

Contribution on Smart Urban Mobility for Safe, Inclusive, Resilient and Sustainable Cities





Contribution on Smart Urban Mobility for Safe, Inclusive, Resilient and Sustainable Cities

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Foreword

Joan Clos
Under Secretary-General, United Nations
Executive Director, UN-Habitat



Urbanisation is a force for development. It creates jobs and opportunities. Accessibility and Mobility are vital elements for sustainable urbanisation. But there is a need to change the current supply driven approach which gives precedence to cars, and adopt a new paradigm where urbanisation evolves in a planned manner that renders mobility more rational and coherent and that aligns with the priorities of Agenda 2030 and the Sustainable Development Goals (SDGs).

Transport must remain at the heart of urban planning, providing sustainable solutions to mobility needs through the introduction of transport systems that focus on access, safety and efficiency within the larger context of reducing the need to travel in urban areas. IRU's efforts through its various initiatives, including the Smart Move Campaign, its 30-By-30 Resolution and training programmes delivered through IRU Academy are making an important contribution towards smarter and more sustainable mobility. IRU's efforts through its Global Partnership for Sustainable Transport has also contributed towards mobilising

governments, the private sector and global transport stakeholders to accelerate progress on the sustainable transport agenda and the adoption of United Nations General Assembly resolutions on sustainable transport.

The New Urban Agenda ushers in a different approach that focuses on accessibility of people to all the benefits that the city can offer – services – including sustainable transport services, social –interaction and opportunities.

I welcome IRU's publication on "Contribution on Smart Urban Mobility for Safe, Inclusive, Resilient and Sustainable Cities to the Habitat III Conference". This publication focuses on effectively managing the demand for mobility and also presents recent technological developments that can improve accessibility to transport in cities while keeping pace with urban growth. In this manner, the publication also effectively complements the Global Report on Human Settlements 2013: Planning and Design for Sustainable Urban Mobility.

Preface

Achieving safe, inclusive, resilient and sustainable mobility for all

Umberto de Pretto,
IRU Secretary General



The unprecedented challenge of urbanisation poses critical questions for global mobility: how best to support trade, tourism, economic growth, jobs, safety, the environment and the world's communities?

Innovation is revolutionising the way people and goods are moving. Electro-mobility, automated driving, connected vehicles and infrastructures, new mobility concepts and practices – these initiatives are already shaping the way both businesses and individuals approach mobility and transport.

Yet our mobility policies and practices are at a crossroads. Millions of citizens across the world, in particular in the developing world, still have limited access to decent mobility solutions, which would empower them and offer them improved social, work, health and leisure opportunities.

Given that 90% of global population growth will occur in cities of developing countries, this issue is critical to the New Urban Agenda. IRU positively believes that the solutions lie with collective passenger transport – bus, coach and taxi – which have the potential to offer the safest and greenest modes of transport, globally. For this reason, strategic investment in bus, coach and taxi infrastructure is pivotal and we are excited to be leading this effort.

In 2015, member states of the United Nations agreed on a global vision for sustainable development, with the adoption of the 2030 Sustainable Development Agenda and its 17 Sustainable Development Goals. Also in 2015, the international community adopted the Paris Climate Change Agreement, to “strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty”. Changes to the way we approach the movement of goods and people will be vital to the success of these global commitments.

IRU-initiated public-private expert groups are expanding in various world regions. Their objective is to devise a shared vision and dedicated sustainable mobility action plans. They are the industry's contribution to the ongoing global debate

on the best way to achieve safe, inclusive, resilient and sustainable mobility for all. Alongside other IRU initiatives, such as the Smart Move campaign, UpTop taxi platform and Global Partnership for Sustainable Transport, they respond to the urgent need for a paradigm shift – notably in collective door-to-door public transport, infrastructure and services.

Collective short and long-distance passenger transport – by bus, coach and taxi – is the most dynamic and customer-responsive part of the door-to-door mobility chain. It is the backbone of efficient public mobility and an optimal, efficient and sustainable alternative to the use of private cars, coupled with a unique door-to-door customised service. As such, these transport modes are uniquely placed to substantially contribute to achieving ambitious objectives for sustainable mobility. Involvement from the private sector is paramount to meeting these challenges and realising the objectives set at the global level.

It is, therefore, in the public interest to place buses, coaches and taxis and their role in the mobility and travel chain at the heart of policy making at international, national and local levels. Setting clear policy and business targets to increase their use and modal share – and where feasible, to double it by 2030 – will facilitate the development of a proactive public, financial, fiscal, legislative, market and operational environment, which will encourage service provision and thereby produce a shift in commuter and traveller behaviour.

As a global leader in nurturing and promoting innovative and inclusive mobility solutions for all, IRU is ready and willing to work together with its partners from the public and private sector, to take the lead on the implementation of the mobility dimension of the 2030 Sustainable Development Agenda and Goals and the Habitat III New Urban Agenda.

Executive summary

Smart urban mobility for smart sustainable cities

IRU is the world's road transport organisation, promoting economic growth, prosperity and safety through the sustainable mobility of people and goods. Founded in 1948, IRU has members and activities in more than 100 countries. Its four core objectives are to facilitate trade, promote mobility, make transport more sustainable and value safety for people and goods.

The road transport of passengers and goods is a critical component of the United Nations 2030 Global Sustainable Development Agenda, which seeks to "take the bold and transformative steps which are urgently needed to shift the world onto a sustainable and resilient path." Whether it is clean, green technology, innovations in commercial vehicles or reducing the environmental impact of road transport by cutting emissions, a commitment to sustainable and efficient transport by road is one of IRU's key principles as it seeks to integrate the UN Sustainable Development Goals (SDGs) into every aspect of its practice.

A Common Global Framework for Sustainable Transport

For more than half a century, most countries have experienced rapid urban growth and increased use of motor vehicles. This has led to urban sprawl and an even higher demand for motorised travel, with a range of environmental, social and economic consequences.

In the coming decades, it is expected that approximately 90% of the planet's population growth will occur in the cities of developing countries. These cities are struggling to meet the increasing demand for mobility and investment in transport. Today, the development of sustainable transport, including the delivery of accessible, cost effective and sustainable mobility, represents a major challenge for many countries and regions, especially for landlocked developing countries (LLDCs), least developed countries (LDCs) and small island developing states (SIDSs). The international community is increasingly prioritising sustainable transport at a multilateral level. This involves the requirements for safe, inclusive, resilient and sustainable transport, all of which go hand-in-hand with more stringent requirements in terms of safety and security, reducing the impact on the environment and climate change, and improving energy efficiency. Achieving truly sustainable transport systems would ensure greater connectivity between world markets and expanded business opportunities.

In 2014 and 2015, several key UN resolutions were adopted with the aim of promoting international transport, tourism and transit corridors. In July 2015, the Addis Ababa Action Agenda recognised the critical role of businesses and public-private partnerships (PPPs) as sources of investment and drivers of technological development and innovation.

Transport is explicitly reflected in the 2030 Agenda for Sustainable Development. The Paris Climate Change Agreement has also created great opportunities and responsibilities for the transport sector. In its ongoing work, the UN Secretary-General's High-Level Advisory Group on Sustainable Transport (HLAG-ST) also acknowledges that access to transport is at the heart of sustainable development. It emphasises the fact that accomplishing the SDGs will rely on advances in sustainable transport. The Avoid–Shift–Improve approach is increasingly accepted as a useful framework within which to take action in support of sustainable transport. Global implementation of the UN resolutions relating to transport and tourism will empower governments to make policy enhancements and businesses to explore, innovate, create and build opportunities for better mobility and growth.

Sustainable Transport at the Heart of Habitat III's New Urban Agenda

By 2050, the urban population is expected to reach 66% of the world's total. Africa and Asia together will make up nearly 90% of the increase. In developing countries, the demand for mobility for both people and goods is growing significantly every year, and safety in these countries is of particular concern. Approaches using information and communications technologies (ICTs) for smart urban transport have a vital role to play in achieving the SDGs and their targets relating to sustainable urban transport. In addition to financing and ICTs, sustainable urban transport's key drivers focus on demand, an enabling policy environment and, in particular, promoting development oriented towards collective public transport.

The New Urban Agenda (NUA) for the Habitat III process has highlighted the critical role of transport in furthering sustainable urban development. It urges a "transformation in mobility policy" with a prominent role for collective door-to-door public transport, together with walking and cycling, as a crucial element of integrated land-use and transport planning. National and local governments have important roles to play in implementing various commitments, in partnership with businesses and international organisations such as IRU. The NUA rightly emphasises the urgency of the paradigm shift required to cope with the widely predicted urban challenges the world will be facing in the coming years. That shift will require a massive increase in accessible walking, cycling and, indeed, collective door-to-door public transport, infrastructure and services. The NUA also highlights the need to decarbonise urban transport to make cities more resilient. It emphasises the key role that moving goods plays in enabling economic development. The NUA further emphasises the need to take measures to improve road safety and fully integrate it into mobility and transport infrastructure planning and design, while at the same time promoting the implementation of UN vehicle safety regulations.

Sustainable Urban Mobility for All, through Compact Cities and Efficient, Collective Door-to-Door Public Transport

UN-Habitat's Global Report on Human Settlements, entitled Planning and Design for Sustainable Urban Mobility, provided guidance on developing sustainable urban transport systems. The report outlined trends and conditions and reviewed a range of responses to the urban transport challenges worldwide. It also analysed the relationship between urban form and mobility, and called for a future with more compact, efficient cities. There is an important role for urban planning in the development of smart, sustainable cities where non-motorised travel and collective door-to-door public transport become the preferred modes of transport. Success in this area is essential to creating more equitable, healthy and productive urban living spaces that benefit both people and their environment.

The report also provides recommendations on how national, provincial and local governments and other stakeholders can develop more sustainable urban futures through the improved planning and design of urban transport systems. There is also need to improve the public image and acceptance of collective public transport systems. More needs to be done to increase the reliability and efficiency of integrated public transport services and the broader public's understanding of it. It must include taxis, car sharing and long distance coaches, and all these services must be more secure and safe. Indeed, most journeys involve a combination of several modes of transport. Thus, it must be stressed that modal integration is a major component of any urban mobility strategy. Collective public transport in cities creates value for citizens, businesses, visitors and public authorities that far exceeds the costs of its provision. Eco-mobility is a key component with which to decrease cities' carbon footprints and help successfully implement the Paris Climate Change Agreement.

Making a Smart Move towards Substantially Increasing the Use of Collective Passenger Transport

In 2009, IRU launched its Smart Move campaign, to globally promote the use of collective passenger transport, particularly buses and coaches, as the most affordable, efficient, safe and environmentally-friendly way to achieve sustainable mobility for all at the fairest cost to society. Since then, Smart Move has indeed become a global movement.

In 2013, Smart Move started developing a transport policy dimension, via the creation of a set of public-private high-level groups (HLGs) in various regions of the world. These involved the participation of private

industry, representative trade associations, politicians, city authorities, governmental and intergovernmental bodies and institutions, representatives of bus and coach customers, and representatives of broader civil society and research bodies.

Three such HLGs currently function in Europe, the CIS countries and India. Several other HLGs are planned for launch in 2016–2017, in Iran, the East African Community (EAC), Turkey, and possibly later on, China and Latin America. Their objectives are to create country- or region-specific action programmes and recommendations (short-, medium- and long-term) to best address their specific situations and mobility challenges, whilst at the same time benefiting from global know-how.

The overall objective of these recommendations is to substantially increase or, where possible, double the use of the collective, door-to-door, public passenger mobility chain, within a reference period of 10 to 15 years. This particularly includes buses, coaches and taxis, as they form the most dynamic, service-responsive part of the collective mobility chain.

Intermediate Public Transport (IPT) for Pro-Poor Mobility and Accessible Public Transport for All

In many developing countries, Intermediate Public Transport (IPT) plays an important role in providing mobility to a large section of the population. Many such modes of transport provide a seamless, affordable and efficient service despite a number of safety and convenience factors which need to be improved. IPT has the potential to provide clean mobility through reduced emissions. In developed countries, IPT Paratransit services are usually Demand Responsive Transit, which works via Dial-a-Ride systems managed by single or multiple operators through a call centre.

IPT complements the main public transport system. In developing countries, however, public transport supply deficits have led to the mushrooming of a bewildering range of modes of IPT, all bidding to fill the large gap between traditional public transport and private vehicles. In several Asian, African and Latin American cities, IPT is perhaps the most common and widely used form of public transport. However, governments in many countries have been slow to recognise the role that IPT plays in the wider public transport system, despite the mass utilisation of its services. As a result of this lack of recognition at the transport policy level, IPT still faces lots of barriers, such as policy and infrastructural barriers, which have affected its growth into a full-scale public service provider, particularly for the urban poor.

Yet, the flexibility of IPT systems allows accessibility, through better market penetration and market-based pricing systems which enable them to successfully compete by reducing fares and providing customised services, including free Wi-Fi, GPS, audio systems, and so on. The affordability factor has attracted the masses and helped IPT systems to gain impetus, especially in rural areas where other transport systems do not operate.

To enable the growth of the IPT sector and help better satisfy the mobility needs of citizens, numerous suggestions have been made to governments and other relevant stakeholders, including the manufacturers of IPT vehicles. These include: (a) legal recognition and permissions to operate; (b) creating a regulatory environment of permit and driver identification systems; (c) empowering local governments with decision-making powers; (d) integrating IPT systems with other modes of transport; (e) adopting the latest technologies which help to increase transport system efficiency and provide better customer satisfaction; and (f) recognition of the private sector's role.

Innovations in Public Road Transport to Revolutionise Business Models, the Services on Offer and Mobility Behaviours

App-based, on-demand mobility solutions, electro-mobility, vehicle automation and Mobility-as-a-Service (MaaS), together with new business models and practices, such as the digital booking platforms run by integrators or aggregators, are all key innovation breakthroughs. In the very near future, they are expected to revolutionise business models, the services on offer and indeed citizens' mobility behaviours.

The mass use of smartphones and apps across the globe, both in developed and developing countries, are the visible part of the technology revolution iceberg. Their impact is being felt in almost every industry: from communications and commerce, to banking and entertainment. Mobility in general, and urban transport in particular, is also experiencing a revolution caused by numerous mobility apps, which allow commuters/travellers to connect with services and drivers through their smartphones at the push of a button. Furthermore, taxi fleets across the world are increasingly making use of taxi-sharing services, by integrating passenger-pooling facilities into their service offer. IRU has created the UpTop global taxi network, which unites the most innovative companies in the taxi industry with the aim of building a stronger and smarter taxi service for society.

ICT innovations have also given rise to models of collaborative-economy mobility, making bike-sharing and car-sharing systems much more viable, competitive and attractive. In terms of supply, ICT is helping to improve the efficiency of transport networks and the coordination of different transport modes through passenger information systems, real-time traffic management centres, integrated electronic booking and ticketing systems, and automated control systems allowing vehicles and infrastructure to communicate. A number of MaaS schemes are emerging around the globe. Recent years have seen an explosion in innovation in three categories of technology highly relevant to transport: power supply, vehicles and operating systems. IRU Lighthouse for Electric Taxis initiative aims to increase the number of electric taxis in the world's cities.

A growing number of businesses have recently started working intensively on pilot autonomous vehicles (AVs). By reducing the impact of the human factor behind the wheel, AVs are expected to contribute to cutting accidents by as much as 90%, potentially saving thousands of lives. Among other benefits, autonomous driving could increase the carrying capacity of roads because vehicles would be able to travel closer together at higher speeds.

Smart Urban Mobility through Prioritising Collective Public Transport, Commitment, Leadership and Public-private Partnerships

The 2030 Agenda spells out 17 SDGs and defines multiple targets; it lays out a roadmap for economic, social and environmental policy development, transformation and a better future for all. Sustainable transport has been included in seven of the 17 goals and is directly covered by five targets and indirectly by seven targets. As part of the global transport narrative, four possible goals are considered important. These are: (i) Access for all; (ii) Efficiency; (iii) Safety; and (iv) Climate respect. A global tracking framework is being developed to measure progress towards these four goals, using country level indicators with differentiated pathways to reach the goals for developed and developing countries.

Yet, prioritising the development of collective, door-to-door, public passenger transport involving both traditional and new private-sector public-service providers, such as buses, coaches, taxis and IPT, can play a key role in achieving the goal of sustainable transport. These modes should be given particular emphasis in transport policy and planning, with the objective of building an efficient, inclusive, door-to-door public mobility chain, accessible 24 hours per day, 7 days per week, as its backbone.

Importantly, setting clear policy and business targets for increasing the use and modal share of collective public transport – one in which private-sector service providers play a key role – will facilitate the development of a pro-active public, financial, fiscal, legislative, market and operational environment. This will encourage service provision and thereby produce a shift in travellers' behaviours. It will facilitate inclusive, efficient and sustainable mobility for all – including citizens and visitors – at the lowest cost to society.

Reaching such extremely ambitious global objectives – as defined in both the 2030 Agenda for Sustainable Development and the Paris Climate Change Agreement – requires novel approaches, particularly in terms of individual and collective commitments, leadership and cooperation at all levels, whether international, national, regional or local. It requires bringing together all available resources, energies and determination into a genuine PPP.

The Global Partnership for Sustainable Transport (GPST) could play a successful role as a key global enabler in achieving the transport-related SDGs and climate change objectives. Together with the public-private HLGs initiated by IRU in various regions of the world, where region- and country-specific sustainable transport agendas are developed, the GPST can also be a part of the broad global effort towards achieving sustainable transport.

Over the last few years, a number of individual stakeholders, groups and organisations across the globe, including, more recently, the UN Secretary-General's HLAG-ST, have been working and making concrete recommendations on policy development and implementation for achieving sustainability in transport. Based on their various recommendations, this contribution presents a compendium of suggestions that can serve as a reference point for policy decision-makers, businesses and, indeed, civil society actors which wish to move collectively and efficiently along the road to sustainable transport.

Together on the Road to Sustainable Mobility for All

A year has passed since the UN General Assembly adopted the Sustainable Development Goals (SDGs), on 25 September 2015. The 2030 Agenda outlines 17 crucial, universal SDGs and defines their multiple targets.

Accordingly, IRU has developed a roadmap for economic, social and environmental policy development with respect to all of its projects, services, and training and advocacy areas.

The most relevant SDGs include, for example: SDG 1, on promoting sustained, inclusive and sustainable economic growth; SDG 8, on full and productive employment and decent work for all; SDG 9, on building resilient infrastructure, and promoting inclusive and sustainable industrialisation and fostering innovation; and SDG 10, on reducing inequality within and among countries. SDG 3, on health, includes a target on road safety, calling on the global community to cut road deaths by half by 2020. The 2030 Agenda's SDG 11 also calls for making cities and human settlements inclusive, safe, resilient and sustainable. IRU's guiding principles relating to mobility and the universal right to freedom of movement, underpin these goals.

Recognising that the SDGs require strong support from the private sector, the 2030 Agenda outlines a strategy that supports public-private partnerships. With its strong Membership network throughout the transport chain, IRU actively seeks to engage with private enterprise and acknowledges the need for collaboration, investment and policy alignment. Importantly, IRU is well placed to work with its Members to establish a business case for the private road-transport sector to engage with the SDGs and contribute to the achievement of safe, inclusive, resilient and sustainable mobility for all.

Chapter 1

Introduction and Background to IRU

IRU is the world's road transport organisation. It promotes economic growth, prosperity and safety through the sustainable mobility of people and goods. Founded in 1948, IRU has members and activities in more than 100 countries. Its four core objectives are to facilitate trade, promote mobility, make transport more sustainable and promote safety for people and goods.

Trade

One of IRU's key activities is to facilitate trade and help countries and people prosper by opening up and maintaining international trade routes, notably through TIR. TIR connects developing countries to global trade networks by helping them improve their national trade flows, for example by shortening border waiting times, reducing lengthy paperwork processes, fighting corruption and improving safety for drivers and the transport of goods.

Mobility

Upholding the right of people to travel safely to work and conveniently connect to efficient and sustainable transport networks is a fundamental human right that is described in the UN Universal Declaration of Human Rights as "freedom of movement". This is why IRU works to connect people to adequate transport services in rural communities, to reduce congestion in urban areas, and supports bus, coach and taxi operators in their business.

Sustainability

Road transport is a critical component of the UN 2030 Global Sustainable Development Agenda, which seeks to "take the bold and transformative steps which are urgently needed to shift the world onto a sustainable and resilient path." Whether it is clean, green technology, innovations in commercial vehicles or reducing the environmental impact of road transport by cutting emissions, a commitment to sustainable and efficient transport by road is one of IRU key principles as it seeks to integrate the world's SDGs into every aspect of its work.

Safety

Saving lives and reducing the number of road accidents are top priorities for IRU. The organisation champions health and safety for the driving community, from taxi operators to truck drivers. Safe loading of cargo and the transport of dangerous goods are typical examples of the essential subjects covered by IRU Academy and its global network of IRU Academy Training Institutes. To achieve these goals, IRU undertakes a range of activities, including training through IRU Academy, organising events, advocacy and offering services.

IRU Academy

IRU Academy is the leading global, professional, road-transport training organisation. With a network of 65 Associate Training Institutes in more

than 46 countries, the Academy trains thousands of drivers and transport operators every year. IRU Academy also develops campaign initiatives to raise awareness of certain issues and train-the-trainer programmes to increase the sector's overall training capacity. To improve the sector's efficiency, sustainability, effectiveness and accountability, IRU Academy raises global standards in professional road transport training and helps keep roads safer.

Events

IRU regularly organises topical events or series of events aimed at its Members, the industry, policymakers and the media. These range from workshops and roundtables to expert fora or international conferences. IRU World Congress, to be held in 2017 in Beijing, will gather together a global network of industry leaders and decision-makers representing every aspect of road transport, international trade, tourism and logistics.

Advocacy

IRU's advocacy arm focuses on economics, safety, communities and the environment. It aims to drive forward critical solutions to help the world move better. For the environment, IRU's challenge is to lower road transport's environmental footprint as much as possible, notably through increased fuel-efficiency and noise reduction. It currently has many projects and campaigns in place to achieve this, which it carries out with its Members, stakeholders and associated NGOs. It is supporting policies proposed by the European Union to reduce noise, lessen harmful emissions and gradually move towards electric rather than fossil fuel-based vehicles.

Services

IRU services include: TIR – the world's only universal transit system – operational since 1949; initiatives to promote global trade and the efficient movement of goods; passenger mobility – ensuring that communities around the world have access to safe, clean, green transport, including buses, coaches and taxis; and innovation – initiatives which are pushing road transport into the future, such as eTIR (the digital TIR System) and the UpTop global taxi network.

IRU, Sustainability and Urbanisation

IRU's commitment to sustainable transport and its contribution to finding solutions to the challenges of urbanisation are integral to all its activities. The organisation is increasingly and proactively working towards reducing CO₂ emissions, driving new energy saving and logistics innovations, and fostering advocacy and knowledge sharing across all areas of mobility. The framework provided by the UN SDGs has established an ambitious agenda, and IRU underpins the road transport sector's transformative potential to help realise these goals.

IRU advocacy and training initiatives place sustainability at the forefront of their agendas. Major achievements include the road transport sector's adoption of IRU's "30 by 30" resolution – a pledge by the entire road transport industry to cut its CO₂ emissions by 30% by 2030. IRU has also convinced the European Parliament to include the Smart Move campaign's goal of doubling collective passenger transport in its reporting on future transport policy and urban mobility. In 2015, IRU Academy's ECO-Driving Programme issued 544 new certificates, bringing the total number to almost 3,000, eliminating roughly 8,000 tonnes of road transport CO₂ emissions and saving almost EUR 4 million in fuel costs.

Summary of relevant IRU projects and initiatives which currently address the challenges of Habitat III's New Urban Agenda

1. Advocacy and Policy

One Year of Implementation of Sustainable Development Goals

A year has passed since the adoption of the SDGs by the UN General Assembly, on 25 September 2015. The 2030 Agenda outlines 17 crucial, universal SDGs and defines multiple targets. Accordingly, IRU has developed a roadmap for economic, social and environmental policy development with respect to all of its projects, services, training and advocacy areas. The most relevant SDGs include, for example: SDG 1, on promoting sustained, inclusive and sustainable economic growth; SDG 8, on full and productive employment and decent work for all; SDG 9 on building resilient infrastructure, and promoting inclusive and sustainable industrialisation and fostering innovation; and SDG 10, on reducing inequality within and among countries. SDG 3, on health, includes a target on road safety, calling on the global community to cut road deaths by half by 2020. The 2030 Agenda's SDG 11 also calls for making cities and human settlements inclusive, safe, resilient and sustainable. IRU's guiding principles relating to mobility and the universal right to freedom of movement, underpin these goals.

Recognising that the SDGs require strong support from the private sector, the 2030 Agenda outlines a strategy that supports PPPs. With its strong Membership network throughout the transport chain, IRU actively seeks to engage with private enterprise and acknowledges the need for collaboration, investment and policy alignment. Importantly, IRU is well placed to work with its Members to establish a business case for the private road-transport sector to engage with the SDGs and to understand them in a business context.

The Global Partnership for Sustainable Transport

Together with the UN, IRU has created the Global Partnership for Sustainable Transport (GPST), a community dedicated to bringing environmental issues to the fore. After several months of active preparatory work, the GPST's "soft launch" took place during the High-Level Event on the side-lines of the historic 70th UN General Assembly. On 26 September 2015, this launch meeting brought together over 100 representatives of private business, business associations and governments, who gave their full support to this unique, business-led, multi-stakeholder, action-oriented partnership.

Collaboration with the United Nations Human Settlements Programme

With the objective of facilitating road transport and promoting safe and sustainable mobility for people and goods by road, the United Nations Human Settlements Programme (UN-Habitat) signed a Memorandum of Understanding with IRU in 2015. This set out their shared commitment to collaborating and contributing to the implementation of the UN Post-2015 Development Agenda and the attainment of its goals. As a part of this collaboration, UN-Habitat and IRU plan to jointly undertake initiatives and actions in the fields of passenger and freight mobility, including joint events and research studies, the implementation of joint projects, the promotion of vocational training and the establishment of PPP networks.

