Chapter 5

Circular Economy Policies and Strategies of Germany

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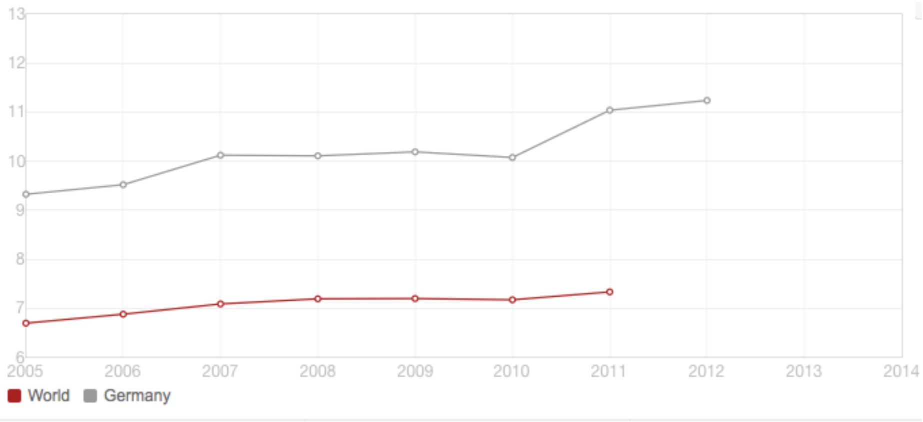
Introduction

Germany had an early start on its pathway towards a more efficient and sustainable growth. During the last decades, it developed ambitious energy, industrial, and environmental policies at the national level and played a very strong role in these areas at the European level. According to the Organisation for Economic Co-operation and Development (OECD), the country's strong environmental framework makes Germany a pioneer in sustainable development, which shows that a more efficient and low-carbon economy is compatible with growth (OECD, 2012). Germany's National Strategy for Sustainable Development, adopted in 2002, sets the guiding principles for national policies across all sectors. Despite several changes of government, the strategy has remained alive and in place, serving as basis for concrete targets and actions and is evaluated regularly. Over the last decades, Germany had managed to substantially increase energy efficiency and decouple energy consumptions and greenhouse gas emissions from economic development. This is shown by the units of gross domestic product (GDP) per kg of oil equivalent generated in Germany, which are well above the world average, an indicator of the energy efficiency of the German economy from environmental and economic perspectives.

Figure 5.1: GDP per Unit of Energy Use
(Constant 2011 PPP US$ per kg of Oil Equivalent)

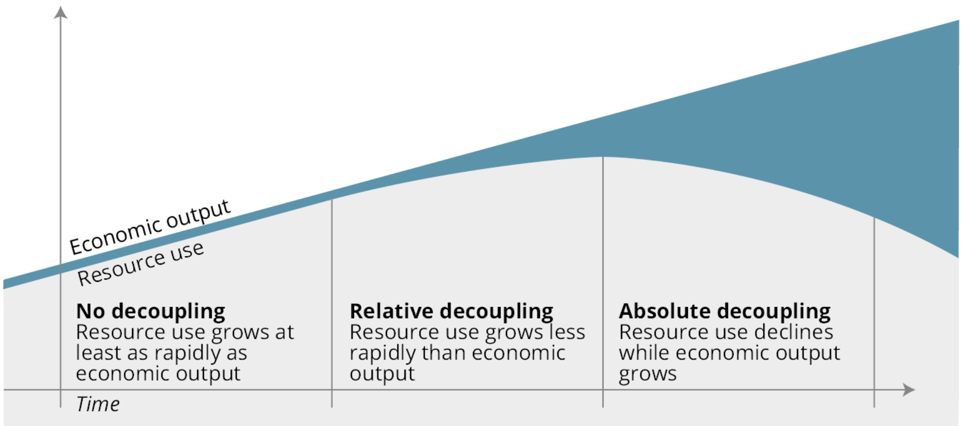


Source: World Bank.

