Tool: World of Sustainable Transport Mitigation actions (Version 2, November 2016)

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Tool Description

This tool provides a list of approximately 100 policies and measures to mitigate GHG emissions from passenger and freight transport, organised by the Avoid-Shift-Improve approach and four types of policy instruments. It supports initial identification of transport-NAMAs, broad transport strategic documents and evaluation of policies and strategies.

General information of this Tool

Objective	This tool helps to: • Identify and scope transport-NAMAs and develop a long-list of options • Develop sustainable transport strategies • Evaluate policies	
Tool developer & Weblink	GIZ Link: www.transport-namas.org/resources/toolbox	
Area of application	☒ Designing mitigation measures ☐ MRV of emissions ☐ MRV of sustainable development benefits ☐ Financing ☐ Registration ☐ Other: policy evaluation	☒ Strategy or plan ☒ Policy or programme ☒ Project
Setting	Small meeting or workshop with policymakers, stakeholders and experts	
Methodology	This tool can provide an input for the identification of a suitable mitigation action. The NAMA Screening Tool can be used in addition to support and structure the discussion. The output of this first step of identifying a suitable mitigation measures can be a long list of measures.	
Level of complexity	**Low**	
Required data / information	For further information on the different measures, please visit • http://www.sutp.org/ • www.transportpolicy.net	
Cost	• Free of charge	
Time needed	½ day meeting / workshop, ½ day preparation and reporting	
Equipment needed	Pinboard, list printed on large scale, small stickers	

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Application step-by-step

This tool aims to give the reader a comprehensive overview on opportunities to reduce GHG emissions in the transport sector.

- The first part of the tool introduces the different types of instruments and identifies priority measures in different mitigation areas.
- The second part of the tool helps to applicate in policy discussions and t-NAMA context.

Step 1: Understanding Transport Policies and Measures

Avoid-Shift-Improve

Designing measures to addressing environmental impacts of transport can be done by following the avoid – shift – improve approach[1]. In this approach, policies to limit GHG emissions in the transport sector need to consist of measures aimed at: (a) avoiding the need to travel or reducing tonnes, passenger-kms or tonne-kms for freight, e.g. by improved urban planning, TDM or road pricing, and e-communication options (mobile phone use, teleworking), (b) shifting travel to the most efficient or clean mode, e.g. non-motorised or public transport or, for freight, rail or water-borne transport and (c) improving the environmental performance of transport through technological improvements to make vehicles more energy efficient and fuels less carbon intensive.

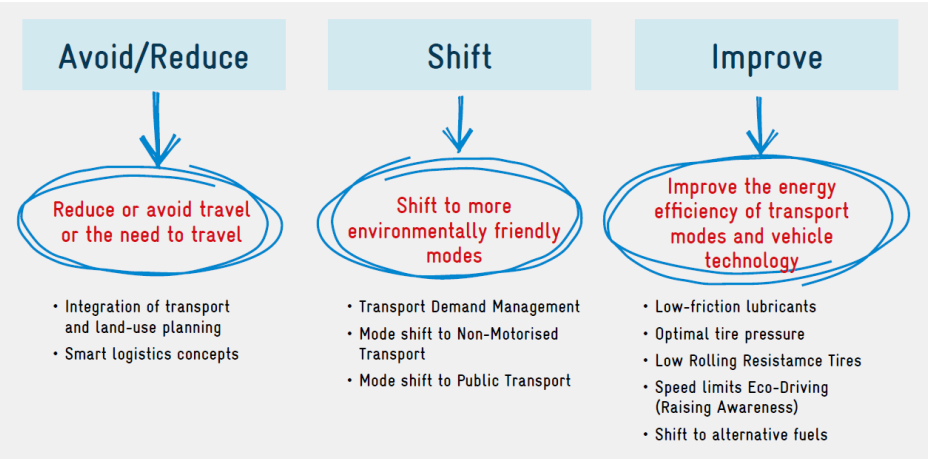

Figure 1. Avoid-Shift-Improve Approach (Transport NAMA Handbook, GIZ, 2015 based on Dalkmann and Brannigan 2007)

The ASI approach is rather well-established in passenger transport and used in some developed and developing countries as well as international institutions[2]. For freight it is not yet used widely, however there is also no other widely accepted typology of measures (Gota, 2015).

