



Transport in a Green Economy

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Background and objectives

The paradigm shift towards a green economy will be frequently discussed in the coming months. The UN General Assembly decided that the two main topics at the 'Rio plus 20' summit in Rio de Janeiro, Brazil, in 2012 will be green economy and international environmental governance. Green economy will become a key approach to the way forward in sustainable development.

So far, there is no single, agreed definition of green economy. Discussions are ongoing on what the benefits of this approach and its relation to sustainable development are. This paper focuses on the role of transport and mobility in a green economy. The paper highlights basic strategies towards 'green transport' in developing countries, discusses green jobs as well as social equity questions and finally presents GIZ's work in the greening of the transport sector.

Green economy – what's it all about?

The United Nations Environment Programme (UNEP) launched its 'Green Economy Initiative' in 2008 and provides a definition for green economy (see Box 1). There is a variety of definitions by different organisations. Often mentioned in this context is also the term 'Green Growth' which is used especially by the OECD. It is defined as a way to pursue economic growth and development while preventing environmental degradation (OECD, 2010). The social component is less emphasised in the OECD definition.

Box 1: UNEP's green economy definition

A green economy can be defined as an economy 'that results in improved human well-being and social equity, while reducing environmental risks and ecological scarcities'. (UNEP, 2011)

All approaches go into the same direction: showing a path towards a new economy model that is based on *ecologically compatible use of resources, economic efficiency and social justice*.

In this respect, the green economy approach addresses the three pillars ecological, economic and social – the pillars of a sustainable development. Green economy focuses on the ecological pillar as there is a fatal lack in implementation. In addition to that, the green growth approach focuses more on questions of market regulation and economic incentives.

The role of transport in a green economy

Green transport is one of the main sectors addressed in the green economy approach (see Figure 1). Transport is considered 'green' when it supports environmental sustainability, *i.e.* protection of the global climate, ecosystems, public health and natural resources (UNEP, 2011). It also supports the other two pillars of sustainability, *i.e.* economic and social. The goals of green transport are not only to reduce greenhouse gas emissions, air pollution, noise and space consumption, but also to reduce poverty and support economic growth.

Figure 1: The main sectors of green economy

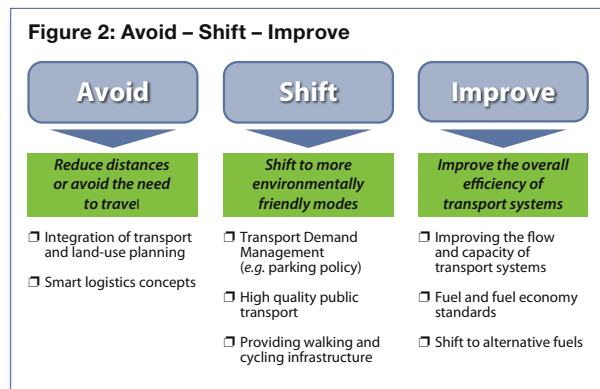


Strategies towards green transport

The key question for green transport is not a new one, but has a long history in the sustainable development debate: How can *green or sustainable transport* be achieved?

There is no simple answer to that question: not only efficient vehicle technologies but smart urban planning, high quality and efficient public transport systems, comprehensive infrastructure for pedestrians and cyclists, efficient logistics and many more approaches are all needed at the same time. There is a need to create efficient transport systems.

To achieve that, GIZ promotes the holistic **Avoid-Shift-Improve approach** in all areas of transport, *i.e.* Passenger/Freight, Land/Marine/Aviation (see Figure 2).



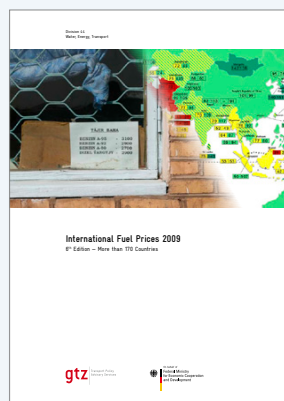
To realise this approach, different areas have to be addressed:

Policies need to lead in the right directions, *i.e.* stimulate green investment and correct for negative externalities. In the transport sector these policies regard land use planning, regulation of fuel and vehicle standards, awareness rising, etc. An economic tax reform is also an effective policy measure; GIZ provides trainings on this specific topic.

Investments have to be made in different areas of transport. Infrastructure has to be developed in a way that it supports sustainable transport modes such as public transport and non-motorised transport. Green vehicles and transport modes have to be strengthened as well as alternative fuels and supportive technology (*e.g.* Intelligent Transport Systems, GPS Systems). In addition, investments in modern telecommunication technologies can help to improve the efficiency of transportation.

