

The GHG mitigation concept of Tunisia's National Urban Mobility Policy (NUMP)

The Tunisian transport sector

Passenger and freight transport in Tunisia are characterised by a strong concentration of motorised road transport: rail-bound traffic systems account for only 5% of all interurban passenger journeys and 14% of total freight transport; urban tram / light-rail systems only exist in the capital Tunis. Inside road transport, individual transport accounts for 63% of all motorised passenger journeys. Public mass transport, pedestrian and bicycle traffic are underdeveloped compared to their potential. Non-regular means of public transport like collective taxis and overland-taxis (louages) merely reach remarkable shares compared to individual traffic, but only in areas with sufficient offer. Additionally, the number of vehicles is steadily increasing: between 2006 and 2015 the number of registered vehicles increased by more than 55%, leading to more than 1.5 million cars affecting today the 20 000 kilometres of total classified road network in Tunisia which itself is concentrated on the densely populated coastal areas in the north, north-east and east as well as a few inland cities. 60% of today's vehicles are passenger cars followed by pick-ups / light trucks with 23%.

The steadily increasing use of passenger cars due to a significant gap between demand and offer in the public transport sector, combined with partly inefficient traffic management systems and a focus of freight transport on the road, lead to a permanent increase in congestion in urban areas, sub-urban areas and even on national roads. In greater Tunis for example, average

speed decreases to 7 km/h - 10 km/h during the rush hours. The transport sector is accordingly the first consumer of final energy products in the country with 2.6 million tonnes of oil equivalent, 65% of those consumed as diesel, 26% as gasoline and the rest in form of natural gas, LPG, electricity and jet fuel. Consequently, and including investments in infrastructure, the vehicle fleet and transport services, the transport sector contributes to around 7% of the GDP in the country with an average annual growth rate of around 5%.

The high fuel consumption results in air pollutant and GHG emissions :

- the Tunisian National Agency for Environmental Protection (ANPE) estimates road traffic to be responsible for 30% of total national CO- and NOX-emissions;
- the Tunisian National Agency for Energy Management (ANME) compiled the national GHG inventory for Tunisia's energy sector, stating TIER 1-emissions of direct greenhouse gases through the combustion of fuels in the road, rail, maritime and air transport sector (excluding international bunkers) amounting up to 6.5 million tCO₂e and thus representing 26% of all energy related GHG emissions and 14% of the national (gross) emissions (20% of national net emissions).

Statistics

Registered fleet in 2017 (no.)¹ :

■ Passenger cars	954 027
■ Mixed cars	53 855
■ Light trucks / vans	343 352
■ Heavy trucks	30 956
■ Semitrailors	14 578
■ Coaches / busses	11 402
■ Motorbikes	10 871
■ Others motorised	97 113
■ Others non-motorised	86 178
■ Total	1 602 331



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Vehicle km in 2012 (mill. km)² :

■ Passenger cars	20 272
■ Light trucks / vans	6 949
■ Heavy trucks	2 490
■ Semitrailors	1 308
■ Coaches / busses	515
■ Motorbikes	1 697
■ Total	33 231

National net GHG emissions in 2012 (1000 tCO₂e)³ :

■ Energy sector	27 023
■ Transport	6 452
■ Industrial processes	5 441
■ AFOLU	-2 878
■ Wastes	3 018
■ Total	32 604

Project context

The Tunisian NDC in its first version from 2015 seeks to reinforce the decoupling of GHG emissions and economic growth, in numbers: to reduce carbon intensity (tCO₂e/GDP) in 2030 by 41% compared to the reference year 2010. 13% of those 41% reflect the unconditional contribution (national effort), 28% are planned to be realised with international support in form of funding, capacity building and technology transfer. Although the transport (sub-)sector, as the third biggest gross emitter in Tunisia (after energy industry and AFOLU) and the second biggest emission source when relating to net emissions, has a huge potential to contribute substantially to the NDC target, only a small set of mitigation measures related to the transport sector, mainly in the field of energy efficiency, was included in the NDC. In 2016 the Tunisian government joined MobiliseYourCity (MYC) Initiative in order to express its willingness to engage in a low-carbon development strategies and objectives of the country (NDC), to create the link between sustainable urban mobility and climate change and to explore the full GHG mitigation potential of the sector. In Tunisia, MobiliseYourCity aims at supporting the Ministry of Transport, the National Agency for Energy Management (ANME) and other stakeholders in developing a National Urban Mobility Policy (NUMP), setting-up of a National Observatory for Urban Mobility and preparing the technical and institutional framework for the design of Sustainable Urban Mobility Plans (SUMPs). In Tunisia MobiliseYourCity was supported jointly by (1) the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH on behalf of the German Federal Ministry for the Environment, Nature Conservation and Nuclear

