2006 - 2010) placing it at the heart of the company. The plan was the subject of a widespread consultation process involving all STIB's partners, staff, customers, local residents, economic bodies and associations. These consultations helped identify areas for action clustered around the main themes of the environment, societal, governance etc. STIB chose to take up 29 topics from those put forward that corresponded to the priority themes chosen by the stakeholders and where there was a need for specific actions. Indicators were identified for these topics and a communications campaign on sustainable development was set down in 2006. The Sustainable Development Strategy has to be integrated into the main business planning in 2007.



Charter signatories in front

Several charter signatories (such as Bombardier Transportation, MTR, Ltd Hong Kong, Metro Lisbon, Portugal and others) use indicators from UNEP's Global Reporting Initiative (GRI). However many of the indicators are not appropriate to reporting on public transport. UITP has a working group preparing a core set of indicators for the sector that will be aligned with the GRIs. They will be piloted and validated by full charter signatories in the period 2007-9 and presented at the UITP World Congress in 2009.

EDF – Électricité de France and MTR Corporation, Hong Kong are organisational stakeholders in GRI.

Bombardier Transportation which operates in around 100 locations world-wide uses not only the typical "trailing" indicators in conjunction with its integrated business system, but introduced also leading indicators. This provides "early warnings" and allows for in-time corrections.

There are many excellent reports to be shared between signatories. For example MTR Corporation report was benchmarked as the seventh best report in a recent international exercise undertaken by consultancy SustainAbility in the UK and Standard & Poors for the United Nations Environmental Programme (UNEP). MTR was the only transport related and Asian report, and one of two non-OECD reports listed in the top ten. ATM, Azienda Trasporti Milanese SpA, Italy was the first transport agency to publish a sustainable development report in Italy.

www.gri.org



7. Reporting and measuring performance

The majority of the sample prepared annual reports on their social and environmental performance, with about half also producing sustainable development reports at least every two years. This shows a general trend to move from corporate social responsibility (CSR) and Environment, Health and Safety (EHS) reporting to combining these and working towards preparing a full sustainable development report. Two years ago less than ten charter signatories had a full sustainable development report.

Why report?

There is much discussion on what to report on and how? This has also been the topic of discussion in the coaching and training workshops that UITP has hosted over the past 4 years. Firstly there are a wide range of differing stakeholders and reporting is only

worthwhile if you are able to address their needs. Reporting for the sake of it is just a waste of time and effort. This is one of the reasons that UITP does not set down any rules on reporting but aims to act as a catalyst, encouraging charter signatories to share state-of-the-art thinking on what and how to report.

At present it is not easy to compare the performance of organisations and the present set of indicators are not entirely appropriate to sustainable development reporting on public transport. UITP is working on this issue and the working group will develop a set of indicators for the UITP Commission of Sustainable Development to adopt and pilot in the period 2007-9.



Source: SLTF



SLTF, the Swedish Public Transport Association collects national data and statistics on public transport. It has

developed several useful databases that allow them to have a clear picture of the present state of play and profile in the market and also to be able to stimulate a greater commitment to higher environmental and social standards. The Swedish market has been open to competition for around 10 years and high environmental standards are now standard elements in procurement and contracts.

- **SLTF Public Transport Barometer** – SLTF carries out monthly surveys with their members to complement regular product planning, maximising strategies focussed on attracting new customers and making existing customers more loyal. www.sltf.se/english
- **FRIDA** is a database that is filled in by SLTF members on information on buses, rail and ferry vehicles used in PT. This data gives valuable up-to-date statistics and key figures on safety, the environmental performance, accessibility and other core values of PT. (<http://frida.port.se/Demo/FridaDemo.cfm>)
- **SIKA** - Swedish Institute for Transport and Communications Analysis – reports annually on the sector in terms of number of journeys, person

kilometre, financial matters such as total income, total costs, subsidies etc (www.sika-institute.se)



Stakeholder engagement at **Metro Lisbon (ML)**, Portugal. In addressing the challenge of sustainable corporate governance ML has introduced a process for appraising stakeholder expectations based on the AA-1000SES – Stakeholder Engagement Standard 2005 (Assurance standard of the Institute of Social and Ethical AccountAbility).

The following criteria were developed:

- Responsibility – those that ML has (or will have) a legal, financial or operational responsibility to in the form of regulations, contracts, policies or codes (for example Staff; local authorities);
- Influence – those with influence or decision-making powers (shareholders; local authorities; pressure groups);
- Proximity – those with whom the organisation interacts with most closely including internal stakeholders, long standing relationships e.g. business partnerships and those that ML depends on for day to day operational needs (e.g. outsourced employee management, local

communities, local suppliers);

- Dependency – those who are directly or indirectly dependent on ML activities and operations in economic or financial terms either regionally or locally (e.g. sole suppliers of goods);
- Representation – those who through regulation can legitimately claim to represent a constituency (e.g. NGOs, special interest groups- trade unions or the ‘voiceless’ (those that are unable to represent them selves such as future generations or the environment);
- Policy and strategic intent – those the organisation directly or indirectly addressed through its policies and values (e.g.) consumers, local communities, outsourced employees).

