DEDICATED TO MAKING A DIFFERENCE

mobility for development

Executive summary

World Business Council for Sustainable Development

Mobility for Development
Foreword

Mobility is essential to economic and social development. It enables people to access goods, services and information, as well as jobs, markets, family and friends. Mobility can enhance quality of life, but the development of mobility in today's conditions also brings congestion, air pollution, traffic-related accidents and the environmental costs of transportation.

The situation is nowhere more acute than in the cities of the developing world where rapid growth, population density, poverty and inequality, limited public capacity and resource shortages add further to the challenge of enabling people and goods to move about sustainably.

As members of the business sector we are keen to see our products and services penetrate new markets in the developing world. We also recognize that we have to play our part to increase access to mobility and to reduce its negative impacts. We believe that through effective engagement with others these goals are achievable.

This is why we initiated the WBCSD Mobility for Development project to research the state of mobility in rapidly growing cities at various stages of economic development.

The project builds on earlier work of the WBCSD, summarized in the publication *Mobility 2030: Meeting the Challenges to Sustainability*. The report concluded: "*Today's system of mobility is not sustainable. Nor is it likely to become so if present trends continue.*" With 3 billion people surviving on less than US$ 2 per day who are poorly served by existing mobility systems, the urgent challenge is not only to reduce the environmental footprint of mobility, but also to increase the spread of its benefits to those currently excluded. *Mobility 2030* referred to this as "narrowing the mobility opportunity divide", i.e., finding ways to help increase mobility opportunities for people at all societal levels.

The project set out on a process of research, dialogue and learning in four cities – Bangalore in India, Dar es Salaam in Tanzania, São Paulo in Brazil and Shanghai in China – to better understand how public agencies, business and civil society in these rapidly growing cities are working to develop solutions to the mobility opportunity divide and the negative impacts associated with mobility.

Four common themes emerge from our research:

- **Sustainable mobility is a key contributor to development.** Each of the cities we studied has experienced rapid urban and economic growth, accompanied by growth in transportation, both passenger and freight, public and private. We saw not only how the efficient movement of people and goods opens up opportunities for broad economic development, but also how the problems of uncontrolled, uncoordinated and under-resourced transport development are obstacles to development.

- **Cities can learn from one another and history.** Although there are no universal solutions or blueprints for sustainable mobility development, the cities studied and others around the world share common issues. While the path to address challenges is particular to each city, stakeholders can nevertheless benefit from the experiences – both good and bad – of other cities and apply this learning to their own situation.

- **Each component of society has a role to play, both individually and in collaboration with others.** Government at national, regional and municipal levels, business as both a provider and user of mobility solutions, and citizens as individuals and as members of civil society organizations must join together in the search for appropriate local solutions.

  We cannot find solutions without such collaboration. Each of us must approach the challenge with our own commitment, passion and intelligence, as well as with the foresight and open mind necessary to learn from and work with others.

  At the same time, we must all take responsibility for our personal choices with respect to the sustainable use of transport and mobility services.

- **It takes motivated and committed leadership to create a functioning mobility system.** Cities need overarching institutions to coordinate transport and regional development, and accountable leadership capable of mobilizing stakeholder support, setting overall priorities for transport systems and associated financing, and ensuring effective coordination between institutions.

Our findings can only present a snapshot of the status of mobility in these cities today. However, we hope that the dialogues we initiated in each city will not be one-off events, but part of a continuing debate, through which results will be measured over time.

We believe that breaking down barriers between mobility's different stakeholders is a crucial step to understanding its complexity. It is also necessary to identify obstacles and synergies and create governance structures that work at the speed and scale needed to achieve sustainable mobility. This needs to take place not only in the regions and cities where the challenge is greatest, but also at a global level in order to understand and learn from interactions, good practices and solutions.

As members of the mobility sector, our companies are committed to making a contribution to this dialogue and towards finding sustainable solutions that promote and preserve access and opportunity for all.

BP p.l.c.