Safety (BMU) through the TRANSfer Initiative and (2) the French Development Agency (AFD), CODATU and CEREMA via a funding by the Fonds Français pour l'Environnement Mondial (FFEM). The first workstream realised by the Ministry of Transport, ANME and GIZ focused on capacity building and technical support towards Nationally Appropriate Mitigation Actions (NAMA) development, compiling GHG inventories, projections and impact assessment. The second workstream under the lead of AFD focuses on institutional, legal/regulatory and financial aspects as well as the setting-up of a National Observatory for Urban Mobility and the design of SUMP Guidelines. Both workstreams will result in a full-fledged National Urban Mobility Policy (NUMP) for the Tunisia transport sector, supposed to be finalised beginning of 2020.

MobiliseYourCity (MYC)

MobiliseYourCity (MYC) is a partnership for integrated urban development planning in emerging and developing countries under the UN Marrakesh Partnership for Global Climate Action. MobiliseYourCity supports and engages local and national partner governments in improving urban mobility planning & finance by providing a methodological framework and technical assistance, through capacity building, and by enabling access to funding at both local and national levels. Particular attention has been paid to the methodological and advisory frameworks related to National Urban Mobility Policies and/or Programs (NUMPs) and Sustainable Urban Mobility Plans (SUMPs) that serve as the basis for the promotion of investments and development of attractive mobility services.

Links to support agencies of MYC :

MobiliseYourCity : www.mobiliseyourcity.net

BMU's International Climate Initiative (ICI) :

www.international-climate-initiative.com

TRANSfer Initiative : www.transferproject.org

GIZ : www.giz.de/en/worldwide/68536.html

AFD / FFEM : www.ffem.fr/fr/mobilise-your-city-myc

CODATU : www.codatu.org

CEREM : www.cerema.fr

Lead experts MYC Tunisia :

ifeu : www.ifeu.de/en/

Transitec : <https://transitec.net/en/>

The mitigation approach

The mitigation approach was realised via the following steps :

1. Compilation of a detailed GHG inventory for the reference years 2010 (reference year of the Tunisian NDC) and 2016
2. Projection of baseline emissions up to 2030 and extrapolation until 2050
3. Definition of a mitigation portfolio (list of actions) based on existing studies and plans and via intensive stakeholder consultation
4. Assessing the impact of the mitigation portfolio on baseline emissions & calculation of policy scenario
5. Non-quantitative assessment of co-benefits and suggestions for a monitoring (MRV) plan

1. GHG inventory compilation

The GHG inventory was compiled using the model / tool "TRIGGER" by ifeu, Germany. Basic input data and parameters / factors for each of both reference years were the vehicle fleet in circulation (derived from the data base of the Technical Agency for Land Transport (ATTT)), the average distance travelled by vehicle category (derived by a field survey realised by ANME), the average fuel consumption per distance travelled (derived from ANME survey and EMEP/EEA) and the IPCC emissions factors for the different fuel types. Quality control was performed by comparing (1st) the results with the data of the Tunisian Ministry of Infrastructure (MEHAT) concerning the total distance travelled by the fleet and (2nd) the official energy balance (compiled by the Tunisian Ministry in charge of Energy), which allows a top-down estimation of GHG emissions of the sector by multiplying total fuel consumption (fuels sold) by the emission factors. The scope of the inventory includes CO₂, N₂O and CH₄ emissions due to fuel consumption in road and railroad transport systems in the whole country.

2. Projection of baseline emissions

A macro approach based on the previsions of the population number and GDP of the country was used to project baseline emissions. Provisions of GDP, population and other values have been aligned to data generated by MedPro, an energy simulation model used by ANME for long-term projections. Statistical approaches were likewise used concerning some input data, for example distance travelled, which has been projected via a logarithmic regression function based on historic MEHAT data but a saturation of max. 7 000 km per year per habitant. The development of energy efficiency / fuel

consumption of vehicles was estimated based on projected developments for Europe (main importer of vehicles to Tunisia) as well as national studies.

3. Development of a short-list of actions

Mitigation actions were identified among various existing studies (e.g. "Study on the Rational use of Energy (URE)", "National Transport Master Plan (PDNT)", etc.) and completed by expert opinion / suggestions. This long-list of actions was subsequently discussed in form of stakeholder consultations with representatives from more than 15 institutions, resulting in an approved short-list of actions to be considered for the GHG impact assessment.

