

**TECHNICAL EXPERT MEETING ON MITIGATION:
SHIFTING TO MORE EFFICIENT PUBLIC TRANSPORT AND
INCREASING ENERGY EFFICIENCY OF VEHICLES**

Monday, 23 May 2016, 09.30–16.30

**Summary by the facilitator Ms. Sheila Watson
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As part of the technical examination process on mitigation organized by the Subsidiary Body for Implementation and the Subsidiary Body for Scientific and Technological Advice, a technical expert meeting (TEM) on shifting to more efficient public transport and increasing energy efficiency of vehicles was held in Bonn, Germany, on 23 May 2016. The meeting was organized under the guidance of the high-level champions representing the Presidents of the twenty-first and twenty-second sessions of the Conference of the Parties (COP), and in consultation with the International Transport Forum of the Organisation for Economic Co-operation and Development (OECD/ITF), the United Nations Environment Programme and the International Energy Agency.

The TEM consisted of three sessions focusing on: global overview of mitigation policies, options and initiatives for decarbonization of the public transport sector; best practice national policies to encourage demand for low-emission public transport and the use of efficient vehicle technologies; and next steps under the technical examination process on mitigation (TEP-M). During the meeting, participants who represented Parties, private sector organizations, international organizations and partnerships engaged in discussion to share experiences in implementing low-emission transport policies.

**Ambitious mitigation policies, options and initiatives for decarbonization
of the public transport sector**

According to OECD/ITF, passenger and freight transport volumes are expected to double in the period 2015–2050, if no further action is taken. Such rapid growth poses significant challenges to mitigate emissions from the transport sector, which, in 2010, was responsible for approximately 14 per cent of global greenhouse gas emissions. The most significant growth of emissions by 2050 is expected from urban passenger and surface freight transport.

In terms of regions, 38 per cent of emission growth by 2050 is expected from passenger transport in the urban areas of India, China and Latin America, where urbanization, motorization rates and demand for transportation services are rapidly increasing.¹ As the transport sector is a key enabler of economic growth and international trade, and is an essential means for integration of emerging markets into the global economy, the demand for transportation services is also expected to grow continuously in other regions of the world.

Decarbonization of transport denotes the declining average emission intensity of fuel used over time, and can be achieved as countries put forward ambitious mitigation targets and policies. The decarbonization trend is demonstrated by global fuel efficiency, which is closely linked to emission intensity, and which decreased by 2 per cent per year on average between 2005 and 2013, according to the International Energy Agency. The overall tendency towards lower emission intensities is due to technological advancement and the replacement of fuels with high carbon content by those with low carbon content.

¹ Presentation by OECD/ITF.

It is recognized that policies and technologies do matter and can lead to significant emission reductions. It is expected that policies which contain urban sprawl, favour public transport and set prices to reflect externalities could reduce projected emission growth by about 30 per cent by 2050.² For example, policies that promote renewable energy use in transport and new vehicle propulsion technologies have the ability to change the increasing emission trend due to their significant mitigation potentials. Such policies should be well calibrated to national specifics and take into account trade patterns, economic development, fossil fuel prices, land-use patterns, demographics and consumer preferences.

An emerging trend in the transport sector is provision of new services favouring vehicle and ride sharing, which could be instrumental in changing emission pathways. The sharing economy has a huge potential to reduce emissions, as proven by a study in Lisbon, which found that 3 per cent of public vehicles could provide a similar level of service as all private cars.³

Mitigating emissions from transport requires transformative action to limit global temperature rise this century to 1.5°C above pre-industrial levels, as agreed in the Paris Agreement. The challenges impeding such transformation could be overcome through collective action encouraged by partnership building, bringing together governments, private companies, civil society and others. Mobilization of such action through the Lima–Paris Action Agenda and the Paris Process on Mobility and Climate is a good fit for such purposes.

Moving forward, global climate action on transport requires a common framework, a sustainable low-carbon transport road map and quick-win solutions to encourage short-term actions to kick-start long-term transformation of the sector. The transformational change should pursue sustainable development goals, because from the perspective of society, low-carbon transport should enable individual mobility and access by all citizens, not only to key public services such as education and health, but also to jobs, and should be a key driver of inclusion and equality. Mitigation actions must ensure the transport sector's capacity to effectively deliver essential services necessary for social well-being and economic development opportunities.