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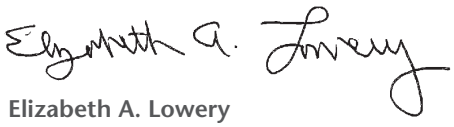

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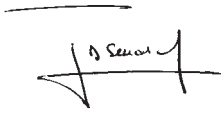

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The four cities

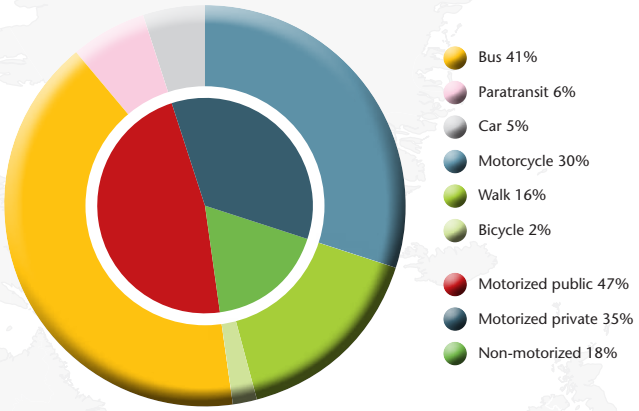
Bangalore

Bangalore is the administrative, industrial and cultural capital of the Indian state of Karnataka. Over the past 30 years it has grown from a university city known for its parks and green spaces into a major center for the high-tech industry. The city has rapidly motorized and has outgrown its transport infrastructure.

Representatives from automobile organizations, information technology companies, academic and research institutes, government bodies and non-governmental organizations came together at The Energy and Resources Institute's Southern Regional Center in Bangalore to discuss the challenges and possible solutions to making mobility in the city more sustainable and socially inclusive, while supporting the city's bid for continuing international competitiveness.

Can Bangalore tackle the congestion that now threatens the city's ability to attract business, and to improve the quality of life of all its citizens?

Figure 1: **Transport modal shares in Bangalore**



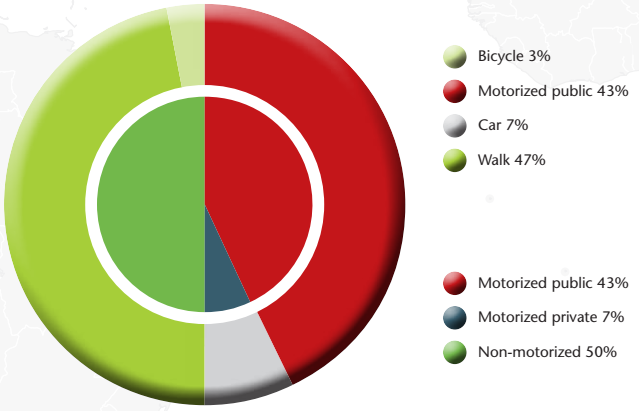
Dar es Salaam

Dar es Salaam is a fast-growing city providing commercial, cultural, trade and transport support for development across Tanzania, one of the world's least developed countries, and neighboring land-locked states.

In a dialogue opened by the Minister of Transport, representatives from different parts of Tanzania's government, civil society and the private sector, from neighboring countries and the international development community discussed the mobility challenges facing Dar es Salaam and Tanzania, and considered possible solutions. Participants were unanimous that mobility is a critical enabler for the social and economic development of the city, its rural hinterland and the Eastern African region more broadly.

Can the city overcome current low infrastructure levels and decades of poor maintenance to grow as the trading hub for the wider region?

Figure 2: **Transport modal shares in Dar es Salaam**



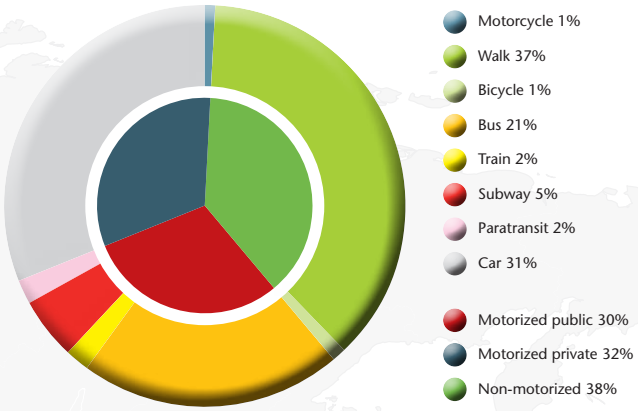
São Paulo

São Paulo is the industrial and financial center of Brazil, and one of the largest cities in the world. Despite its extensive bus network and efficient metro system, public transport use is falling and car use rising. With tailbacks up to 200 km long during rush hour, the mayor and the city's highest earners have taken to traveling across the city by helicopter.