1. Resource Efficiency and Circular Economy Strategies and Policies

An important element in Germany's transition to a sustainable society is the adoption of a circular economy approach. Over the past decades, there has been reasonable progress in decoupling resource consumption from economic output. At the European level, several legislations have been adopted to boost a European circular economy, such as the Waste Framework Directive, the Landfill Directive, and the Packaging and Packaging Waste Directive. The main focus of these measures is the reuse, repair, refurbishing, and recycling of existing materials and products among the 28 member states of the European Union (EU). This reflects the shift in thinking on what used to be called waste being considered now as resource. The core objective of this approach is to substantially decouple economic development from resource consumption (Figure 5.2).

Figure 5.2. Decoupling Stages



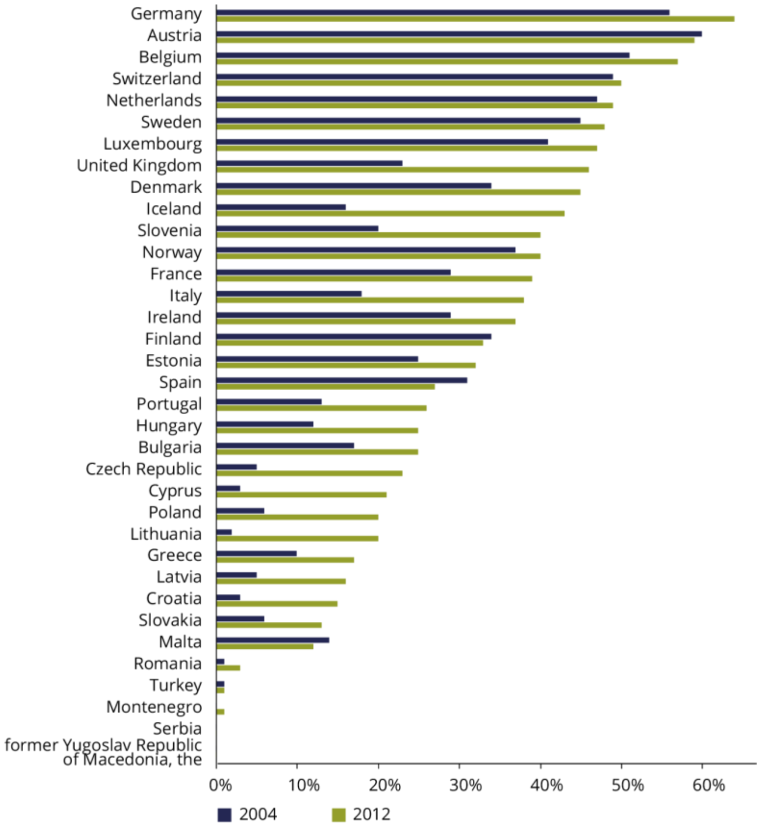
Source: European Environment Agency (EEA).

The more efficient use of resources is considered to generate new growth and job opportunities. Ecodesign, waste prevention, reuse, and recycling can bring net savings of up to €600 billion for EU businesses, while also reducing total annual greenhouse gas (GHG) emissions. Additional measures to increase resource productivity by 30 percent by 2030 could boost GDP by nearly one percent, while creating 2 million additional jobs (EC, 2013).

At the national level, Germany applies a number of strategies to foster a circular economy approach, including waste minimisation, reuse, recycling, and waste incineration for electricity and heat generation.

A cornerstone of the German recycling policy framework is the packaging law (Verpackungsverordnung), adopted in 1991, which requires manufacturers to recycle all packaging materials they sell. In response, the German industry has developed a collection system of recyclable materials alongside the regular waste-collection systems. This industry-funded system, operated by the Duales System Deutschland, is tasked to help improve the recycling rate from the current level of 62 percent (Figure 5.3) of the municipal waste (EEA, 2013).

Figure 5.3. Municipal Waste Recycling Rates in European Countries, 2004 and 2012



Source: EEA.

While this rate is already very high, a substantial amount of precious materials are not being recycled and only used for the so-called thermal reuse or waste incineration for electricity and heat generation. Although a sub-optimal use of resources, it ensures, nevertheless, that there is virtually no landfilling in Germany.

