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THE FUTURE OF URBAN MOBILITY IN GERMAN CITIES

People, access and environment

This article will discuss the future urban mobility in Germany based on the scenarios from various organisations and deliberate on the projects that will accelerate German cities towards a low carbon future, whilst implementing an integrated, inclusive and innovative urban mobility system.

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More than 50 % of the world's inhabitants live in cities. Cities are the hubs of economic and social activity, and increasingly the migration to cities occurs due to the rise in economic opportunities. The increase in the number of city dwellers means a greater need for movement to access jobs and services. While urban mobility enables access to opportunities, the means of movement also affects the quality of life, the environment and the economy.

Cities catering for the needs of mobility through personal motorised modes demand more infrastructure and affect resource consumption. In many cases the resources are detrimental to the environment, and excessive dependence on personal automobiles has a negative effect on air quality, public health, natural resources and the quality of life.

Urban transport contributes to over 50 % of the transport emissions worldwide and is also the major contributor to the outdoor air pollution, leading to over 3.2 million deaths worldwide in 2010 (Lim et al. 2012). In the European Union (EU), the negative effects of motorisation are less evident due to the stringent emission regulations and robust policies promoting clean vehicles. Nevertheless, congestion,

carbon emissions and road safety are a common issue in many EU countries.

The increasing awareness among European countries in reducing their share of carbon emissions has led to various innovative and ambitious policies and projects. Many countries in Europe aim for a very low carbon future, and changing urban mobility is an integral part of this.

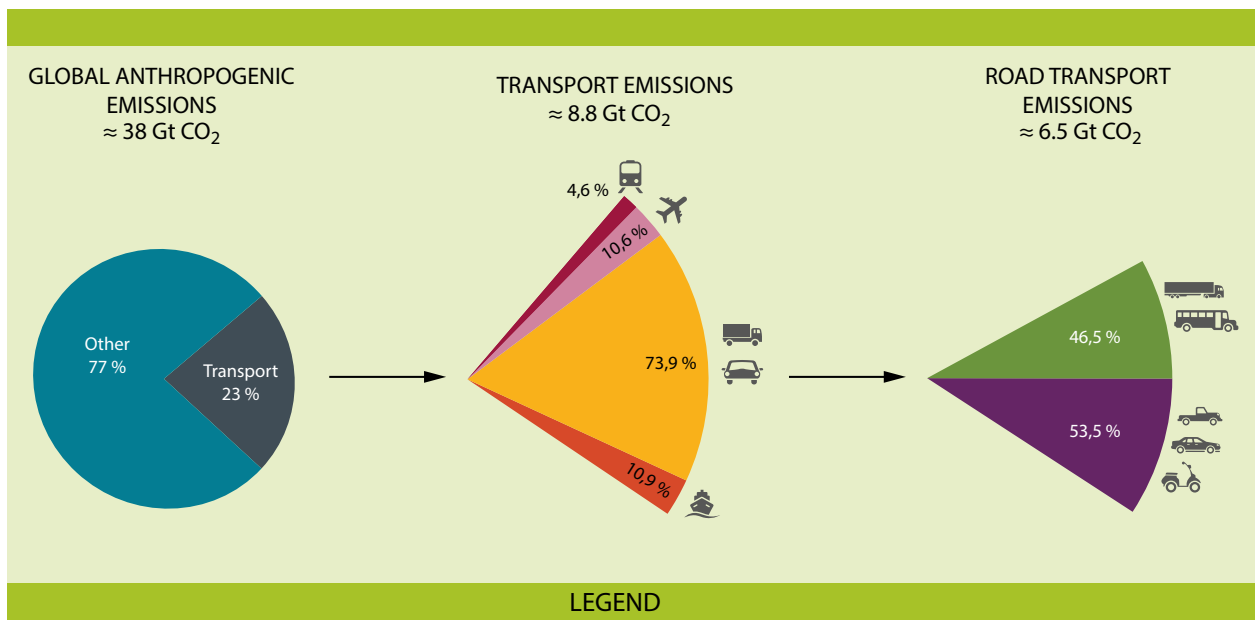
The EU aims to reduce the carbon emissions by 80-95 % below 1990 levels by 2050, and the research shows that at least a 60 % reduction by 2050 (baseline 1990) is required from the transport sector (European Union 2011).

The transition amongst EU countries will impact the development around the globe as the tighter regulations and higher standards enable innovative thinking and ambitious ideas. Cities and countries from around the world can adapt and replicate the practices in EU countries to achieve high quality urban mobility.