A wide ranging group of stakeholders from business, NGOs, regulators and government bodies came together in a dialogue in São Paulo co-hosted by the WBCSD and the Conselho Empresarial Brasileiro para o Desenvolvimento Sustentável. The participants discussed the mobility challenges that São Paulo and other cities in Brazil are facing.

- *Can São Paulo avoid permanent grid-lock?*
- *Is the mobility system in São Paulo adequately addressing the mobility needs of all citizens?*
- *What more can be done to reduce the adverse health and environmental impacts from transportation in São Paulo*

Figure 3: **Transport modal shares in São Paulo**



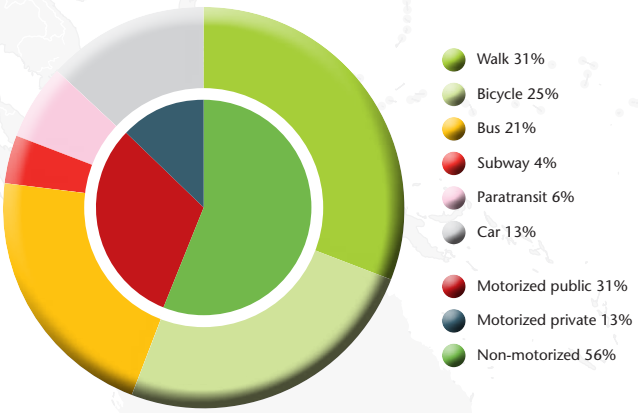
Shanghai

With Shanghai as its hub, the Yangtze Delta Region in Eastern China is home to over 80 million people and 16 dynamic cities. Massive investment of both capital and political will into transport infrastructure has been a key factor in the region's economic growth and reduced poverty levels in recent years. Demand for both passenger and freight transport is rising faster than capacity, putting the path of future development in peril.

The WBCSD and the China Business Council for Sustainable Development brought together members of the business community and academia to consider the role that mobility plays in the development of Shanghai. Getting urban transport right is an important challenge for China, where over the next 25 years the urban population is expected to double, the urban economy to quadruple, and the motor vehicle fleet to grow by a factor of six. The participants looked at Shanghai as a window into the challenges that other rapidly growing urban areas in China are facing.

- *Are the economic and environmental impacts of road transportation threatening to get in the way of economic growth?*
- *What additional role might rail-based transport play in improving sustainable mobility in China?*
- *How important is it to pursue an integrated approach to achieving sustainable mobility in China?*

Figure 4: **Transport modal shares in Shanghai**



For detailed information on the mobility situation in each city, access the full Mobility for Development report as well as the city background reports prepared for each dialogue on: www.wbcsd.org/web/m4dev.htm

What did we learn?

In general, mobility opportunities are expanding…

Significant investments of public money and city space for road building and metro projects have to a greater or lesser extent created improvements in the level of mobility available to the general population in each of the four cities. However, significantly fewer resources have been devoted to improving and maintaining other means of transport, including non-motorized transport and bus services.

…but for the poor the mobility situation is deteriorating.

The evidence appears to show that in each of the four cities the mobility opportunity divide between rich and poor is substantial – and widening. Pedestrians, cyclists and bus passengers have to travel on increasingly congested city streets and poor sidewalks. Informal settlements are poorly served by public transport systems, and paratransit services, such as auto rickshaws and minibuses that often fill the gaps, are unsafe, unreliable and polluting.

Governments have been experimenting with ways of making public transport more affordable for schoolchildren, the elderly and the poor, such as through subsidized fares and integrated "single ticket" transfer systems. However, the efforts to help special groups obtain affordable transportation sometimes have unintended consequences, such as in Dar es Salaam where it is reported that paratransit service providers refuse to accept school children since they take the place of full-fare passengers.

Transport-related health and safety risks remain a serious problem….

Each city suffers from a high number of transport-related deaths and injuries, with pedestrians, bicyclists, and riders of motorcycles and scooters the principal victims. The bad state of roads and vehicles is the major cause for the high casualty rates, but inexperienced drivers and pedestrians are also identified as critical factors. Often intersections are poorly controlled and sidewalks nonexistent or obstructed. Bicycle lanes are extremely rare.

Some of the actions being taken by cities to improve road infrastructure, such as road widening, may actually be harming the safety of pedestrians and bicyclists. Sidewalks are being appropriated for roads, while poorly maintained infrastructure deteriorates rapidly once it has been put into service.