Box 2: International fuel prices by GIZ

Appropriate fuel prices are a major factor in promoting energy efficiency in the transport sector. The GIZ fuel price survey **International Fuel Prices** provides comparative data on fuel prices on a global scale. The latest edition, with fuel price data from November 2010, compiles pump prices at filling stations for diesel and gasoline in more than 170 countries. The full publication is available on the GIZ website: <http://www.gtz.de/fuelprices>



A shift in **financing priorities** is needed to set the right economic incentives. Public funding has to be provided and private finance leveraged for green transport modes as well as resources should be shifted from unsustainable to green transport (Leather *et al.*, 2009). One example of financing patterns directly influencing transport are fuel subsidies. GIZ has a long-time effort in this context on 'International fuel prices' (see Box 2).

Green transport in developing countries

A critical issue in developing countries is how to combine green transport with economic growth in developing countries. Usually economic growth and the rise of prosperity result in an increased volume of unsustainable private motorised transport. In the longer term, this is not sustainable: congestion and air pollution hinder the quality of living and the economic development and prosperity of cities. Extension of infrastructure for cars is expensive and space for unlimited growth is simply not available in most developing countries. Hence, sustainable transport modes have to be made available and the right incentives to encourage their use have to be created.

Investments in the right transport modes can foster growth sustainably. Investments in public transport systems and non-motorised transport modes will improve the quality of living in cities and thereby increase its economic attractiveness. Economic analyses have shown that public transport access is the most important location factor for businesses (CB Richard Ellis, 2008).

Another complex challenge is freight transport: freight transport works as a trade facilitator and thereby fosters economic development but at the same time is a big polluter. To find a solution, again a holistic approach is recommended: changing production chains and optimising logics to **avoid** transport, **shifting** freight from road to rail or marine transport, as those have much lower emissions per ton kilometre, and **improving** the operation and vehicles. This includes simple measures like tire pressure or roof spoilers but it could also include advanced options like diesel-electric hybrid engines.

Apart from the effects of transport systems and operations, there is the challenge to 'green' the production of vehicles. However, the question remains, whether vehicle manufacturing really should play the role of a key industry in economic growth policies. China is a good example for such an approach. As economic growth should not be hampered, it's important to consider further options for green economic growth.


Fostering employment – green jobs


A key driver for decision-makers is creating jobs. The green economy debate puts this question on the agenda: What is a green job? In the transport sector there could be several examples of green jobs: jobs in manufacturing and operating of buses or subways (*e.g.* bus drivers), in extension of infrastructure for public transport, rail and non-motorised modes. In addition, there are green job opportunities in alternative fuels or engines.


We suggest that the definition of 'green transport jobs' includes all those working in companies and organisations who are actively contributing to the vision of a green


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GIZ's transport project examples and their role in a green economy

| Bus Rapid Transit (BRT) in Johannesburg | |
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| What? | The project aim was to develop an advanced public transport system through a new Bus Rapid Transit (BRT) in Johannesburg. GIZ assisted the city in planning and designing the new BRT system (Capacity Building). |
| How? | <ul style="list-style-type: none"> Advice on organisational and institutional challenges and contracting for buses and stations. Dealing with high transformation costs: Advice on financial issues and registering the project for CDM credits. Negotiating the participation of the informal taxi industry on the new public transport system. |
| Why? | Soweto, a township in Johannesburg, is integrated into the greater municipality, so poor inhabitants benefit in terms of both time savings and money. The project also provides many green jobs, e.g. in infrastructure construction, as bus drivers or station personnel. Moreover the system is environmentally friendly, reduces congestion and air pollution. |
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| For more information visit www.sutp.org and www.reavaya.org.za | |

| Ports in the ASEAN region | |
|---|---|
| What? | The main objective of the project is to improve quality and efficiency of the safety, health and environmental (SHE) management systems in selected ports in the ASEAN region. Until today eleven ports in six countries participate in the project. |
| How? | <ul style="list-style-type: none"> Assisting the ports to develop, implement and improve SHE management systems and work programmes. Assessing the SHE training needs of the ports and implement a training strategy and training modules. Establishing port-related emission inventories Assessing current reception and handling of ship-generated wastes in each port. |
| Why? | In many cities, ports are major polluters. Sound environmental management reduces emission substantially and improves the overall performance of the port and the local economy. |
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| For more information visit www.sustainableport.org | |