Meanwhile similar ambitions are being echoed at the global scale. The United Nations Conference on Climate and the

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The transport sector: A major contributor to global anthropogenic CO₂ emissions



Source: Kodjak 2015



Photo: Sunny Kodukula

City leaders meet to discuss the future of sustainable urban mobility in Quito

UN Habitat III Conference in Quito (Ecuador) brought together various key decision-makers from around the world

Urban mobility in Germany

Germany is the largest market in the entire EU for passenger cars in 2015. Over 23 % of the passenger cars in the EU were registered/sold in Germany. This accounts for over 3.2 million car sales/registrations. Germany is followed by the United Kingdom (17 %) and Italy (15 %) (ICCT 2016). A large majority of the cars in Germany are run on fossil fuels (either diesel or petrol) and hence stress the ecosystem. Though there are efforts from the Federal Government to push for renewable energy powered electric vehicles, there has been a very slow uptake in Germany. In 2015, Germany accounted for about 0.5 % of the total market share of electric vehicles in the EU.

At the national level Germany does not have a national integrated transport policy that gives direction for developing integrated urban mobility in cities (Bracher et al. 2014). This leads to a possible discord in the operation and maintenance of public transport in cities, as the burden entirely falls on the city. In some cities this could lead to an unattractive public transport system serving captive users, usually students or those who do not own a car.

If German cities experience a stagnation of traffic volumes or even a reduction in car usage in the current situation, the

to agree upon an urban agenda that will be the bedrock for urban development in many countries in the UN system. The way cities are planned and the future urban transport patterns that must be developed are enshrined in this New Urban Agenda document that was agreed upon by all the participating UN countries at the Habitat III Conference.

The signatories of the New Urban Agenda agreed to support a socially equitable urban mobility system that caters for the needs of the majority of the public, a system that is integrated and connected, a transport system that is designed by integrating urban planning and vice versa, a system that is safe, affordable and intelligent (UN-Habitat 2016).

This paper will discuss the future urban mobility in Germany based on the scenarios from various organisations and deliberate on the projects that will accelerate German cities towards a low carbon future, whilst implementing an integrated, inclusive and innovative urban mobility system.

existing urban transport systems do not seem to have the necessary capacity to cope with the increase in ridership. The situation of the transport operators could also worsen if the ridership of public transport increases. An integrated national policy will do more to address climate change in urban transport policy (Bracher et al. 2014).

The current public transport system mainly caters for captive users, i.e. those who do not have access to a personal car or are students. If sufficient care is not put into improving the public transport service, the chances are high that the system will crumble under its own weight.

In addition to the above, the integration of urban transport policy into the other sectors is crucial. For example, linking urban transport with energy will give rise to synergies that enable innovation and entrepreneurship. This, in turn, increases the motivation of other actors in the area of urban mobility.

Similarly, infrastructural improvements can be more dedicated to urban transport improvement rather than bettering driving conditions for personal cars. This will, in turn, defeat the purpose of creating sustainable urban mobility.

Another important aspect that must be considered by German cities is promoting urban cycling and walking. Several German cities have a comfortable situation for cycling, yet many cities lack a safe and segregated infrastructure for urban cycling. This is also due to the large number of motorised vehicles on the street. Providing segregated bicycle ways will increase the sense of safety among cyclists and will attract a greater number of cyclists. Research has also shown that increasingly safe and comfortable cycling facilities have increased the number of cyclists and reduced the number of accidents between motorists and cyclists. Several good examples of urban cycling can be taken from neighbouring cities in Denmark and the Netherlands.

The pleasure of cycling can be enhanced by the promotion of pedelecs. Germany is home to around 1.7 million electric bikes, constituting the majority of the market share in electric vehicles. Pedelecs increase the comfort of riding a bicycle especially for people who cannot travel long distances and have trouble overcoming obstacles like inclines (Federal Environment Agency Germany 2014).

Promoting sustainable urban mobility has a trickling effect throughout Europe and also around the world. Several cities look to their German counterparts for latest trends and

developments in urban mobility. Hence, German cities implement safe, affordable, clean and innovative urban mobility systems which their counterparts around the world can replicate in practice, benefitting the environment and the economy.



Photo: Sunny Kodukula

Bicycle priority in the City of Leipzig

Cooperation for a better mobility

As mentioned earlier, there is a greater need for an integrated approach in land use, transport and finance. Through innovative land-use business models, city governments can increase densities in cities and promote a convivial mixed land use. Although Germany and Europe are famous for living with mixed land uses, the excessive dependence on personal automobiles in Germany also encourages a large number of people to drive (Klinger, Kenworthy, & Lanzendorf 2013). This could be reduced to some extent through proper land use and transport integration, i.e. transit-oriented development. In the area of public transport, encouraging cities to shift the existing fleet to cleaner and carbon-neutral fleets will increase the appeal of the public transport system and also address the climate change goals of the nation. With financial support from the federal level, the coverage and frequency of the existing public transport can also be increased in certain areas to make the bus-based public transport system more accessible. Bus-based systems are crucial parts of any public transport system due

to their cost-effectiveness and the flexibility of routes. When upgraded, the bus transport system becomes even more attractive for users.