[1] GIZ (2012) Sustainable Urban Transport: Avoid-Shift-Improve (A-S-I). www.sutp.org

[2] Bakker, S., M. Zuidgeest, H. de Coninck, C. Huizenga (2014) Transport, development and climate change mitigation: Towards and integrated approach. *Transport Reviews: A Transnational Transdisciplinary Journal* 34 (3), pp 335 - 355

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Types of Policy Instruments

Policy instruments are the means or the intervention by which national or local governments achieve their intended objectives, e.g. a more sustainable transport system through implementing cleaner technologies or a change in behaviour. Instruments are generally classified as regulatory, economic, or informative[3]. The economic category could be further divided into subsidies and taxes but in the transport sector, direct investments in infrastructure by the government financed through public money may play a more important role[4]. Direct investments can also be regarded as a separate category of transport policy instruments[5]. Based on this we use the following classification of transport policy instruments, which is largely similar to the typology used by Petersen (2004)[6]:

- Infrastructure and technology investment (e.g. roads, cycle paths, BRTs, railways, stations, airports, traffic management systems, vehicles and rolling stock)
- Regulation and planning[7] (standards, codes, audits and rules; also governance[8] as well as enforcement)
- Economic instruments (taxation, subsidies, pricing, research programmes)
- Information and communication (e.g. campaigns, labelling, advice, etc.)[9]

Policies and measures are implemented at different levels of government, e.g. city, province, national, international, however a more in-depth discussion of this aspect is outside the scope of this tool.

We note that in many cases one measure could involve a mix of instruments, e.g. successfully implementing and running a bus rapid transit system requires investments in infrastructure, economic instruments for appropriate ticket prices (and potentially taxes to raise funding for investments), and information to the public. Experience shows that those nations and cities that have chosen a comprehensive approach, creating and implementing a comprehensive mobility plan or low emission development strategy, that includes a set of measures and policies, are most successful in emission reduction.

Overview of Policies and Measures

Without claiming comprehensiveness, Table 1 gives an overview of possible policies and measures that mitigate climate change from the transport sector. The selection of measures is a result of a brainstorming with various transport experts from different regions around the world. The measures are organised by ASI (and 'crosscutting') and the four topics described above.

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[3] Givoni, M., J. Macmillen, D. Banister, E. Feitelson (2013) From Policy Measures to Policy Packages, *Transport Reviews*, 33 (1), pp. 1-20

[4] Ang, G., V. Marchal (2013) Mobilising Private Investment in Sustainable Transport: The Case of Land-based Passenger Transport Infrastructure. OECD Environment Working Paper, No. 46.

[5] May, A., M. Page, A. Hull (2009) Developing a set of decision support tools for sustainable urban transport in the UK. *Transport Policy* 15 (2008) 328–340

[6] Petersen, R. (2004) Politikinstrumente für einen nachhaltigen, klimaverträglichen Verkehr (in German). Wuppertal Institute.

[7] Sometimes 'planning' is included as a separate category (e.g. MDS Transmodal Limited, 2012)

[8] Morichi, S. S. Acharya (eds.,2013) Transport Development in Asian Megacities. A new perspective. ISBN 978-3-642-29742-7. Springer-Verlag Berlin Heidelberg

[9] This also include measures related to 'improved cooperation' (Gota, 2015) or 'management' (MDS Transmodal, 2012) in the freight sector.

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Some measures can cover more than one ASI category, e.g. parking management, or even all, notably fuel taxes or environmental zoning may impact all three dimensions.