Smart Move

Smart Move is a long-term awareness raising and advocacy campaign, initiated by IRU and Busworld, to place buses, coaches and the optimal solutions they offer, at the centre of the transport policy debate in order to achieve sustainable mobility for all and meet ambitious environmental and safety targets. The Smart Move campaign aims to provide policy- and opinion-makers with accurate, reliable facts and figures in order to ensure informed legislation and encourage policies which allow for the doubling of bus and coach use. This should encourage people to switch from private cars to buses and coaches, whenever possible. In Europe alone, achieving Smart Move's objectives would result in at least a 40-50-million-tonne reduction in CO₂ emissions per year, over 1,500 fewer road fatalities, a spectacular fall of city traffic congestion at zero cost to taxpayers subsequent to an estimated 10%–12% reduction in car traffic, and the creation of 3 million new jobs.

2. Exemplar Projects and Innovations

PTV Route Planners

A strategic partnership between IRU and German software developer, PTV Group, is developing new standards and services for route planning across Europe and beyond. The partnership was initiated by the launch of new services for freight operators in the Czech Republic and Romania, in cooperation with IRU Member associations, Cesmad Bohemia and UNTRR, respectively. New services are being successively rolled-out in European markets and elsewhere, developing a consistently high standard of route planning, with equivalent operational, cost calculation and billing elements available for transport operators, shippers and logistics planners. The benefits include greater efficiency, lower costs and lower emissions.

The Commercial Vehicle of the Future

The Commercial Vehicle of the Future (CVOF) is an IRU initiative coordinated in tandem with the University of Leuven, Belgium. The project studies the various types of vehicle requirements that would best suit a green vision of the future, and which are realistically achievable by 2030. By bringing together a wide range of partners, the CVOF seeks to ensure efficiency gains throughout the transport chain, a reduction in CO₂ emissions and increased road transport safety. IRU's working partners include the European Commission, European Parliament representatives from across the political spectrum, as well as leading NGOs from the environmental and road safety fields, transport industry stakeholders, vehicle manufacturers, transport technology specialists, academics and representatives of Europe's major cities.

IRU UpTop Global Taxi Network

The UpTop Global Taxi Network was created to promote legal, reliable, high quality and safe services for taxi customers by making use of the latest smartphone technology for taxis and fully respecting the regulatory frameworks in force. UpTop is a collaborative partnership between many parts of the industry; it seeks to deepen understanding of potential challenges and their solutions, share best practices and ultimately improve services so that partners can develop their businesses in anticipation of the needs that lie ahead. By working together, UpTop can pool resources and ideas to deliver a global service that customers will value.

IRU Lighthouse for Electric Taxis

Through the UpTop network, IRU acts as the global voice of the taxi industry, driving taxi innovation and starting with the adoption of electric taxis. Taxis are an essential element of passenger mobility, offering professional, safe, flexible and reliable services. Together with various forms of collective passenger transport, they offer an attractive alternative to private car usage.

Consequently, taxi fleets contribute to lower transport-related emissions, increased safety and more efficiency in mobility. The latest developments in vehicle technology enable taxi fleets to go green. Although the environmental benefits of electric taxis are well known, many taxi fleets need support to understand such issues as the total cost of electric car ownership. Furthermore, the incentives offered for the adoption of electric cars are often not optimised for taxis' operational needs (e.g. electric charging facilities are not installed at taxi stands), which limits the widespread adoption of electric taxis in cities.

Targeting incentives for the adoption of electric cars in taxi fleets will produce significantly higher environmental benefits than providing the same incentives to private car users. The use of electric taxis is a growing trend, with good examples in Amsterdam, Barcelona, Brussels, Montreal, New York and Singapore. Such taxi fleets provide important models for the adoption of electro-mobility.

The AEOLIX Digital Goods-Transport Platform

IRU recently launched a major new EU-supported digital goods-transport platform – AEOLIX. This innovation synchronises logistics across multiple transport modes to share services, reduce costs, cut CO₂ emissions, increase transparency, cut down border delays and improve road safety. The platform works by exchanging data between a wide variety of information systems used in the transport and logistics industry. This ensures maximum visibility and streamlined communication throughout the supply chain. IRU's global membership, across 100 countries and all five continents, will lead the way in the universal endorsement of this project.

Chapter 2

The United Nations Framework and Initiatives – 2030 Agenda for Sustainable Development and Sustainable Development Goals

This chapter is devoted to UN initiatives and sustainable development and transport frameworks, including some preliminary results from the ongoing work by the UN Secretary-General's High-Level Advisory Group¹ on Sustainable Transport. It also summarises key UN resolutions on mobility, transport and tourism.

For more than half a century, most countries have experienced rapid urban growth and increased use of motor vehicles. This has led to urban sprawl and an even higher demand for motorised travel, with a range of environmental, social and economic consequences.

Urban traffic is a significant source of greenhouse gas emissions and a cause of ill-health due to air and noise pollution. The traffic congestion created by unsustainable transport systems is responsible for significant social, economic and productivity costs for commuters and transporters.

These challenges are most pronounced in developing countries and cities. In the coming decades, it is expected

that approximately 90% of the world's population growth will occur in the cities of developing countries. These cities are already struggling to meet increasing demand for mobility and investment in transport.

Since the middle of the 20th century, transport development has experienced significant structural, institutional and quantitative changes. Progress in science and technology and new international legal instruments stimulated the development of new transport modes, as well as transport and logistics technologies that allow people and goods to move around the world and meet today's increasing needs for mobility, integration and globalised economies. In the last decade, new business models have also emerged, led by private sector innovation, and coupled with new mobility behaviours and patterns.

The development of sustainable transport, including the delivery of accessible, cost effective and sustainable mobility, is a major contemporary challenge for countries and regions. Achieving sustainable transport systems ensures greater connectivity with world markets and expanded business opportunities. It also increases the involvement of developing countries, especially the landlocked developing countries (LLDCs), least developed countries (LDCs) and small island developing states (SIDSs) in the global trade and tourism system.

¹ At the beginning of his second term, the United Nations Secretary-General announced a Five Year Action Agenda, with sustainable development and combatting climate change as key elements. In 2014, recognising that sustainable transport is fundamental to progress in sustainable development, the Secretary-General formed a High-Level Advisory Group on Sustainable Transport and tasked it with developing recommendations for more sustainable transport systems that could address rising congestion and pollution worldwide, particularly in urban areas. <https://sustainabledevelopment.un.org/topics/sustainabletransport/highleveladvisorygroup>

Box 2.1 A Selection of Specific Mobility Issues Related to LDCs

Access to rural areas

According to World Bank estimates, over 1 billion of the world's rural population, including over 181 million people living in the rural areas of LDCs, had no access to adequate transport in 2006, as their communities were located more than 2 km (or about 25 minutes walking time) away from the nearest all weather road.

Transport infrastructure

In 2014, the Vienna Programme of Action for Landlocked Developing Countries for the Decade 2014–2024, adopted at the second UN Conference on LLDC, identified transport infrastructure development, together with energy and ICT infrastructure, as crucial preconditions for accelerating sustainable socio-economic development in LDCs.

Access to resources and capacity building

Access to advanced transport technologies, capacity building and financial resources for investments are essential for developing countries to move forward and implement policies and programmes on sustainable transport. International sustainable transport partnerships, think tanks, development agencies and UN organisations should all continue to expand their capacity building programmes for developing countries.

The role of the private sector and private investment

Major investments by both the public and private sectors are urgently needed to meet the growing demand for mobility, not only in the capital cities but also in other secondary or rural towns. A substantial amount of those investments could be provided by the private sector, filling in for the lack of sufficient public transport investment.

Public-private partnerships

The public and private sectors need to work together closely to make transport efficient and sustainable. Over the past decade municipal governments in many LDCs have successfully partnered with private sector companies to provide efficient urban transport solutions. Involving the private transport sector in the provision of mobility services, both urban and interurban/rural, is key to achieving mobility for all.

Furthermore, the benefits of sustainable transport also impose more stringent requirements in terms of safety and security, reduce the impact on the environment and climate change and improve energy efficiency.

As a result, the international community is increasingly prioritising cooperation in sustainable transport at the multilateral level, as demonstrated below:

- In 2015, transport was explicitly reflected in UN General Assembly Resolution 70/1, "Transforming our world: the 2030 Agenda for Sustainable Development";
- Special attention is given to financing for development², which is of great relevance to the transport sector, and which concerns countries at all levels of development – especially developing countries, and particularly LLDCs, LDCs and SIDSs³, as these experience low levels of investment in the creation or modernisation of existing major or auxiliary transport infrastructure;
- For the first time in UN history, resolutions aimed at promoting international transport, tourism and transit corridors were adopted in 2014 and 2015;
- The UN Secretary-General established a High-Level Advisory Group on Sustainable Transport (HLAG-ST) whose work will feed into the preparatory process for the first UN Global Sustainable Transport Conference that will convene in Ashgabat, Turkmenistan in December 2016;
- PPPs have become a key pillar in achieving the SDGs⁴;

² <http://www.un.org/esa/ffd/ffd3/press-release/countries-reach-historic-agreement.html> http://www.un.org/esa/ffd/wp-content/uploads/2015/08/AAAA_Outcome.pdf

³ <http://www.lldc2conference.org/custom-content/uploads/2014/11/Vienna-Programme-of-Action1.pdf>

⁴ Sustainable Development Goal 17 focuses on the revitalisation of the global partnership for sustainable development. A successful sustainable development agenda requires partnerships between governments, the private sector and civil society. These inclusive partnerships – built upon principles and values, a shared vision and shared goals that make people and their environment central priorities – are needed at global, regional, national and local levels. SDG 17 highlights the need for urgent action to mobilise, redirect and unlock the transformative power of trillions of dollars' worth of private resources in order to deliver on sustainable development objectives. Long-term investments, including foreign direct investment, are needed in critical sectors, especially in developing countries. These include sustainable energy, infrastructure and transport, as well as ICTs. The public sector will need to set a clear direction. Review and monitoring frameworks, regulations and the incentive structures that enable such investments must be retooled to attract them and reinforce sustainable development. National oversight mechanisms (such as supreme audit institutions) and oversight by legislatures should be strengthened.

- Transport industry actors and businesses representing other sectors are increasingly involved in international consultations, dialogues and processes relating to international transport policy, as evidenced by the emergence of such important global initiatives as the GPST.

1. Transport Commitments at the 2012 Rio+20 Conference

In 1992, at the Earth Summit in Rio de Janeiro, Brazil, countries adopted Agenda 21 – a blueprint for rethinking economic growth, promoting social equity and ensuring environmental protection. Twenty years later, in June 2012, the UN organised the UN Conference on Sustainable Development (Rio+20), also in Rio de Janeiro. Rio+20 brought together governments, international institutions and major civil society groups to agree on a range of smart measures for reducing poverty while promoting decent jobs, clean energy and a more sustainable and fair use of resources. The outcome document, entitled *The Future We Want*⁵, identified 26 priority areas, including sustainable transport.

2. Urban Transport – a Building Block for Sustainable Development

The inclusion of sustainable transport on the Five-year Action Agenda⁶, called the Action Networks for Sustainable Development, followed a 2012 decision by UN Secretary-General, Ban Ki-moon, to make urban transport one of the six building blocks for sustainable development. This Five-year Action Agenda, launched in January 2012, highlighted urban transport – with a focus on pollution and congestion – as a core area for sustainable development.

The UN Sustainable Development Action Network on Sustainable Transport integrates different initiatives on sustainable, low-carbon transport. It is an action-oriented community where stakeholders can collaborate and share information on sustainable transport; it is meant to catalyse actions among stakeholders and their networks to implement concrete policies, plans, programmes and projects in support of sustainable transport.

In 2013, UN-Habitat's Global Report on Human Settlements, entitled *Planning and Design for Sustainable Urban Mobility*⁷, provided guidance on developing sustainable urban transport systems. The report outlined trends and conditions and reviewed a range of responses to urban transport challenges worldwide. The report also analysed the relationship between urban form and mobility, and called for a future with more compact, efficient cities. It highlighted the role of urban planning in developing sustainable cities where non-motorised travel and public transport⁸ were the preferred modes of transport. The report stated that success in this area was essential for creating more equitable, healthy and productive urban living spaces for the benefit of both people and their environment.

In 2015, the countries of the world set themselves bold, transformative goals in sustainable development, financing for that development, and climate change, proclaiming that in all of these contexts business as usual was no longer a viable option.

3. Financing for Transport Development: the Addis Ababa Action Agenda – a Key Instrument for Generating Finance for Sustainable Development⁹

The Third International Conference on Financing for Development (FfD3) was held from 13–16 July 2015 in Addis Ababa, Ethiopia. The FfD3 outcome document, the Addis Ababa Action Agenda (AAAA), adopted on the Conference's final day, includes a specific focus on cities, which are key contributors to sustainable transport policy and practice.

7 <http://unhabitat.org/books/planning-and-design-for-sustainable-urban-mobilityglobal-report-on-human-settlements-2013-policy-directions/>

8 The term "public transport" is sometimes misinterpreted by policy decision-makers, but also by the public, i.e. limiting it to transport provided by public entities, thus frequently excluding public transport services provided by private companies. When used in a narrow sense, public transport often excludes intercity coach lines, taxis and intermediate public transport (IPT), as well as group tourism by coach (this even becomes political, by not considering them in urban planning, by not providing terminal infrastructures, for instance, or by not allowing them to use dedicated bus lanes, etc.). To avoid any such misinterpretation, we use the term "collective" or "collective public" transport instead of just "public", thus ensuring that public transport also includes transport provided by private sector companies including taxis, intercity lines, IPT and group tourism by coach. Wherever this paper uses the term public transport, it includes transport provided by private sector companies, including intercity scheduled services, taxis, IPT and group tourism by coach.

9 <http://www.un.org/esa/ffd/ffd3/press-release/countries-reach-historic-agreement.html> and http://www.un.org/esa/ffd/wp-content/uploads/2015/08/AAAA_Outcome.pdf.

5 <https://sustainabledevelopment.un.org/content/documents/733FutureWeWant.pdf>

6 https://www.un.org/sg/sites/www.un.org.sg/files/atoms/files/sg_agenda_2012.pdf

cannot maintain their independence and dignity without safe transport that is accessible itself and that enables access to all that people need. Even the more explicitly “environmental” goals of biodiversity and ocean health have significant intersections with the promotion of smart, sustainable transport practices across regions and across modes.”

Some SDGs are directly connected to sustainable transport through targets and indicators. Indeed, the SDGs on ensuring health and well-being include a target addressing

deaths and injuries from road crashes. Furthermore, the SDG on inclusive, safe, resilient and sustainable cities includes a target on expanding public transport.

SDG 11.2 is very specific and clearly states, “by 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.”

Figure 2.2 UN Sustainable Development Goals



4.1. Indicators for the Post-2015 Development Agenda

An important part of the negotiations on the post-2015 development agenda has been on the indicators for targets under each SDG. The Inter-agency and Expert Group¹⁴ on the Sustainable Development Goal Indicators (IAEG-SDGs) was tasked with developing a global-level framework of indicators for the goals and targets of the post-2015 development agenda in order to support its implementation¹⁵.

In relation to the SDGs, the UN is introducing new indicators that relate to some aspects of transport (e.g. access to public transport). Each country will choose the

indicators that are best suited to tracking its progress in relation to national priorities and needs, so efforts will need to be made to improve international comparability.

At the national level, capacity building will be important for tracking progress in sustainable transport and enabling evidence-based decision-making to set the right policies and allocate the right resources.

However, there is still an urgent need to build regional and national consensus positions on much-needed sustainable and low-carbon transport actions and solutions in support of the new global 2030 Sustainable Development Agenda and the SDGs, as well as the outcome of the Paris COP 21.

¹⁴ <http://unstats.un.org/sdgs/iaeg-sdgs/members>

¹⁵ The third meeting of the Inter-agency and Expert Group on the Sustainable Development Goal Indicators (IAEG-SDGs) was held from 30 March to 1 April 2016 in Mexico City, Mexico. Its fourth meeting will be held from 18–21 October 2016 in Addis Ababa, Ethiopia. The meeting will be hosted by the United Nations Economic Commission for Africa.

5. The Paris Climate Change Agreement

In 2015, the international community adopted the Paris Climate Change Agreement¹⁶, which “aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty.” The Paris Agreement has created both opportunities and responsibilities for the transport sector.

Several of the nearly 150 heads of state who convened in Paris to open COP21 included transport in their expressions of common resolve to tackle climate change¹⁷. Having world leaders refer to low-carbon transport marked a significant step forward in the integration of transport into the UN agenda and processes.

¹⁶ https://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english_.pdf

¹⁷ Among the statements delivered, the Chinese President, Xi Jinping, noted that low-carbon transport was a priority strategy for achieving the required reductions in greenhouse gas emissions.

Box 2.2 The Paris Agreement on Climate Change – Implications for the Transport Sector

Motorisation is growing fastest in particular in the developing world, and there is a great need for action on both mitigation and adaptation to climate change policies. The establishment of the Paris Committee on Capacity Building, as well as its proposed work programme, offers the transport sector great opportunities to help build much needed capacity and cooperation between governments in support of scaled up action on mitigation and climate change.

In the process of moving to a target of well below the 2° Celsius scenario (2DS) and pursuing efforts to limit the planet’s temperature increase to 1.5° Celsius, the Nationally Determined Contributions (NDCs) in the transport sector, proposed by governments, are evidence of their willingness to act:

- 77% of NDCs call for mitigation action on transport emissions;
- 10% of Intended Nationally Determined Contributions (INDCs) include a transport emissions reduction target;
- 14% of INDCs specify emission reduction potential;
- 61% of INDCs propose mitigation measures;
- An emphasis on technological improvement measures and urban transport;
- And yet despite the ambition of this level of mitigation it still falls far short of 2DS.

The Role of Non-State Actors: Lima–Paris Action Agenda (LPAA) Transport Initiatives¹⁸

- 15 Transport Initiatives covering all modes of transport and all major regions;
- The Paris Process on Mobility and Climate (PPMC) was formally acknowledged as the convener of 3 December 2015 Transport Focus;
- Collectively, these Transport Initiatives could have an impact on one in two journeys (passenger and freight) by 2025;
- Full implementation of the LPAA Transport Initiatives could save up to USD 100 trillion by 2050.

¹⁸ <http://newsroom.unfccc.int/lpaa/transport/>

6. UN Secretary-General's High-Level Advisory Group on Sustainable Transport (HLAG-ST)¹⁹

Sustainable transport is fundamental to the progress of sustainable development that supports growth and job creation, and it is also considered essential to any credible efforts to combat climate change. Recognising this, on 8 August 2014, the UN Secretary-General, Ban Ki-moon, announced the setting up of a 16-member High-Level Advisory Group on Sustainable Transport (HLAG-ST)²⁰. Its task would be to develop recommendations for more sustainable transport systems that could be put into action at global, national, local and sectorial levels, and it should also address rising congestion and pollution worldwide, particularly in urban areas.

Since then, the HLAG-ST, established for a period of three years, has been working with governments, transport providers (aviation, marine, ferry, rail, road and urban public transport), businesses, financial institutions, civil society and other stakeholders to promote sustainable transport systems and their integration into development strategies and policies, including on climate action. The HLAG-ST's main objective is to promote sustainable transport that is in line with aims on inclusive and equitable growth, social development, global environmental and ecosystem protection, and addressing climate change. To accomplish its aims, the HLAG-ST is expected to:

- Provide a global message and recommendations on sustainable transport, including on innovative policies and multi-stakeholder partnerships for sustainable transport.
- Launch a "Global Transport Outlook Report" to provide analytical support for these recommendations.
- Help mobilise action and initiatives in support of sustainable transport among key actors, including UN Member States, development finance institutions, bilateral development partners, transport providers, urban authorities and land-use planners.
- Seek to promote the integration of sustainable transport in relevant intergovernmental processes, including making recommendations on the formulation and implementation of the post-2015 development agenda.

The HLAG-ST prepared a Position Paper on Financing Sustainable Transport²¹ which welcomed a number of the outcomes of the Third International Conference on Financing for Development, which took place in July 2015 in Addis Ababa, Ethiopia.

As stated above, the HLAG-ST is expected to provide policy recommendations for sustainable transport that could be put into action at the global, national, local and sectorial levels. It should also promote the integration of sustainable transport in development strategies and policies, including on climate action. It is working to ensure that sustainable transport makes a meaningful contribution to the sustainable development of the planet and the implementation of the SDGs agreed at the UN Sustainable Development Summit.

The members of the HLAG-ST represent developed and developing countries and a wide range of transport modes and sectors, including the public sector, non-state actors and large private companies. From the interim working papers and information currently available, they clearly agree that people and their quality of life should be central to every decision made about transport, and that achieving the SDGs depends on the determined and innovative pursuit of sustainable transport goals, with the need for ambitious action by governments and businesses alike.

The HLAG-ST recognises that the transport sector is large, diverse and complex, and that because infrastructure decisions and investments have especially long lifespans, the choices made today are critically important for tomorrow. The HLAG-ST therefore advocates bold choices, engagement with the public and private sectors and all relevant stakeholders, as well as taking advantage of new transport models, new technologies and the global resolve to achieve the 2030 Agenda and the Paris Climate Change Agreement.

In the introduction to its interim working papers²², HLAG-ST recognises that transport is "fundamental to development in a large-scale, global sense. The transport options available in a country reflect its level of development, but transport is a driver as well as a marker of economic development. Transport enables individuals and communities to rise out of poverty and overcome social exclusion as they connect goods to markets and link rural areas and market towns to large cities and to the global marketplace."

6.1. Access at the Heart of Sustainable Development

The HLAG-ST feels that the issue of access must be placed at the heart of sustainable development: "Transport is not an end in itself but rather a means allowing people to access what they need: jobs, markets for both people and goods, social interaction, education, and a full range of other services contributing to healthy and fulfilled lives." Compact, well-planned cities and towns thus offer people the ability to access what they need without long trips, and they can make the "last mile" logistics for freight more efficient and environmentally friendly.

¹⁹ <https://sustainabledevelopment.un.org/?page=view&nr=1001&type=230&menu=2059#sthash.cUvIciy8.dpu>

²⁰ More information is available on <http://sustainabledevelopment.un.org/index.php?menu=1843>

²¹ <https://sustainabledevelopment.un.org/content/documents/7618AdvisoryGroupTransport.pdf>

²² The final report is still to be published.

For decades, transport policies have focused on providing mobility based on motorised transport and improving traffic speed. Using the word “access” in the context of transport was traditionally synonymous with building new roads and other infrastructure, mainly benefitting the use of private cars. The traditional motivation was access to transport. With the paradigm shift to sustainable transport comes a focus on people and their quality of life, in other words, access through transport, as well as an increased emphasis on safety and social equity in transport. This broader concept of access is therefore a useful lens through which to approach the SDGs, which can be achieved when people are able to access what they need: “sustainable livelihoods, food, healthcare, education, safe communities and spaces, and opportunities for sustainable economic growth.”

6.2. Integrated Policies and the Avoid–Shift–Improve Approach

The HLAG-ST has also taken an integrated approach to sustainable transport by including short- and long-distance, intra- and inter-city, urban and rural, passenger

and freight transport, and by addressing all transport modes. With the 2030 Agenda’s people-centred approach, safety is a pre-requisite of all sustainable transport plans, but it must also engender progress towards the Paris Agreement Goals, where reducing greenhouse gas emissions remain a high priority.

In many cases, the solutions to transport challenges are well known and the opportunities are clear. Integrated policy making is therefore critical to decision-making on transport systems and infrastructure. Financing decisions must be based on a holistic understanding of the complex nature of transport investments and their consequences, and of the full range of innovative funding options. Technology to produce clean fuels and energy is a high priority and, when considering the scale of the health and climate challenges, they could be considered a moral imperative. The Avoid–Shift–Improve approach is seen as a useful framework for assessing transport measures and for taking action in support of sustainable transport.

Box 2.3 The Avoid–Shift–Improve approach – maximising the benefits of sustainable transport

The Avoid–Shift–Improve approach provides a framework for prioritising solutions to maximise benefits. This helps attract diverse stakeholders and build support for political and institutional reforms.

Strategies to Avoid unnecessary travel and reduce trip distances

- Formally integrate land-use and transport planning
- Achieve mixed-use development and medium-to-high densities along key corridors
- Institute policies, programmes and projects supporting ICT as a means to reduce unneeded travel

Strategies to Shift towards more sustainable mobility solutions

- Improve public transport services
- Require Non-Motorised Transport (NMT) components in transport master-plans
- Reduce the urban transport mode-share of private motorised vehicles
- Achieve significant shifts to a more sustainable supply of mobility services

Strategies to Improve transport practices and technologies

- Diversify towards more sustainable transport fuels and technologies²³
- Set progressive, appropriate and affordable standards for fuel quality, efficiency and emissions
- Establish effective vehicle testing and compliance regimes
- Adopt Intelligent Transport Systems (ITS)
- Achieve improved freight transport efficiency

²³ Not forgetting that, for developing countries in particular, the number one issue is the renewal and modernisation of commercial vehicle fleets, including trucks, buses, coaches and taxis.

6.3. Next steps

The HLAG-ST is expected to make a number of recommendations, in three categories, for implementation by national and local governments and all related public and private stakeholders. By implementing these recommendations, international organisations, businesses and civil society organisations will also have a role to play. The recommendations are expected to relate to:

- a) Policy planning: creating supportive institutional, legal and regulatory frameworks; making transport policy and investment decisions based on social, environmental and economic dimensions; developing sustainable transport systems and the technical capacity of transport planners and implementers, especially in developing countries; improving road safety through legislation and public policy; engaging people as partners for advancing sustainable transport solutions.
- b) Financing: promoting the diversified funding sources and the coherent, constructive funding, charging and fiscal frameworks that sustainable transport systems and projects need; participation of private capital through PPPs; increasing international development funding, including climate funding by international organisations and multilateral development banks.
- c) Technology: promoting sustainable transport and energy innovation and technologies while staying as neutral as possible; this should include direct government investment and policies that enable and encourage private sector investments through various incentives and incentive-supporting structures.

7. The Main UN Resolutions and Agreements related to Transport and Tourism

The UN General Assembly, as its highest policy-making body, has adopted several resolutions and taken decisions, which are formal expressions of the opinions and will of its Member States. As such, UN Resolutions have a genuine impact on all aspects of transport and mobility, including on national policy-making.

The adoption of these resolutions offers numerous opportunities for governments to formulate policies that will improve the national environment for sustainable transport, for example by: stimulating the development of transport systems through PPPs; encouraging national governments to improve national incentive systems for private investment in transport; and encouraging the development of policies to improve safety and security on roads.