The identification of the stakeholders required input and cross referencing from the legal; administration and communications; human resources; commercial operations; economy and finance and studies, planning budget and management contract departments. Consultation with stakeholders should be integrated into company strategy given the very different nature of these interest groups and the type of information they require.

International certification and verification of reports

It is interesting to note that many charter signatories have invested in applying standards for their own performance and obtained certification of their management systems according to the international standards ISO 14001 (covering environmental issues), ISO 9001 (quality), the comprehensive European system EMAS (Environmental Management and Audit Scheme) or other standards in the risk management field.

Certification is not an end in itself but it provides evidence that a management system is functioning. It does require commitment to be able to monitor and measure as well as allocating the resources required to achieve the certification. From the replies most (65%) of companies were either fully, partially or working on becoming ISO 14001 certified (within the next two years). Slightly more than a third had certified 100% of installations, with around 10% having less than 50% certified.

Output of workshops on stakeholders.

This presentation is available on Mobi+, UITP's E-Library. For more information, please contact the Information Centre (thierry.marechal@uitp.org; gaelle.nevens@uitp.org)

[List of web links of all signatories](#) to their reports is available via internet www.uitp.org



RATP, Régie Autonome des Transports Parisiens de France

Using ISO 14001 certification as a local driver to successfully shift to a sustainable development culture, increase all field operatives' sense of environmental responsibility and to help with cross-departmental coherency. This is a natural choice extending the ISO 9000 quality certification approach already followed by the industrial and engineering activities and the service approach in operations.

To a large extent, this initiative helps galvanise all levels of management and motivate employees to adhere to a dynamic based on them asking questions, getting involved, and behaving in way that achieves tangible results in terms of:

- compliance with regulations;
- handling any disruptions/disturbances for local residents;
- lowering resource consumption;
- reduction in the amount of waste produces and disposed of.

Allowing the team concerned to take stock of the challenges, it has to face up to its areas of responsibility; to situate its actions within a chain of actors and help embed the environmental dimension into daily business activities (much as quality, hygiene or safety at work considerations already are). ISO 14001 certification is also a guarantee of the facilities' environmental quality to elected officials, local leaders and the local community, ensuring a better control of risks from our activities in a dense urban environments.

Progressively each site is supposed to adhere to this initiative voluntarily, helping to test and validate these methodologies of shared principles and inputs, an essential element if environmental management is to be implemented long-term.

Main efforts are:

- anchoring these methods in RATP's business processes;
- training all staff members;
- partnership contracts with internal departments and with external service providers working on our sites (the purpose being to get all actors involved in our production chain);
- almost 50% of all sites are now certified (objective 100%)

[Case study](#)



Many full charter signatories (those that are already reporting on their performance) are often large groups working internationally and complying with any international certification across many different sites, in different countries is not an easy task. Certainly it is impressive to know that Veolia Transport (part of Veolia Environment) has 800 transport sites all over the world – and although not all are certified yet they are working towards this objective with 32% following an EMS (Environmental Management System – in 2005). This applies to collecting data and not all large multinational organisations are able to collect this information in a standardised format.

No common position exists regarding verification of reports. While Bombardier Transportation has gone for external validation of Environmental Product Declarations following the EMAS approach, they have not decided whether to apply this also for their Sustainability Reports. Others have gone down the route of independent verification, such as Transdev.



Results of questionnaire – most cited indicators in each category

Veolia Transport, part of Veolia Environment, has its report independently verified and publishes its 'Tableau de Bord' – indicator dashboard with the core indicators. The Veolia Environment Sustainable Development Report is available via their web site www.developpement-durable.veolia.com. There is a section specifically on the activities of their transport division – Veolia Transport.

Transdev, the French international group has a 'Quality Certificate' programme, aimed at deploying a standard (a label) in each of their companies. Today 50% of their sites are certified to this standard and they intend to have 100% by 2008. This Group process is ISO 9001 and both internally and externally certified (by Bureau Veritas).

[Case study](#)

KVB – Kölner Verkehrs-Betriebe, Cologne, Germany, Metro Lisbon, Portugal, Transport for London and others publish their indicators in their annual or sustainable development reports.

[Case study KVB](#)

[Metro Lisbon](#)

Siemens has a world-wide on line environmental management system which they use via the Siemens international intranet to get updated information from all their sites.

[Presentation at UITP 1st Sustainable Development Conference, Bilbao](#)



Sustainable development and society

Economic growth is certainly critical but effective economic policies and actions complement social policies in extending opportunities and mobilising human capital. People are at the heart of public transport not only as passengers (as large numbers of people that rely on it for their daily transport needs) but also as major employers in a local community. The number of people that come into contact with public transport in any given year in large, medium and smaller cities, is huge. By grouping passenger numbers, employees and their families together the figures easily reach several million. This means that all public transport actors also have a responsibility to provide quality transport services and to show their own commitment to make every effort to do so in as sustainable way as possible.

Some figures from networks :

RATP, Régie Autonome des Transports Parisiens de France, a public service company, operating all modes of transport in the Paris region.