Some measures are common for both the passenger and the freight subsectors or can be designed for both subsectors. Usually this entails developing different policies, e.g. fuel economy standards for cars, motorcycles, truck and buses are four different policies.

Virtually all of these policies and measures are primarily implemented to improve access, reduce congestion, reduce oil consumption, improve air quality, improve health, reduce noise, save costs, traffic safety, improve liveability etc, i.e. sustainable transport, rather than climate change. The latter can be regarded as a co-benefit of sustainable transport policies.

Sometimes the largest role of making investments is with private sector (i.e. the table provides option for policymakers but can also be done by private sector). Mitigation options in the freight sector where there is no or hardly any role for policymakers, e.g. 'Relax just-in-time replenishment schedules to permit greater load consolidation', are not included in this overview.

For freight, the scope for government intervention can be limited as it's often more private sector that is the most important actor; therefore it may be difficult to assign policy instrument to specific measures.

Pilot programmes where a government directly invests, e.g. in hybrid vehicles, is not included. Such pilot programmes can be designed for many of the options.

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Table 1. World of Sustainable Transport Mitigation Actions

Mitigation action area	Priority measures	Complementary measures
Urban mobility (People)		
Public transport system improvement: Set of measures as part of a 'Push and Pull' strategy to improve public and non-motorised transport and discourage individual motorized transport. This could be organised into a National Urban Transport Programme. ***A+S**	Route optimization and management reform of road-based public transport Bus prioritisation (designated lanes, traffic signals, improved stations) Bus Rapid Transit Rail-based urban transport (metro, light-rail) Integrated ticketing and fare integration Improved information provision (timetables, real-time information) Public transport fare levels Metropolitan Transport Authority Inter-urban rail infrastructure (trackage, stations, intermodal integration)	Bike sharing Park and ride Public transport campaigns High-speed rail
Transport Demand Management (see above) ***A+S**	Street design standards Parking management Land-use planning (zoning, mixed-use, TOD, town of short distances), Vehicle restrictions (number plate auctioning, high-occupancy vehicle lanes, Road pricing, congestion charging traffic control, calming and management (speed humps, zebra and footpath level crossing, etc) Avoiding new road construction	Walking and cycling: infrastructure, design guidelines, information, campaigns, enforcement of regulations Intelligent Transport Systems Car sharing Low-emission zones Telecommuting Physical access restrictions (e.g. NMT-only streets)
Fleet renovation programs: Incentives or direct investments for cleaner vehicles, e.g. from public transport fleet. ***I**	Hybrid (including plug-in) buses LPG/CNG buses Retrofits age limitation for HDVs	Electric buses
Freight transport (Freight)		
Green logistics: National programme to promote reduction of empty trips, improved logistics, carbon labelling, etc., involving financial, regulatory and information instruments. ***A+S+I**	Freight villages, consolidation centres Freight exchange, Logistics planning, Relocation of large traffic generators Pricing and regulation for truck arrivals at ports green freight certification and recognition programme for companies and products	Lorry access restrictions to off-peak times

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	Promoting regional economic cycles (Promotion of regional products and focus on business clusters to reduce transportation needs	
Truck efficiency improvements: Regulatory, financial and information measures to increase fuel efficiency of trucks. ***I**	Low rolling resistance tires Aerodynamics Engine replacement scrapping / age limitation	Ecodriving Low-friction oils
Intermodal transport: Development of infrastructure and regulatory measures to improve inter-modal freight transport ***S**	Intermodal hubs such as (dry) ports, Rail terminals Rail infrastructure (incl. electrification) Master planning for rail and water	Pipelines for liquid or gaseous fuels and feedstock Require large distribution sites to be rail/water connected
National vehicle & fuel policies (People + Freight)		
Fuel efficiency policies: Regulatory, economic and information instruments promoting fuel efficient vehicles ***I**	Car / truck labelling, Fuel economy or CO_2 emission standards for cars, truck and motorcycles Inspection & maintenance CO_2 based vehicle taxation, Specific tax measures for e.g. hybrid vehicles	Emission standards (e.g. Euro IV, V, VI) Speed limits, Ecodriving for cars and driver information systems Import restriction for in-efficient vehicles Taxation of private use of company cars
Fuel taxation: Increasing prices of fossil fuels used in transport ***I+S+A**	Reducing fuel subsidies Increasing fuel prices	CNG/LPG pricing
Fuel switch and propulsion systems: Financial and regulatory policies s to promote fuel switch ***I**	Electric car and two-wheeler incentives and procurement programmes CNG/LPG retrofit programmes Charging and supply infrastructure, Biofuels (blending standard, incentives, promotion of sustainable biofuels)	