The results of improved policy measures also provide incentives for private actors to create new business opportunities and build on existing ones. Policies that promote entrepreneurship, that encourage governments and businesses to collaborate through PPPs in order to encourage entrepreneurial initiative, share risks and take joint actions to mitigate financial risks are invaluable elements for enabling business while pursuing global development objectives²⁴.

Between 2014 and 2016, the UN General Assembly and other high-level UN bodies adopted nine new key resolutions and agreements relating to all transport modes and affecting both freight and passenger transport in every country in the world. A resolution for the promotion of sustainable tourism (including ecotourism) to aid poverty eradication and environmental protection was also adopted.

Table 1.1 gives the titles and dates of these nine UN Resolutions or Agreements.

Many UN resolutions, preambles and decisions relate to multiple aspects of transport. Inter alia, these include: transport as an integral part of the 2030 Sustainable Development Agenda; the role of multimodal transport corridors, global supply chains and integrated transport systems; basic and support transport infrastructure; harmonisation of legal frameworks; financial and technical assistance; financing for the development of transport infrastructure; regional economic and social integration; the role of partnerships and GPST; accessibility and sustainable mobility; road safety and security; environment and climate change; implementation issues and leaving no one behind; and the role of transport in LLDCs, LLCs and SIDS.

The implementation of these resolutions, decisions and recommendations by governments at various levels, as well as by businesses, is expected to bring a number of key benefits.

- **For society and governments**, these benefits, inter alia, include: a reduction in the number of deaths and injuries from transport/traffic accidents; a contribution to the development of high-quality, reliable, sustainable and resilient infrastructure, including rural, regional and trans-border infrastructure; support for economic development and human well-being, with a focus on

²⁴ Such enabling language is found in paragraph 27 of Transforming Our World: The 2030 Agenda for Sustainable Development. <https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf> But paragraphs 48 and 87 of the Addis Ababa Action Agenda also express similar enabling language. http://www.un.org/esa/ffd/wp-content/uploads/2015/08/AAAA_Outcome.pdf

Table 1.1: Key UN Resolutions and Agreements adopted between 2014 and 2016

| No. | UN Resolution or Agreement |
|-----|---|
| 01 | Transforming Our World: the 2030 Agenda for Sustainable Development UN Resolution 70/1 adopted by the 70 th Session of the General Assembly of the United Nations (New York, 25 September 2015) |
| 02 | The Role of Transport and Transit Corridors in Ensuring International Cooperation for Sustainable Development UN Resolution 69/213 adopted by the 75 th plenary meeting of the 69 th Session of the General Assembly of the United Nations (New York, 19 December 2014) |
| 03 | Towards Comprehensive Cooperation among all Modes of Transport for Promoting Sustainable Multimodal Transit Corridors UN Resolution 70/197 adopted by the 70 th Session of the General Assembly of the United Nations (New York, 22 December 2015) |
| 04 | Improving Global Road Safety UN Resolution 70/260 adopted by the 70 th Session of the General Assembly of the United Nations (New York, 15 April 2016) |
| 05 | Addis Ababa Action Agenda Adopted at the Third International Conference on Financing for Development (Addis Ababa, Ethiopia, 13–16 July 2015) and endorsed by the General Assembly of the United Nations in UN Resolution 69/313 (27 July 2015) |
| 06 | Paris Agreement on Climate Change Adopted by the Paris UN Climate Change Conference (30 November to 11 December 2015) |
| 07 | Towards Global Partnerships UN Resolution 70/224 adopted by the 70 th Session of the General Assembly of the United Nations (New York, 22 December 2015) |
| 08 | Follow-up to the second United Nations Conference on Landlocked Developing Countries UN Resolution 70/217 adopted by the 70 th Session of the General Assembly of the United Nations (New York, 22 December 2015) |
| 09 | Recognizing the Contribution of Sustainable Tourism to Poverty Eradication, Community Development and the Protection of Biodiversity UN Resolution 69/233 adopted by the 70 th Session of the General Assembly of the United Nations (New York, 14 January 2015) |

affordable and equitable access for all people; integration of regional and global markets; improvement in the national economy's energy efficiency; a reduction of national-level greenhouse gas emissions; national implementation of the SDGs; and much more.

- **For businesses**, benefits will come from: cost reductions due to the harmonisation of transport and related procedures to facilitate trade; fleet renewal and infrastructure modernisation; the potential for growth of the mobility, tourism, transport and logistics markets; additional possibilities to provide safe, innovative and environmentally friendly transport services; and much more.

7.1 The Implementation of UN General Assembly Resolutions

The impact of UN Resolutions rests on their effectiveness and the modalities for their implementation. Governments must turn recommendations set out in UN Resolutions into sound national policies. Similarly, the private sector must endeavour to identify the new business opportunities which exist in many of the recommendations set out in Resolutions. The end result of UN Resolutions should be win-win outcomes that empower governments to enhance their policies while empowering businesses to explore, innovate, create and build opportunities for growth.

Combined with other measures at the national and international levels, such efforts may significantly boost growth and development at those national and international levels and to contribute to meeting the SDGs. Moreover, the outcomes may also facilitate national reporting on a country's progress in implementing the SDGs as mandated by the UN Secretary-General. Perhaps even more important is that fact that concerted actions between governments and the private sector will build trust and set the stage for truly collaborative development paths in the long term.

7.2 The Global Partnership for Sustainable Transport – a Model, International Public–Private Platform to Support the Implementation of the UN Sustainable Transport Development Goals

The creation of the Global Partnership for Sustainable Transport (GPST) was announced in November 2014 at the Second UN Conference on LLDCs in Vienna. It is a business and industry-led, action-oriented, multi-stakeholder initiative involving all modes of transport. The GPST was created with the objective of promoting and reaching the economic, social and environmental objectives of the SDGs.

The GPST focuses on three main areas:

- **Promoting best practice** – giving businesses the tools and information needed to make their day-to-day trading and business decision-making more sustainable; this includes promoting initiatives like the UN Global Compact's 10 principles²⁵.
- **Starting dialogues** – encouraging governments and businesses to talk about sustainability and come up with concrete solutions.
- **Working in partnership** – working in conjunction with other projects and partnerships, and starting to make a real difference.

The GPST is endeavouring to become a tool through which to implement the 2030 Agenda for Sustainable Development in the transport sector and the recommendations expected from the UN Secretary-General's HLAG-ST.

25 <https://www.unglobalcompact.org/what-is-gc/mission/principles>

Box 2.4 Global Partnership for Sustainable Development – at the heart of SDG 17

Sustainable Development Goal 17 focuses on revitalising the Global Partnership for Sustainable Development and provides a possible solution for addressing issues of design, implementation, financing and access within the context of meeting the UN development framework objectives with regards to transport.

To date, the GPST has inspired numerous PPPs targeting ambitious but realistic actions to improve the delivery of viable, accessible and sustainable transport solutions. For example, the GPST brought together numerous governments and their private sector partners to promote the Model Highway Initiative²⁶. This initiative will extend road construction in the Eurasian region, supported by the development of ancillary road infrastructure, with the objectives of not only accommodating increased transit but also facilitating trade through the harmonisation of border crossing procedures. Both the business opportunities and the policy enhancements of such an initiative are evident.

The GPST has also brought in UN-Habitat, which is mandated to promote socially and environmentally sustainable towns and cities, to work with IRU, the global umbrella organisation of the private road transport sector. Together, they will promote the development of solutions for more accessible and affordable mobility in developing countries and regions, such as in Africa and Asia.

Other GPST partnerships focus on trade facilitation and strengthening regional and global supply chains, the involvement of the transport industry in implementing humanitarian efforts, and many more topics.

26 <https://www.IRU.org/sites/default/files/2016-01/en-mhi.pdf>

Chapter 3

The Habitat III Conference: New Urban Agenda – Mobility and Transport Perspectives

“The New Urban Agenda is a set of strategies that is integrated, strategic, sustainable, transformative and rights-based”

Dr Joan Clos, Secretary-General of Habitat III

1. Urbanisation and Urban-Rural Integration

By 2050, the urban population is expected to reach 66% of the world population, 30% more than a century before. Africa and Asia together will make up nearly 90% of the increase between now and 2050, and with this boom, the world's economic centre of gravity will continue to shift from the mature economies towards emerging markets. In 2015, there were 29 megacities with over 10 million inhabitants; by 2030, there will be an additional 12 megacities, with 10 of them appearing in Africa and Asia.

In many cities, in developed and developing countries alike, congestion, pollution, shifting economic centres and demographic patterns present imminent threats to lives and livelihoods. The burden of climate change adds another layer of urgency and complexity to the problems which decision-makers must address in their quest to create sustainable cities.

Yet as the UN Secretary-General's HLAG-ST has recognised, transport landscapes around the world look fundamentally different, even within a given country or region.

Almost everywhere in the developed world, people currently have transport options, though transport is not always available in an equitable or environmentally sensitive manner.

The situation is substantially different in developing countries. Some groups, particularly LDCs, LLDC and SIDSs, face specific challenges based on their country's structural vulnerabilities. In developing countries in general, the demand for mobility for both people and goods is growing significantly every year. Safety too is a particular concern in developing countries: currently 1.24 million people die every year in road accidents, with more than 90% of these fatalities in low- and middle-income countries.

The challenges are therefore great. However, in developed and developing countries alike, the opportunities for taking visionary decisions in the realm of transport over the coming years could set businesses, cities and nations on the path to sustainable development.

The Agreed Draft of the Habitat III Conference's New Urban Agenda²⁷ thus calls for "a renewed local-national partnership, in which stakeholders and local and sub-national governments are strategic partners of national governments, building a strong national system of cities and well-balanced territorial development, in support of national development targets."

In preparation for Habitat III, several issue papers of particular relevance to mobility and transport have been prepared.

2. Issue Paper No. 21 on Smart Cities

Issue Paper No. 21 on Smart Cities highlights the need for ICT-enabled approaches to smart urban transport. Enabled by innovative applications in broadband, mobility and cloud services, smart vehicles and infrastructure, together with multimodal transport could redefine city spaces and achieve the targets of SDG 11.2.

As indicated above, several of the SDGs relate directly to sustainable transport. These goals support and are supported by the results of the work of the regional public-private Smart Move Working Groups, initiated by IRU in various regions and countries of the world²⁸.

3. Issue Paper No. 19 on Transport and Mobility

Similarly, Issue Paper No. 19 on Transport and Mobility reviews trends in outdoor air pollution caused by transport emissions, as well as the impact of traffic congestion, not only on local air pollution, but also in terms of the heavy economic losses due to the time and fuel wasted. This issue paper notes that although transport is an enabler of economic activity and social connectivity, a decade-long bias towards planning for individual motorised transport rather than accessibility has led to:

- d) Increasing passenger kilometres travelled per capita; and
- e) A vicious cycle, where in an effort to address the congestion caused by increasing numbers of private motorised vehicles, more and more roads and infrastructure are built, which in turn are soon overwhelmed by rising numbers of vehicles.

Instead, according to the paper, the objective should be to curb sprawl, create compact, walkable neighbourhoods and reduce the vehicle kilometres travelled per capita. Urban form is a key determinant of transport systems, but is also heavily influenced by those transport systems themselves. A compact city form enables people, particularly the poor, to access jobs, education and health services more easily, reduces fuel consumption and provides more opportunities for social interaction.

The paper recognises several key drivers for action on sustainable urban transport. These include:

- A focus on demand;
- An enabling policy environment and institutional coordination;
- Intermodal integration and public transport-orientated development;
- Urban freight management;
- Financing; and
- The use of ICTs.

Some of the other key elements pushing for immediate action on sustainable urban transport include:

- f) The formulation of coherent National Urban Transport Policies for combining overarching policy goals with action at the local level, including legal frameworks for sustainable transport governance, funding programmes and strong cooperation between national, provincial and local authorities;
- g) Innovative, integrated and inclusive transport and land-use planning processes;
- h) Human and institutional capacity-building to enable policy-makers and planners to implement policies and measures on urban transport successfully; and
- i) Strengthening international cooperation on sustainable transport in order to improve access to technologies, experiences and concrete solutions, as well as to ensure mutual learning and improved solutions.

After the preparation of issue papers for Habitat III, several additional policy papers of interest to stakeholders in mobility and transport were prepared by other global experts.

²⁷ Habitat III is the UN Conference on Housing and Sustainable Urban Development taking place in Quito, Ecuador, 17–20 October 2016. Habitat III will be one of the first UN global summits after the adoption of the 2030 Agenda for Sustainable Development and the Paris Climate Change Agreement.

²⁸ See chapter 5.

4. Policy Paper No. 9 on Urban Services and Technology

This policy paper specifically identifies challenges to transport and mobility.

- According to the authors, cities are increasingly confronted with high levels of traffic congestion. This counters the benefits of agglomerations and has a negative impact on their attractiveness and competitiveness. The lack of access to urban opportunities increases social inequalities.
- The paper also addresses the issue of mobility for poor citizens. Poor people often face very long commuting times, and the affordability of transport services and road safety are also major issues for them. These issues are particularly acute in developing countries, where existing transport infrastructure and services are insufficient to cope with current demands for mobility – demand that is set to triple by 2050.
- The use of the different modes of transport is not well balanced. Individual, private motorised modes of transport are dominant in developed economies and absorb an extremely high proportion of energy in comparison to their transport effects. Urban areas in developing and transition economies increasingly embark on a trajectory towards individual car-dependency. Given current demographic trends, this will not only have an impact on developing and transition economies, but also a strong global impact, notably in terms of resource consumption and greenhouse gas emissions. The number of casualties and fatalities due to urban traffic accidents, particularly in developing countries, is also very high.
- The paper also emphasises the existence of structural and policy constraints. These lie predominantly in the lack of political coherence, the prevalence of individual motorised mobility and the lack of data: importantly, transport and land-use planning are not usually interconnected and coordinated. Modes of urban transport are often not sufficiently coordinated and interconnected and do not offer seamless mobility, including multimodal mobility.
- In a number of countries, planning and procuring urban mobility services has been devolved to the local level, but local authorities have neither sufficient funds nor the capacity to raise funds. Decision-makers often perceive collective public transport as a cost and not as a means to create value for urban transport users and local, regional and national economies.
- The appeal of individual, private car ownership, as an element of social status, is strong in fast-developing economies (whereas this tendency is decreasing significantly in some developed economies). In parallel, the advocacy strength of the car manufacturing industry remains important. The necessary appraisal of transport projects and options is made difficult by the lack of assessment frameworks (ex-ante, ex-post) and the difficulty and cost of collecting relevant data.
- The policy paper highlights targets related to policy priorities and draws attention to the SDGs²⁹ framework. Target 11.2 makes direct reference to enhancing urban access through expanding public transport³⁰.
- This needs to be pursued closely, not only in view of the objectives on access to safe, affordable, accessible and sustainable transport systems, etc., but also to improve the transport sector's contribution to mitigating climate change and related decarbonisation.

According to the Policy Group, the necessary inclusion of mobility in the New Urban Agenda could be achieved through the implementation of several priorities and measures at different levels (see Box 3.1).

²⁹ See chapter 2 section 4 for more about SDGs.

³⁰ "By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, and children, persons with disabilities and older persons."

Box 3.1 Recommendations by the Policy Group for Implementation at Various Levels

Local governments

- Coordinate mobility and land-use planning policies and particularly promote compact urban development which reduces the need to travel but not accessibility;
- Prioritise sustainable mobility options, by supporting public transport and NMT, and manage the demand for individual, private motorised transport (Sustainable Urban Mobility Plans);
- Promote intermodality and design infrastructure in consequence;
- Include the right of all citizens to access urban opportunities into the design of urban mobility projects;
- Develop formal coordination structures between local authorities in order to deal with the organisation, planning and funding of mobility at the metropolitan level;
- Engage with stakeholders and the public on mobility decisions;
- Engage with the informal (intermediate) transport sector and involve it actively in the development of public transport projects;
- Take advantage of large urban projects and use them as catalysts for better organisation between stakeholders.

National governments

- Establish legal frameworks and instruments that enable cities to use adequate funding for transport infrastructure and services; cities in particular should be able to capture a part of the value created by public transport for funding urban transport infrastructure and services;
- Develop an urban transport infrastructure fund at the national level, based on contributions from various sources, to support (collective, door-to-door) urban transport projects; access to such funding should be subject to a common appraisal procedure and could be conditional on the implementation of an integrated mobility strategy (e.g. Sustainable Urban Mobility Plan);
- Empower local governments to carry out integrated strategies at metropolitan and regional levels, in order to better align mobility, economic and urban development policies;
- Establish vehicle standards³¹ and regulations (e.g. fuel taxes) to complement the demand management efforts undertaken at the local level;
- Facilitate intermodal transport at supralocal levels.

International level

- Help to develop the capacities of local and national governments to measure urban mobility outcomes;
- Better target local governments and provide them with direct access to international-level funding and capacity building programmes for urban transport;
- Help to enhance the capacities of local and national governments to adequately share their competences regarding urban mobility (including funding aspects) at both the local and national levels.

³¹ Note once again that for developing countries, the renewal and modernisation of commercial fleets of trucks, buses, coaches and taxis, remains a key challenge. Developing national public-private strategies, with the participation of all the interested stakeholders, such as businesses, authorities and banks, could be a workable and efficient way to address the issue.

5. The New Urban Agenda – a Tool for Delivery

The Agreed Draft of the New Urban Agenda (NUA) for the Habitat III process highlights transport's critical role in furthering sustainable urban development. The NUA urges a "transformation in mobility policy". It also strikes a reasonable balance between specific recommendations on mobility and providing enabling recommendations on

national-urban relations, urban planning, financing, policy frameworks and capacity building, all of which will be key to implementing transport-related recommendations at the city level. Public transport is prominently mentioned, as are walking and cycling, as a crucial element of integrated land-use and transport planning.

Box 3.2 Habitat III: Summary of the Agreed Draft of the New Urban Agenda's Commitments on Mobility and Transport

The Agreed Draft emphasises access to economic opportunities and social services, rather than simply access to sustainable transport systems themselves. This is a key distinction between the NUA and the SDGs³². The NUA will:

- Take measures to improve road safety and integrate road safety into sustainable mobility and transport infrastructure planning and design.
- Promote the safe system approach called for in the United Nations Decade of Action for Road Safety, paying special attention to the needs of women and girls, children and youth, older people and those with disabilities or in vulnerable situations, all accompanied by awareness raising activities.
- Adopt, implement and enforce policies and measures to actively protect and promote pedestrian safety and cycle mobility with a view to broader health outcomes, particularly the prevention of injuries and non-communicable diseases.
- Develop and implement comprehensive legislation and policies on motorcycle safety, given the disproportionately high and increasing numbers of motorcycle deaths and injuries globally, particularly in developing countries.
- Promote, as a priority, a safe and healthy journey to school for every child, in line with the UN Convention on the Rights of the Child.
- Promote access for all to safe, age- and gender-responsive, affordable, accessible, and sustainable urban mobility and land and sea transport systems. This access should enable meaningful participation in social and economic activities in cities and human settlements, by integrating transport and mobility plans into overall urban and territorial plans, and by promoting a wide range of transport and mobility options, particularly by supporting:
 - a)** a significant increase in accessible, safe, efficient, affordable and sustainable infrastructure for public transport, as well as NMT options such as walking and cycling, prioritising them over private motorised transport;
 - b)** equitable Transit³³-Oriented Development (TOD) that minimises displacement, particularly of the poor, and features affordable, mixed-income housing and a mix of jobs and services;
 - c)** better and coordinated transport land-use planning, leading to a reduction in travel and transport needs, enhancing connectivity between urban, peri-urban and rural areas, including via waterways, and transport and mobility planning, particularly for SIDSs and coastal cities;
 - d)** urban freight planning and logistics concepts that enable efficient access to products and services, minimising impacts on the environment and liveability in the city and maximising their contribution to economic growth.
- Take measures to develop mechanisms and common frameworks at the national, subnational and local levels in order to evaluate the wider benefits of urban and metropolitan transport schemes, including impacts on the environment, the economy, social cohesion, quality of life, accessibility, road safety, public health and climate change mitigation goals, among others.
- Support the development of these mechanisms and frameworks, based on sustainable urban transport and mobility policies, for the sustainable, open and transparent procurement and regulation of transport and mobility services in urban and metropolitan areas. This includes new technology that enables shared mobility services, as well as the development of clear, transparent and accountable contractual relationships between local governments and transport and mobility service providers, including on data management. This will further guarantee public interest, protect individual privacy and define mutual obligations.
- Support better coordination between transport, urban and territorial planning departments, for a mutual understanding of planning and policy frameworks at the national, subnational and local levels, including through sustainable urban and metropolitan transport and mobility plans.
- Provide support to subnational and local governments to develop the necessary knowledge and capacity to implement and enforce such plans.
- Support subnational and local governments to develop and expand financing instruments enabling them to improve such transport and mobility infrastructure and systems as: Bus Rapid Transit systems, rail systems, bicycle lanes, pedestrian zones, and technology-based innovations in transport and transit systems to reduce congestion and pollution while improving efficiency, connectivity, accessibility, safety and quality of life.

³² The text on urban mobility and transport in paragraphs 13, 36,50,54,66, 113–114,116–118,121,123 and 141 of the Agreed Draft is quite clear and concise and covers all the issues relating to policy planning, urban–rural connectivity, road safety, technology and financing for sustainable and efficient transport infrastructure and services.

³³ Public transport

The NUA stands out as an important opportunity to truly put some of the international community's recent key pledges into action – the UN Member States have already, on multiple occasions, recognised the importance of transport issues³⁴.

To cope with the widely predicted urban transport challenges that the world will face in the coming years, there is a need for a massive increase in accessible walking paths, bicycle lanes and, indeed, collective, door-to-door public transport (widely understood, including taxis, long distance coaches and IPTs³⁵), their infrastructure and services. The NUA therefore emphasises the urgency of the paradigm shift required.

6. Building Resilience for Sustainable Transport Development

Resilience planning is an important feature of sustainable transport development, ensuring that passenger and freight transport infrastructure, services and operations are able to adapt well to climate change-related events as well as other chronic stressors (e.g. high unemployment, endemic violence) and acute shocks (e.g. earthquakes, terrorist attacks).

For reasons of economic viability, resilience must be planned with a focus on preserving access and functionality, looking at the network level and not just at each individual component. According to UN-Habitat, 80% of the largest cities are vulnerable to severe impacts from earthquakes, 60% are at risk from storm surges and tsunamis, and all face new impacts caused by climate change. Resilience planning highlights that relying on one mode of transport for a city's mobility can put it at risk, and it emphasises that all modes should be optimised in their respective areas of strength.

A diversified transport system can help cities and communities build resilience to a range of shocks. For example, taxis and ferry systems have proven critical in emergency situations when other modes of transport were completely or partially disabled. This was the case in New York in the aftermath of the terrorist attacks of 11 September 2001, and after Hurricane Sandy in 2012³⁶. Cities in the developing world, including Bangkok, Istanbul and Lagos, are exploring expansions to their ferry systems to enhance the resilience and effectiveness of their transport mix.

It is also important to decarbonise urban transport in order to make cities more resilient.

34 The end results of the Rio+20 talks were the Sustainable Development Goals (SDGs) and the 15-year global framework that went into effect in January 2016. One of the targets of the SDGs pledges governments to "provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons" by 2030. Another target pledges them to "halve the number of global deaths and injuries from road traffic accidents" by 2020.

35 Intermediate Public Transport

36 Equally, long distance coaches were crucial to deal with the aftermaths of the ash cloud crisis in Europe in 2010.

Box 3.3 Low-Carbon Solutions for Reducing CO₂ Emissions³⁷

With transport contributing 23%³⁸ of global CO₂ emissions, the sector holds a key to reducing the overall emissions trajectory. Investments in low-carbon solutions are urgently needed to increase the sustainability of existing and new transport systems. The most significant opportunities for shifting policies and investments are in the design of efficient, collective, door-to-door public transport systems, vehicle efficiency, demand management, regional development and land use³⁹.

37 See the organised road transport industry contribution to achieving this objective at https://www.IRU.org/sites/default/files/2016-01/en-g100129-30-by-30-resolution-2009_0.pdf

38 The share of commercial transport is 3%.

39 The road transport sector is now working towards the challenge of reducing CO₂ emissions and has proactively adopted IRU's "30 by 30" Resolution – a pledge from the entire road transport industry to cut its CO₂ emissions by 30% by 2030. IRU has also developed a checklist of smart, smooth and safe ECO-driving techniques which show the cost-efficient way to reduce fuel consumption, greenhouse gases and accident rates.

The Paris Agreement on Climate Change, through its ambitious target of a 1.5° Celsius maximum global temperature increase, makes it clear that transport will need to decarbonise massively by 2050. It is generally accepted that urban transport will need to take the lead on this, and several countries and cities have already announced major policy initiatives in this respect.

The NUA also strengthens links between climate action and urban mobility to ensure broad action and, based on the Paris Agreement, set urban transport firmly on a decarbonisation pathway.

7. Transport Demand Management (TDM)

TDM encourages planning to minimise transport demand through the better use of existing infrastructure and promoting public transport, car- and trip-sharing and teleworking. It does this via public information campaigns, infrastructure design and public transport-oriented development. Making public transport more efficient, door-to-door-oriented, attractive and universally accessible also drives demand. Market-based tools, managing road space and parking policies are all recommended for adjusting behaviour. Besides supply-side interventions, including door-to-door public transport systems, walking and cycling infrastructure, the NUA also advocates and focuses on demand management solutions – particularly sustainable urban mobility plans that dramatically minimise the need to travel.

8. Focus on the Needs of Vulnerable Groups

The NUA also focuses on the needs of vulnerable populations such as children, the elderly, the poor and people with disabilities. Making transport safer, cheaper, more accessible and cleaner disproportionately benefits vulnerable groups.

9. Freight Logistics in Cities

Compact, well-planned cities and towns offer people the ability to access their needs without long trips and can make the “last mile” logistics for freight more efficient and environmentally friendly. Moving people and freight over short and long distances by road remains vital to development. It is important to promote the sustainable growth of freight transport, but this might require differentiated response strategies for the movements of goods or people. The NUA also emphasises the key role that moving goods plays in enabling economic development.

10. Building Capacity to Enhance Safety and Access⁴⁰

Many developing countries are undergoing massive urbanisation, which brings with it social, economic and environmental challenges. Transport can either be part of the problem or part of the solution in all three areas, depending on the approach that developing country governments and their international partners take.