Key figures :

- 10 million trips/day in Région Ile de France (11 million inhabitants)
- 14 subway lines, 2 RER (Regional Express Rail) lines, 3 tramlines,
- 300 bus routes
- 4000 buses, 4600 subway-RER rail cars
- 43 600 employees

61% of motorised trips are made by public transport in the centre of Paris, (57% from the suburbs to the centre) but this falls to 15% for journeys within the suburbs.

However plans are in place to reduce the proportion of private car journeys within the outer ring of the suburbs by some 85%.



The **MTR Corporation, Hong Kong**, operates seven railway lines with carrying an average of 2.5 million passengers per weekday (2005), and a total of 858 million boardings on urban lines and a further 8.49 million boardings on the dedicated Airport Express Line.

New York City Transit that operates bus and metro in **New York, USA** has 47,000 employees. 1 241.85 million subway (metro) rides are made and a further 2.4 million passenger use the bus on an average weekday (736.5 million passengers per year). Buses alone are served by 14 000 employees. It is one of the few networks that runs 24/7.

Transport for London (TfL), is responsible for the capital's transport system. This includes London Buses, London Underground (LU), Docklands Light Railway (DLR), and the regulation of Croydon Tramlink and London River Services. TfL also runs Victoria Coach Station and London's Transport Museum.

- On an average day in 2005, there were just over 27 million journey stages in London, of which 18% were by bus, 10% by Underground, 7% by rail, 2% by cycle and 21% by walking.
- This equates to almost 3 million daily passengers on London Underground, and
- Over 4.5 million passengers on buses daily.

Münchner Verkehrsgesellschaft mbH (MVG), operates all underground, tram and bus lines in the city of Munich, capital of Bavaria (1,3 Mio. inhabitants) Germany. MVG together with its mother-company SWM plans, builds, operates, maintains and finances the networks, vehicles and workshops. In some 1000 vehicles, MVG offers mobility for about 460 Mio.

passengers every year, with an increasing trend. 2800 trained staff offer clean, safe and fast connections on 76 lines.

STIB/MIVB Société Transport Intercommunaux de Bruxelles, with 6 283 employees, offers metro, bus and light rail services to the population of Brussels Belgium. It has seen a 6.52% increase in ridership in 2005 and 254.8 million journeys made despite no additional budget and difficult operational challenges due to construction projects. This means an increase of 60% rate of growth over the past six years.

Running around the world with BVG! **BVG Berliner Verkehrsbetriebe** serving the 3.4 population of Berlin with metro, bus and light rail carried 907 million passengers annually. They say that BVG runs around the world as the combined distances travelled every day by their buses and trains would circle the globe 16 times! Not to mention the exchange of knowledge between them and other networks such as the role they played as an advisor to Athens for its tram system planned and built for the 2004 Olympic Games.

Sweden is not densely populated with about 8.9 people living there but they make about 1 billion trips annually on public transport. The public transport market is about 23.8 billion SEK (25.5 billion Euros).

Customers of **Transpole** operating in Lille, a medium sized city in Northern France (population around 1 million), make 123.4 million trips annually: 38 million by bus, 7.4 million by tram and 78 million by metro. They employ 2065 people with a further 610 being given jobs associated with the provision and security of transport, a valuable contribution in a region with high unemployment.

Striking a new approach for an inclusive society has wide implications. In four years of the charter work there has been a definite shift in perspective in the understanding of the social pillar of sustainability. Today we have been able to notice a broad approach to creating a better 'Work/life Balance for those working in transport; taking concrete actions to help build more inclusive societies; training for disadvantaged youth and re-training in new skills to help people in be able to contribute despite staff cutbacks, not forgetting making networks accessible for all.

The combination of leisure and public transport is a new concept as traditionally it has served for regular home/work trips. The new 5.7 km cable car built and operated by **MTR Corporation, Hong Kong** goes through some of the most bio diverse areas in Hong Kong; the North Lantau Country Park and over Tung Chung Bay up to a Buddhist temple and community. The cable car has been conceived to avoid too many car or coach trips going through and degrading this high value nature area. Environmental activist groups were brought on board from the start as stakeholders an consulted on all levels of construction to ensure a high level of sustainability in the construction.





Automatic ticketing machines adapted to be used by blind and disabled passengers in the metro in Lisbon, Portugal

Accessibility is not just for those that might be physically impaired – but also for those disadvantaged members of society who have few choices.

The accessibility of a network is a vital aspect of an inclusive society and UITP members are constantly striving to improve this. UITP and ECMT¹² have produced a joint publication on improving access to public transport.