References and more information:

GIZ (2011): *Urban Transport and Energy Efficiency*. SUTP Sourcebook 5h http://www.sutp.org/en-dn-th5

Gota, Sudhir (2015): *Green freight call to action for green freight in cities*. Technical Paper or the Ecomobility Festival 2015, Note: contains links to online resources for 50 green freight options. https://www.yumpu.com/en/document/view/54421004/a-call-to-action-on-green-freight-in-cities

MDS Transmodal Limited (2012): DG MOVE European Commission: *Study on Urban Freight Transport*. Final Report. http://ec.europa.eu/transport/themes/urban/studies/doc/2012-04-urban-freight-transport.pdf

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Step 2: Application in policy discussions and t-NAMA context

To support initial discussions on NDC implementation strategies or transport-NAMAs:

In a NAMA development or strategic policy development process, this document can be used in a small group of key policymakers and other stakeholders to develop a long list of possible actions (e.g. 20). One option for doing this is to distribute this list to all participants in a meeting or workshop. The list can be all measures in case of a comprehensive strategy, or a subset such as freight, urban passenger, etc, depending on the policy context.

The facilitator can structure the discussion along the different categories and narrow down the preferred sub-sectors step-by-step. In order to make best use of the time for the discussion it is recommendable to prepare the session well, for example by identifying policies/programmes in the pipeline, highlight topics that urgently need attention, etc. One opportunity for participation can be the world-café method (http://www.theworldcafe.com/) where stakeholders can contribute arguments for or against certain measures (e.g. one sub-section per board). The key points should then be shared with the group and further discussed. The outcomes can be documented by taking photographs, and further discussed in small groups to develop a consensus on a priority list of policies to be considered in the strategy development process. For NAMAs, as a follow up, this long list can be further analysed by using the NAMA Screening Tool [link] and developed into a short list of possible actions.

However there are several opportunities to facilitate the identification of suitable measures. At a certain point of the process it is important to support decision making by analysing the mitigation potentials as well as the potential role of climate finance in relation to the full costs for implementation. Also the ambition for transformational change could be a factor worth considering.

To support elaborating draft policy documents or check if initial priority t-NAMAs are well-scoped:

When policy objectives are clear and initial policies identified, but further ideas required (e.g. MRT being pursued but parking 'forgotten') or to check if all possible options are being considered, this tool can be used as a kind of check-list. This can be in the context of NAMAs or be used in any sustainable transport policy development process. Appropriate format is a small meeting or workshop with policymakers and experts.

Policy evaluation:

In order to evaluate existing policies and strategies in terms of comprehensiveness, this list can be used as a checklist to identify which policies and measures are already being pursued and included in strategies, and which not. This process supports the development of future strategies. In five countries in South-East Asia this is being carried out in the Stocktaking Reports on Sustainable Transport and Climate Change, published or to be published at www.transportandclimatechange.org. For of the policies in the list the status is assessed (implemented, partially implemented, pilot, planned, under consideration, or not in discussion). These analyses show that many, however not all, policies in passenger transport are being considered or implemented, while in freight many are not in discussion.

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