Private (individual) vehicle ownership tends to increase as nations and cities develop, particularly given the cultural and societal burden that equates car ownership with success. In urban areas in developing countries in particular, this model disproportionately enhances access for the wealthier portions of the population. But there are ways to balance these trends with targeted policies to enhance more diversified land use and multimodal, collective, door-to-door public transport systems that meet the needs of people, advance the objective of equitable access, lower air pollution and road deaths, and increase quality of life.

The models of development that have defined urbanisation in the developed world up to now are not the only options, and developing countries now have the chance, with the support of their development partners, to pursue a sustainable path. More than half of all urbanised land has yet to be developed, which means that there is a great opportunity to pursue compact and connected city models.

The starkly different statistics on road deaths and injuries between developed and developing countries also point to the urgent need to build capacity in those developing countries. SDG 3, on health, includes a target for road safety, calling on the global community to cut road deaths by half by 2020. This short time frame is ambitious, yet necessary, considering the critical nature of the problem; reaching this target will take concerted efforts by a range of stakeholders.

The NUA emphasises the need to take measures to improve road safety and integrate it into mobility and transport infrastructure planning and design; it also promotes the implementation of the UN vehicle safety regulations.

⁴⁰ In addition to training, capacity building includes institution-building, empowering organisations and facilitating fund raising for investment in transport and mobility. The NUA refers to enhancing safety and access, but it does not limit itself to these two areas.

11. Technology Enabling Change

The NUA recognises technology's role as an enabler of shared public mobility services. Yet technology can also be used to ensure that user fees and charges provide new sources of financing that can further encourage shifts towards a more sustainable supply of mobility solutions, such as collective passenger transport.

12. Implementing the New Urban Agenda – Preparation of Member States

There is, however, a need for strong action at all levels, including from the UN Member States. Without a dramatic change in direction, cities, particularly in developing countries, will become increasingly congested, road collisions will kill and maim millions more, and billions will be forced to breathe polluted air. The promise of cities as attractive and successful places to live throughout the 21st century will not materialise without the UN Member States expressing their readiness to provide the necessary leadership and focus within the NUA to deliver on their past commitments and transform urban mobility.

Chapter 4

UN-Habitat's Approach to Smart Urban Mobility

This chapter briefly reviews the literature, research studies and policy papers prepared for Sustainable Urban Road Transport. In particular, it looks into UN-Habitat's report on Planning and Design for Sustainable Urban Mobility – Global Report on Human Settlements 2013.

1. UN-Habitat Global Report on Planning and Design for Sustainable Urban Mobility

The Global Report on Planning and Design for Sustainable Urban Mobility⁴¹ argues that the development of sustainable urban transport systems requires a paradigm shift. The purpose of transport and mobility is to gain access to destinations, activities, services and goods. Thus, access for people (not for vehicles) is the ultimate objective of transport.

As a result, urban planning and design should focus on how to bring people and places together, by creating cities that focus on accessibility, rather than simply increasing the length of urban transport infrastructure or increasing the number of movements of people or goods. Urban form and city functionality are therefore a major focus of this report, which highlights the importance of integrated land-use and transport planning.

UN-Habitat's Global Report on Human Settlements 2013 provides guidance on developing sustainable urban transport systems. The report outlines trends and conditions and reviews a range of responses to urban transport challenges worldwide. It also analyses the relationship between urban form and mobility, and calls for a future with more compact efficient cities.

It highlights the role of urban planning in developing sustainable cities where non-motorised travel and collective public transport⁴² are the preferred modes of mobility. For developing sustainable cities and urban transport systems, success in this area is essential for creating more equitable, healthy and productive urban living spaces that benefit both people and their environment.

⁴¹ Global Report on Human Settlements 2013 (UN-Habitat) <http://unhabitat.org/books/planning-and-design-for-sustainable-urban-mobilityglobal-report-on-human-settlements-2013-policy-directions/>

⁴² Policy decision-makers and the public worldwide sometimes misinterpret the term "public transport", i.e. limiting it to the transport provided by public entities and often excluding public transport services provided by private companies. When used in its narrow sense, public transport often excludes intercity coach lines, taxis and IPT (even politically, by not including them in urban planning, not providing terminal infrastructure or not allowing them to use dedicated bus lanes, etc.), as well as group tourism by coach. To avoid any such misinterpretation, we use the term "collective" or "collective public" transport instead of just "public" so as to ensure that public transport also includes transport provided by private sector/ companies including taxis, intercity coach lines, IPT and group tourism by coach. In the present paper, wherever the term public transport is used, it also includes transport provided by private sector/companies, including intercity scheduled services, taxis, IPT, and group tourism by coach.

Urban transport systems worldwide face a multitude of challenges. In most cities, the economic dimensions of such challenges tend to receive the most attention. The traffic gridlock experienced on city roads and highways has become a central aspect of the development of most urban transport strategies and policies. The solution prescribed in most situations has been to build more infrastructure for cars, with only a limited number of cities improving collective, door-to-door public transport systems in a sustainable manner.

The Global Report on Human Settlements 2013 reveals the transport challenges experienced in cities all over the world, and identifies examples of good practices from specific cities of how to address such challenges. The report also provides recommendations on how national, provincial and local governments and other stakeholders can develop more sustainable urban futures through the improved planning and design of urban transport systems.

As mentioned in the previous chapter, the future city's urban form and functionality is a major focus of this report. Urban planning should focus on increasing population densities, and cities should encourage the development of mixed-use areas. This implies a shift away from the strict zoning regulations that have led to a physical separation of activities from functions, and thus an increased need for travel and commuting. Instead, cities should be built around the concept of "streets", which can serve as a focus for building liveable communities. Cities should therefore encourage mixed land-use, both in terms of function (i.e. residential, commercial, manufacturing, services and recreation) and social composition (i.e. neighbourhoods containing a mixture of different incomes and social groups). At the same time, they should pay special attention to integrating collective, door-to-door passenger transport systems⁴³ into urban planning.

The report goes on to argue, using lots of strong empirical evidence, that increased sustainability in urban passenger transport systems can be achieved through modal shifts – by increasing the modal share of public transport and NMT modes (walking and cycling), and by reducing private motorised transport. Again, a greater focus on urban planning and design is required to ensure that cities are built to encourage environmentally sustainable transport modes. Although it encourages a shift to non-motorised transport (NMT) modes, the report nevertheless acknowledges that such modes are best suited to local travel and that motorised transport (in particular the collective, door-to-door public

mobility chain) retains an important role when travelling longer distances. However, in many (if not most) countries there is a considerable stigma⁴⁴ attached to public transport.

There is therefore a need to enhance the public image and acceptance of public transport systems. More needs to be done to increase the reliability and efficiency of public transport services and to make them genuinely door-to-door, more secure and safe.

The UN-Habitat report also notes that most trips involve a combination of several modes of transport. Thus, modal integration is stressed as a major component of any urban mobility strategy. For example, the construction of a high-capacity public transport system needs to be integrated⁴⁵ with other forms of public transport, as well as with other modes. Such integration with various "feeder services" is crucial to ensure that metros, light rail and Bus Rapid Transit (BRT) systems can fully utilise their potential as high-capacity public transport modes⁴⁶.

It is therefore essential that planners take into account how users (or goods) travel the "last mile" of any trip (or the first). By way of examples, it is not much use living within walking distance of a metro or a BRT station, if this requires traversing a busy eight-lane highway without a pedestrian crossing, or if one is unable to walk to a public transport stop (due to disability or lack of personal security). Similarly, it is unlikely that urban residents will make use of metros and BRTs if the nearest station is located beyond walking distance, and there are no public transport feeder services providing access to that station, or no nearby secure parking options for private vehicles⁴⁷.

It is important to note that most cities still require considerable investment in their urban transport infrastructure, particularly in developing countries. City authorities should ensure that such investment is made

44 To address such a challenge, the European Citizens' Mobility Forum (ECMF) places the issue of improving the image of collective public transport near the top of its list of important activity areas for politicians, businesses and society at large. See more at <https://www.IRU.org/sites/default/files/2016-04/I-0336-ECMF-action-program-EN.pdf> (p. 7).

45 This should already take place during the policy analysis and conception phases.

46 In combination with other key constitutive elements of the public mobility chain, such as taxis, walking and cycling, which enhance its attractiveness by offering 24-hour, 7 days a week, door-to-door solutions.

47 The lack of bus and coach terminals and problems entering the terminal infrastructure of other modes, particularly railways, is currently the most important problem facing Europe's increasingly liberalised intercity coach market.

43 Widely understood, offered by public and private service providers.

where it is needed most, and that it is commensurate with the city's financial, institutional and technical capacities. In many cities in developing countries, large proportions of the population cannot afford to pay the fare required to use public transport or to buy a bicycle. Others may find these modes of transport affordable but choose not to use them as they find the safety and security of public transport inadequate (due to sexual harassment or other forms of criminal behaviour), or perhaps the roads are unsafe for cycling or walking (due to lack of appropriate infrastructure). Investment in infrastructure for NMT or affordable (and acceptable) collective public transport systems is a more equitable (and sustainable) use of scarce funds.

When trying to address the challenges of urban mobility, however, many cities and metropolitan areas around the world experience considerable institutional, regulatory and governance problems. Appropriate national, regional and local institutions may often be missing or their responsibilities may overlap or even be in conflict with each other. To address such concerns, the report notes that it is essential that all stakeholders in urban transport – including all levels of government, transport providers and operators, the private sector and civil society (including transport users) – are engaged in the governance and development of urban mobility systems.

It is essential that urban transport and land-use policies are fully integrated at all geographic scales so as to ensure the effective integration of transport and urban development policies. At the micro level, much is to be gained from advancing the “complete streets” model – an acknowledgement that streets serve numerous purposes, not just moving vehicles. At the macro level, there is considerable scope for cross-subsidies⁴⁸ between different parts of the urban mobility system, including through value-capture mechanisms, which ensure that increased land and property values (generated by the development of high-capacity public transport systems) benefit the city and the wider metropolitan region⁴⁹.

Better designed streets and public spaces, as well as Transit-Oriented Design (oriented towards public transport), can not only meet people's accessibility needs but also contribute to the urban economy. The report also highlights the need for the modal integration of public transport and NMT in order to increase public transport's reach and accessibility. Policies need to make car travel less appealing, increase the attractiveness of collective public systems and facilitate a modal shift towards public transport and NMT.

The paper supports PPPs and Value-Sharing models, both of which have great potential for bridging the financing gap for investments in public transport. Use of ICTs for modern communication and ticketing technology has the potential to greatly facilitate the integration of different modes of transport⁵⁰.

2. Transport and Mobility – Policy Priorities for Key Transformations

Efficient mobility in cities creates economic opportunities and social integration; it enables trade and facilitates access to markets, services, culture and leisure. In particular, efficient and accessible, collective, door-to-door public transport networks in cities can create value for citizens, businesses, visitors and public authorities that far exceed the costs of their provision. Eco-mobility is one key to decreasing cities' carbon footprints and to the successful implementation of the Paris Climate Change Agreement. Mobility also affects public health through its impact on cities' air quality, noise, levels of physical activity and road safety. Improving the quality of mobility helps cities improve their overall performance, strengthening their economic and social development, saving energy, benefitting the climate and public health, and thus significantly enhancing the ability of national governments to reach their policy objectives in these areas⁵¹.

48 Yet cross-subsidies can distort competitive public transport markets when different providers are operating with different forms of ownership (public, private, mixed).

49 As already indicated above, HABITAT III Issue Paper No. 19, on Transport and Mobility, focuses on the issue of demand for transport. Its authors argue for a new paradigm where people rather than vehicles are at the centre of planning. Thus, the focus has to shift from managing the supply side of mobility to managing the demand side. By promoting mixed land-use planning and more compact cities, trip lengths can be shortened and transport activity reduced. However, even when accessibility is the priority goal, the means of transport remains a vital element. The Avoid-Shift-Improve framework promotes a demand-based approach with the objective of reducing emissions and congestion and making cities more liveable. A sustainable urban transport system builds on an efficient modal-structure backbone consisting of walking, cycling and collective, door-to-door public transport available 24/7.

50 The paper seems to have insufficiently addressed the potential of new technology and business models led by private start-ups, such as those providing Mobility-as-a-Service (MaaS). This is a new/second generation of modal integration, based on customers' needs and using apps and technology to offer them real-time mobility options for a fixed (subscription) price, anytime, anywhere.

51 The EU's public-private Smart Move High-Level Group has calculated that doubling the use of bus and coach services has the potential to yield a reduction of up to 1,500 EU road fatalities per year, with a considerable reduction of serious and minor injuries. It could also reduce CO₂ emissions by 40–50 million tonnes per year, reduce transport-related airborne pollutants, significantly reduce congestion in cities as a result of the expected 10%–12% fall in car traffic, and create up to 3 million new, sustainable, green jobs – all at a low cost to taxpayers.

The SDGs need to be pursued actively, not only in view of their targets on access to safe, affordable, accessible and sustainable collective transport systems, etc., but also so that the transport sector can contribute to the climate objectives and the decarbonisation that will mitigate further change. “More compact, better-connected cities with low-carbon transport could save as much as USD 3 trillion in urban infrastructure spending over the next 15 years”^{52/53}.

3. Addressing the Challenge of High Levels of Urban Car Use

To reduce some of the environmental impacts of high levels of urban car use, governments around the world are advocating the principles of Ecological Sustainable Development (ESD). As it relates to urban travel, ESD favours more integrated urban land-use, a greater reliance on public transport⁵⁴ and the facilitation of urban walking and cycling. In most countries, concepts of technology, infrastructure, land-use and behaviour are all changing how they aim to develop sustainable urban travel. There is already global recognition of the need for a paradigm and behavioural shift towards the principles of ecologically sustainable urban development (AMCORD 1995)⁵⁵. Government policies have already been tending towards user-friendly cities with minimal reliance on cars for personal mobility for some time (Hamer 1994). Yet, current global trends for car and petroleum use are going in the opposite direction⁵⁶.

Car-use reduction strategies are now embedded in strategic planning goals and openly expressed by planners and policy makers (TTSP 2000). From over 7 billion today, the world population is predicted to increase to 9.5 billion by 2050 (UN estimates). Already, 55% of the population lives in urban areas. A GIZ publication⁵⁷ entitled Sustainable Urban Transport (2009) was prepared as a sourcebook for policy makers and planners in South Asian cities, to foster the principles of sustainable urban transport and enable them to develop sustainable urban transport plans that focus on moving people and not vehicles. The publication covers several topics, from urban transport institutions to details of planning for NMT, including issues such as bus regulation and planning, and promoting Bus Rapid Transit.

52 <http://newclimateeconomy.report/2014/wp-content/uploads/2014/08/NCE-cities-web.pdf>

53 In 2011, Robin Hickman, Paul Fremer, Manfred Breithaupt and Sharad Saxena, supported by the Asian Development Bank and the Deutsche Gesellschaft für Internationale Zusammenarbeit (the German international cooperation agency, GIZ) brought out a guide entitled “Changing Course in Urban Transport”. This argued that the general quality of urban life was declining in many cities. According to the authors, cities attempts to build their way out of problems by providing more roads and parking spaces will simply lead to problems on a larger scale – more congestion, carbon emissions, pollution, social inequity and economic decline. They suggested an alternative route – a change in course – where traffic is managed: mass public transport/transit systems are developed, NMT modes encouraged, urban planning is designed to support transport investment (and vice-versa), slower travel speeds are adopted, and low-emission vehicles form the major share of the vehicle market. This approach would see cities regain their competitive edge, minimise their environmental impact, and become more attractive places to live and work by developing strong senses of character and identity.

54 To address the issue efficiently, the EU Smart Move High-Level Group and its successor, the European Citizens’ Mobility Forum, argued resolutely for a more voluntary approach, requesting that a policy target of increasing the use of collective public transport, including buses, coaches and taxis is adopted. In particular, it advocated that doubling the use and share of collective passenger transport in the EU by 2025 should become such a target. See more at <http://www.busandcoach.travel/download/hlg/smrecome.pdf> (p. 2)

55 Also refer to: <http://www.busandcoach.travel/en/green/> / <http://www.busandcoach.travel/en/safe/> / <http://www.busandcoach.travel/en/efficient/> / <http://www.busandcoach.travel/en/affordable/>

56 Transport is unique as the only development sector that worsens as incomes rise. While sanitation, health, education and employment tend to improve through economic development, traffic congestion tends to worsen.

57 http://mirror.unhabitat.org/downloads/docs/8858_57875_2_Dakar2010_GTZ_Sourcebook_07102010.pdf

Chapter 5

IRU's Smart Move Campaign Initiative

This chapter presents IRU's global Smart Move campaign, and particularly its transport policy dimension, as embodied by its public-private Smart Move High-Level Groups, which currently exist in Europe, the Commonwealth of Independent States (CIS) and India. The chapter presents the outcomes of their activity so far. Their recommendations are presented in detail in dedicated annexes to this contribution report.

1. General Presentation of the Campaign

In 2009, IRU launched its global Smart Move campaign initiative, to promote the use of collective passenger transport, particularly buses and coaches, as the most affordable, efficient, safe and environmentally-friendly way to achieve sustainable mobility for all.

Smart Move was first launched as a promotional campaign with the objective of providing policy decision-makers and opinion makers with evidence of the crucial role that buses and coaches play in the door-to-door mobility chain. It was also meant to collect best practices and promote sustainable mobility practices within the industry itself. Since then, Smart Move has indeed grown into a genuine global movement, with the participation of more than 100 committed partners (industry manufacturers, NGOs, politicians, etc.) and thousands of individual supporters worldwide.

In 2013, Smart Move started developing a transport policy dimension, via the creation of a set of public-private High-Level Groups (HLGs) in various regions of the world. Depending on the countries' or region's specificities, participants include private industry, representative trade associations, politicians, city authorities, governmental and intergovernmental bodies and institutions, representatives of bus and coach customers (including those with disabilities), representatives of broader civil society and research bodies.

There are currently three HLGs, functioning in Europe, the CIS countries and India. Several other HLGs are planned for launch in 2016–2017, in Iran, the East African Community (EAC), Turkey, and possibly, later on, China and Latin America. The emphasis is always on creating country- or region-specific action programmes and recommendations (short-, medium-, and long-term), to best address their specific mobility situations and challenges, whilst also benefiting from globally available know-how. The overall objective of these recommendations is to substantially increase or, where possible, double the use of collective passenger transport, including buses, coaches and taxis, within a reference period of 10–15 years.

2. Rationale and Results of the Work of the Public–Private Smart Move High-Level Groups

2.1. European Union Smart Move High-Level Group

The EU public–private HLG was launched in 2012. After a year of work, in May 2013, it presented its recommendations on doubling the use of buses, coaches and taxis, to save lives and cut carbon emissions, to the (then) European Commission Vice President, Siim Kallas, at a concluding public debate at the European Parliament. At a public debate organised there, the HLG called on the European Commission to implement these proposals by 2025 as a formal EU policy objective.

The HLG has calculated the **benefits of doubling the use of bus and coach services** in the EU as: a potential 1,500 fewer road deaths per year, and considerably fewer injuries; a reduction in CO₂ emissions of between 40–50 million tonnes per year and a reduction of airborne pollutants; a significant reduction of congestion in cities resulting from an expected 10%–12% fall in car traffic; and the creation of up to 3 million new, sustainable, green EU jobs.

The EU HLG **proposed 16 short-, medium- and long-term measures** to achieve these objectives, including the creation of a permanent European Citizens' Mobility Forum (ECMF). This would involve multiple public and

private stakeholders, with the notable goal of ensuring the appropriate follow-up and implementation of the HLG recommendations and proposing future actions.

Indeed, in 2015, the ECMF took over and presented EU decision-makers with a dedicated **Action Programme 2015–2025**, framed around four principles, and covering nine action areas, including governance, infrastructure, innovation, funding, sustainability, taxation, service quality, image and monitoring the progress made in achieving the objective of doubling coach and bus use. It also advocated the creation of a dedicated EU funding instrument to enhance collective mobility across Europe.

The ECMF proposed that European institutions follow the approach adopted in the Action Programme and integrate the strategy for doubling the use of collective land transport into the EU's overall mobility strategy. It proposed that the approach should be included in the mid-term review of the existing Transport White Paper, and ultimately become a priority action in a future EU Transport Policy White Paper. The Action Programme specifically emphasised the need to create a joint European funding instrument, to be adopted by the European institutions and supported by national and local roadmaps for the development of collective mobility in the EU.

The summary recommendations of the EU HLG and the ECMF Action Programme 2015–2025 are annexed to this contribution report.

Figure 5.1 Composition of the EU Public–Private Smart Move High-Level Group (and its successor, the European Citizens' Mobility Forum, ECMF)



2.2. Eurasian Smart Move High-Level Group

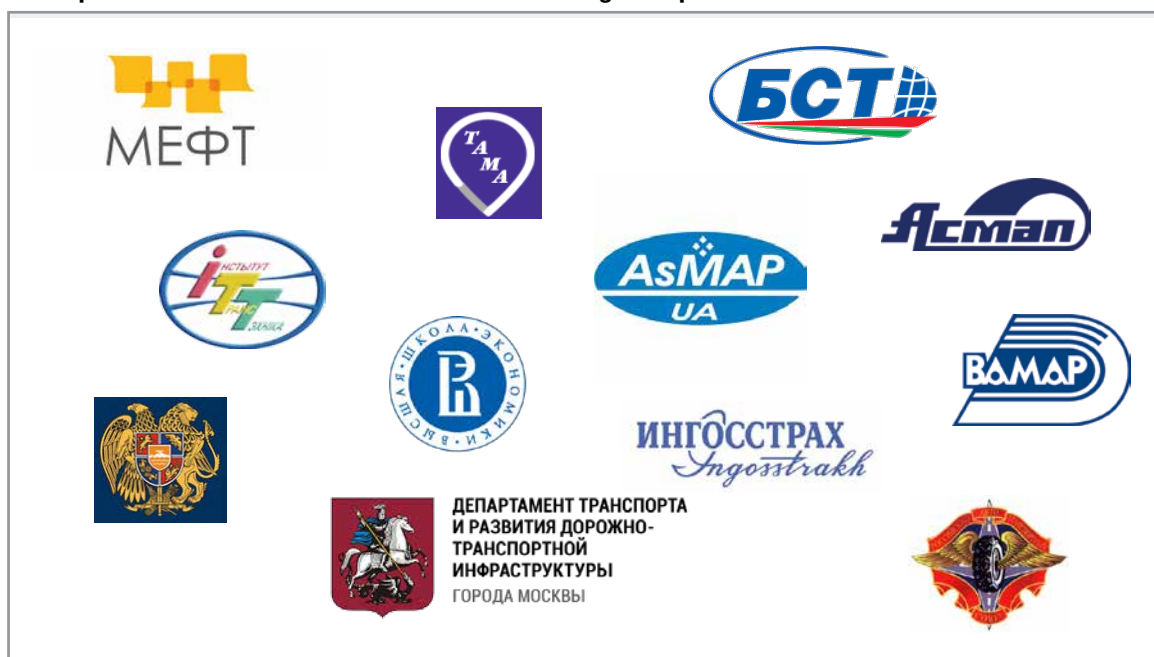
The Eurasian Smart Move High-Level Group was created by a formal decision taken on 29 May 2014, by the Council on Road Transport of the Transport Coordination Committee of the Commonwealth of Independent States (CIS). It has attracted the participation of almost 40 experts from leading national CIS institutions, research bodies, insurance companies, as well as individuals. Four ad-hoc working parties were created, on:

- Taxis;
- Tourist and cross-border transport;
- Urban transport; and
- Harmonisation of transport legislation.

Consequently, in 2015, its report came up with concrete recommendations on these four issues. It also proposed an outline plan for a training programme for professional managers and drivers. The report was formally submitted to the Council on Road Transport of the Transport Coordination Committee of the CIS, where a decision was taken to prolong the HLG's mandate, with one objective being the creation of a permanent repository for best practices in mobility and innovation for use by all the region's experts.

The summary of the recommendations made by the Eurasian High-Level Group for the CIS countries is annexed to this contribution report.

Figure 5.2 Composition of the Eurasian Smart Move Working Group for the CIS Countries



2.3. All-India Smart Move High-Level Group

The All-India Smart Move High-Level Group was launched in 2015, as a representative, ad-hoc, public–private High-Level Group of leading public and private stakeholders. Its objectives were to work out a joint vision, policy and business recommendations, and short-, medium-, and long-term action plans or road maps for removing existing barriers and facilitating bus, coach and taxi transport in India. The overarching objective is to increase the number of users of collective passenger transport modes substantially by 2030.

The HLG approved its first **report during its plenary meeting in April 2016** (see the summary at http://www.busandcoach.travel/download/IRU_india_full_report.pdf); this focused on smart urban mobility. The Group is currently working on a series of intermediary reports covering:

- Intercity scheduled coach transport;
- Taxis and intermediate public transport;
- Coach tourism; and
- Electric mobility.

The group is also addressing the issue of new business models and platforms/aggregators, and a first workshop on this issue took place in New Delhi in April 2016. The group is supposed to submit all its deliverables by the end of 2016 or the beginning of 2017.

As a follow up of the work of the High Level Group, a high-level delegation of competent transport authorities from federal and state governments is also expected to make a study visit to Europe in the autumn of 2016.

The full text of the All-India Smart Move High-Level Group on Urban Transport is annexed to this contribution report.

Figure 5.3 Composition of the All-India Smart Move High-Level Group



Chapter 6

Intermediate Public Transport – Policy Guidelines for Pro-Poor Mobility⁵⁸

Transport planners and policy makers, aiming for sustainable transport in their cities, work to design systemic transport networks which fully integrate, involve and evolve with various modes of transport to provide seamless, affordable and efficient services for their citizens. They should also take into account regional cultural, social and economic realities, as well as the requirements of people living in a city and the behavioural patterns of commuters travelling to it.

Commuting is a market-driven mechanism, and the use of many services and transport modes should be recognised as an integral part of a commuter's daily life. In the cities of many developing countries, including India, Intermediate Public Transport (IPT) plays an important role in providing mobility to a large section of the population. Although numerous safety and convenience factors in these modes need to be improved, they have the potential to provide cleaner mobility through reduced emissions.

Different IPT systems across the world cater to different segments of the population and are often considered an informal means of transit.

In developed countries⁵⁹, the para-transit mode is usually Demand Responsive Transit, which works via dial-a-ride systems managed by single or multiple operators through call centres. This mode of transport complements the main or official public transport system.