[Case study example](#)



Land Transport Authority Singapore

To ensure that the Singapore public transport system can meet the needs of different users, LTA will require all new public buses to be registered in Singapore from 1 Jan 2006 onwards to be wheelchair-accessible. These new WABs will be introduced progressively to replace the existing fleet of non-wheelchair-accessible buses. To date, 5 WAB bus services have been rolled out (73 buses in total) with another 11 more scheduled for 2007. LTA will also modify existing bus stops and bus interchanges to enhance barrier-free access for the wheelchair passengers



Research on trying to better understand how bus services can improve the 'life' opportunities of their customers is ongoing at the **Bus Association Victoria, Melbourne, Australia**. It suggests that in regional areas and outer urban areas (often poorly served by public transport) young people even in fairly high income households can be extremely 'transport disadvantaged'. A commitment to increased funding (by about a third) over the next four years (2006-10) has been achieved by linking social sustainability to bus services for all transport disadvantaged groups and with reducing congestion on main routes in Victoria. State government has now accepted that public transport must play a larger role in future personal travel, on triple bottom line sustainability grounds targeting a 20% modal share by 2020 (currently 9% in Melbourne). This is also being linked with land-use policies. (Presentation at 1st UITP Sustainable Development Conference).



TMB, Transport Metropolitain de Barcelona operating bus, trams and metros in southern Spain has been focusing on the accessibility of their lines.

- 2 completely accessible Metro lines.
- 39 Metro stations built or renovated according to accessibility criteria.
- Overall reformation project in those stations lacking these criteria.
- 90 % of the Bus Lines are accessible.
- 762 single decker (low floor) buses.

From an internal perspective

- TMB has 156 disabled people on its workforce:
 - Ferrocarril Metropolità de Barcelona: 82 people (2.8%)
 - Transports de Barcelona: 74 people (2.2%)

¹² ECMT – European Conference of Ministers of Transport, part of the OECD and based in Paris.

TMB, together with 16 other companies, is promoting a project entitled, “Equal Opportunities in companies in Barcelona”, run by the Women and Civil Rights Council which takes into consideration the gender aspects of a company.

- TMB has included the Gender perspective in its studies on mobility and customer satisfaction, so that it can learn about and respond to women’s mobility requirements.
- Equal “Tempora” Project (mobility study and solutions within the gender perspective).
- Increased knowledge of women’s mobility requirements (CSI)

Internal Perspective

- TMB has 877 women on its work force
 - Ferrocarril Metropolità de Barcelona: 729 women (19.9%)
 - Transports de Barcelona: 148 women (4.75%)

Greater diversity in passengers and in the workforce
 The evolution of newcomers coming to visit Barcelona has considerably varied the profile of the typical TMB customer. Therefore, TMB has revising the CSI (Customer Satisfaction Index) and included aspects concerning people’s origins. Consequently, it has been observed that :

- 20 % of people who use the Metro, are of non-Spanish origins.
- 17.20 % of people using the bus, are of non-Spanish origins.

This has also led to a more diverse workforce.

Recruitment processes run by TMB in 2005:

AAC 2306 people, 122 of whom are of different origins (5 %).

Bus Drivers 680 people, 20 of whom are of different origins (2.90 %).

TMB has signed an agreement with the Women and Civil Rights Council of Barcelona City Council that considers, inter alia, regularly training the TMB work force in Non-Discrimination and Interculturalism.



LVB, Leipziger Verkehrsbetriebe (LVB) GmbH, Germany helps bring greater social stability by giving employees support in maintaining healthy habits and fitness, and thus their employability.

This reduces the risk of them losing their position, their income and avoids training and recruitment costs for an employer.. The health and management of an employees health has a long-term influence on their employability. The LVB now takes an active approach to improving the short and long term health conditions of its employees by providing training programs specifically designed by the company’s sports club and health insurance. These programs are offered on a long-term basis via small moderated groups. Such themes as stress-management, diet, smoking, back exercises and ‘Nordic’ (speed) walking and consistent participation on the part of the employee is then rewarded. To date the costs of the health programs are covered mainly by the health insurance and the public pension institution. The programme has lowered the costs for employees who are not able to work in their usual positions because of health reasons (e.g. drivers) and reduces sick-leave in general. LVB plans to build it’s own company health centre where all aspects of

employees' health sustainability in the company will be coordinated. Long-term economies are gained from better managing the risks that cause employees to be sick or become unemployable due to health.

[Case study](#)



Trambus, Rome operating ground transportation in Italy's capital has recently put two crèches in place to improve employees' work/life balance at cost of about 500.000,00 euros, in addition to financial support given by the Municipality of Rome. The crèches are located at two depots and offer about 100 places each: 50 are dedicated to children on the Rome Municipality waiting lists, and 50 are given to Trambus employees' children. They offer crucial social and educational services to children from the age of 3 months to 3 years and help Trambus meet a social need in the context where it delivers its service everyday.

[Case study](#)

Social inclusion and integrating disadvantaged groups

Public transport provides accessibility to jobs. It is a 'two-way street' as effective economic policies complement effective social policies and measures in extending opportunities and mobilising assets for public transport, generating dynamism, innovation and contributing to flexible labour markets. A common purpose among employers, workers, communities and other stakeholders in recognising their shared responsibility to better align today's values with tomorrow's reality.