As technology advances and becomes more accessible to the public, innovative options will arise when there is a lack of service. Governments could greatly benefit if such options are carefully handled and given a chance to flourish. By being the key legislator, governments can create level playing fields, so that there is fair competition among the service providers. This will lead to the betterment of the service and also reduce the financial burden for the government to meet the mobility needs of the citizens.

Shared mobility is an important element in the future of urban mobility and has the potential to curb unnecessary automobile use. Systems such as bike- and car-sharing can be implemented in cities through a beneficial public-private partnership model, which is carefully executed.

Shifting from conventional fuels to renewables enables a rapid decarbonisation of the transport sector. Germany has a national policy to shift energy use from fossil fuels, and when urban transport is integrated into the energy strategy the returns are higher. Cities need to invest in electric vehicle technologies and charging stations. The automobile industry has not stopped innovating, and several propulsion systems are available for cities to test. Hybrid or hydrogen buses could replace the existing diesel-powered ones and contribute to a better air quality and lower carbon emissions. Cities could implement charging stations in public car parks and promote electric vehicles through free parking. Cities could also work together with existing car-sharing companies and provide electric car-sharing systems for users.

German cities already have a very innovative policy of emission zones. Several cities around the world have been inspired by German cities and have adapted the idea of low emission zones. In some cities the idea was even taken to the next level and made them install a pricing system called

emission pricing. German cities could benefit by putting a price on high-emission vehicles and also vehicles using the highways. This will also let the car users pay the real cost of their travel, as many of the highways are also funded from the taxes paid by non-motorists.

It is also suggested that German cities do a pilot project for new policy ideas, not only to see the real time effects of the project but also to let the public understand the project and contribute to the project through their participation.

Achieving sustainable urban mobility is a process that demands proper action from various stakeholders, including governments at various levels, think and do tanks, the private sector, end users and other stakeholders related to urban mobility. It is clear that we cannot build our cities around the personal automobile, as it is not environmentally feasible with the excessive dependence of cars on fossil fuels. A highly automobile-dependent city is also socially detrimental and poses a severe threat to public health and the quality of life.

The way forward

At the international stage the New Urban Agenda, the outcome of the Habitat III Conference has clearly put forward certain principles that the signatories of the New Urban

Agenda have agreed upon. Promoting a safe, clean, affordable, intelligent, integrated and comfortable urban mobility system is the gist of the agreement for urban mobility. In the EU, the Member States are also influenced by the EU White Paper that also calls for a similar urban mobility system with more tangible and ambitious results by the end of 2050.

Germany as a key leader pushing for the New Urban Agenda is making efforts to transform its mobility in cities. Though Germany has been a forerunner in implementing measures that embrace certain aspects of sustainable urban mobility, a lot of work still has to be done. As climate change constitutes a greater threat, it is essential that the transformation is accelerated. A proper cooperation among various stakeholders and an active involvement of cities can catalyse this transformation.

Prioritising investments that yield greater benefits for the masses such as promoting cycling and walking through safe and segregated infrastructure will increase the shares of walking and cycling in cities.



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Creating places of people at the centre are both environmentally and economically beneficial

Working with the private sector to enable innovative public-private partnerships to introduce shared mobility will encourage innovation and allow the private sector to be an active part of the transformation to sustainable mobility.

Involving businesses through corporate mobility management practices such as job card provision, making the employer and employees aware of health-related benefits of shifting to sustainable mobility, can encourage productivity for the employer and increase the ridership on sustainable mobility modes.

Giving more fiscal resources to cities and by supporting cities to venture innovative business models will enable the transport associations to be financially sustainable and also manage the increase in ridership.

Improving the existing bus-based public transport and shifting to cleaner vehicles and quieter vehicles will increase the appeal of public transport and retain existing users. Renewable fuel-powered vehicles such as solar buses and hydro-

gen buses will also encourage the manufacturers to become innovative in advancing the industry status quo.

Linking the Energiewende (energy transition) concept in Germany with the Verkehrswende (transport turnaround) concept will enable an integration of energy and mobility realms leading to a greater appeal for electric vehicles in the country.

By making the car users pay the real cost of travel, the gravity of the cost is appreciated by car users. This enables a potential shift from personal cars to shared mobility. Similarly, allowing entrepreneurs develop innovative mobility options will provide more mobility choices for citizens.

A National Integrated Mobility Plan that focuses also on the potential fiscal support to cities and takes account of the various synergies of involving the various stakeholders could encourage cities to take up the measures and address automobile dependence and climate change.

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