Each city is trying to reduce transport-related conventional emissions. However, efforts to reduce pollution on a per-vehicle basis through stricter controls over vehicles and fuels are being offset by growth in the total volume of transport activity. It is our understanding that, although reductions from current emissions levels may occur over the next couple of decades for several pollutants, without further tightening of emissions standards in the future it will be difficult for the four cities to fully eliminate transport-related conventional emissions as a significant public health concern in the foreseeable future.

Personal security on public transport systems appears to be a major concern of public transport users everywhere.

…and congestion is getting worse.

Each city reports major, and growing, problems with traffic congestion, which they are addressing through a combination of road building, public transport improvements and, in some cases, demand management. At each of the dialogues, skepticism was expressed about whether road expansion results in reduced congestion.

Cities promote public transport.

In principle, each city has a policy of promoting public transportation use over private vehicles. Shanghai is controlling the ownership, São Paulo the use of private cars. Bangalore, Shanghai and São Paulo each have experimented with dedicated lanes to give priority for buses. But in each city, these lanes are said to be poorly enforced.

Each city is in the process of upgrading its public transport systems. But they face the challenge of competing with "informal" paratransit service providers on the one hand and privately owned vehicles on the other.

Innovative solutions can help mitigate negative transport impacts and narrow the "mobility opportunity divide".

The growth of information technology in developing countries can offer opportunities to enhance the sustainability of mobility. The cities we visited are investigating and developing intelligent transport systems to improve traffic flow, increase the efficiency of trucking operations and develop passenger information systems on public transport services.

The integration of different transport modes is crucial to ensuring access to mobility opportunities for a wider population. Information technology could also be used to integrate paratransit service providers as a feeder for upgraded express bus systems.

Stakeholders are not confident that sustainable mobility will be achieved in their cities.

The background reports and dialogues concluded that mobility is unsustainable at present, and many felt that the situation was in danger of deteriorating. Five key institutional barriers and obstacles were identified:

- **Securing adequate stakeholder support** – In each city, mobility challenges are the focus of both high-level policies and visions as well as grass roots concerns among local business and residents. However, this concern is often not being translated adequately into political will and action at the municipal level. In particular, the concerns of poorer residents are rarely prioritized.

- **Governance and policies** – Concerns are raised in all cities about the lack of integration and coordination among municipal authorities responsible for implementing transport policy. Without an overarching transport authority, cross-cutting issues of social, environmental and economic sustainability, integration of transport and urban planning, inter-modal linkages and managed growth in travel demand are not easily addressed.

- **Capacity to plan effectively** – The cities' lack of capacity to integrate urban and transport development has resulted in unplanned sprawl and failure to develop the mixed-use and high-density living necessary to develop effective public transportation.

- **Capacity to implement** – Skills gaps are critical obstacles to executing and operating major infrastructure investments and mobility innovations in some of the cities we visited. Poor road building practices and a lack of sufficient truck inspection capacity, for example, contribute to rapid road deterioration.

- **Capacity to finance and maintain mobility investments** – While each city's financial capacity is quite different, they are all struggling to balance necessary improvements to transportation infrastructure with other pressing human needs. Some of the cities have successfully harnessed private investment. But in the end improved services and facilities have to be paid for either by tolls and fares, real-estate revenues or from the public purse. This can mean pricing poorer residents out of improved services and well-connected neighborhoods.

Conclusions

No study limited to just four cities can claim to provide a complete picture of the mobility challenges faced by rapidly growing developing country cities and how they are responding to these challenges. But we believe that our study of the four cities is helpful in identifying issues to which business, government and individuals need to pay attention.

As the cities strive to improve mobility for their citizens, each one is aware of the disparities in mobility opportunities that exist between its citizens of different income levels. All are trying to address these disparities, though with different degrees of urgency and of success. Each city is trying to tackle the growing transport congestion it faces. Each is spending considerable sums (relative to its resources) in trying to build its way out of trouble, through increasing the number and quality of roads and/or through enlarging and improving the quality, safety and attractiveness of its public transport system.

There are no easy answers. As the experiences of the four cities highlight, it is much easier to assess the problem than to implement effective solutions. Each city faces different challenges in promoting, implementing, enforcing and financing mobility improvements and innovations, and each will have to find its own path.