In developing countries, however, the public transport supply deficit has led to the mushrooming of a bewildering range of modes of transit/transport, all attempting to bridge the significant gap between public transport and private vehicles. In several Asian, African and Latin American cities, IPT is perhaps the most common and widely used form of public transport. Some of the major IPT (also called paratransit) systems include the angkots in Indonesia, tuk-tuks in Thailand, mini-buses in Dakar, Senegal, and matatus in Uganda. Motorised para-transit systems, such as autorickshaws and shared automobiles (India), matatus (Kenya), jeepneys (Philippines) and dala dalas (Tanzania) provide cheap, flexible transport across cities and they can even ply their trade on narrow roads, where no other form of transport is viable.

⁵⁸ This chapter is based on several studies undertaken in India and holds lessons for many developing countries, besides building recommendations for IRU-initiated All-India High-Level Group.

⁵⁹ In North America, paratransit is recognised as special transport services for people with disabilities, often provided as a supplement to fixed-route bus and rail systems by public transit agencies. Paratransit services may vary considerably on the degree of flexibility they provide their customers.

Table 6.1 Some major IPT/Paratransit systems in the World⁶⁰

| Sl. No. | IPT/Paratransit | Country |
|---------|-----------------|-------------------------------------|
| 1. | Angkots | Indonesia |
| 2. | Tuk-Tuks | Thailand |
| 3. | Mini-buses | Dakar, Senegal |
| 4. | Matatus | Kampala, Uganda, and Nairobi, Kenya |

1. Defining Intermediate Public Transport: the Indian Way

Paratransit vehicles are for-hire, flexible passenger transport that do not necessarily follow fixed routes and schedules. They provide two types of services: firstly, trips along more-or-less defined routes with stops to pick up or drop off passengers on request; and secondly, demand-responsive transport, which can offer a door-to-door service from any place of origin to any destination within a service area.

The definition and scope of an IPT/paratransit system differ in developed and developing countries. In a country like India, with a population of over 1.25 billion, IPT such as shared automobiles, shared taxis, maxi-cabs and cycle-rickshaws move people short distances in an effective manner. They have been found to be an efficient, accessible and safe transit system, facilitating citizens' commuting, acting as feeder transport systems and solving the last-mile mobility issue. In India, there are also innovative systems like the EcoCab or dial-a-cycle-rickshaw scheme in Fazilika, in the state of Punjab, which is quite successful.

2. Informal Public Urban Transport in India⁶¹

Traditionally, the provision of public transport is considered to be the state government's responsibility, but the vehicles could be run by publicly-owned or private operators. Due to resource and capacity constraints, however, and particularly in developing countries, government-provided public transport is often inadequate. Privately-operated public transport modes (in India, shared autorickshaws, Vikrams, mini-buses, Tata Magics, etc.) quickly cater to the population's mobility needs. However, this sector is insufficiently acknowledged for its important contribution to mobility supply, both in

terms of both policymaking and city planning exercises. Furthermore, government authorities and the public typically perceive these modes to be unsafe, highly polluting and a cause of traffic congestion, simply because there is a complete absence of research and knowledge about them.

This chapter will nevertheless argue in favour of IPT and provide evidence that these systems do indeed bridge large transport supply gaps, playing important roles, in this particular case, in Indian cities⁶². A study by The Energy and Resources Institute, India⁶³, showed that these systems are not as unsafe and polluting as public perception would have them to be, although it is true that there is significant room for improvements in terms of vehicle efficiency and compliance with the regulatory provisions related to public transport.

Very few Indian cities currently have organised, registered and regulated public transport systems. Local commuter rail services only cover the seven metropolitan cities of Mumbai, Delhi, Chennai, Kolkata, Bengaluru, Hyderabad and Pune. Organised city bus services now operate in about 65 cities, an increase from only 20 cities in 2006.

Yet IPT modes like three-wheeled auto-rickshaws, tempos and cycle-rickshaws also provide public transport services. Indeed, although the current market share of city buses is very small compared to IPT modes, in most of them a large number of contract buses also work by catering to the demand for getting commuters to their jobs and children to school. Comparing city⁶⁴ vehicle registration data against the fleets of the public transport agencies gives interesting insights into how important contract buses and IPT/paratransit vehicles are to urban transport in those cities (see Table 6.2).

60 In the seminal paper "Review of IPT in Third World Countries", P.R. Fouracre and D.A.C. Maunder (1979) describe the diverse nature of IPT systems, which act largely as "taxi-like" and "bus-like" services.

61 © 2016 International Association of Traffic and Safety Sciences Production, and hosted by Elsevier Ltd.

62 Certain modes may sometimes operate outside legal frameworks, but they do it to become profitable, which in turn helps them provide their much-needed mobility services.

63 http://www.teriin.org/div/pro-poor-mobility_policy-guidelines-case-studies.pdf

64 All vehicles are registered at city level, and there is no central registration at national or state levels.

Table 6.2 Patterns of Public Transport in Selected Indian Cities

| City | Mumbai | Delhi | Chennai | Bangalore | Kolkata | Pune |
|---|----------------|--------------|--------------|---------------|------------------------|---------------|
| Public transport buses operated by a State Road Transport Undertaking (SRTU) | BEST* 4,652 | DTC 5,771 | MTC 3,414 | BMTC 6,111 | Calcutta STC 956 | BMTC 1,549 |
| Other registered buses | 8,189 | 39,986 | 33,791 | 22,150 | 3,293 | 13,459 |
| Registered, commercial IPT/paratransit vehicles including taxis and 3–6-seater passenger vehicles | 159,629 | 253,532 | 174,314 | 162,431 | 49,648 | 78,778 |

Source: Adapted from the Ministry of Road Transport and Highways (2011, 2012).

* BEST, DTC, MMTC, BMTS and Calcutta are the names of public transport companies.

3. Last-Mile Connectivity: the Role of IPT

People travel for work, education, shopping and leisure. Most planners and governments have been investing a lot of time and resources on connecting people with their destinations, known as the “last-mile issue”. However, most major transport systems face difficulties in achieving last-mile connectivity, so people have to walk or seek alternatives.

The mobility share of the various transport modes in India is evidence of the importance of IPT as a large section of the population relies on informal passenger vehicles. The IPT segment consists of auto-rickshaws, which are largely regulated across states in India, and other IPT vehicles such as chakdas or shared automobiles, operated by private drivers. Currently, the urban poor are the major users of these services, given their affordability and accessibility.

The Government of India has been slow to recognise the role of IPT systems in the overall public transport system, in spite of the mass utilisation of their services. Even India’s National Urban Transport Policy (NUTP) does not fully recognise IPT’s role, as it states: “Para-transit is normally expected to fulfil a need that neither public transport nor personal vehicles are able to fulfil. They normally cater to a category of occasional trips such as trips to airports or rail stations with excessive baggage, or emergency trips that have to be undertaken immediately and it is not possible to wait for public transport.”⁶⁵

However, the manner in which IPT systems, such as shared auto-rickshaws, work in India is larger and greater in scope than the explanation provided in the NUTP. Shared auto-rickshaws are a common sight in metropolitan cities like Chennai, Lucknow, Indore or Rajkot, as well as in mega-cities like Delhi.

In India, chakdas, auto-taxis and Vikram autos also act as a major feeder system in spite of the poor supporting infrastructure; they are largely used by the urban poor. IPT plays an important role for them by providing both mobility and employment. It is accessible, available, flexible, adaptable and affordable⁶⁶.

Currently, individual two-wheeled motorcycles⁶⁷ dominate the modal share of vehicles in India, constituting 71% of the entire vehicle. This is followed by individual cars at 13%. However, the proportion of buses, which carry more than 90% of formal public road transport passengers, has declined from 11.1% in 1951 to 1.1% in 2011. This has occurred in a scenario where the per capita mobility shares of two-wheelers, auto-rickshaws and cars have increased by 124%, 130%⁶⁸ and 97%, respectively. The corresponding increase for buses and coaches in India was 60%. Due to these changes, the mobility share of private and IPT/paratransit modes increased from 19.4% in 1990–91 to 24.3% in 2000–01. Yet despite this increase, current mobility policies still do not recognise their contribution and do not consider IPT to be a part of public transport.

⁶⁵ The authors wish to emphasise again their belief that policy decision-makers and authorities worldwide are making a mistake by considering public transport in a narrow sense, i.e. public transport services provided by municipal companies (sometimes exclusively) and/or services under public service contracts. By excluding large parts of the collective public transport system (IPTs, taxis and hire-cars with a driver, scheduled bus and coach lines, and coach tourism) from planning, funding, coordination etc., the end results are sub-optimal policy-making and sub-optimal mobility services for citizens.

⁶⁶ See Anvita Arora, Mata Jarnhammas, 2010

⁶⁷ This data relates to the overall modal share: IPT and private two-wheelers.

⁶⁸ Note that the percentage increase of IPT auto-rickshaws is the highest.

4. Government and the State of Transport

It is clear from the above sections that IPT/paratransit systems play important roles in supporting the mobility requirements of the growing populations of developing countries. Yet current public transport policies in India and a lack of recognition prevent their proper market entry and operation, although they effectively act as a bridge between people and destinations. Policy⁶⁹ and infrastructure barriers have affected the growth of IPT and halted its emergence as a full-scale, private, public-service provider, particularly benefitting India's urban poor.

5. The Role of the Private Sector in Making IPTs Efficient

A vital role for India's IPT systems is connecting cities with other parts of their states, including rural areas: they flourish where public bus and rail systems are absent. IPT systems provide effective ways of transporting people, linking them to jobs or employment opportunities. IPT users are largely comprised of the urban poor and, as a result, IPT is considered a transport system for the poor – an appellation which may be deprecating, but which is vital in its function.

In spite of the barriers mentioned above, the ease of procuring licences for operating IPT routes has helped the large scale entry of private actors. These actors in turn improved efficiency by increasing trip frequency, miles travelled, sharing resources and facilitating a better travel experience. The system's flexibility enabled accessibility, through greater market penetration, while a market-based pricing system enabled them to compete by reducing fares and providing customised offers (free Wi-Fi, GPS, audio systems, etc.).⁷⁰, which were hitherto not prevalent in India's transport sector. The affordability factor attracted the critical mass of customers and helped IPT gain impetus, especially in rural areas where other transport systems did not operate.

Box 6.1 E-rickshaws and E-carts – Special-Purpose Battery-Operated Vehicles in India

The e-rickshaw is a special-purpose, battery-operated, three-wheeled vehicle intended to provide last-mile connectivity for travellers, for hire or reward. They are constructed or adapted to carry not more than four passengers, excluding the driver, and not more than 40 kg of luggage in total; its motor's net power is not more than 2,000 W and its maximum speed is not more than 25 km/h. E-carts are constructed or adapted to carry goods by providing a separate load body or compartment for a maximum weight of 310 kg, in addition to the driver. Driving licences are mandatory for both these battery-operated vehicles. The Government of India has updated the Central Motor Vehicles (Sixteenth Amendment) Rules, 2014, paving the way for operating "special-purpose battery-operated vehicles".

However, the informal and unregulated environment, largely created by the government, has weakened the effects of IPT operations across states. Because they are operated by private actors, the federal government often uses its authority to create barriers for their operation. The Delhi Transport Department banned e-rickshaws from the city's roads after a Delhi High Court ruling in August 2014⁷¹ – a decision which suddenly ruined the livelihoods of around 100,000 e-rickshaw drivers. This was despite the fact that the Government of India had updated the Central Motor Vehicles Rules, 2014, as earlier rules had no provisions for the e-rickshaws which had appeared because of the absence of any norms.

69 As stated above, India's NUTP not only fails to fully recognise the role of IPT, but even negates this effective public service. The government's attitude limits IPT's functionality.

70 IRU's 2015 Smart Move Award winner for "best innovation" was Nairobi's Digital Matatus project. This IPT recently created and implemented an innovative, collaborative and successful mobile phone crowdsourcing system for data on transport infrastructure and policy, substantially improving the quality of Nairobi's urban bus transport. The platform has successfully mapped the Nairobi minibus (matatu) system, sparking similar initiatives across a number of other cities, including Accra, Amman, Cairo, Kampala, Lusaka, Managua and Maputo. The next phase will seek to enhance communication between different cities via the creation of a resource centre.

71 <http://indiatoday.intoday.in/education/story/e-rickshaw-bill-passed-here-are-the-new-rules/1422194.html>

The federal government has now amended the Motor Vehicles Act and recognised e-rickshaws, for which fresh guidelines have been issued.

Licenses for all forms of IPT are provided by regional-level transport offices, with specific regulations for different categories of auto-rickshaws. The absence of rules for shared automobiles, shared taxis, chakdas, etc., created market distortions as they occupied a space unauthorised by law. The transport policy apparatus failed to respond to market demands (as evidenced by the high acceptance and usage of IPT). The ban on chakdas in the city of Surat, in Gujarat, of e-rickshaws in Delhi, and of maxi-cabs in Tumkur, in Karnataka, affected the community of passengers as the existing public transport systems (in the narrow sense of the term) were able neither to replace nor supplement the role of IPT. Operators were also affected by a lack of institutional support, as they were unable to seek financial help or get bank loans or insurance (a social benefit) for unregulated vehicles. This had a direct impact on their livelihoods.

6. Regulating IPT – the State’s Legal Dilemma

The actual number of IPT systems in India has not been documented. IPT is largely made up of registered maxi-cabs and taxis, and state-level road transport authorities only issue permits for IPT to operate as “contract carriage”, as per the Motor Vehicles Act of 1988 and related state-level rules. This means that IPT can only operate to one destination (i.e. point A to point B) and are not allowed to pick up passengers en route, which confines their operations to functions like marriages, carrying employees to work, tour packages, etc. On the other hand, “stage carriers”, like public buses and other utility vehicles, are given the option to run scheduled stops and pick up passengers on identified routes. Given the normal definition of IPT operations, which are intended to cater to classes of commuters travelling to markets, offices, schools, etc., and to facilitate last-mile connectivity, contract carriage permits significantly restrict their usage and flexibility. The current system does not facilitate IPT services, effectively forcing them to operate illegally. This problem could be solved easily, facilitated through proper legal mechanisms and structural changes.

Box 6.2 Regulating Intermediate Public Transport

There are three main types of arrangement for regulating IPT, which consists mainly of privately-operated small buses and vans.

The **first arrangement** is for IPT to be viewed as normal public transport and to be subject to the same regulations as traditional public transport bus services. This is the regime under which IPT became part of the mainstream supply of services in Uzbekistan and the Kyrgyz Republic. In these cases, the fragmented operators were encouraged to form associations to bid for route franchises. Although the process was not entirely smooth, it resulted in lower fares on small vehicles, and discipline increased. This approach has also gained currency in Brazil.

The **second arrangement** is for the regulation of IPT to be undertaken by a separate public authority. In Sri Lanka, a public body was created with powers to issue permits to private companies and to set fares. Permit issuance became a form of political patronage, however, and there was a large over-issuance of permits. As a result, a proportion of the buses were kept off the road each day, leading to the under-utilisation of vehicles and higher costs per passenger. The legislation was later reversed and regulatory powers were passed back to the original transport commissions⁷.

The **third arrangement** is for the IPT sector to be allowed, or encouraged, to regulate itself. In Accra, Ghana, the operation of small vehicles (called tro-tros) is left to associations, by far the largest and strongest of which is the Ghana Public Road Transport Union (GPRTU), which is itself a federation of a number of smaller associations which operate specific road transport terminals. To provide a service, a supplier must be allowed to operate a route by one of the terminal associations. Although operation is disciplined, the route structure is very fragmented and inefficient.

Source: Gwilliam (2011d).

The fact that these services are a major transport mode, catering to the needs of the urban poor, should have been a major criterion for facilitating IPT operations in India. With such a large population relying on the IPT system, the Government of India should formally recognise IPT as a public transport mode.

Steps in this direction have indeed already been taken and some initiatives have been successfully launched in India (see Box 6.3).

Box 6.3 The Privately Funded Alwar Vahini Model in the City of Alwar

In Alwar, in the state of Rajasthan, the city administration has legalised IPT operations. Legal recognition of privately funded Alwar Vahini models in the city has helped operators innovate and facilitate citizens' mobility. These operations currently use GPS tracking devices and a fully-fledged call centre for facilitating their services and catering to market demand. A compliant system, with proper identification and permits, has helped people look for employment and create a livelihood. Through private investment and government recognition, the Alwar Vahini model has excelled as a brand, prompting the Government of India to wish to replicate the model in other cities and towns. However, this has not moved as quickly as expected because of bureaucratic hurdles.

The case of Chennai points to the need to integrate and formalise suitable policy changes for the benefit of commuters. An integrated system with an appropriate revenue model will help to build sustainable transport systems across India, contributing to increasing people's mobility and thereby improving the efficiency of the public transport system overall.

Box 6.4 The City of Chennai's approach

The shared automobile system in Chennai, the capital city of the state of Tamil Nadu, became a major city attraction after its introduction in 1998. With the entry of Tata Magic and Mahindra Maximo models, operating as shared automobiles, the IPT/ paratransit system witnessed tremendous growth. These transit systems often run parallel to the public transport system of buses and trains, and they are instrumental and efficient in feeding passengers into those traditional public transport modes.

In 2012, the Tamil Nadu transport department took the landmark step to authorising and regulating IPT in the state. This effectively permitted the operation of shared automobiles, facilitating short-distance travel within the city. More than 2 million passengers used the city's IPT, making it the second largest transport mode after public buses. They generated INR 20 million per day by carrying seven passengers per vehicle (ideal for the narrow roads), and contributed to filling the gaps in the traditional public transport system for a city of 5 million (Census 2011)⁸. The Chennai City Connect Foundation lobbied for IPT to be considered as a formal transport system, and the state government implemented this. The Tamil Nadu Motor Vehicle Rules were amended to allow IPT to operate as stage carriers, and maxi-cabs were allowed to pick up and drop off passengers along routes chosen by the operators themselves. The fares were fixed competitively and could be altered as per market conditions.

Source: http://www.mindtext.org/view/143/Para_transit_system_in_India-_A_case_study_of_Chennai/

7. Infrastructure Barriers

India's local or state governments are responsible for facilitating transport systems. Bus terminals, shelters, walkways, parking spaces, etc., are identified, designated and managed by those authorities. However, such institutional support for the operation of IPT has been largely absent in India. With the few exceptions noted above, neither federal, state nor local governments have provided dedicated lanes, designated parking spaces or successfully integrated IPT as a transport mode. This discourages private new actors from venturing into this sector. Buses and railways, which are the major modes in the traditional public transport systems, work in isolation. IPT vehicles are not allowed to enter railway or bus terminals in most cities. Transport and city planners do not envisage designs and facilities for seamless travel connectivity integrating IPT. City corporations and other local governments have yet to develop mobility plans which can act as frameworks for city's or town's transport systems, although institutional support is vital to the existence of sustainable transport.

8. Recommendations

IPT/paratransit vehicles play an important role in the transport sector in developing countries. In some cases, IPT has silently provided a transport revolution, as is the case in India, as a mass transport mode for the poor. However, there is still a great need for IPT to be institutionally recognised as an integral part of the overall public transport system, and for its existence to be legalised for the benefit of all citizens, particular the poor.

The suggestions below should aid this debate to progress and help the IPT sector to grow and better satisfy citizens' mobility needs.

- **Empowering local governments with decision-making powers.** Municipal corporations, municipalities and local governments should be given the power to take decisions on IPT regulations. These bodies should issue permits and lay down norms for seamless mobility.
- **Integration.** The mandate of IPT should not be limited to serving as a feeder system to other public transport systems. On the contrary, attempts should be made to integrate IPT at different levels. Integration is only possible with route rationalisation, new infrastructure and redesign. Passenger growth is possible if this process minimises time losses and increases economic gains.
- **Adapting technology.** One of the principal benefits of allowing private actors to operate in public transport is innovation. From mobile telephone apps to GPS systems, private actors are quick to adapt the latest technologies, thus improving transport system efficiency and providing better customer satisfaction. The case studies involving IPT in Alwar and Chennai have shown how private actors can respond to market demands.
- **Recognition of the Private Sector's Role:** IPT systems have an integral role to play in supporting the country's mobility needs. Governments at all levels should support them, devising new transport policies for the country, as well as better urban planning.
- Furthermore, to **improve the safety of IPT**, manufacturers of IPT vehicles should be encouraged to invest in improving technology by such steps as:
 - Announcing emission and safety standards for IPT vehicles;
 - Banks and financial institutions providing low interest rate loans for small-scale industries manufacturing IPT vehicles, and attractive fleet renewal schemes for operators.
- **Recognition and legalisation of IPT systems.** Governments need to understand the essential role of IPT systems and recognise and integrate IPT into the country's public transport network at all levels, including local levels.
- **Market intervention in the IPT sector.** The market should decide the number of IPT operators required within a regulatory environment of permit and driver identification systems. Permit issuance should be liberalised (based on a quality assessment system) and fares should be regulated via market pricing strategies.

Chapter 7

Innovation in Public Road Transport

This chapter addresses the core innovation trends in key areas of public transport, such as app-based mobility solutions, electro-mobility, automation and Mobility-as-a-Service models. New business models and practices, such as integrators' and aggregators' platforms, are only partially addressed in this chapter. The chapter's objective is only to highlight key innovation clusters, which are likely to revolutionise business models, service offers and indeed citizens' mobility behaviour in the very near future.

1. Technology Revolution: Empowering Businesses and Customers

Technology has changed the way we live, making the previously impossible, possible, including the ability to access transport anytime, anywhere in the world. The mass use of smartphones and apps, in developed and developing countries, by businesses to do business, and by customers to use services, are indeed the visible parts of the technology revolution iceberg.

Well over 60% of all Internet traffic now comes from a mobile source, and half of that is driven by apps. The impact of this smartphone-based app revolution is being felt in almost every industry – from communications and commerce, to banking and entertainment. Mobility in general, and urban transport in particular, has also experienced its own revolution caused

by the various mobility apps which allow passengers/riders to connect with services and vehicle drivers through the app, at the push of a button.

2. Redefining the Role and Place of Cars in the Future Mobility System

The ability to get from A to B at the touch of a button will have a profound impact on car ownership and the use of cars and public transport over time. When it is that easy to get around, why own a car? Most cars remain idle for more than 95% of the time.

Congestion is more than just an annoyance; it is a drain on cities' economies, with adverse impacts on health and the climate. Cities in India, as a matter of fact, suffer from some of the worst congestion in the world. The average speed of vehicles in Delhi is 16 km/h and, if current trends persist, this is expected to be down to 5 km/h by 2020. Yet there are 1,463 new private vehicles (cars and two wheelers)⁷² being registered in Delhi every day – a situation bound to increase congestion. Bangalore currently has more than 1.1 million cars – the highest number in South India – and the traffic situation continues to worsen. Between 2010 and 2015, the average speed of vehicles in the city fell from 20 km/h to 9.2 km/h.

⁷² <http://timesofindia.indiatimes.com/city/delhi/Thumping-increase-Delhi-adds-5L-vehicles-in-a-year/articleshow/17300759.cms>

There is an obvious need for more options for reliable, efficient and affordable ways to get to and from work, particularly around commuting routes that are under-served by public transport. Across India, it is estimated that traffic congestion leads to total economic losses of USD 10 billion per year, including wasted fuel⁷³. The sheer numbers of vehicles on the road also generate harmful pollution in India's largest cities: Delhi holds the undesirable position of being the most polluted city in the world. On one day in December 2015, particulate matter in Delhi's air was recorded at sixteen times above the recommended safe level.

App-based, on-demand taxi services can help make cities cleaner, greener and more efficient. In cities like San Francisco, Paris and Delhi, thousands of passengers wait for transport in almost exactly the same place, at exactly the same time, every day. Car- and taxi-pooling services, when allowed by law and used on a large scale, could contribute to meeting much of this demand, in combination with flexible services offered by traditional, yet innovative public transport service-providers.

Box 7.1 Taxi-sharing Services

Taxi fleets across the world are increasingly making use of taxi-sharing services, by integrating passenger-pooling facilities into their service offer. This was the case for the G7 fleet in Paris (as of 2010), Taxi 40100 in Vienna and Taxis Verts in Brussels, including its night time Collecto service, to name but a few. Today, every serious taxi company is considering adding a pooling service to its range of offers. In December 2015, Uber also launched its UberPOOL service in Delhi and Bangalore, allowing passengers heading in the same direction to share rides.

Passenger-pooling services make it possible for people going in the same direction to share a taxi, which is convenient for them because it reduces the cost of the trip. It also benefits cities because it helps reduce congestion over time. Indeed, over time such trips become the norm, changing passengers' perceptions and behaviours: a driver picks up one person, then another, drops one of them off, then picks up another. This is on-demand, convenient and more affordable because the cost of the trip is shared; it is less expensive than owning a car and a potential game-changer for cities if these services can be wisely integrated into their mobility planning and public transport offers. Ultimately, pooling could provide a convenient and cost effective alternative to private car ownership⁷⁴, since cars are one of the most expensive assets people owning, yet they sit idle roughly 96% of the time.

Box 7.2 UpTop – the Global Taxi Network

IRU created UpTop as a global taxi network to unite the industry's most innovative companies and build a stronger, smarter taxi service for society. The network is composed of IRU Members (taxi trade associations) and taxi smartphone application service providers, all of which have been certified by the international UpTop Evaluation Committee as meeting a number of quality criteria. All the partners sign up to and comply with a Quality Service Commitment Charter with safety and quality of the service at its very core. Today, more than 500,000 taxis worldwide are members of the UpTop network (about 10% of the worldwide taxi fleet), and it is growing rapidly, with an average of 30,000 taxis being added every month (see more at www.uptop.taxi).

⁷³ Congestion costs the European Union about 1% of its Gross Domestic Product every year. http://ec.europa.eu/transport/strategies/facts-and-figures/transport-matters/index_en.htm

⁷⁴ In a recent publication (September, 2016; <http://www.utrc2.org/sites/default/files/Final-Post-TNC-Planning-Leveling-the-Playing-Field.pdf>), Professor Matt Daus made an important point about the link between new technology, new mobility services and the use of private cars. He argued that, "There is no question that the competition and disruption created by TNCs (transport network companies – author's note), whether legal, ethical or policy-challenged, has set the stage for a paradigm shift for transport policy planners on a much broader basis. Decades of transport planning and policy, which sought to minimize and deter personal motor vehicle ("PMV") usage, is now facing a collision course with hundreds of thousands of additional vehicles that continue to be added to congested roads." He therefore argues that "the solution could be an awakening of high-level transport policy planning that re-imagines the transport ecosystem for our sustainable future, with all modes and technology in mind. Whether it be regional and metropolitan planning organizations; local for-hire or taxicab transport regulators; or local or regional departments of transport and/or traffic agencies, all sectors of the transport industry must work together now to plan the future role of taxicabs, for-hire vehicles, TNCs, and all other forms of transit."