Accelerating the implementation of scalable, replicable and transformative actions

The TEM (mitigation) on transport discussed low-carbon national transportation policies, tools and technologies that offer opportunities for significant emission reductions while also enhancing economic development, providing connectivity, and reducing economic, environmental and social impacts. Also, such actions often contribute to enhancing the resilience of transport infrastructure and services.

National policies, tools and schemes to advance low-carbon public transport at different scales

Participants discussed a number of best-practice policies implemented at different levels in developed and developing countries covering all modes of transport. Low-carbon transport policy solutions include many elements, which should be tailor made to address the country context and national circumstances and encompass a mix of policies, including:

- (a) National long-term urban transport policies, and urban land-use and transport planning and regulations;
- (b) Public transport system improvements and network innovations;

² Presentation by OECD/ITF.

³ OECD/ITF (2015) Urban Mobility System Upgrade, How shared self-driving cars could change city traffic

- (c) Increases in public transport coverage and service provision (including efficiently managed supply chains and infrastructure as well as ride and vehicle sharing);
- (d) Promotion of non-motorized transport (NMT);
- (e) Charges and subsidies, and financing solutions (including public and private investments);
- (f) Technology development (research and development, and demonstration projects).

In addition, participants discussed policy options to make public transport more attractive, reliable and multi-modal. Barriers impeding modal shift were also discussed.

A few examples of transformational low-emission transport projects supported through programmes financed by official development assistance, such as TRANSfer, demonstrated that mitigation actions in transport require long-term collaboration, commitment and capacity-building support in the form of specialized handbooks, toolboxes, and measurement, reporting and verification guidelines. Such capacity-building support could be provided through multilateral partnerships with governments, cities, development institutions and the private sector. Examples include initiatives such as MobiliseYourCity, which aims to engage 100 cities in developing and developed countries with the commitment to improve urban mobility and mitigate carbon dioxide (CO₂) emissions. Another example of capacity-building and technical support is the work of the International Union for Public Transport on climate leadership, which announced a commitment to double the market share of public transport by 2025.

Promotion of NMT is one of the low-cost high-impact policy options that could be replicated and scaled up in the pre-2020 period, if governments, the private sector and communities are actively engaged in the redesign of urban transport systems, infrastructure, parking and traffic management policies. NMT policies could be supported by integrated multi-modal public transit systems.

It is well known that rail transport is the most emission-efficient mode of passenger and freight transport and should be the backbone of sustainable low-carbon transport policies. There is the potential for improving efficiency and halving emission intensity in the rail sector by 2050. However, successful policy implementation in urban rail transport may be affected by a number of barriers, such as a clear policy bias to roads in urban planning, and by development banks in investment portfolios, passenger preferences, misalignment of national and local land and transport policies, high capital costs and longer-term planning requirements. One success story is the urban rail system development in China, where urban rail has been prioritized in urban development plans. This has helped to lead to increases in passenger traffic volume and in the share of rail transit in urban public transport across the country.

Policy and technology solutions for energy efficiency of vehicles

Participants discussed potential policy and technology solutions to the challenges faced by public transport. Application of intelligent transportation systems (ITSs) for improved traffic energy efficiency, connected and automated transit management, promotion of electric and shared mobility, park and ride systems, and management of multi-modal public transport were mentioned among such solutions. A few examples of ITS applications in Thailand, Bhutan and many cities in Europe and the United States of America were discussed at the meeting, including the use of ITS for traffic management, provision of real-time multi-modal travel information, travel demand management measures and adaptive signalling systems. Such policies provide multiple mitigation co-benefits to city administrations and citizens, ranging from road safety, efficient traffic flows, comfort and convenience, productivity improvements and cleaner environments.

Many policies aim to increase vehicle and fuel efficiencies, and to encourage electric and hydrogen mobility to promote green fuel economy. Morocco presented, as best practice policy options, its Green Bus Rapid Transit solution and city-level urban electric mobility

plans, which have led to emission reductions, better services, use of renewable energy, cost reductions and job creation. Efforts like these could be complemented by the international initiative on electric mobility to be launched at COP 22. Another example of a truly motivating partnership that coordinates global action on fuel economy is the Global Fuel Economy Initiative, which works with data, mobilizes funds, and promotes sharing of knowledge and practical experience.