| Sustainable Urban Transport Improvement Project, Indonesia | |
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| What? | The project aim is to advise Indonesia's Ministry of Transportation on policies, concepts and visions, on strategies and regulations as well as on implementation measures for the comprehensive mobility for Indonesian cities. Focal areas are the public transport network developments as well as non-motorised transport, like walking and cycling. |
| How? | <ul style="list-style-type: none"> Advice on policies, regulations and strategies on the ministerial and city level. Dealing with high transformation costs: Advice on financial issues. Advice on design and planning processes for prototype projects, as pedestrianisation, bicycle lanes, parking schemes, TDM implementations. |
| Why? | The shift from private vehicles to public transport modes will relief traffic jams, air pollution and GHG emissions and re-open the public space for people of all walks of the society, including poor inhabitants. Moreover, many green jobs are created in the public transport sector. |
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| For more information visit www.sutip.org and www.sutp.org | |

| Clean Air for Smaller Cities in the ASEAN region | |
|---|---|
| What? | The project objective is to empower smaller and medium-sized cities in the development and implementation of measures to improve the air quality with the participation of both the civil society and the private sector. |
| How? | <ul style="list-style-type: none"> Support in the development and implementation of Clean Air Plans (CAP). Elaboration of Roadmaps that outline the required steps for each city in order to establish a CAP. Elaboration of a standardised modular training system on air quality. National workshops and international conferences to increase awareness of clean air issues. |
| Why? | There are many business opportunities and jobs in the 'green sector' by development and use of cleaner production technologies. Also in the transport sector, the promotion of public transport and the reduction of private motorised transport results in benefits of better health and extend life expectancy. Furthermore, most measures in cities have strong co-benefits related to climate change mitigation. |
|  | |
| For more information visit www.citiesforcleanair.org | |

transport system: starting from the urban and transport planners that develop the vision and implementation strategy, local industry that, e.g. produces bikes, to operators and logistic companies that aim to increase the energy efficiency.

There is a need to look at the informal sector. How will green jobs – e.g. like rickshaw drivers – be affected by a process towards a green economy? But there is limited knowledge about the informal sector: data is missing and people often have several small jobs at the same time. Another challenge is that the reform of the informal sector can result in a loss of relatively green jobs but at the same time it may improve living conditions. The example of the introduction of a Bus Rapid Transit in Johannesburg, South Africa (see page 3) shows that former minibuss drivers are now employees of the new bus company. The general conclusion is that developing the transport system in a green, sustainable way, also helps to create and maintain green jobs.

Enabling the poor

In most developing cities expanding the transport options for private motorised transport is policy-making for wealthy people. Those who are privileged benefit from high investments in roads and parking facilities. In contrast to that, the poor are suffering most from bad air quality, noise and accidents. The poor do not have access to cars, they mostly rely on public transport, walking and cycling. Providing high quality infrastructure and operations for the less-privileged is therefore a way of poverty alleviation and achieving social equity.

Especially in urban areas, improved green transport services and sustainable infrastructure provide access to employment opportunities, education and healthcare facilities in a financially affordable way. But not only the poor benefit in the long run: empirical evidence shows a positive correlation between improving transport capacities and economic outputs (Liu, 2005). The cities economically most successful are those with a high share of public transport, walking and cycling like Singapore, New York, Zurich or Hong Kong.

GIZ's role in enabling green transport

Greening the economy is at the heart of GIZ's understanding of sustainable development in the transport sector. To achieve this, we implement transport projects in developing countries: On behalf of the German government and other donors, international and national employees of GIZ are cooperating with developing countries' governments to facilitate the process towards a greener economic development. We promote pro-poor policies that are at the same time resource efficient and green. To complement that, the global *Sustainable Urban Transport Project (SUTP)* developed

Box 3:

GIZ's Sustainable Urban Transport Sourcebook

The Sourcebook on Sustainable Urban Transport addresses the key areas of a sustainable transport policy framework. The Sourcebook for policy- and decision-makers consists of at present 30 modules covering the key topics for the design and implementation of a comprehensive transport policy for cities.



Download at <http://www.sutp.org>

training material and published a wide range of information and papers (see Box 3).

Further reading

- OECD (2010), *The Green Growth Strategy*:
<http://www.oecd.org/dataoecd/23/63/46141709.pdf>
- UNEP (2008), *Green Jobs Report*:
http://www.unep.org/labour_environment/PDFs/Greenjobs/UNEP-Green-Jobs-Report.pdf
- UNEP (2011), *Green Economy Report*:
<http://www.unep.org/greeneconomy>

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