1.1. Research and Innovation

Box. 1 Resource Efficiency in Practice: Examples from Europe

Umicore has been demonstrating that efficient recycling is a profitable and sustainable business model, offering investment, innovation, and employment opportunities. Close to 50 percent of Umicore's metal supply requirements comes from in-house recycling. This also reduces CO_2 emissions substantially.

Suez Environment has established 278 sorting centres, 99 composting platforms, and 85 recovery facilities for electronic waste, producing 12 million tonnes of secondary raw materials, while eliminating 2.8 million tonnes of CO_2 emissions.

Renault's plant in Choisy-le-Roi, near Paris, remanufactures automotive engines, transmissions, injection pumps, and other components for resale. The plant's remanufacturing operations use 80 percent less energy and almost 90 percent less water than those of comparable new production, with high operating margins. Renault redesigns certain components to make them easier to disassemble and reuse.

The European Network on Industrial Symbiosis, established in 2013, brings together organisations responsible for up to 10 established industrial symbiosis programmes (collectively engaged with more than 20,000 companies across Europe).

Source: Adapted from EC.

With regard to innovation in the areas of climate change, resource efficiency, and sustainable development, the EU's Framework Programme for Research and Innovation, called Horizon 2020, is playing a major role, being the world's largest research programme with nearly €80 billion of funding available over 7 years (2014–2020), which will be invested in societal challenges, industrial leadership, and excellent science. An important element of the programme is the promotion of a more circular economy. Similarly, Germany has several research and innovation funding programmes at the national level, such as the research for sustainability programme (www.fona.de/en/).

2. Low-Carbon Development Strategies and Policies

Germany is committed to reduce GHG emissions by 40 percent if the other EU member states would agree to the EU's 30-percent reduction target for 2020. The framework of this economy-wide target is Germany's Integrated Climate and Energy Program, which sets out policy measures for the energy sector. Germany and the EU as a whole have already shown some reasonable progress on reducing GHG emissions. A number of policies to deliver on these targets include key measures such as the Renewable Energy Act (Erneuerbare-Energien-Gesetz, EEG) and the ecological tax reform.

The Renewable Energy Act not only boosts domestic generation of renewable energies, wind power, and photovoltaics, in particular, but also fosters innovation in renewable energy industries in Germany. It provides incentives to businesses and individuals to generate renewable energy for which they will receive preferential tariff, which is well above the average price and which aims to bridge the gap in the current price of thermal-powered electricity renewable energies and provide a long-term incentive for investors. On the demand side, the ecological tax reform plays a vital role in encouraging energy efficiency and discouraging energy consumption. Most of the funds generated by this tax on electricity and fuel use are redistributed to society to reduce social security costs that will, in turn, increase disposable incomes of individuals (more on this in the next section).

3. Description of the Key Policies Related to the Industry Case Study: National Policies for Reducing GHG Emissions from Road Transport in Germany

The transport measures aim to reduce GHG emissions by 30 million metric tonnes per year by 2020 compared to 2005 (ITF, 2010). As reductions in other sectors might be smaller as initially estimated, CO_2 emissions from transport need to be reduced by 40 million metric tonnes per year by 2020 to ensure that Germany's climate protection objective is achieved (UBA, 2010b).

Currently, the federal government, together with stakeholders from science, industry, politics, and civil society, is developing a mobility and fuel strategy in a participative process. The strategy aims to define fields of action and integrate measures for low carbon transport to reach the reduction targets (BMVBS, 2012).