Participants also discussed opportunities provided by hydrogen for decarbonization of transport. In order to promote hydrogen use, governments should remove legislative and regulatory barriers, put in place long-term transport strategies and support frameworks, promote car and supply chain technology development, and address the high costs and lack of refuelling infrastructure. The Clean Energy Partnership is a partnership that promotes the hydrogen society concept, where hydrogen will be used to fuel vehicles and in stationary applications for other uses. Many prominent businesses lead by example and take on unprecedented emission reduction commitments. For example, Toyota has committed to the new vehicle zero emissions challenge called the Zero Environmental Impact Challenge 2050.

Emissions from international maritime and aviation sectors are projected to grow significantly. If left unabated, they could increase from a small share of 5 per cent of the global CO₂ emissions in 2010 to 10–32 per cent by 2050.⁴ Both the International Maritime Organization and the International Civil Aviation Organization make significant efforts to mitigate such emission growth. Global harmonized maritime rules, innovations to develop greener and climate-efficient technologies, and creation of enabling environments for energy efficient technologies and practices to be absorbed worldwide were mentioned at the meeting. This framework of climate action in the maritime transport sector is supported by technical and operational measures to improve efficiency of enhanced maritime hardware, software, operations and energy use. The aviation sector has also introduced a range of measures to reduce emissions, such as promoting technology development, introducing CO₂ emission standards, optimal air traffic management and infrastructure use, more efficient operations and wider use of sustainable alternative fuels. This sector is also considering further measures, such as market-based measures.

Next steps in turning potential into action on the ground

The discussion on the next steps in the TEP-M started with an exchange of views of the Technology Executive Committee (TEC), the Climate Technology Centre & Network (CTCN) and the operating entities of the Financial Mechanism (such as the Global Environment Facility (GEF) and the Green Climate Fund (GCF)). In this context, representatives of these institutions discussed how they could provide assistance to developing countries and how to accelerate the implementation of transport mitigation policies. For example, many of the best practices identified in the TEM have already been identified by developing countries as priorities for international and domestic support in their technology needs assessments (TNAs). The challenge is how to replicate and scale up such best practices.

The TEC provided an overview of the TNAs that included transport. Of more than 90 TNAs submitted, 41 per cent included transport where the prioritized technologies were fuel switch and modal shift. One area identified for improvement in the TNA and technology action plans was the prominent role given to consultants. This needs to change so that Parties can take more ownership. The CTCN outlined that of all technical assistance requests, around 8 per cent were in the transport sector. The CTCN confirmed its support for the TEP-M, and would like to see a more prominent role for TEMs in identifying priorities for technology transfer needs by developing countries. The need for enhanced participation by Parties in

⁴ The Global Commission on the Economy and Climate (2015) The 2015 New Climate Economy Report.

TEMs in order to obtain a holistic view on the needs and priorities for action and support, in particular by developing country Parties, was noted.

The GEF provided examples of projects funded during the last decade regarding public transport and energy efficiency of vehicles. Since 1997, the GEF has committed USD 480 million to transport projects, with USD 6.7 billion leveraged in co-financing. The GCF expressed its keen support to the TEP-M, which was instrumental in identifying barriers and unleashing the catalytic role of initiatives, especially in transport, which has been identified as a strategic priority for the GCF. One of the eight key impact areas under the GCF results management framework is to reduce emissions through increased access to low-emission sustainable transport.

Before the meeting was closed, Parties were asked to provide feedback on how to improve TEMs. Many Parties felt that more focused meetings on technical details could add value to the TEP-M. There were also suggestions to make TEMs more interactive by having parallel, smaller, more informal breakout groups. In terms of content, the suggestion was made to not only consider the positive experiences, but to also consider the failures and difficulties at the programme or project levels, because these are the experiences that are most enlightening. Finally, Parties indicated that they would like to see, where feasible, two presenters talk about the same project or initiative from two different perspectives. Parties and the CTCN reflected that non-Party stakeholders need to play a greater role in the TEP-M; this is because it is the non-Party stakeholders that are the ‘doers’, and they need to be better engaged in the TEP-M in order to bring about change.