The objective of the project set up in 2005 'Infolavoro' is a Job Helpdesk for ATM, **Azienda Trasporti Milanesi SPA, Italy**, for the Milan City Council and its subsidiaries in the busy Place Duomo in Milan. The Milan City Council and its subsidiaries have around 40,000 employees and an annual turnover of 10% with a contact/hiring market ratio of up to 1:10. There is therefore a widespread need for recruiting resources for new staff, guaranteeing quality and quantity of candidates to cover the needs of the individual companies. This service helps streamline the employment process and align possible candidates better with jobs on offer. InfoLavoro is also the headquarters of the ISO 9001:2000 certified CAMPUS ATM and offers a recognised level of qualification for early school leavers, helping them to get jobs on offer. ATM conceived and promoted the "Buon Samaritano" (Good Samaritan- the sleeping bus') project, a service providing assistance to the homeless, now been running for three years consecutively. Every night in winter months from 9 pm to midnight, a special, full-heated ATM vehicle crosses the streets of Milan offering assistance, psychological help, clothing, hot meals and medical services to anyone who may need it. This service began in early December 2006 and will continue until 31 March 2007. Apart from the ATM driver, every night three volunteers from the Fondazione San Francesco and a doctor from the Doctors of the World Association can be found on board the vehicle.

Working in the field, the "Buon Samaritano" mainly handles emergencies, responding to primary needs of social outcasts, but it can also offer comfort and

solidarity to people who are otherwise excluded from society and social contact.

[Case study](#)



Women now make up 17.4% of the workforce of **BVG, the Berlin operator**, boosted by an affirmative action launched in 2003 and there are more than 30 nationalities represented at BVG. Specialised seminars support the professional advancement of women, given by BVG's own pool of instructors (now 89 strong). This uses the knowledge within a company to its own advantage and limits outside costs for training and coaching. 4 334 employees attended further training in 2004 alone. Mag.net is BVG's personnel platform that arranges new jobs for employees whose positions are discontinued and helps transfer them to new internal positions. Thanks to Mag.net services such as printing, security, cleaning and gardening that were outsourced are now provided in-house. 693 staff members have found new positions through the Mag.net platform.





The ideas and motivation of the employees should be used for the company (practical suggestions, corporate culture) and for the employees (cooperation, improvement, bonuses).

Stuttgarter Strassenbahnen AG feels that employee involvement is valuable and their suggestion system has saved them 225 000€.



De Lijn, transport operator (Bus and Light Rail) in Flanders, Belgium has a self-imposed quota for the recruitment of people of diverse ethnic backgrounds. It is also stepping up efforts to recruit more female staff, by becoming a more attractive employer for women by offering daytime childcare and flexible working hours.

[Case study](#)



Recruitment of quality staff is a preoccupation for many established transport enterprises. 40% of **Regie Autonome des Transport Parisiens**' management will probably need to be replaced in next 5 years due to retirement and staff reductions.

A protocol relating to professional equality between women and men was signed in October 2003 between RATP and its union organisations.

This text specifies several priority orientations:

- consideration of other people;
- enhanced career development possibilities;
- ensuring a mixed composition for any given personnel category;
- maternity leave;
- equipping work premises with specific facilities; and
- childcare leave.

RATP have also introduced a more 'people orientated' approach towards passengers underlining the important role people play in customer satisfaction. Automatised 'Proximity Service Points' eliminate the need for service counters and remove the physical barriers between staff and clients.

Innovations in union relations (apart from social dialogue and a 'demand for attention' system to resolve internal disputes arising between employees), works councils and hygiene and security committees include an original conflict prevention system entitled 'social alarm'. RATP was the first public service organisation to implement this early warning procedure. Unions must inform senior management of any problems that may turn into a real conflict. Both parties must meet within 5 days of this warning and agree on a memorandum of agreement or disagreement before any disruptive actions can be taken. This has helped to reduce the number of conflicts and avoided industrial actions affecting services cutting the number of strikes by a factor of four.



Between two stops – the **Société de Transport Montréal (STM) Canada**, started a special service called 'Between two stops' in 1996 when women traveling on their own may ask the bus driver to stop between bus stops, increasing their safety at night. This service is offered from 19.30 and 21.00 in summer. This measure received an award from UN HABITAT in 2000 as an example of public services recognition of the special needs of urban women. In addition a public private partnership offers an on-demand taxi service on 7 routes in low density and demand areas replacing a regular bus service.



Communicating sustainable development

Communicating the advantages of sustainable development is also key. This includes communicating with all stakeholders – firstly to employees and staff about the organisations strategy and the role they play in this. Intranet, newsletters and evaluations/surveys are all excellent ways to communicate with all staff members but these need to be complemented with workshops and information sessions so that there is a two way process. Setting certain objectives into the performance evaluation of business units and staff members have also been shown to product quicker understanding and action. The knowledge within an organisation can be very valuable in the definition of the strategy and also to identify where ‘the low hanging fruit’ is. ‘Low hanging fruit’ refers to actions that are easy and not costly to implement, bringing benefits that were otherwise not apparent.



STIB uses sustainable development as a key message in its advertising campaigns.



With silent trams the city of tomorrow slips into tranquility
Making the future easier



Using the metro and bicycle in tandem, is thinking of the transport of tomorrow



Washing our vehicles with rainwater – preserves water for tomorrow



Metro Lisbon

Marketing campaign at the interchange stations parking with sun protecting panels (useful in hot and sunny cities like Lisbon...) with the slogan “I went by Metro”



Carris, Portugal is rolling out a major advertising campaign to customers (print, TV and radio) as part of the new Line 7 launch.