Table 5.1 provides an overview on some key measures that have been reported to the United Nations Framework Convention on Climate Change as part of Germany's National Communication on observed and projected changes in GHG emissions and policy initiatives. The measures were implemented between 2000 and 2007 and continue to be operational. By expanding the use of biofuels, the federal government aims to reduce by 7 percent the CO_2 emissions related to petrol and diesel consumption. This translates to a 12-percent aimed share of biofuel by 2020. The expansion of biofuel use is projected to be one of the most important measures for reducing CO_2 emissions in the transport sector. However, as the total effect of the measures will not be sufficient to achieve emissions-reduction target in transport, additional measures have been implemented or are under discussion. For instance, the tightened vehicle emissions standard (95 g CO_2/km by 2020) will lead to additional reduction of 3 million metric tonnes. The combined measures are estimated to account for GHG-emissions reductions of 28 million metric tonnes or about 18 percent below the 2005 levels (IEA, 2012).

Table 5.1. Estimated Emissions Reductions Based on Germany's Integrated Energy and Climate Programme and Other Transport Measures (metric tonne)

Measure	Type of Instrument	Estimated CO_2 Reduction by 2020 Compared to 2005
CO_2 Strategy for Automobiles	Regulatory, efficiency	-6 million metric tonne
Expansion of Biofuels Use	Regulatory, fuels	-10,5 million metric tonne
Conversion of Motor Vehicle Registration Tax to CO_2 Basis	Fiscal, efficiency	-3 million metric tonne
CO_2 Labelling for Cars and Light Trucks	Information, efficiency	- 4 million metric tonne
Additional CO_2 Reduction from Heavy Vehicle Toll	Fiscal, efficiency, demand	-0,3 million metric tonne
Air Transport in EU ETS (EU directive)	Regulatory, efficiency, demand	not accounted
Promotion of Electric Vehicles (Electro mobility plan)	Research, investment, efficiency	not accounted
Other measures		
Ecological Tax Reform (1999–2003)	Fiscal, efficiency, demand	-2 million metric tonne
Subtotal		**-26** million **metric tonne**
Additional Effects Due to Synergies of Several Measures		**-2** million **metric tonne**
Total		**-28** million **metric tonne**

Source: Federal Environmental Agency (UBA).

3.1. Fuel and Vehicle Taxation and Standards

Germany has implemented relevant measures in recent years that combine fuel and vehicle taxation to improve the efficiency of vehicle fleets as well as vehicle use and influence modal choice. The following sections briefly explore the key policies that shape Germany's vehicle fleet and use.

Fuel taxation

As part of Germany's Ecological Tax Reform ('Ökosteuer', discussed in more detail later), petrol and diesel prices increased by 3.07 cents per litre and year (totalling an increase of 15.34 cents per litre as of 2003) from 1999 to 2003. This aimed to internalise a part of the external costs and increase energy efficiency in the transport sector. By 2012, the energy tax on transport fuels was 65.45 cents per litre of petrol, 47.04 cents per litre of diesel, and 18 cents per kg of CNG or LNG (BMF, 2012).

Vehicle taxation

Since January 2009, the motor vehicle tax (annual circulation tax) has included a CO_2-based calculation. The new system applies only to newly registered automobiles. This tax, which takes account of typical CO_2 emissions of vehicles and has lower rates for vehicles with especially low emissions, supplanted the mineral-oil-taxation advantage that favoured diesel engines. In addition to taxation based on engine size, the CO_2 taxation accounts for 2 euros per gram of CO_2, above the margin of 110 grams in 2012–2013 and above 95 grams in 2014. The implementation of the CO_2-based motor-vehicle taxation is estimated to lead to a reduction of about 3 million tonnes of CO_2 per year by 2020. For vehicles in service as of 31 December 2008, motor vehicle taxes are not directly related to CO_2 emissions but on engine size and European emission standards. Tax rates were increased for the Euro 2, Euro 3, and Euro 4 emission categories in relation to emission-dependent taxation of other vehicles and, for old vehicles in Euro 1 category and below, higher tax rates were retained (ITF, 2010).