4. GHG impact assessment

Actions with same or similar impacts (improvement of energy efficiency of vehicles, shift from individual traffic to public mass transport, avoidance of trips, etc.) were grouped and their impact on kilometres travelled, emission factors, etc. estimated corresponding to the calculation method of the GHG inventory.

5. Co-benefits and monitoring plan

Socio-economic benefits have not been quantified but listed in a qualitative manner based on experiences of transport related mitigation policies in other countries. Concerning monitoring, suggestions for the improvement of input data, general aspects concerning responsibilities and data flow and the frequency of GHG assessments under consideration of the enhanced transparency framework of the Paris Agreement have been defined.

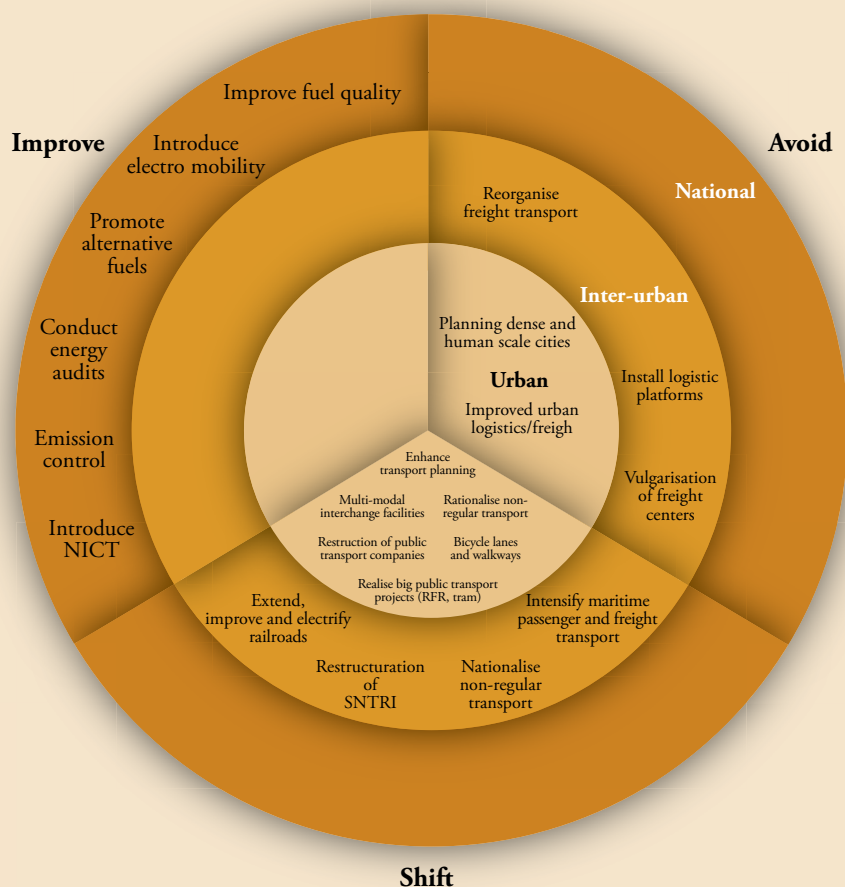


¹ Technical Agency for Land Transport (ATTT)

² Technical survey of the Ministry of Infrastructure (MEHAT)

³ 2nd Biennial Update Report of Tunisia to the UNFCCC

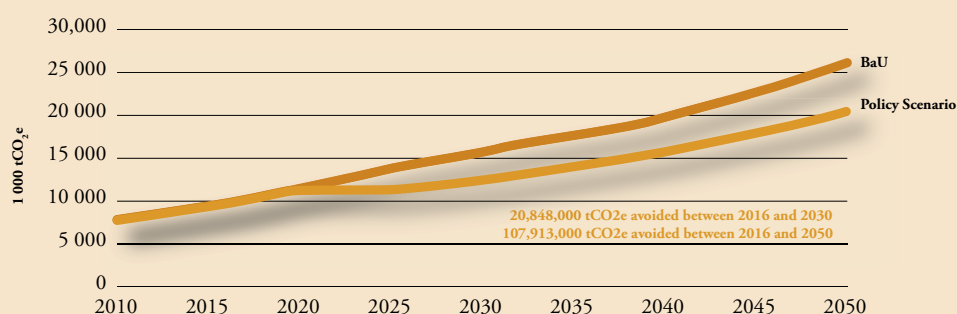
Overview of mitigation actions



Co-benefits

- Reduced emissions of fair pollutants
- Enhanced road security
- Privatisation of transport services
- Reduced noise exposure
- Job creation
- Saving of state budget for fuel subsidies
- Reduced congestion
- New enterprises and service sectors

GHG baseline and policy emissions in the transport sector



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NATIONAL AGENCY FOR
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