It is important for governments to acknowledge the positive role that technology can play in scaling up the use of on-demand passenger services, to provide safe, reliable transport for their citizens. To this end, it becomes imperative for those governments to introduce regulations that can accompany and offer incentives for technological advances, whilst removing the incentives for car ownership and facilitating the adoption of mobility concepts that will effectively address social, economic and environmental goals. Given the transport conditions existing in cities in many developing countries, passenger-pooling services, which are increasingly offered by app-based taxi operators, should be empowered to play their role in strengthening the public door-to-door mobility chain, making it available 24 hours a day, 7 days a week, and to create sustainable cities fostering entrepreneurship and economic growth.

3. Digital Revolution and Digital Platforms

The digital revolution is already having a major impact on mobility and transport, in both demand and supply. In terms of demand, ICT, video- and audio-conferencing are enabling telecommuting and eliminating longer-distance travel. ICT innovations have also given rise to sharing-economy mobility models, making bike-sharing and car-sharing systems much more viable, competitive and attractive.

In terms of supply, ICT improves the efficiency of transport networks and the coordination of different transport modes through passenger information systems, real-time traffic-management centres, integrated electronic booking and ticketing systems, and automated control systems allowing vehicles and infrastructure to communicate.

Open data policies have enabled the creation of services and a culture of data sharing. The integration of mobility services and data onto digital platforms, becoming e-marketplaces, is increasingly common and leading to new mobility schemes.

A number of MaaS schemes have also been emerging across the globe. The European Commission strongly backs some of these initiatives, in an effort to advance the concept of seamless multimodal traveller and ticketing systems across Europe and foster their implementation. The technological evolution towards fully autonomous, driverless vehicles seems to fit well with the concept of MaaS in a not too distant future.

Recent years have seen an explosion in innovation in three categories of technology highly relevant to transport: power supply, vehicles, and operating systems.

Box 7.3 Hong Kong's Octopus Smart Card

Hong Kong is a unique city in terms of transport. It has one of the most advanced public transport systems in the world and 93% of transport trips are made using public transport (48%) or on foot (45%). The Octopus Smart Card is a contactless smart-card payment system, which started as a public transport fare collection system in 1997. It has since developed into a contactless smart-card application usable as a payment card in public transport and beyond, with commercial partners all across Hong Kong. Today, the Octopus Card includes access control functions for residential and commercial buildings and support for various facilities in schools. The Octopus Card is used by the vast majority of public transport users. In Hong Kong, 99% of people aged 15–64 use the Octopus Card to travel, shop or dine.

Sources: <http://www.octopus.com.hk/home/en/index.html>
<http://www.eltis.org/discover/case-studies/octopus-system-contactless-smart-cards-hong-kong>

Box 7.4 Mobility-as-a-Service (MaaS)

MaaS describes a vision of a shift away from personally owned modes of transport and towards mobility solutions that are consumed as services. This is enabled by combining services from public and private transport providers through a unified gateway that creates and manages the clients' journey, and which the user can pay for with a single account. Users can pay per trip or a monthly fee for a limited distance. The key concept behind MaaS is supplying mobility solutions to both travellers and goods based on their travel demands and needs. MaaS is not limited to individual mobility; the approach can be applied to the movement of goods too, particularly in urban areas.

Source:
[https://en.wikipedia.org/wiki/Mobility_as_a_service_\(transport\)](https://en.wikipedia.org/wiki/Mobility_as_a_service_(transport))

4. Technological Innovations in Transport Power

Technological innovations in transport power can reduce carbon emissions, as well as local emissions of NO_x, SO_x, PM2.5 and PM10. They can also provide access to fuels and power generated locally. A transition to very low-carbon fuels is a central part of long-term climate strategies. The development of alternative fuels for heavier and longer-distance transport, including for heavy-duty vehicles (trucks, long-distance coaches), should also be placed high on policy and business agendas.

5. Electric Mobility and Climate Change

The transport sector is a vital enabler of economic activity and social connectivity, but it is also the second largest, and one of the fastest growing, energy end-users. UN-Habitat's Urban Electric Mobility Initiative (UEMI)⁷⁵ aims to help phase out conventionally-fuelled vehicles and increase the share of electric ones to at least 30% of individual motorised vehicles in cities by 2030. This should achieve a 30% reduction in urban greenhouse gas emissions by 2050.

However, a high uptake and adoption of electric vehicles including, importantly, commercial vehicles, depends on a number of factors, such as: advances in vehicle and battery technologies, and a reduction in their costs from economies of scale; the availability of charging infrastructure; increased citizen awareness; an enabling policy environment; and incentives provided by governments, including city governments.

Box 7.5 The Case of India

In India, the National Mission for Electric Mobility (NMEM) has set an ambitious target of putting 5 million electric and hybrid vehicles on the road every year by 2020. In addition to supporting industry, the NMEM seeks to have a significant positive impact on the country's health index by promoting zero-pollution electric vehicles and reducing dependence on fossil fuel.

FAME India – Faster Adoption and Manufacturing of Hybrid and Electric vehicles in India – is a part of the NMEM. The scheme envisages INR 7.95 billion (INR 795 crore) of support in the first two fiscal years, starting with the current year, to promote eco-friendly vehicles. It will offer incentives on electric and hybrid vehicles of up to INR 29,000 for motorbikes and INR 138,000 (INR 1.38 lakh) for cars.

The electrification of vehicles meant for short-distance transport/commuting (passenger cars, buses and light rail) is a fast growing sector. Over the past 20 years, China⁷⁶ has introduced 250 million electric two-wheelers in its cities. Thanks to tax incentives for hybrid and electric vehicles, Colombo, in Sri Lanka, currently has the most hybrid and electric vehicles per capita of any developing country city. In Europe, Norway reports that in response to tax incentives and the prevalence of charging stations, 25% of all newly registered cars are plug-in electric vehicles. Major investments are currently also being made in electric buses in developed and developing countries.

Box 7.6 Smart Electric Bus Technology from India

India currently has more than 1.2 million buses in operation, with 50,000 being added every year. Most use diesel engines that contribute significantly to air pollution in Indian cities. Each diesel bus emits 48 tonnes of CO₂ per year on average. Replacing 5,000 diesel buses in Indian cities with electric buses would reduce diesel consumption by 95 million litres and reduce CO₂ emissions by 238,000 tonnes.

The India-based global technology firm, KPIT Technologies, has developed a system that can convert new as well as existing diesel buses into full electric buses. This smart electric-bus technology is modular and thus highly versatile, making it possible to retrofit different vehicle types, from minibuses to large 12-metre public transport buses. This technology has the potential to reduce city congestion by making public transport more attractive, as the ride is smoother and more comfortable than in a diesel bus. This would also cut carbon emissions and contribute to the global efforts to limit climate change.

The first such retrofitted electric bus was unveiled by the Indian Prime Minister, Narendra Modi, in December 2015. Two such retrofitted buses are currently operated by the Indian Ministry of Road Transport and Highways. Although its current focus is on India, KPIT Technologies is planning to reach out to customers in Southeast Asia, Africa, the Middle East and South America.

Source: International Transport Forum (ITF)

⁷⁵ See Box 7.5.

⁷⁶ See more on electro-mobility in China on the excellent GIZ China Transport Blog at <http://sustainabletransport.org/electro-mobility/>.

When considering the benefits of electrification, it is crucial to factor in the way that electricity is produced, and the global trend toward electrification will ultimately only yield benefits with a concurrent revolution in energy production. It is also important to put the current advances of electrification into perspective and context – to consider the scale of uptake in comparison to the overall growth of a country's fleet.

6. Overcoming Barriers to the Deployment of Decarbonised Commercial Vehicle Fleets

With regard to barriers to market uptake, IRU-initiated All-India public-private High-Level Group has identified four main boundary conditions for electro mobility to thrive. These are, financial incentives, nonfinancial incentives, public charging-infrastructure and regional or local conditions.

Despite the advances made in battery technologies, there are many obstacles to the wider introduction of electric vehicles. These include long charging times on one hand, and shorter driving ranges and the current scepticism among potential end-users on the other. Currently, the major obstacle to rapid market penetration is the higher initial investment required than for conventional combustion-engine vehicles. Although the running costs of electric cars are actually reported to be lower, these do not stand out sufficiently on a total cost basis.

New mobility concepts and business models are therefore required, which will transform the technological advantages of electric vehicles into added value for the customers. In India, for instance, the financial incentives imagined to promote demand for electric vehicles include the demand incentive of giving upfront subsidies on the purchase of vehicles. Non-financial incentives, inter alia, include retrofitting vehicles that are currently in use. The high uptake and adoption of electric vehicles also depend on a number of factors, such as: advances in vehicle and battery technologies; a reduction in costs from economies of scale; the availability of charging infrastructure; increased citizen awareness; an enabling policy environment; and incentives provided by governments, including city governments.

Box 7.7 IRU Lighthouse for Electric taxis

IRU Lighthouse for Electric Taxis is a global IRU initiative aimed at increasing the up-take of electric taxis in the world's cities. It is a multi-stakeholder platform for collecting best practices, requirements, trends in technology and legislation (including incentives, but also identifying barriers and restrictions). The initiative aims to become a reference repository of studies and guidelines helpful to the taxi industry as it moves towards zero emissions. IRU Lighthouse for Electric Taxis organises workshops to promote the adoption of electric vehicles and establish a constructive dialogue between different stakeholders. It also has an advocacy goal of lower barriers to deployment, such as boundary conditions and the direct costs to the taxi sector.

However, there is also need to adopt other strategies for promoting demand for electric vehicles. The long-term sustainability of electric mobility will require support from a grid powered by renewable energy and by means of providing energy storage as a short-term buffer for fluctuations in renewable energy generation. The larger the vehicles, such as buses, the larger their impact in this regard, also bearing in mind that the electrification of commercial fleets has a faster and greater impact (due to the intensity of their use, etc.), than the electrification of private vehicles. Furthermore, appropriate alternative fuel solutions are urgently needed for long-distance road vehicles (trucks and coaches), and electrification might not be the preferred solution for them.

Box 7.8 UN-Habitat's Urban Electric Mobility Initiative*

With the objective of integrating public transport with electric mobility, UN-Habitat initiated an Urban Electric Mobility Initiative (UEMI), launched at the UN Climate Summit in September 2014, in New York. The UEMI aims to contribute significantly to the overall goal of limiting the increase in global mean temperature to 2° Celsius above pre-industrial levels by decreasing urban CO₂ emissions globally. The UEMI was also presented at COP 21 in Paris, drawing interest from governments and industry.

To support cities moving towards e-mobility solutions, UN-Habitat is currently developing a dedicated tool-kit. It also seeks to open an UEMI resource centre to pool expertise, facilitate exchanges and initiate implementation-oriented actions. These actions will provide opportunities for direct collaboration on projects focusing on sustainable urban mobility and the role e-mobility can play in it. With this background, UN-Habitat is poised to increase global awareness of e-mobility and act as a catalyst for increased investments and action on the ground.

Habitat III will further contribute to positioning the UEMI as an important part of the New Urban Agenda.

* More on UEMI at <http://www.uemi.net/>

7. Autonomous Driving

In recent months, autonomous vehicles (AVs) have captured the imagination of the media and the public⁷⁷. Businesses have started working intensively on pilot projects, but it is difficult to predict how fast AVs will make their way to the marketplace, especially given uncertainty about regulation. Yet, the question is no longer if, but when AVs will enter the flow of normal street traffic.

By removing the human factor behind the wheel, preliminary estimates suggest that AVs could contribute to cutting accidents by as much as 90%, saving thousands of lives and up to USD 190 billion a year in the United States alone, by 2050.

Autonomous driving could also increase the carrying capacity of roads because vehicles would be able to travel closer together and at higher speeds. Ultimately, driverless AVs⁷⁸, could free-up time for drivers (who have become passengers) to do other tasks, or could chauffeur people who cannot otherwise drive themselves.

Box 7.9 The CityMobil2 – a Multi-Stakeholder Project

The CityMobil2 project, co-funded by the European Union's Seventh Framework Programme for research and technological development, has set up a pilot platform for automated road transport systems, for implementation in several urban environments across Europe. Automated transport systems are made up of vehicles operating without a driver in collective mode. It is thought that they will play a useful role in the transport mix as they could also supply a beneficial service (whether individual or collective) in areas with low or dispersed demand for transport, by complementing the main public transport network. A dozen EU local authorities or equivalent sites are bidding to be one of the five test sites to host a 6-month demonstration. All of them recognise the potential for AVs as part of their public transport network.

In addition to these pilot project activities, research will be undertaken into the technical, financial, cultural and behavioural effects of AVs, their effects on land-use policies, and how these new systems can fit into the existing infrastructure in different cities. The legal issues surrounding automated transport will also be addressed, leading to a proposed framework for certifying automated transport systems.

CityMobil2 started in September 2012 and will run for 4 years. Its 45 partners are drawn from systems suppliers, city authorities (and local partners), the research community and networking organisations.

Source: <http://www.citymobil2.eu/en/>

⁷⁷ Indeed, some new luxury-car models already feature advanced and very sophisticated driver-assistance systems offering a very high degree of autonomy.

⁷⁸ Defined as the 100% autonomous driving of a vehicle without an actual driver to override the system.

8. Other Initiatives on Autonomous Vehicles

A ten-seater driverless car was test run in Dubai during the second MENA Transport Congress and Exhibition. This AV, produced by Easy Mile/Omnix Company, is designed to travel short distances on pre-programmed routes and in various environments, making it capable of withstanding the country's harsh conditions. The vehicle travels on virtual routes, which can easily be reset to accommodate sudden changes, as required. The AV is fitted with safety features and a sensor system which detects obstacles and helps avoid collisions.

The Japanese company, Robot Taxi, is planning to run a driverless taxi service for tourists and athletes at the 2020 Olympic Games in Tokyo. Early this year, the firm started its first tests on public roads, joining the global race to develop safe, effective, self-driving AVs.

The world's first self-driving taxis have already begun picking up passengers in Singapore. The AV software start-up company, nuTonomy, also plans to offer such rides in Pittsburgh. Selected members of the public can currently hail a free ride in taxis operated by nuTonomy, via their smartphones.

Google and Volvo have also been testing self-driving cars on public roads for several years.

9. Making use of and Improving the Greening Potential of Conventional Commercial Fleets

In September 2016, ERTICO-ITS Europe released a study on the potential of Intelligent Transport System (ITS) measures to reduce CO₂ emissions by heavy commercial vehicles with a diesel internal combustion engine. A number of potential improvements which could be made to conventional commercial diesel fleets were identified, such as:

Improvements through in-vehicle systems:

- On-trip eco-driving support systems: a 7%–10% reduction in CO₂ emissions for heavy vehicles on non-urban roads (excluding motorways, where benefits are negligible) and a 3%–7% reduction for buses in urban areas.
- Eco-routing (navigation): benefits of an 8%–10% reduction in CO₂ emissions for medium- and heavy-duty vehicles delivering in urban areas, but less on long haul trips.
- Predictive Powertrain Control can reduce CO₂ emissions by 3.5%–5% for heavy vehicles on interurban trips.

Improvements through infrastructure or back-office based systems:

- Traffic signal systems, such as the Energy Efficient Intersection Service (giving extended green-light time to selected buses or trucks) and GLOSA (Green Light Optimised Speed Advisory) can lead to CO₂ savings of around 5% in urban areas (typical range is 1%–7%, depending on the network, density of junctions and – for buses – the locations of bus stops).
- Delivery-space booking for goods vehicles can reduce local CO₂ emissions by over 20% in the vicinity of the delivery location due to there no longer being a need to search for parking spaces, as well as reduced illegal parking.

Chapter 8

The Way Forward: Smart Urban Mobility for Safe, Inclusive, Resilient and Sustainable Cities – a Strong case for Public-Private Partnership

1. Moving towards Sustainable Transport in Support of the Implementation of the Paris Agreement on Climate Change and the 2030 Agenda on Sustainable Development

Sustainable transport is fundamental to the goals of achieving sustainable development, growth, jobs and accessible mobility for all. This is the reason why transport has been mainstreamed in seven Sustainable Development Goals (SDGs). These transport-related SDG targets aim to strengthen sustainability by addressing the issues of safety, pollution, congestion and equal opportunities. They can be achieved by:

- Increasing transport access by aiming to improve rural and urban access, as well as regional connectivity;
- Doing transport differently by increasing sustainability in all its dimensions – social, economic and environmental;
- Promoting and offering incentives to use collective public passenger transport, in its wider sense, as the backbone of safe, inclusive, resilient and sustainable mobility for all.

2. Paris Agreement on Climate Change and its Transport Dimension

The Paris Agreement aims to “strengthen the global response to the threat of climate change” by creating a common framework to collectively move to a target of well below the 2° Celsius scenario (2DS) and pursuing efforts to limit the global temperature increase to 1.5° Celsius.

Nationally Determined Contributions (NDCs) in the transport sector indicate the willingness of governments to act:

- 77% of NDCs call for mitigation action on transport emissions;
- 10% of Intended Nationally Determined Contributions (INDCs) include a transport emissions reduction target;
- 14% of INDCs specify emissions reduction potential;
- 61% of INDCs propose mitigation measures;
- Emphasis on technological improvement measures and urban transport;
- And yet despite the ambition of this level of mitigation, it still falls far short of 2DS.

A transformational change in transport and mobility, however, is not likely to happen purely on the basis of climate change goals; it is more likely to be driven by sustainable development concerns (e.g. as a co-benefit of a primary policy thrust on reducing urban air pollution). For this reason, the transport sector could benefit from a better explanation and stronger links between the post-2015 development agenda and the climate change agenda. This could improve the chances of translating ambitions in mitigation and adaptation into implementation.

3. Common Global Framework on Transport, Climate Change and Sustainable Development

The **2030 Agenda for Sustainable Development**, adopted by world leaders in September 2015, describes **17 SDGs**⁷⁹. On 1 January 2016, the Agenda officially came into force, thus creating a global framework for joint action.

The 2030 Agenda defines multiple targets, laying out a roadmap for economic, social and environmental policy development, transformation and a better future. Sustainable transport is included in seven of the 17 SDGs and is covered directly by five targets and indirectly by seven targets.

Four goals are important as part of the global transport narrative:

- Access for All – Secure access for all to economic and social opportunities;
- Efficiency – Increase the efficiency of transport systems and services;
- Safety – Improve the safety of mobility (SDG target 3.6, on road safety);
- Climate Respect – Embed mitigation, adaptation and environmental concerns into the supply as well as the demand side.

A global tracking framework is also being developed to measure progress towards these four goals, using country-level indicators with differentiated pathways to attain goals for developed and developing countries.

The roadmap suggested by various stakeholders for reaching a zero net-emissions economy early in the second part of the century, and thus securing the “well below 2°C” climate target called for in the Paris Agreement, will require:

- Making innovation take centre stage;
- Following the Avoid–Shift–Improve approach as a strategy for sustainable transport;
- Institutional synergy and simultaneity.

The steps to be taken should include: 1. Synergistic urban transformation; 2. A low-carbon energy supply strategy; 3. Modal efficiency improvement; 4. Shortened supply chains; 5. Reductions in unnecessary travel; 6. Adapted solutions for the rural world; 7. Investment in adaptation and offsetting; 8. Financial and regulatory tools; 9. Prioritising the development of collective, door-to-door public passenger transport, in its broader sense, involving both traditional and new private sector public-service providers.

Indeed, the last of the above steps should be given particular emphasis in transport policy and planning, with the objective of building an efficient, inclusive, door-to-door public mobility chain – accessible 24 hours a day, 7 days a week – as its backbone.

Importantly, setting clear policy and business targets to increase the use and modal share of the collective public mobility chain will facilitate the development of a pro-active public, financial, fiscal, legislative, market-oriented, operational environment. Private sector service providers will play a key role in this, and the new environment will encourage service provision and thereby produce a shift in travellers’ behaviours. This will facilitate inclusive, efficient, sustainable mobility for all – citizens and visitors – at the lowest cost to society.

The Paris Declaration on Electro-Mobility and Climate Change and Call to Action brings together individual and collective commitments to increase electro-mobility to levels compatible with a less than 2°C pathway. It builds on current successful experiences worldwide and the converging interests of all transport modes for hybrid/electric solutions.

Partners to the Declaration commit to broadening their efforts and call for a decisive joint effort towards sustainable transport electrification. This includes that at least 20% of all road vehicles (cars, two- and three-wheelers, trucks, buses and others) are to be electrically powered by 2030. As a result, 10 major transport climate-action initiatives and a collective call to action on electro-mobility were presented at Paris Climate Change Conference⁸⁰.

⁷⁹ <http://www.un.org/sustainabledevelopment/development-agenda/>

⁸⁰ <http://newsroom.unfccc.int/lpaa/transport/press-release-lpaa-transport-transport-industry-drive-for-improved-energy-efficiency-and-electro-mobility-to-stem-high-growth-of-emissions/>

4. Public–Private Partnership to Mobilise Resources, Energies and Determination

Reaching extremely ambitious global objectives, as defined in both the 2030 Agenda for Sustainable Development and the Paris Climate Change Agreement, will require novel approaches, particularly in terms of individual and collective commitments, leadership and cooperation at all levels – international, national, regional and local. It will require bringing together all the available resources, energies and determination in a genuine PPP. This is increasingly recognised, including at the highest political levels. The creation of the UN Secretary-General’s High-Level Advisory Group on Sustainable Transport (HLAG-ST) is evidence of this, as is the creation of the World Urban Campaign and its General Assembly of Partners, within the Habitat process.

The Global Partnership for Sustainable Transport (GPST) could play a successful role as a key global enabler for achieving the transport-related SDGs and climate change objectives. IRU-initiated public–private High-Level Groups, which are developing various regional and/or country-specific sustainable transport agendas, are also part of the mainstream global effort towards achieving sustainable transport.

At the Third International Conference on Financing for Development, held in Addis Ababa⁸¹ in July 2015, infrastructure discussions centred on PPPs, which have many direct implications for transport. PPPs were explicitly recognised as the optimal way to achieve the SDGs and transport-related climate targets. The Addis Ababa Action Agenda proposed PPPs as a key component of the Financing for Development agenda to address pressing infrastructure needs.

5. Ways Forward to Sustainable Transport

Sustainable transport policies aim to balance economic, social and environmental goals. Over the last few years, a number of individual and collective actors, organisations and stakeholders across the globe, including, recently, the UN Secretary-General’s HLAG-ST, have been working upon and/or making concrete recommendations for policy development and actions for achieving sustainability in transport.

Below is a compendium of suggestions that could serve as a reference list for policy decision-makers, businesses and civil society actors, helping them to move efficiently and collectively down the road to sustainable transport.

- Promote and support the creation of dedicated public–private think tanks or specialist groups, with the objective designing customised action programmes and/or agendas for achieving the SDGs. These should promote the setting of achievable, quantifiable mobility targets, including on the increase in the use of collective public transport, in its wider sense⁸², in sustainable national and urban mobility planning.
- Give paramount consideration to transport user safety, as well as ensuring that real improvements in quality of life and the environment are fundamental to policy and investment decisions.
- Promote equitable access (to jobs, markets, services and leisure) as the guiding principle for transport planning and policy, and for investments in infrastructure (maintenance, renewal or building).
- Ensure that resilience (to the impacts of climate, other natural events, man-made economic shocks or chronic stressors) is central to planning and building new transport infrastructure and developing transport networks. Opportunities to leapfrog to newer, more sustainable infrastructure and transport systems should be maximised.
- Ensure that the maintenance of existing infrastructure is fair, for roads, terminals and all transport modes, and that the improvement of infrastructure efficiency is an integral part of transport policy and investment decision-making.
- Provide incentives for using best practices and the faster introduction of clean technologies.
- Develop appropriate tools and incentives, including business and tax incentives, to address the external costs of transport with the goal of promoting a switch to sustainable, low-carbon vehicles and transport services. This includes transport users paying for the external costs they engender⁸³.
- Promote the use of life-cycle costing approaches and the “total cost–benefit of trade” concept in transport policy decision-making.

81 <http://www.un.org/esa/ffd/ffd3/>

82 Including its private passenger transport component, such as services offered by taxis, car-sharing, private bus operators, long-distance scheduled coach services, IPT, group tourism by coach, etc.

83 Internalising external costs is a hotly debated topic in developed economies, with no clear policy outcome to date. Sometimes, even the definition of what should count as external costs and benefits is contested. The task is, of course, challenging.

- International governmental and non-governmental organisations and multilateral development banks have a major role to play in supporting the development of sustainable transport systems and the technical capacity of transport planners and managers, especially in developing countries. They should also strive to ensure that people have equitable access to markets, jobs, education and other necessities.
- Build capacity in developing countries, including the core requirement for bankable sustainable transport projects.
- Focus on and support funding for training initiatives for professional drivers and managers⁸⁴.
- Support the development of indicators of mobility and transport safety, equity, quality and resilience, and subsequently promote the collection and analysis of relevant data to inform transport policy and investment decision-making.
- Support the creation of internationally accessible, multi-lingual repositories of best-policy management, organisation and training practices.
- Fund the building of safe infrastructure.

More comprehensive transport planning tends to justify transport demand-management policies and programmes. As stated above, successful transport solutions require comprehensive analysis of economic, social and environmental impacts in order to identify win-win strategies which help achieve multiple policy goals. These include policies that improve resource-efficient transport modes, such as collective, door-to-door public transport systems, NMT including walking and cycling, incentives for travellers to choose the most efficient mode for each trip, and more compact, multimodal urban development which reduces the distances that people must travel to destinations.

The Avoid–Shift–Improve approach provides a framework for prioritising solutions to maximise the benefits of sustainable transport. The leverage effect of these recommendations should be:

- Sustainable transport planning by government agencies;
- Sustainable transport policies promoting collective public transport, in its broadest sense, together with NMT (walking, cycling) and other transport demand management strategies;
- Improved economic, social and environmental outcomes.