Keolis, the private multinational French operator has developed a card game to help primary age children understand the link between transport and sustainable development called Passôvert. Keolis also specifically chose not to manufacture the game in China for ethical and sustainable reasons rather than using the cheapest option.



Communication is also a way of bringing people together to learn about better habits. **Denkstatt Umweltberatung und Management GmbH**, Austria have an innovative way to both improve the health of employees, build teams and to communicate the benefits of organic produce. [Case Study](#)



Ferrocarrils de la Generalitat de Valenciana, Valencia, Spain has a programme 'Línea 0' to give support to and organize cultural actions and help promote responsible consumption. Línea 0 tries to connect, like a real tramway or metro line, FGV's commitment in CSR with society and organises campaigns and actions jointly with Public institutions and NGO in the fields of solidarity, cooperation, energy saving or promoting healthy habits. The activities are highly appreciated by customers who are rating them with 9.1 out of 10 points and the number of requests and actions with different partners are used as indicator to measure the success of the programme.

[Case Study](#)



8. Barriers and drivers to implementing sustainable principles

There is still quite a low understanding of what sustainable development really means across all levels of an organisation and few signatory companies feel that there was a good understanding of this issue. Many find a partial understanding, diminishing as one looks to the lower levels of any organisation. This is slowly changing as the topics of health, safety, environmental awareness, work /life balance and corporate social responsibility are increasingly becoming part of business planning and management objectives, and there is a better understanding of them by all levels of society.

Increased legislation has stimulated interest in improving performance and increased the introduction of clean technologies into public transport, but this is not enough. There are still many questions, barriers and inconsistencies that need to be addressed.

Some of these issues such as energy for public transport; and of course preparing a set of indicators that can be used by charter signatories to report on their sustainable development performance, will be addressed by UITP and its charter signatories over the next two years.

Sustainable development – extra cost or extra profit – some economic aspects?

The traditional cost benefit analysis applied to parts of the value chain in public transport usually shows that the much of the clean technology on the market today is more expensive. However when a full life cycle approach is taken these costs can be quickly recuperated.

It is also difficult to quantify the benefits to air quality and the provision of better, cleaner public transport as this depends on a variety of elements – all of which need to be in line for success.

Procurement is an area that can stimulate better pricing and improve environmental performance.



A general paper from OECD

<http://www.oecd.org/dataoecd/25/35/31683750.pdf>

UITP has produced [bus tender guidelines](#) that also take the environmental performance into account.



Metro Mondego, Coimbra, Portugal has signed the charter as a pledge even before the light rail system is built. 'Metro Mondego will be a light rail system in the historic University City of Coimbra, Portugal. Signing the UITP charter has made us think of how we can incorporate a high level of sustainability in the construction of the light rail line and its stations as well as building environmentally and socially responsible requirements into the tendering process'.



HKL, Helsinki City Transport and YTV Helsinki Metropolitan Area Council signatories to the charter and host to UITP's 57th World Congress May 2007 have reduced car use by 10% since 1995 by integrated land use planning, investing in attractive levels of public transport and using 21st century IT technology. Intelligent controlled traffic lights that give priority to public transport vehicles over other traffic has helped save Helsinki City Transport 1 million per year by increasing the efficient use of infrastructures and reducing the number of vehicles needed in service. Accurate real

time information at stops help keeps passengers informed and more than 8000 paperless tickets are bought everyday by SMS on mobile phones, using existing GSM technologies.



SLTF, Swedish Public Transport Association is setting standards on basic Nox and PM emission levels and also to help bring in more alternative fuel use into Swedish bus fleet (from 10% in 2007 to 90% in 2020).

By 2012 the aim is that at least 40% of the km-production by bus and non electrical railways shall be carried out with renewable fuels, by 2020 this should be at least 90%. About 95% of all local and regional PT services are procured under competition by the Public Transport Authorities (PTAs). By doing this the ratio ticketing /total costs covered has risen to 55% reducing the about of subsidy required. The bus market is dominated by a few large companies such as Swebus; Veolia and Busslink, who account for about 55% of the fleet. All three have non-Swedish majority ownership. About 1450 buses are operated by local

companies who each have between 1-9 buses, who often group together to respond to bids.



Many of the clean technologies need an investment – financially as well as in time and effort but there are ways around this. **Bremer Strassenbahn AG BSAG**, a medium sized city in Germany (population 600,000) has a strong commitment to provide integrated sustainable mobility. It is well known for taking leadership in car sharing several years back despite nearly a 50% reduction in subsidy (from some 80 million € in 2003 to 43 million € in 2010). It has had to be very innovative to be able to provide the same service level in this new framework, and keep its commitment to high environmental standards. It has managed to do this with a small order of EEV buses only costing an extra +/- 7000 € more than a standard bus. 10 buses were procured in 2006 and a further 40 are ordered for 2007 - improving their environmental performance at an affordable price.

What has been achieved?

This is a list of the examples from charter signatories that demonstrate the progress and commitment of the sector towards a sustainable future.