The integration of different transport modes is crucial to ensuring access to mobility opportunities for a wider population. Public transport systems (bus, metro, etc.) should be coordinated in terms of inter-connectivity, scheduling and tariff structures. Intelligent transportation systems can help integrate paratransit service providers into the public transport services network. Policies to make transport affordable for low-income populations or special groups need to take into consideration, and try to avoid, unintended consequences (such as passengers with subsidized tickets not being accepted by paratransit service providers).

Public-private partnerships, if well planned and executed, can help governments attract private sector investment for projects that would otherwise not be possible. They can shift construction and maintenance risk to the private sector and enable cost savings and service improvement, freeing up the public sector to focus on outcomes.

Key messages for stakeholders

The problems of unsustainable mobility are becoming critical obstacles to development. Decisions made now about urban development will affect how easily problems can be dealt with for a long time in the future. We believe there is an opportunity to leapfrog the unsustainable patterns of mobility that have been developed by many cities worldwide.

Sustainable mobility needs comprehensive, integrated planning. Sustainable mobility cannot be achieved through concentration on one transport mode alone, but by a combination of transport modes that enhance and safeguard quality of life and ensure that people and goods are able to move around efficiently. Cities need to prioritize sustainable development goals and citizens' quality of life in planning mobility solutions, rather than responding to the needs of only one group or the lure of a "silver bullet" transport solution.

Transit-oriented design, transport demand management, integration of paratransit modes and provision for safe and comfortable non-motorized travel including footpaths, sidewalks, crossings and bike tracks are key elements that will need to be considered, alongside effective raising of finance for major infrastructure development and long-term maintenance. Intelligent transportation systems can contribute to reducing congestion and to enabling the integration of paratransit service providers into the public transport system.

Stakeholder collaboration is indispensable to achieving sustainable mobility. Finding sustainable solutions requires that all stakeholders approach the challenge with commitment, passion and intelligence, and with the foresight and open minds necessary to learn from and work with others. All stakeholders, including the non-motorized, vulnerable road users, women, the aged and children, need to be considered in mobility planning. This requires education and capacity building as well as opportunities for citizens to express their opinions in the planning process and through their everyday mobility choices.

We can learn from history and from each other. Although there are no universal solutions for sustainable mobility, there are common issues shared between the cities studied and with others around the world. While the path to resolving challenges is particular to each city, depending on their stage of development and degree of prosperity, cities can nevertheless benefit from the experiences – both good and bad – of other cities, and apply what they have learned to their local situation.[1]

Messages for business

The role of business is to provide innovative products and services that create value for an expanding number of customers. Developing technologies and transport systems that provide efficient, safe and clean transport infrastructure and services goes a long way towards fulfilling human development needs in more sustainable ways. Long-term business viability depends on the ability to respond to changes in the way people use mobility and to balance this with limits in terms of space and other resources.

Business can reduce the mobility-related impacts of its own operations, taking site and sourcing decisions and investments in logistics and employee transportation into consideration. Business investment in sustainable mobility can reduce transportation costs, improve the efficiency of supply and distribution chains and reduce lost time and security issues affecting the work force as a result of transport-related problems.

Business has to engage with other stakeholders from the earliest stage of mass-motorization to promote collaboration towards common sustainable development goals. In particular, business should urge and support government actions towards an integrated and inclusive approach to urban land-use and transport planning and educate, empower and provide incentives to citizens to take up safe, more efficient and less environmentally damaging mobility opportunities. Business can share good practices and learning and provide input to government on the relevant technical aspects of transportation, emissions control and safety policies.

[1] Appendix 1 in the full report lists a number of examples of mobility solutions from cities around the world and provides links to further information to facilitate learning from experience. It can also be accessed directly on www.wbcsd.org/web/m4dev.htm

Messages for governments

Take an integrated and inclusive approach to urban land-use and transport planning. In setting policy for transport systems, urban planning, regulation and financing, national, regional and local governments should prioritize sustainable economic growth and quality of life improvements. Urban regions should consider setting up a single, accountable agency to coordinate action on mobility, to facilitate inter-modal integration and to monitor and share comprehensive data on the mobility situation.

Learn from other cities. Recognize the need for new thinking on urban planning and mobility to avoid developing cities that use ever more resources, including land, materials, energy, time and money, to sustain. Get involved in regional and global learning networks, such as the C40 Cities Climate Leadership Group, the Plus Network on sustainable cities and others.