5.1. Strategies to Avoid Unnecessary Travel and Reduce Trip Distances

1. Formally integrate land-use and transport-planning processes with related institutional arrangements at the local, regional and national levels⁸⁵.
2. Create supportive institutional, legal and regulatory frameworks at the national level to promote effective sustainable transport⁸⁶.
3. Achieve mixed-use development and medium-to-high densities along key corridors within cities, through appropriate land-use policies.
4. Provide people-oriented local access and actively promote collective public transport-oriented development when introducing new public transport infrastructure.
5. Institute policies, programmes and projects supporting ICT, such as internet access, teleconferencing and telecommuting, as a means to reduce travel.

5.2. Strategies to Shift to More Sustainable Mobility Choices

6. Improve collective public transport services, in their broader sense, including scheduled and tourist coaches, taxis and IPT; incorporate high quality and more affordable services on dedicated infrastructure along major arterial corridors in cities, and connect with feeder services into residential communities.
7. Create intermodal hubs, with fair and easy access to them for all transport modes – urban and interurban, road and rail, public and private; include this in sustainable urban mobility planning.
8. Require NMT components in transport master plans in all major cities and prioritise transport infrastructure investments for NMT, including wide-scale improvements to pedestrian and bicycle facilities, the development of facilities for intermodal connectivity and the adoption of complete-street design standards, wherever feasible.
9. Reduce the urban transport mode share of private motorised vehicles by using Transport Demand Management measures, including pricing measures that integrate congestion, safety and pollution costs, and aimed at gradually reducing price distortions that directly or indirectly encourage driving, motorisation and urban sprawl.

84 IRU Academy (<https://www.IRU.org/what-we-do/knowledge/training/IRU-academy>) has a major role to play in this regard.

85 In its interim working documents (final report still to be published), the UN SG's HLAG-ST addresses the issue in a similar way, while suggesting that national and local governments adopt and implement integrated national sustainable transport frameworks and strategies.

86 The HLAG-ST also suggests the creation of such supportive frameworks.

10. Work towards achieving significant shifts to more sustainable modes of inter-city passenger transport, including by giving priority to high-quality, long-distance bus and coach transport services.

5.3. Strategies to Improve Transport Practices and Technologies

11. Diversify towards more sustainable transport fuels and technologies. Promote greater market penetration for options such as vehicles operating on electricity generated from renewable sources, hybrid technologies and natural gas. In this regard, pay special attention to offering efficient alternative-fuel options for long-distance transport and vehicles, as penetration of alternative fuels and technologies is less advanced there than in short-distance urban mobility.⁸⁷
12. Set progressive, appropriate and affordable standards for fuel quality, fuel efficiency and exhaust emissions for all vehicle types, including new and used vehicles.
13. Design dedicated schemes for the renewal of commercial fleets, including private sector commercial fleets (trucks, taxis, buses and coaches) in developing countries, with the participation of governments, financial institutions and the private sector (operators, manufacturers and suppliers).
14. Establish effective vehicle testing and compliance regimes, including formal vehicle registration systems and appropriate periodic vehicle inspection and maintenance requirements. This should enforce progressive improvement of emission and safety standards, with particular emphasis on commercial vehicles.
15. Adopt Intelligent Transport Systems, such as electronic fare and road user charging systems, transport control centres, and real-time user information, when applicable. In this regard, national governments have an important role to play to:
 - Provide incentives, financial resources and technical capacity-building support to promote research and development and to scale up the use of clean fuels, sustainable transport services and renewable energy;
 - Enact performance-standards laws that drive the industry towards cleaner, more efficient systems and technologies;
 - Maintain policy neutrality to allow consumers and market forces to drive development towards the most effective sustainable technology;
 - Lead by example, through government

procurement of sustainable technologies and policies to purchase environmentally friendly products, and to travel and act sustainably.

National governments, banking institutions and international organisations can also promote knowledge sharing and provide data and technical assistance to developing countries. This can be done through supporting and financing fleet renewal, capacity building and knowledge sharing, and test and demonstration platforms.

16. Achieve improved transport efficiency, through business-friendly policies, programmes, and projects that modernise vehicle technology, implement fleet control and management systems, and support better logistics and supply chain management.

5.4. Strategies for Road Safety

17. Promote the adoption of zero-fatality policies with respect to road safety, and implement appropriate speed controls, traffic calming strategies, strict driver licensing, motor vehicle registration, insurance and training requirements (including for professional drivers), and better post-accident care, all oriented towards significant reductions in accidents and injuries.⁸⁸ In this respect:
 - Disseminate best practices on road safety legislation and public policy to local stakeholders;
 - Promote road and transport-system design that gives priority and emphasis to protecting people from death and serious injury, taking into account human fallibility and vulnerability;
 - Prioritise the prevention of deaths and injuries of road users and follow a systemic approach to improving road safety;
 - Focus on training and awareness raising for all road users, both private and commercial.

National governments and international governmental and non-governmental organisations also have a role to play in ensuring that minimum safety standards for vehicles are set and enforced. Particular attention should be given to vehicles sold on the secondary market in developing countries⁸⁹. National and local governments and civil society organisations can also work to reduce the behavioural risk factors that lead to road traffic injuries through awareness raising, training, better signage, and rules and regulations.

⁸⁷ The UN SG's HLAG-ST also emphasises the need to promote sustainable transport and energy technologies via direct government investments, while not forgetting to formulate policies that enable and encourage private sector investments through various incentive structures.

⁸⁸ HLAG-ST puts a huge emphasis on road safety, with the objective of preventing road traffic deaths and injuries. To achieve this, national and local governments are invited to make efforts to disseminate best practices on road safety legislation and public policy, promote road and transport system design taking into account human fallibility and vulnerability, build capacity for improving road safety, and undertake training and awareness raising for all road users.

⁸⁹ Also see above, the important recommendation of emphasising the renewal and modernisation of commercial fleets in developing countries, and training professional drivers, which would have a huge positive impact on road safety.

18. Promote the monitoring of the health impacts of transport emissions and noise, especially with regard to incidences of asthma, other pulmonary diseases and heart disease in major cities. Assess the economic impacts of air pollution and noise, and devise mitigation strategies, especially to help sensitive populations near high traffic concentrations⁹⁰.
 - a) Establish comprehensive monitoring and evaluation methodologies for sustainable transport, linking targets and indicators to the SDGs, where appropriate.
 - b) Take regular (in some cases annual) stock of the progress towards transport goals, and adjust policies and practices in response to the lessons learned.

International governmental and non-governmental organisations and civil society organisations should also help to build capacity to deal with data and statistics, particularly for governments in developing countries. They should help share the lessons learned, best practices, training and guidance, with a focus on urban commuting, interurban travel and land use, where data remains sparse and inconsistent.

19. Establish country-specific, progressive, health-based, cost-effective and enforceable mobility, accessibility, air quality and noise standards. WHO guidelines should be taken into account for the latter. Monitoring and reporting should be carried out in order to reduce peaks in pollutant levels⁹¹, especially for living spaces near high traffic concentrations.

5.5. Implementing and Monitoring COP 21 Commitments

20. Implement sustainable, low-carbon transport initiatives to mitigate the causes of global climate change and to strengthen national energy security. Report the inventory of all greenhouse gases emitted from the transport sector in the National Communication to the UN Framework Convention on Climate Change.
21. Prioritise the development of collective, door-to-door public passenger transport, in its broader sense, over the use of individual cars.

22. Adopt social equity as a planning and design criterion for the development and implementation of transport initiatives. This should be done in close consultation with relevant businesses and customer groups. The aim is to improve quality, safety and security for all, especially for women, persons with disabilities, the elderly and low-income groups. It should also up-grade, modernise and integrate IPT into the formal public transport sector.

There is a need to combine smart climate action with sustainable economic growth. Investments in transport are needed to create innovations in the sector and, beyond that, to address the SDGs.

5.6. Innovative Financing Mechanisms

23. Encourage innovative financing mechanisms for sustainable transport infrastructure and operations through multiple measures, such as parking levies, fuel pricing and road-user charging, but without increasing the overall financial burden on professional road transport operators. The use of collective public transport should be promoted at the same time⁹².
 - Employ a mix of regulatory and market-based measures appropriate to national and local needs and circumstances to diversify sources of funding for sustainable transport. Encourage behavioural changes at the same time. Fairness and equity should be the overarching principles in the application and implementation of these measures, so they do not have an excessive impact on those with fewer resources.
 - Introduce innovative approaches as applicable and appropriate, such as land value-capture programmes, green bond investments or public transport-oriented development grants.
 - Make strategic, equity-based decisions regarding the use of the resulting revenue, including possibly channelling revenue from market-based measures and others into sustainable transport initiatives.
 - Provide incentives to shift away from fossil fuel use. Scale down and eliminate inefficient fossil fuel subsidies.

⁹⁰ HLAG-ST also emphasises the need for governments to establish monitoring and evaluation frameworks for sustainable transport. They should build capacity for gathering and analysing relevant data, linking targets and indicators, where appropriate, to the SDGs. They should take regular stock of the progress made and adjust policies and practices accordingly.

⁹¹ Such as particulate matter, nitrogen oxides, sulphur oxides, carbon monoxide and ground-level ozone.

⁹² HLAG-ST has also recommended the promotion of diversified funding sources and coherent and constructive funding, charging and fiscal frameworks to advance sustainable transport systems, initiatives and projects by national and local governments.

– National and local governments and the private sector should also make strategic decisions about the participation of private capital through PPPs and other approaches, especially for projects where misaligned public and private objectives are manageable.⁹³

24. Encourage the widespread distribution of information on sustainable transport to all levels of government and to the public through outreach, promotional campaigns, the timely reporting of monitored indicators, and participatory processes. National and local governments and international and civil society organisations should nurture knowledgeable, engaged communities as crucial partners in the promotion of sustainable transport solutions.

– Develop and promote public awareness campaigns and materials and education programmes to inform people of all ages about the moral imperative of providing all citizens with equitable access to social and economic opportunities, as well as about the importance and benefits of sustainable mobility. Themes include: road safety; the benefits of public transport in its broader sense; walking and cycling; and opportunities for reducing carbon emissions.

– National and local governments and private companies should pursue effective ways to seek input, buy-in and, when possible, co-creation from a wide range of stakeholder groups, before making transport infrastructure and system decisions.

25. Develop dedicated, well-funded institutions and strategies to address commercial vehicle fleet renewal in developing countries, sustainable transport land-use policies and implementation (including research and development on environmentally-sustainable transport), and promote good governance through the implementation of environmental impact assessments for major transport projects.

5.7. Specific Strategies to Prioritise and Promote Collective Door-to-Door Public Transport as a Key Tool to Achieve SDGs⁹⁴

- Ensure better governance through optimal service-promoting legislation and administrative frameworks;
- Promote a seamless door-to-door mobility chain through connected, accessible, high-quality infrastructure;
- Support research and development, innovation, deployment and best practices;
- Create a dedicated funding instrument to support research, pilot projects and the deployment or demonstration of innovative projects that improve the efficiency of the collective public transport chain;
- Improve the EU collective mobility system's safety, environmental performance and carbon footprint;
- Put in place taxation and charging systems that provide incentives and rewards for innovation and service quality in collective public transport;
- Support training, competence-building and knowledge-sharing to make the sector more professionally attractive, increase service quality and improve collective public transport performance;
- Resolutely improve the image of collective passenger transport through better promotion and awareness raising;
- Produce appropriate statistics from monitoring the progress made in achieving the policy and business objective of doubling the use of collective land passenger transport.

⁹³ In order to increase the representation of transport projects in international development funding and climate funding, HLAG-ST suggests that international organisations and multilateral development banks should establish criteria for the international development funding of sustainable transport. They should also ensure that significant climate funding mechanisms are available for strategic transport initiatives, acknowledging their inherent complexity, great mitigation potential and multiple co-benefits.

⁹⁴ These summary recommendations are based on the detailed proposals made by the European Citizens' Mobility Forum in its Action Programme 2015–2025 aimed at doubling the use of collective land passenger transport in the EU. The ECMF is open to all public and private stakeholders sharing the objective of doubling the use of collective land transport and unlocking the unused potential of collective road- and rail-based transport, including buses, coaches and taxis, in the EU. The ECMF consists of representatives from the EU institutions (European Parliament, European Commission DG MOVE, Committee of the Regions, European Economic and Social Committee), civil society researchers and stakeholders (trade unions, safety and environmental NGOs, passenger organisations and representatives of cities), trade associations and business representatives from the collective, door-to-door land transport chain. http://www.busandcoach.travel/en/high-level-groups/european_citizens_mobility_forum/

Chapter 9

Conclusions

Many countries, particularly in the developing world, are experiencing growth, development and urbanisation at an unprecedented scale. These changes affect every aspect of their economy, society and environment.

Increasing motor vehicle travel, particularly in private vehicles (cars and two-wheelers), and sprawling development are causing severe problems in the cities of most developing countries, including traffic congestion, accidents, pollution, rising inequity, declining quality of life, and the threats associated with climate change such as a rising sea level and extreme weather events.

Rural communities, particularly in developing countries, face different but equally severe challenges due to inadequate basic transport infrastructure and limited access to essential transport services. Existing institutions are often unsuited to addressing such complex, interconnected problems; they require support and more integrated, innovative solutions, including collective solutions.

This requires leadership: people and organisations that can work to create a shared vision and then generate the resources needed to make that vision a reality. Examples include the Global Partnership for Sustainable Transport and IRU-initiated public-private High-Level Groups in the EU, the Commonwealth of Independent States and India. These HLGs bring together public officials, professionals,

industry and researchers to elaborate and propose customised solutions for more sustainable transport.

Many countries in these HLG regions, but also around the world, continue to use policies and planning practices that reflect the old planning paradigm which favoured individual automobile travel over more resource efficient modes, such as collective public transport. That paradigm supported urban sprawl over more compact urban development and failed to serve such demands as rural transport infrastructure needs. Examples of the old paradigm's failures include: inappropriate legislation and administrative frameworks that hampered the development of private sector services; a lack of appropriate public transport-enhancing city mobility planning; a lack of dedicated funding for building infrastructure; roadways designed to maximise vehicle traffic speed; inadequate opportunities for walking and cycling; inappropriate restrictions on access to the city for collective passenger transport; restrictions on urban infill densities; and minimum parking requirements in zoning codes that essentially subsidised individual automobile ownership and use, while neglecting collective public passenger transport. Such policies created a self-reinforcing cycle of automobile-dependency and sprawl. In addition, many developing countries lack the programmes and resources to develop all-weather roads to serve rural communities.

With increased individual vehicle ownership, transport policy and planning became largely car-oriented. This resulted in reduced travel options, stigmatisation of alternatives (particularly collective transport modes), suburbanisation, sprawl and (inner) city degradation.

Critical sustainable transport strategies, such as tolling, parking fees, dedicated bus-lanes and building collective passenger infrastructure, terminals and hubs often face significant political opposition from people and groups who perceive their costs but ignore their numerous benefits. There is a need to communicate the many benefits that can result from more diverse and efficient transport systems and prioritising the role of collective, door-to-door passenger transport solutions. The benefits include financial savings to households and governments, improved health and safety, improved liveability, and increased economic productivity. Many sustainable transport policies also help achieve wider objectives of social equity, for example, by ensuring that non-drivers and pedestrians receive a fair share of road space and transport investments, and by providing affordable basic mobility to physically, economically and socially-disadvantaged people.

Developing countries in particular, face various obstacles to implementing more sustainable transport policies. As sustainable transport planning scales up, it will be important to educate and inspire a wider range of stakeholders, including the policy- and opinion-makers, public officials, business leaders, industry stakeholders, planners, engineers, designers and law enforcement officials who make policy or business decisions that affect transport conditions and activities. There is a growing need for regional and local professional development programmes, such workshops, webinars and training courses organised by professional organisations and capacity building institutions.

Regional, country or local public-private HLGs, like those initiated by IRU, demonstrate the value of leadership and partnership. Since the first HLG, created for the EU almost five years ago, these groups have done much to create shared visions and assemble the resources needed to create more sustainable, efficient and equitable transport systems.

Furthermore, the private sector has a lot to offer to society and mobility, particularly when it comes to empowering the door-to-door mobility chain at the lowest cost to tax-payers, if it is allowed to do so by business-friendly legislation. In 2013, opening up Germany's intercity scheduled coach market⁹⁵ offered a full range of new mobility opportunities to customers of all social groups and ages.

Work in this field is certainly not complete, however. Many countries still face severe transport and mobility challenges, and finding solutions will require important changes in the way that society and decision-makers think about: evaluating transport problems and solutions; changes in business models and legislation; changes in relationships between multiple organisations and groups; changes in the way governments plan and finance infrastructure and services; changes in transport pricing and incentives; and ultimately, changes in the way people commute and travel.

A successful sustainable development agenda requires partnerships between governments, the private sector and civil society. Inclusive partnerships built upon principles, values, a shared vision and goals that put people and their living environment first, are needed at global, regional, national and local levels.

Sustainable Development Goal 17 focuses on revitalising the global partnership for sustainable development. It provides a possible solution to addressing design, implementation, financing and access issues, within the context of meeting the UN development framework's objectives with regards to transport. The GPST has been acknowledged by the UN Member States in several UN General Assembly Resolutions; it is a model of international cooperation as a PPP on sustainable transport, and it could play a successful role as a key global enabler in achieving the transport-related SDGs and climate change objectives.

A series of global agreements on sustainable development provide a universal framework for moving towards sustainable transport. These began with the Rio+20 Conference in 2012 and continued with the third Conference on Financing for Development, the adoption of the Addis Ababa Action Agenda in July 2015, the adoption of the SDGs by the UN General Assembly in September 2015, the Paris Agreement (COP 21), the UN Secretary General's High-Level Advisory Group on Sustainable Transport, and now the New Urban Agenda set to be adopted in Quito in October 2016.

The 2030 Agenda spells out 17 crucial, universal, Sustainable Development Goals and defines multiple targets that lay out a roadmap for economic, social and environmental policy development, transformation and a better future for everybody. Importantly, sustainable transport has been included in seven of the 17 goals and is covered directly by five targets and indirectly by seven targets.

⁹⁵ And more recently France's, in 2015.

In particular, the universally agreed SDGs include:

- SDG 1, on overcoming poverty in all its forms everywhere;
- SDG 8, on promoting sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all;
- SDG 9, on building resilient infrastructure, and promoting inclusive and sustainable industrialisation and fostering innovation;
- SDG 10, on reducing inequality within and between countries;
- SDG 3, on health, includes a target on road safety, calling on the global community to cut road deaths by half by 2020;
- SDG 11, on making cities and human settlements inclusive, safe, resilient and sustainable;
- Accomplishing all these SDGs will require significant advances in sustainable transport, and SDG 13, on taking urgent action to combat climate change and its impacts, will only be achieved by decisive action on sustainable transport.

Seventeen SDGs and 169 targets are a lot for any organisation or individual to keep track of. Furthermore, all the goals are closely interconnected, which adds a further layer of complexity. The year since the adoption of the 2030 Agenda in September 2015 has been about enhancing understanding and appreciation of this ambitious development agenda and what the SDGs represent. It has been a year of gradually coming to accept that every country on the planet must work to further its development within this new global framework. Achieving the SDGs will depend on the determined and innovative pursuit of more sustainable transport, with ambitious action by governments and businesses alike.

PPPs are an optimal way of mobilising resources and the 2030 Agenda points to them as an important means of implementing the SDGs. PPPs present opportunities to leverage expertise, innovation, financial resources and policy mechanisms.

In addition, national governments can establish frameworks to encourage PPPs at the local level by providing support to local governments and putting more trust and confidence in private companies.

As businesses around the world grapple with the implications of this new framework, one thing has become absolutely clear: the SDGs will not be attained without the involvement of businesses. With an estimated annual investment of USD 5–7 trillion needed to finance the achievement of these goals, businesses have a critical role to play as a source of those investments and as drivers of technological development and innovation, not to mention as an engine for economic growth and employment.

The SDGs need to be pursued keenly, not only because of the set objectives on safe, affordable, accessible and sustainable collective transport systems, but also in order to ensure the transport sector's contribution to achieving climate objectives and the related decarbonisation. "More compact, better-connected cities with low-carbon transport could save as much as USD 3 trillion in urban infrastructure spending over the next 15 years.⁹⁶"

The business community, and indeed all transport and mobility industry stakeholders, should be making a concerted effort to ensure that all road transport-related partners and organisations are on the same page with respect to both the SDGs and Habitat III's New Urban Agenda. Their objective should be to make their initiatives on sustainable road transport development significant, relevant and meaningful. Regional and national public–private HLGs are optimal instruments for promoting sustainable transport agendas at those levels, however, their successful implementation requires close collaboration and coordination.

The SDGs represent an immense opportunity for businesses in the road transport sector for the following reasons:

- Firstly, while the SDGs themselves are not legally binding, they still serve as an important road map regarding potential future policy directions at regional, international and national levels. Transport companies that align themselves with the SDGs and are able to

⁹⁶ <http://newclimateeconomy.report/2014/wp-content/uploads/2014/08/NCE-cities-web.pdf>

communicate clearly about how their business helps society and governments to achieve their goals, are likely to be able to consolidate stronger market positions.

- Second, achieving the SDGs will require unprecedented public and private financing, which translates into fresh opportunities for business engagement and market penetration.
- Thirdly, the success of the SDGs is expected to create thriving, inclusive economies around the world and provide better social, political and environmental stability, enabling mobility and transport businesses to flourish.

Of course, fulfilling the SDGs will by no means be easy. The goals represent an ambitious agenda, and in many cases systems will require a complete overhaul. The transport sector, therefore, needs to develop a long-term vision for 2050 in a world where 9 billion people require a high quality of life and mobility options. The road transport sector will also have the responsibility to align itself with the ambitions set out in the SDGs.

The role of organised road transport businesses, such as those united under IRU umbrella, will be to take collective responsibility for leading the industry towards alignment with the Sustainable Development Goals and the New Urban Agenda. As the industry's voice, they should advocate that the road transport sector strives to: 1) fully understand the Sustainable Development Goals and the New Urban Agenda, particularly as they relate to the business context; 2) define industry priorities; 3) set goals; 4) integrate new practices; and 5) report on and share its progress and successes.

It is highly important that the leading transport organisations, such as IRU, develop and promote the business case for the private road transport sector's engagement with the SDGs and the implementation of New Urban Agenda. They must also remain open and committed to forging new partnerships that will be able to support road transport companies as they move beyond business-as-usual and take on an ever more transformative role in society.

Annexe 1

European Union Public-Private Smart Move High-Level Group (HLG)¹: Vision and Recommendations²

1. EU HLG Shared Vision

Buses, coaches and taxis are key parts of an inclusive and competitive EU public mobility chain and together form an optimal alternative to private car use. They are well placed to substantially contribute towards achieving the ambitious EU objectives for sustainable growth and competitiveness. These modes also fulfil the requirements of EU transport policy, thanks to their intrinsic characteristics of door-to-door flexibility, environmental friendliness, wide availability and high standards of customer care and accessibility.

Doubling the use of collective transport must become a formal EU policy and business objective: it is in the public interest to place buses, coaches and taxis and their role in the mobility and travel chain at the heart of EU policy-making, at both national and local levels. Setting a clear policy and business target to double their use and modal share by 2025 will facilitate the development of a proactive public, financial, fiscal, legislative, market and operational environment, which will encourage service provision and

thereby produce a shift in travellers' behaviours. This will facilitate achieving an inclusive, efficient and sustainable mobility for all European citizens and visitors, at the lowest cost to society.

Doubling the use of bus and coach services alone is expected to yield a potential reduction of up to 1,500 EU road fatalities per year, with a considerable reduction in serious and less serious injuries, a reduction in CO₂ emissions of between 40 and 50 million tonnes per year and in other transport-related airborne pollutants, a significant reduction in city congestion as a result of the expected 10%–12% fall in car traffic; and the creation of up to 3 million new, sustainable, green jobs – all at the lowest cost to taxpayers.

2. EU HLG Method

A public–private partnership to progressively enable a legislative and fiscal market, an administrative framework and a land use planning strategy that are conducive to service provision; and which offers adequate public investment allowing collective road passenger transport to compete successfully with the private car.

¹ The European Union public–private Smart Move High-Level Group (HLG) was launched on 24 May 2012. Its objective and mandate, approved at the first meeting, were to work out policy and business recommendations, and to create an Action Plan on how to substantially increase (double) the share and the number of users of collective passenger transport by road, in particular to double usage of bus, coach and taxis, as an optimal alternative to private car use and a key part of the integrated intermodal transport chain, in cooperation with the other passenger transport modes, such as rail, tram, metro and waterborne services, and with soft mobility modes, such as walking and cycling. See more at http://www.busandcoach.travel/en/smart_policies/smart_move_eu_high_level_group.htm.

² Full text of recommendations available at <http://www.busandcoach.travel/download/hlg/smrecome.pdf>. Text of Background paper available at <http://www.busandcoach.travel/download/hlg/smbge.pdf>.

3. EU HLG Summary of Recommendations

The recommendations below aim to progressively achieve the objective of doubling the use of collective passenger transport in the EU by 2025. They are addressed to EU policy decision-makers, EU Member States, businesses, citizens, operators, regulators, local authorities, and all other public and private stakeholders at EU, national and local levels. These recommendations are expected to be implemented in stages, in the short- (1–3 years), medium- (3–7 years) and long-term (up to 2025).

Intercity and long-distance scheduled lines by bus and coach

- Fair, efficient and cost-effective implementation of Regulation 181/2011 on the rights of bus and coach passengers throughout the EU, whilst respecting industry specificity;
- Preventing any increase of the relative fiscal burden on the European bus and coach sector;
- Facilitate the integration of scheduled bus and coach services in current and future multimodal journey planners;
- Create a European one-stop-shop on-line database with a list of multimodal coach stations in Europe;
- Make coach stations eligible for European funds, such as TEN-T funding;
- Harmonise and simplify – within the next 3 to 7 years – existing VAT-related procedures to facilitate intra-EU and international coach support. Strive in the long-term towards a zero-rate for VAT on collective passenger transport, in order to be able to compete with private car use;
- Incentivise the use of greener transport solutions and services, whilst preventing distortions of competition;
- Enable further opening of markets in intercity and long-distance coach transport in Europe and improve access to infrastructure (terminals, roads, dedicated lanes).