[List of best practises available from Charter Signatories \(2005-2007\)](#)

This list groups the examples around key words such as: Environment; Economic; Social; Energy; Governance (policy development); Employee/staff; resources (water etc); City development; Climate change and Communication.

This information is given as examples in this report but in some cases is complemented with more information available from UITP's Mob+ electronic documentation centre.

Challenging conventional wisdom

All of this is well and good, but it is difficult to persuade governments and the business community to opt for sustainable and environmentally-friendly transportation unless it is a viable business proposition. As well as addressing environmental and social issues, UITP's approach to sustainability is thus also firmly rooted in the soundest business principles and practices, such as cost-efficiency, profitability and growth potential.

Transport infrastructure is often not the domain of UITP members but some authorities are taking up their role in ensuring that there is progress in 'building green'. There is much that can be done at the factory, office and depot level.



New York City Transit, USA

Already has a strong commitment to 'building green' in capital projects. A new programme (2007) and reporting process and every construction project will display a Green Initiatives Plaque. Changing fluorescent lighting from incandescent lighting in tunnels and stations has increased lighting by 500 – 750% respectively while reducing energy costs by US\$ 4.8 million dollars per year. Energy gains have also been made by simply reducing the maximum speed of trains from 55 mph to 50 mph, bringing a 15% saving in traction power. Rainwater collected in a 40,000 gallon tank on the Corona Car (vehicle) Maintenance Facility and a 200 000 gallon tank at Grand Avenue Bus Depot provide 85% of grey water to these facilities.



Merseytravel, Liverpool, UK

has stated policy for the next five years that all new buildings need to meet a minimum of 'Very Good' rating (according to the UK Building Research Establishment Environmental Assessment Methodology). This addresses energy, water and other resources use, building materials and embodied energy.



Yarra Trams, Melbourne, Australia

has retrofitted a 50 year old Tram Depot and transformed it into a modern and environmentally sustainable workplace. The pilot project, named 'The Green Depot', aimed to reduce the depot's environmental footprint by improving energy and water efficiency but also address a range of wider opportunities including waste management, the depot's appearance, change employee perceptions and develop relations with the local community. In January 2007 all Yarra Trams sites were re accredited to the new ISO 14001: 2004 Standards becoming the first transport operator in Australia to gain accreditation. Key learning and successful outcomes came from the strong involvement of staff and engagement of the local community. If industry is prepared to show leadership with demonstrable results particularly now in the area of sustainability there are an enormous number of willing followers.



Augsberg, Germany has installed solar panels to supplement their depot requirements for energy.



Intelligent Resource Use

Energy is not the only resource that needs to be carefully and efficiently used. Water, waste management and disposal as well as the rational use of paper.



Stuttgarter Strassenbahnen AG uses daylight in metro stations, 'Open air' metro station. Natural lighting means less energy use overall for lighting and ventilation, and brings benefits from a social perspective as there is a higher feeling of security, and a higher quality of environment at interchanges and transfers.

- Raised Platform with ramps at light-rail stops brings economies through lower circulation time and less vehicles used. Barrier-free access to vehicles, higher security & less risk of accidents for passengers (no steps) are appreciable social benefits.
- Outside lighting with specific 'illuminant' (insect friendly, long lasting, energy saving). Although

there are higher acquisition costs, operating costs are lower and there are environmental benefits with a higher protection from flying insects, energy saving, and less waste.

- Brake Energy Recuperation of up to 50% energy recovery through enhanced techniques on new vehicles, and older vehicles are being modernized but they can still give more or less 30% energy recovery.



Merseytravel, Liverpool UK have a policy to reduce water usage by 15% (annually) which they have kept to since 2004. Electricity procurement increases its share of renewables year on year and an annual 2% incremental reduction of CO₂.



Stadtwerke Augsburg, Augsburg Germany has a strong focus on the introduction of renewable energy for some of the ancillary operations around the production and maintenance of their services. Collecting solar energy to heat the water for washrooms in some depots; installation of photovoltaic panels and the construction of a biomass heating unit are examples.



Yarra Trams



DVB - Dresden Dresdner Verkehrsbetriebe, Dresden – has several ongoing programmes that show a commitment to reduce use of waste and to choose recycled goods.

- Waste water cycle mechanism: the polluted washing water is cleaned through a physical and chemical waste water processing mechanism and then used again. Since 1995, more or less 80% of used water is reused and the costs of fresh water are reduced.
- Use of Normal Track Sleepers made of recycled materials: long-term test to use synthetic recycled material for sleepers. The project is being scientifically accompanied by a Dresdner University. More or less 20 metres of rail as well as a track switch have been outfitted with these sleepers since 2004. Besides the cost price, there should be a cost saving. At the beginning of the test, the recycling material was cheaper than wood or concrete. This has since changed but it may still be interesting in terms of reduction of raw material use and of waste.



Companhia Carris de ferro de Lisboa, Lisbon, Portugal

Reduce water use by monitoring consumption allowing discrepancies/leakages to be detected; recycling systems for fleet cleaning in all depots and introduction of taps with consumption monitoring implementing (-11,9%).