Ensure mechanisms for stakeholder education and collaboration. Work with local and international business, civil society organizations and community groups, environment, development and mobility experts to develop mobility plans and strategies. Educate citizens on mobility issues and skills, in particular prioritizing key groups including children, new drivers, city migrants and paratransit service providers.

Align incentives with goals for sustainability. Establishing long-term institutional frameworks is crucial to enabling business investment. Public-private partnerships offer a key tool to facilitate infrastructure delivery. By making good use of proven delivery models, as well as learning from cases of failure, public-private partnerships can align private incentives with public goals. Care must be taken in awarding contracts and concessions for public services to ensure that the terms are sustainable, fair and efficient and that social goals and commercial concerns can be reconciled. Financing needs to consider ongoing maintenance and capital expenditure, and care needs to be taken to ensure that the poor are not overlooked.

Provide incentives to individuals to make safer, more efficient and less environmentally damaging transport and travel choices, for example through education and traffic regulation and enforcement and the use of intelligent transport systems, fuel taxes, tolls, congestion charging, park and ride facilities and parking regulations, and through the provision of safe, comfortable, attractive and competitive public transport services.

Build effective capacity to implement national and regional policies, regulations and urban plans. It is critical that plans be supported by the capacity to promote, implement, enforce and finance them. Stakeholders such as development agencies, research institutions and civil society organizations have key roles to play in this respect, providing expertise, information and capacity building for citizens and their public institutions.

Message for citizens

Each citizen has a role to play in sustainable mobility. Individual choices are critical. Citizens must be able to make sound decisions, both in their daily mobility choices and in informing political and business decision-makers, that reflect the broader impacts of mobility on their health, on their environment and on the development of their city and nation. Education and empowerment of citizens are required to allow people to adapt to new opportunities and risks and to become safer and more eco-efficient transport users.

Sustainable mobility will require changes in people and goods transport systems and how society uses them. We believe that sustainable mobility can be achieved in ways that expand opportunities and freedom of choice for citizens of the developing world, and that improve quality of life and safeguard the environment.

About the WBCSD

The World Business Council for Sustainable Development (WBCSD) is a unique, CEO-led, global association of some 200 companies dealing exclusively with business and sustainable development. The Council provides a platform for companies to explore sustainable development, share knowledge, experiences and best practices, and to advocate business positions on these issues in a variety of forums, working with governments and non-governmental and intergovernmental organizations.

www.wbcsd.org

Development Focus Area

Through its Development Focus Area, the WBCSD is seeking to:

- Help companies develop their understanding of how global development issues affect them, generate learning and document good practice case studies of how companies tackle specific development challenges
- Work with companies, Regional Network partners and other development partners to broker inclusive business solutions that are good for business and good for development and provide companies with guides and tools that help them align their business ventures with the needs of society
- Advocate for framework conditions that create an enabling investment environment for business to increase its contribution to sustainable development, through working with policy-makers and other stakeholders

Development Focus Area Core Team

AES, Anglo American, BG Group, BP, Brisa, Codelco, ERM, General Electric, GrupoNueva, S.C. Johnson, Toyota

www.wbcsd.org/web/development.htm

The Mobility for Development project

The Mobility for Development project set out to investigate what the sustainable mobility challenge means for some of the world's fastest growing cities and regions, and to discuss solutions with key stakeholders in each location. The aims of the project were to:

- Raise awareness of the importance of mobility as a driver for economic development
- Develop a better understanding of the sustainable mobility challenges in rapidly growing cities in the developing world so that business can engage more effectively with policy-makers on this issue
- Investigate ways to narrow the "mobility opportunity divide" and mitigate negative transport impacts through innovative and profitable business solutions.

Participating companies

BP (project co-chair), Toyota (project co-chair), Brisa, General Motors, Michelin, Petrobras

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- Shanghai: Prof. Pan Haixiao of Tongji University; dialogue organized by Michelin* and China Business Council for Sustainable Development (CBCSD)

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www.wbcsd.org/web/m4dev.htm

Disclaimer

This report is released in the name of the WBCSD. Like other WBCSD reports, it is the result of a collaborative effort by members of the secretariat and executives from several member companies. A wide range of members reviewed drafts, thereby ensuring that the document broadly represents the majority view of the WBCSD membership. It does not mean, however, that every member company agrees with every word.

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