Group Tourism by Coach

- Propose innovative ideas on safe, green, accessible and customer-friendly bus and coach vehicles of the future;
- Start by increasing the maximum weight of two-axle coaches to 19.5 tonnes;
- Enable a multilingual European web portal on access restrictions and low emission zones in European cities, as well as guidelines for those cities that are willing to introduce such restrictions, to prevent a patchwork of regulations across Europe;
- Clearly prioritise collective transport, including visiting touring coaches, over private car usage within sustainable urban mobility plans;
- Introduce a fiscal system that would incentivise the use of greener transport solutions and services. In the long run, introduce zero-rate VAT for all collective land transport modes, including coach travel, in order to be able to compete with private car use;
- Address the specific requirements of bus and coach businesses and their customers, to avoid inappropriate “One size fits all” rules in the regulatory, social (create appropriate driving and rest time rules for coach drivers in the EU), rights of passengers, and technical fields;
- Establish an enlarged public–private stakeholders’ platform to identify legislative bottlenecks and propose solutions in this regard;
- Establish a common charter with European cities to facilitate and promote group tourism by coach;
- Develop public–private partnership proposals to reduce administrative formalities and documentation, such as the journey form for occasional transport.

Urban mobility and commuting

- So far, European legislation has helped to create a framework for greater liberalisation and market opening. But the time has come to introduce European legislation that promotes commuting and travel by collective public transport over the use of the private car;
- Innovative new solutions will be required to attract private investment into public passenger transport;
- Public transport is a locally planned and organised business, requiring little regulation at European level.

In particular, it is necessary to:

- Include appropriate monitoring on the support for public transport from direct and indirect funding sources;
- Facilitate European-wide exchange of best practices;
- Create an open, fair and non-discriminatory legal framework which encourages entrepreneurial initiatives;
- European legislation should be carefully assessed, with input from the industry and in close cooperation with public transport authorities, leaving the solutions to be determined and implemented at the local level;
- The future revision of Regulation 1370/2007, on public passenger transport by rail and road, must remain the essential piece of legislation to achieve open, transparent and fair mechanisms to introduce and develop competition in the public transport market;

- Enhance EU-wide solutions enabling customers to obtain travel information through advanced technologies that are connected with existing locally developed systems;
- Implement sustainable mobility urban plans which are integrated with and take into account land-use and development policy;
- Public transport to be promoted over the use of the private car using tax incentives;
- Flagged success stories which yield increases in patronage at the lowest and most equitable cost to society, so that they can be taken into account in the future revision of Regulation 1370/2007.

Taxis as part of the public transport chain

- The HLG believes taxis are an optimal, efficient and sustainable alternative to the private car, offering 24-hour/365-day availability, coupled with a unique, customised, door-to-door service;
- The HLG recommends acknowledging that taxis, hire cars with driver services, and car sharing are a valuable and necessary element of the collective public transport chain; the role of taxis should be considered in any mobility policy proposals, collective transport funding, research and, in particular, urban mobility planning.

Annexe 2

Eurasian Smart Move

Working Group:

Recommendations³

1. Summary recommendations for development of legislation and formulation of State Policy to promote passenger transport in the Commonwealth of Independent States (CIS) countries

- As a priority, formulate policies and design legislation aimed at developing public transport and focusing on integrated mobility and integrated transport systems;
- Add additional impetus to social development and mobility growth; the Smart Move Working Group recommends that Member States of the Eurasian Economic Community (EAEC) accede to the UNECE international agreements/conventions, as well as to the Interbus Agreement, in order to ensure harmonisation of national legislation and harmonised approaches to passenger transport regulation, unified technical standards and elimination of trans-border barriers;
- When preparing legislation and regulations, adopt common terms and definitions regarding public transport, route networks, integrated mobility, integrated transport systems and transport service organisations oriented towards the integrated solution of mobility problems, in line with relevant European Union legislative acts;
- Regulate the contractual regime in the area of passenger transport through improvements to legislation. Develop contracts for the organisation and implementation of public transport services, including for multimodal transports, unified fare payment systems, partnerships with railroad stations, etc.;
- Set up “umbrella” organisations (transport agencies) responsible for local authorities with the objective of coordinating all mobility-related activities such as integrated development of road networks, traffic and parking management, creation of route networks and passenger transport organisation, and infrastructure for cycling and walking;
- Develop social standards for transport accessibility and introduce these via appropriate legislation;
- Consider the importance of the implementation of social standards and guarantee consistent public transport financing; in this respect, use the experience of European countries related to their application of EU Regulation for the introduction of public transport service contracts and improvement of contractual relations between local authorities and carriers;

³ Unofficial translation from the Russian language. The full text of the recommendations in the original Russian language can be found at http://taxoport.com/images/stories/smart_move_broch_2015_8.pdf.

- Develop guidelines for implementing transport policy to allow local authorities to more actively use management tools such as mobility plans (transport plans to be connected with city planning and city development); and for joining common European initiatives for sustainable mobility;
- Promote and assist the global Smart Move campaign and other international initiatives aimed at promoting and supporting public transport;
- Use IRU's potential to: (a) organise multilateral dialogue on the development of public transport; (b) ensure expert support for the preparation of new legislation; and (c) help implement projects related to city (regional) mobility.

2. Recommendations on Taxis as part of the Public Transport System

- National legislation that regulates taxi operations should recognise taxis as part of public transport and introduce specific requirements regarding the technical condition of vehicles, the equipment to be installed inside them, and the professional competence and experience of taxi drivers. Similar requirements should be introduced for dispatch centres and mobile taxi applications as well. Business platforms that act as interfaces/intermediaries for taxi services should not be considered simply as companies selling information services, but as full participants in the transport industry;
- National legislation on taxis should envisage:
 - the organisation of direct communication systems between passengers and drivers by entrepreneurs without the appropriate licences to offer taxi passenger transport services should be expressly forbidden and subject to severe fines;
 - the creation of local electronic state registers, by PPPs, of taxi businesses and “trusted internet-based services”, in order to ensure that passengers get safe and quality taxi services;
 - the obligation for dispatcher centres and mobile taxi applications to have some form of accident or health insurance for passengers or a professional liability insurance for drivers, in order to have the financial guarantees to access to the taxi service market;
- In order to manage the financial guarantee system and create intelligent transport systems, governmental authorities should create information systems to control and organise the public taxi transport service market, ensuring data acquisition and processing for each and every taxi service ordered;
- National taxi legislation should envisage the possibility of letting local legislative or administrative acts establish specific rules regarding the organisation of taxi service markets in different regions;

- National taxi legislation should envisage taxi business development programmes and the establishment of the following preferences, including, where applicable, reduced fares for taxis as part of collective public transport:
 - allow taxis to use priority or dedicated bus lanes;
 - promote, including via tax incentives, the use of alternative fuels and the acquisition of greener vehicles by taxi operators, and make taxis eligible for fuel discounts;
 - adopt regulations ensuring taxis have access to the terminal infrastructure of other modes of transport;
 - provide taxi ranks that are easily accessible and safe for both drivers and passengers. In this respect, it is recommended to:
 - create a large number of taxi ranks with signage displaying information and the transport fare rates recommended by local authorities,
 - give taxis the right to park for a short time when serving passengers with disabilities in areas where parking is normally not allowed,
 - allow bus stops to be used as taxi ranks outside the normal working hours of bus services;
 - grant rights to conclude contracts on public transport services with governmental authorities exclusively to companies/organisations licensed to offer taxi services.

3. Recommendations on Coach Tourism and Intercity Coach Transport

3.1. Ensuring High-Quality Rolling Stock at Reasonable Prices

- Abolish import custom duties for tourist and intercity coaches;
- Abolish the vehicle-recycling tax, where applicable;
- Grant import permits for second-hand large-capacity intercity and tourist coaches that meet the EURO III emissions standard, subject to the payment of the uniform custom duty (not exceeding EUR 10,000 per coach);
- Assist bus manufacturers from the Customs Union countries to produce intercity and tourist buses with engines that meet the requirements of EURO III emissions standard;
- Support coach fleet renewal programmes aimed at supporting small businesses, while making use of local manufacturing resources.

3.2. Reducing Administrative and Financial Pressure on Carriers and Eliminating Bureaucracy and Inefficiency

- Reduce bureaucracy related to transport of children and remove excessive restrictions on their transport, where applicable;
- Reduce the compulsory civil liability insurance rates for carriers. Review rates annually, taking into consideration the statistical data relating to the amount of damage paid by insurance companies to injured passengers and the premiums received from carriers. Proportions should comply with weighted average values, as referenced in European countries.

3.3. Stimulating the Use of Public Passenger Road Transport Instead of Personal Car Use

- Join the global Smart Move campaign aimed at increasing the use of collective passenger transport and reducing personal car use;
- Acknowledge that all bus and coach transport, including coach tourism, is part of the public transport system. In this respect, allow coaches (category D vehicles) to use dedicated public transport lanes. To enable this, amend driving regulations in a similar manner to the amendment for taxis. Such measures will make it possible to increase the attractiveness of this type of passenger transport versus personal car use. Indeed, one coach can replace 30–35 motor vehicles. This measure will make it possible to reduce traffic jams, improve city environments and reduce pollution levels;
- Assist with the introduction of new information technologies in transport;
- Develop transport infrastructure that is specifically aimed at coach transport;
- Envisage appropriate places/stops where passengers can conveniently get on and off coaches (not just shuttle buses) in the immediate vicinity of large passenger hubs, railway and metro stations;
- Envisage parking spots for tourist coaches in the immediate vicinity of places of interest for tourists, while simultaneously guaranteeing a reasonable price for this service;
- Assist with the creation and development of integrated service stations for intercity coaches on federal highways, with sufficient parking space, sufficient numbers of public toilets for passengers (including disabled passengers), food service areas and points of sale, and the possibility to emptying and clean coach toilets.

3.4. Recommendations on Road Safety

- Focus on training and awareness raising instead of inefficient bureaucratic procedures;
- Develop appropriate standard road safety recommendations, textbooks and video tutorials to improve the training and professional competence of transport companies' staff and drivers. In this respect, IRU Academy could become a unique reference centre, offering guidance; thanks to its internationally recognised and accredited training centres and programmes for the professional development and training for transport industry staff;
- Provide a maximum amount of training material and recommendations for transport industry staff, while also making use of the materials available on the web sites of the Ministry of Transport, the GIBDD and transport trade associations;
- Carry out a study to analyse the causes of accidents involving buses and coaches in the CIS countries, and develop recommendations related to bus and coach transport safety improvements.

3.5. Assist in Developing Coach Transport and Tourism between the Eurasian Economic Union Countries

- Grant permits for occasional tourist transport between Member States without the carrier having to obtain a specific international licence;
- Allow carriers to perform international transport operations between Member States without considering them to be cabotage.

3.6. Join the Interbus Agreement

- The Interbus Agreement will enable the liberalisation of occasional, non-scheduled passenger transports by coach. It will harmonise the requirements and documentation applicable and allow coach tourism operations between European countries which are not the part of the EU.

4. Recommendations to Improve Public Passenger Road Transport and its Organisation

- Develop strategies and long-term plans for passenger transport aimed at satisfying people's needs, including those of disabled customers. When developing such strategic documents, infrastructural, social and commercial aspects should be highlighted and there must be a clear definition of the roles of the participants in the process – the positions and aims of the state authorities, businesses, and the population;

- Use an integrated approach to strengthen mobility in regional policies, including aspects related to infrastructure. For this purpose, establish dedicated authorities to coordinate service provision, planning and implementing local transport policies; carry out regular public transport reviews aimed at ensuring people's mobility; define the rights and responsibilities of the parties involved in managing the road network (traffic capacity, road quality, maintenance, etc.) and other infrastructure facilities (transport stops, terminals, stations and especially multimodal terminals);
 - Explore the possibility of prioritising passenger transport by assigning dedicated lanes and streets exclusively to public passenger transport, along with the possibility of using tram lanes when travelling in the same direction and, where possible or necessary, prioritising public passenger transport at junctions via automated road traffic systems and public passenger transport controls;
 - Ensure the complementarity and integration of all modes and types of city and regional transport. Develop multimodal passenger transport systems for that purpose, which allow passengers to make use of two or more modes of transport. This requires solving regulatory issues concerning the interaction within such multimodal transport systems, developing a network of modern multimodal passenger terminals, establishing integrated schedules of city, suburban and intercity services, arranging efficient and easily accessible on-line passenger information systems for timetables, routes and fares.
 - On the basis of the client segmentation, develop and maintain up-to-date transport service standards for all social groups to establish and differentiate responsibilities of state authorities and businesses regarding arranging and performing transport services for passengers with a reduced capacity to pay and low social security, and to determine the source of financing for such transport.
 - Developing a unified system for the quality evaluation of passenger transport services on the basis of availability, comfort, speed and other parameters. Indices to determine service quality levels may be used to establish the mutual rights, obligations and responsibilities of parties entering into agreements (contracts) to provide passenger transport services.
 - Based on industry recognised standards, such as those promoted by IRU Academy, educational programmes should be developed to upgrade the professional qualifications of passenger transport staff, including company managers, service engineers, economists, accountants, vehicle drivers and others. This should include regular training courses, including courses on the transport of disabled customers.
 - Develop an economic mechanism for financing socially-supported passenger transport services, based on a differentiated approach to segments of financially supported social groups and on stimulating business participation in socially important projects, taking into account the profitability of such participation.
 - Create instruments to finance the renewal and renovation of vehicle fleets and development of transport infrastructure, either through public-private partnerships or other available sources; to this end, it is recommended that specialised funds for development of public passenger transport and infrastructure be created at regional levels. Fuel excise duties could be one of the possible sources of finance for such funds.
 - Introduce a unified travel ticket system with contactless smartcard technology for all kinds of passenger transport, including shared taxi-buses. A unified travel ticket system could provide fares differentiated by distance, time of travel, number of stops, as well as preformed services, as recorded by each carrier, showing the time of the day, transport mode, routes, passengers social groups and other relevant factors. Based on the monitoring of passenger flow, optimisation of route networks and schedules will become possible. A passenger traffic control system will increase carriers' revenue while simultaneously providing clarity and growth in tax income to relevant state budgets.
 - Optimise the functioning of integrated travel ticket sale networks by providing the opportunity to recharge travel tickets via cashpoints (ATM's) and other forms of payment.
- The implementation of these recommendations will not be possible without an efficiently organised public passenger transport control and enforcement system. Therefore, it is recommended that regional centres of public passenger transport control be established, whose competence may include issues of planning and coordination of carriers' activities within the given service area, improvement of the route network, schedule coordination across transport modes, transport safety management and passengers service quality, etc.
- The centres' work must be supported by an information system providing customers and road users with passenger transport information and guidance. For that purpose, it would be necessary to establish integrated national and international information portals providing customers with easy access to routes, schedules, service databases and other necessary information; it should also permit unified travel ticket-checking, remote booking and the sale of integrated tickets for all kinds of transport modes, as well as appropriate feedback for continuous improvement of passenger transport services.

Annexe 3

All-India Smart Move High-Level Group: Recommendations on Urban mobility issues in India⁴

Recommendations for improving and formalising the urban transport scenario:

- **Institutional framework:** Cities should be empowered to take care of their needs involving urban transport. The Federal Government will take care of issues such as financing, PPP, capacity building, developing a database and R&D. State governments should support the city with an organisational set-up, legislation, a resource generation policy and professional staff. A Road Transport Safety Board should be set up at State level to deal with safety issues in a comprehensive, scientific and a systematic manner. It should be supported by relevant R&D. Rescue services should be organised for fast relief.
- **Legislation:** Urban transport affects all aspects of city life and the working of nearly all other city agencies. A comprehensive Urban Transport Act to cover all aspects of urban transport should be enacted by the Federal Government and states may draft rules under it as per their needs – as in the case of Motor Vehicles Act.
- **Infrastructure and seamless intermodality:** Transport is inherently multimodal and should offer a seamless journey for users through multimodal integration i.e. physical integration, network integration, fare integration, information integration and institutional integration. There is a need to enable the establishment of quality-focused multimodal public transport systems which are well integrated, providing seamless travel across modes.
- **Safety⁵:** The organisational framework to deal with all road safety-related issues should be provided by creating Safety Boards at state level, with safety cells in cities with dedicated staff and budgets (at least INR 10 crores/ year). Cities should undertake safety audits for hazardous locations (years 1–10) to reduce accidents, fatalities and injuries. Relevant R&D should be a part of the research programme to minimise injury and consequences in the event of an accident. Rescue services should be organised to provide relief in the fastest time possible. Also, a National Road Safety Commission at the federal level needs to be set up to set standards and parameters for Road Safety throughout the country.

⁴ <https://www.IRU.org/sites/default/files/2016-04/smart-urban-mobility-india.pdf>

⁵ National Transport Development Policy Committee (NTDPC)-Working Group Report on Urban Transport

- **Training:** There is an urgent need for capacity building both at institutional and individual levels. For institutional strengthening, the NUTP has identified the Institute of Urban Transport (IUT) at the Federal Government level. Similar institutional strengthening should be undertaken by state governments. Individual capacity building should be in two parts: city officials and university educated professionals. The focus of training for existing city officials should be on developing awareness, skills and a deeper understanding of issues in urban transport. University curriculums should be reviewed so that graduates have the appropriate skills required in tasks needed today such as: planning and design of bus rapid transit, facilities for NMT, and more. States should be mandated to immediately constitute a dedicated agency for urban transport in each city and identify officials to be appointed to these agencies. These officials should be sent for training and, upon their return, appointed to these agencies/departments.
- **Accessibility:** The Constitution of India ensures equality, freedom, justice and dignity for all individuals and implicitly mandates an inclusive society for all, including persons with disabilities. Universal accessibility needs to be provided by the urban transport systems, at both systemic and infrastructural levels. This should be carried out taking into account time, cost and convenience factors to the commuter. Improved accessibility of stations/stops and last-mile connectivity should be vital features of public transport planning.
- **Users' needs:** The major factors for designing access to pedestrian and public transport systems for all users are as follows:
 - **Safety:** A Safety Board should be set up in each state to deal with safety issues in a comprehensive, scientific and systematic manner.
 - **Comfort:** Improve commuter comfort and travel times by allowing buses to have priority at intersections, introducing mandatory give-ways at bus ways, creating full-day bus lanes and using more energy-efficient buses and trains.
 - **Accessibility:** Improved transport provision is key for improving accessibility to jobs, services, education and training opportunities and social networks. A standard measure of accessibility is essential in determining areas most in need of improvement.
 - **Affordability:** Affordability is clearly an extremely important consideration in most developing countries. The impression is that public transport users are fully aware of all ticket prices and ticket differentials between the different services and operators. Discussing affordable passes and concessions are often important.
- **Environment:** Vehicle efficiency improvements, regulation of fuel and vehicles, vehicle emissions standards, and the modernisation of taxi, truck, bus and other commercial fleet generates exceptional economic returns. Use of new fuels and vehicle technologies should be supported by appropriate tax concessions. Inspection and certification of old vehicles should be made mandatory. Regular maintenance of vehicles should be enforced. Also, fund allocation for major transport infrastructure should be linked to achieving targets for creating facilities for NMT citywide.
- **New business models and aggregators:** Today, due to technological advancement, business models and their operating methods are changing at a very fast pace, creating a divide in traditional regulated operators and techno transport companies. The following are few suggestions:
 - **Different Business Models** – A clear-cut differentiation needs to be made between “Transport Aggregators” and “Technology Aggregators”.
 - **Different operating rules** – Transport Aggregators and Technology Aggregators should be subject to different operating rules, as their roles and responsibilities are different.
 - **Shared responsibility** – In the case of Transport Aggregators, passengers book services based on their faith in the Company brand, hence responsibility of deficiency in services has to be shared equally between the Company and the Vendor.
 - **Changing relationships** – Clearly define the roles of Servant and Master or Employee and Employer (Company) or Company (Brand) and Vendor (Service provider) and create operating rules in accordance with these.
 - **Social benefit** – In the Transport Aggregation model, the role of the Employee is being replaced by the Vendor, hence the responsibility to provide social benefits should be assigned to the Company (Brand).
 - **Safety issues** – In a Transport Aggregation model where the Vendor is the individual owner, safety is a concern because of overenthusiasm or greed, resulting in increased working hours and exhaustion; this might be a safety hazard to not only the driver's own life but also to other travellers.
 - **Flexibility in choosing technology** – Rules should state that the technology used should enable locating a vehicle and then transmitting required data to a central server (Vehicle Locator Device).
 - **Planning & Permits** – It is important to understand regional requirements before issuing local permits. Operating rules need to be clearly defined so as to remove any possible ambiguity in the minds of the authority and the operator. Schemes need to be designed and declared well in advance so as to increase awareness and participation amongst the users and service providers.

Annexe 4

European Action Programme 2015–2025⁶ on doubling the use of collective land transport in the EU

Action area 1

Governance: improved governance through legislation and administrative frameworks that promote optimal service

- Provide regulatory stability as well as coherence at all levels of governance, which allows the sector to make the necessary long-term investments in a stable legal environment.
- Enable further opening of markets in long-distance collective land transport in EU Member States.
- Develop recommendations for the introduction and operation of vehicle access regulations, including LEZs.
- Adopt specific driving and rest-time rules for long-distance bus and coach drivers.
- Harmonise the regulatory framework for the provision of cross-border coach transport services while harmonising and reducing administrative formalities and documentation.
- Guarantee a competitive level playing field between taxi and ride-sharing for reward transport

platforms when the latter are offered as a remunerated service, whilst ensuring the enforcement of rules and surveillance.

- Carry out a study on the impact of access to the taxi profession regime in EU Member States. Based on study results, propose an EU directive on adapted access to the taxi profession regime, hired cars with drivers and ride-sharing schemes (when the latter is offered as a remunerated service) in Europe, with high quality standards for training.

Action area 2

Infrastructure: towards a seamless mobility chain through connected, accessible and high quality infrastructure

- Streamline regional and local authorities' access to funding, including TEN-T funds, that will allow them to decide on the building of multimodal hubs, with access for all collective land transport modes, as a way to facilitate inter-modality, connect long- and short-distance transport services and ensure a sufficiently harmonised quality of service before, during and after the journey.

⁶ The full text of the Action Programme, including its background and principles, can be found at <https://www.IRU.org/sites/default/files/2016-04/I-0336-ECMF-action-program-EN.pdf>.

- Develop EU-wide recommendations on how to connect long-distance and short-distance collective mobility services and on how to enhance stations and multimodal terminals.
- Earmark funding for the maintenance and enhancement of existing infrastructure and make it accessible, especially where operators face mandatory operating and vehicle accessibility requirements.
- Create a European one-stop online database of multimodal coach stations, their facilities and connections.
- Create more priority lanes dedicated to collective land transport.

Action area 3

Innovation: research and development, innovation deployment and best practices

- Implement and integrate existing smart ITS tools in the field of multimodal information provision, multimodal journey planning and ticketing for all modes of transport, notably by using EU funding for innovation deployment.
- Identify successful models which yield substantial increases in collective land transport usage and further support and expand existing “online knowledge repositories”, providing access to EU and global best policy and industry practice in innovative collective mobility and travel solutions, also covering EU funded projects and their recommendations.

Action area 4

Funding: support research and innovation to improve the efficiency of the collective land transport chain, and promote demonstration projects

- Create a joint European funding instrument, equipped with the appropriate financial means, to support the achievement of the objective of doubling the use of collective land transport in the EU. This funding instrument would focus on research, innovation and market-driven solutions and it would aim to accelerate the integration of new and advanced technologies into innovative collective mobility solutions. It would financially support operators and management authorities of the collective land transport chain willing to take up these innovative collective mobility solutions and support the implementation of the specific actions of the Action Programme.

- Within this initiative, develop a set of innovation and demonstration projects in key areas, to address the main inefficiencies, shortcomings and gaps within the collective land transport chain.

Action area 5

Sustainability: Improve the EU mobility system’s safety, environmental and carbon footprint performance

- Support the replacement of fossil fuels with alternatives, where economically viable and environmentally sound, together with the development of relevant infrastructure and dedicated business models.
- Improve efficiency, safety and traffic flow by increasing the priority of collective transport traffic in order to reduce congestion and enhance the attractiveness of the service to passengers.
- Identify and implement safety measures targeting the main causes of accidents.
- Identify new safety awareness and training strategies, encouraging all road users to put themselves in the place of other road users.

Action area 6

Taxation: towards a taxation and charging system that incentivises and rewards innovation and service quality

- Incentivise the acquisition of greener and more accessible vehicles by collective land transport operators.
- Establish fully harmonised VAT compliance procedures for intra-EU and international collective transport.
- Establish a level playing field between long-distance modes of collective transport.
- Reach a political commitment to incentivise the use of collective land transport modes over the use of the private car, through the earmarking of fiscal revenues and fiscal incentives, covering VAT (“zero-rate”), taxation of energy, as well as congestion and user charges.

Action area 7

Service quality: Training, competence-building and knowledge to make the profession more attractive and to increase service quality and performances

- Encourage high-quality customer service and disability awareness training for all front-line staff, including ground staff.

- Develop high-quality driver qualification frameworks which lead to internationally recognised accredited certifications. Provide incentives to drivers to deliver service excellence based on measurable key performance indicators (Safety, Customer Satisfaction, Eco-Efficiency, etc.).
- Establish a driver image campaign to attract the right professionals and create vocations.

Action area 8

Image: Reinventing and rebranding collective land transport through better promotion and awareness-raising

- Create a European Knowledge Centre for Collective Land Transport, with the participation of leading European universities and collective land transport bodies and stakeholders, as a platform to centralise and conduct research, build knowledge and develop programmes on promoting the use and improving the attractiveness of collective land transport in the EU.
- Include a communication strategy, within local, regional and national mobility plans, to promote the use of collective land transport, placing emphasis on increasing knowledge on product advantages, and on communicating core values by means of consistent and detailed market communications and sharing best practices.
- Support local, regional and national mobility plans with a basic European toolkit of joint messages, values, labels, awards, etc.
- Promote customer awareness of carbon footprints for all passenger transport modes.
- Encourage and facilitate public-private partnerships between authorities and transport operators to improve efficiency, accessibility and the image of collective land transport.

Action area 9

Evaluation and monitoring: production of statistics to monitor the progress made in achieving the objective of doubling the use collective land transport

- Develop and update action plans at regular intervals and provide progress reports to track and monitor implementation.
- Establish a European Collective Land Transport Observatory to monitor and report on the use of collective land transport at European, national and local levels.
- At EU and national levels, develop statistical tools and regularly publish appropriate, simple and easy-to-understand statistical indicators.
- Create and carry out a standardised yearly Eurobarometer survey on collective land transport.

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