RATP, Régie Autonome des Transports Parisiens, Paris, France has a 'Water Master Plan. Using "water cycle" methods to get staff to think more carefully about water consumption habits and production tools. The collect of rainwater from the metro in particular can be put to good use in other areas of the city. Seepage from the public water supply network needs to be addressed and put back into the natural environment.



Knorr Bremse, international supplier of braking equipment to the industry (both rail and road) has developed oil free compressors reducing the environmental impact and lowering the amount of hazardous materials to be disposed of in full life cycle analysis. Their weight optimized braking equipment reduces energy use in operations and they have developed ITS¹³ driving support systems to support energy efficient driving.



Vossloh Keipe, develops, manufactures and markets electrical propulsion technologies for public transport vehicles making them silent, clean, and energy saving is focusing on hybrid busses in 2007 for example the 24 metre "E-bus" with hybrid propulsion. Energy saving of 356% are also possible with the "Supercaps" which save braking energy, and use it for next drive.



Bombardier Transportation developed its MITRAC® Energy Saver in such a way that it utilizes parts of the propulsion electronics of the vehicle. The energy consumption of light rail vehicles thus can be reduced up to 30% (compared to state-of-the-art technology). The same approach can also be used in diesel-electric regional/suburban trains as booster or to allow shut-off of the engine in stations or tunnels.



Bombardier Transportation was the first company in the Rail Industry to produce an Environmental Product Declaration (EPD) in 1999, followed by several others. An EPD presents quantified environmental life cycle information of a product and is based on the ISO 14025:2006 standard, for example it is a reliable and credible way to communicate its environmental performance. Starting with the EPD for the Locomotive Class 185, Bombardier's product documents have also been validated according to EMAS (the EU scheme for environmental management and auditing). In 2006, two EPDs based on ISO 14025:2006 and validated according to EMAS.

¹³ ITS – Intelligent transport systems

In line with the standard's requirements, associated Program and Product Category Rules are publicly available. An Environmental Fact Sheet (EFS), which is based on the information in an EPD taking into account special adoptions, material changes and improvements is also available giving information on a customer specific version of a product.



Siemens Transport's approach of "Green Mobility" incorporates environmental protection into every aspect activities: from product development and manufacture to their use and environmentally sound disposal.

- The Sibac® energy storage system made by Siemens harnesses the energy generated during braking and uses it during acceleration, thus reducing power consumption by 15 percent and the cost of operation.
- Eurorunner® type diesel locomotives from Siemens consume 5 to 10 percent less fuel and can be counted among those vehicles with the lowest noise and exhaust emission levels in Europe.
- The Oslo metro car with 94% recyclable materials with a 2.6grm CO₂ for every km travelled and every metric ton of vehicle weight.



Implementing sustainable principles into a company such as **Scheidt & Bachmann**, a medium sized family owned company (now in its fifth generation) making ticket vending machines needs careful management. Costs need to be carefully monitored and processes introduced step by step. The company has always been run on ethical principles, proving secure employment for the local community – indeed one of its strengths is that even today more than 200 of the 1700 strong workforce have been with S&B for more than 25 years. Separating waste is an obvious action but this is not so simple with a large workforce that has established working practises, and when working with raw materials. Processes to sort waste according to its reusability and minimise the amount of disposal required for hazardous materials have been put in place. This has led to a total reduction of waste, and better management of raw material storage, reducing environmental incidents and protecting employees' health. Efforts are also being made to lower overall power use (they have their own heating plant), reduce the use of paper in offices and to reduce the energy consumption of their products.





9. Conclusions and recommendations

Sustainable development is how you plan for the future while you are operating in the now. The traditional chiefs of the native North American Iroquis tribe of Indians weighed any decision they made on its impact on the welfare and wellbeing of the seventh generation to come. This might seem a little radical in today's modern society. We have become very advanced in terms of technology but we may have lost some of our values on the human and societal interdependence side and we do not wish to be responsible for an intergenerational market failure due to lethargy.

In 2000 world leaders promised to half the number of people living on less than one dollar a day (some 1.2 billion people or 1/5th of humanity) yet this has not been achieved – which means that we need to renew and review our efforts.

There has been considerable progress made in the last 5 years and UITP members have demonstrated clearly that they are taking leadership in this area. In 2005 we were only able to report on 55 examples, this report has nearly doubled this. New signatories have come on board from different parts of the world and there is an increasing awareness of how to implement sustainable development into public transport organisations, authorities and the supply industry.

The UITP Sustainable Development Charter is a dynamic programme and full and pledge level signatories will be able to deepen and further their existing commitments through the exchange of knowledge and best practices by adhering to it. In addition UITP has offers a variety of training and support products to help signatories.

Becoming a signatory to the charter gives UITP members access to a learning network which is a practical resource to help them implement good management principles into their organisations.

The next two years will certainly be exciting with work being done to build a better understanding of carbon trading and how it might benefit public transport, developing and piloting a set of indicators adapted to sustainable development and public transport and an increase of awareness by expanding the list of signatories.

This report has been prepared by the UITP Sustainable Development Commission.

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