Box. 2. Tax Policies that Negatively Affect Road Transport Energy Efficiency

Some suggest that tax policies in Germany have a potentially counterproductive effects on energy efficiency of road transport. Deducting commuter travel from income tax has this potential. Until 2001, only travel by car was eligible for income tax deduction, then considered as boosting urban sprawl as it fiscally incentivised long distances between home and work (UBA, 2010). A fixed rate by kilometres travelled can be deducted. Now applicable to all modes of travel, this tax deduction option is still considered as providing unjust benefits for car-based commuter travel. The maximum limit of deductible costs, for instance, can be increased if the commuter uses a private car (UBA, 2010). Tax incentives for home ownership and building are also considered to contribute to urban sprawl and incentivise commuting by car.

Source: Hirte and Tscharaktschiew (2012).

Vehicle energy efficiency standards

CO_2 emissions targets have been introduced to implement the European CO_2-oriented strategy for automobiles. Passenger cars are required by EU regulations to achieve, on the average, an emission level of 130 g CO_2/km by 2015 and a tightened level of 95 g CO_2/km by 2020. Since the requirement calls for the average amount of carbon of the fleet, manufacturers can have a number of higher-emitting vehicles in the fleet as vehicles emitting less carbon balance out the average. With the relatively high shares of heavier cars in Germany, the European limits are expected to lead to an average CO_2-emissions level of 143 g CO_2/km in 2015 and 105 g CO_2/km in 2020 for all new automobiles registered in Germany. In addition to these reductions, which are to be achieved via improvements of engines/power plants, cuts in emissions of 10 g CO_2/km are expected from implementation of non-engine-related measures.

Vehicle fuel efficiency labelling

Emission labelling based on fuel consumption and CO_2 emissions for new automobiles was introduced in January 2008. Energy efficiency is given as the relation of CO_2 emissions and vehicle weight. The efficiency classification, ranging from A+ (best) to G (worst), is dependent on the deviation of a particular vehicle model from a reference value for the respective vehicle class. The efficiency classification allows less than 111.5 g CO_2/km for automobiles with 1,000 kg of empty weight in efficiency class A and the limit raises with weight to 171.5 g CO_2/km with 2,000 kg empty weight. UBA (2012) suggests, however, that this measure by itself has only a limited effect on CO_2 mitigation.

Table 5.2. CO_2 Efficiency Classes (Pkw-Energieverbrauchskennzeichnung)

CO_2 Efficiency Class	Deviation from the Reference Value
A +	≤ -37 %
A	-36,99 % bis -28 %
B	-27,99 % bis -19 %
C	-18,99 % bis -10 %
D	-9,99 % bis -1 %
E	-0,99 % bis +8 %
F	+8,01 % bis +17 %
G	> +17,01 %

Source: UBA.

3.2. Alternative Energy Carriers (Biofuels and Electro Mobility)

As part of its second Economic Stimulus Package, the German government has invested heavily in the development and commercialisation of electric mobility. Part of this programme is the establishment of pilot regions for electric mobility, which included the establishment of test sites and basic infrastructure. Research programmes to evaluate the effectiveness of the individual projects accompany the scheme. A study by the Wuppertal Institute on the electro-mobility model regions suggests that a substantial net climate benefit may not be achieved before 2030 considering the dependence on the electricity mix (Schallaböck et al., 2012).

Natural gas is supported as transport fuel through the application of a reduced tax rate on natural gas for passenger cars or duty vehicles. A reduced tax rate is also applied to liquefied petroleum gas. Although the reduced tax level is valid until the end of 2018, an extension up to 2030 is under discussion. However, the Federal Environmental Agency has stated that natural gas has very limited potential as far as GHG mitigation in the transport sector is concerned as its extraction and transport are associated with leakage of methane. As supply distances for natural gas are very far (mainly from Russia), leakage rates are high.

Although biofuels have long been considered to play a vital part in Germany's low-carbon transport policy, this view has somewhat changed in recent years. The federal government has subsidised biodiesel by imposing lower taxes on it compared to other fuels. The reduced tax level made Germany the biggest producer of biodiesel in the EU with more than 3 billion litres produced in 2007, mainly from rapeseed. The biodiesel production in Germany, however, slightly declined to 2.7 billion litres in 2011 (Flach et al., 2012). One factor that triggered this decline is the phaseout of the tax exemptions for biodiesel, which led to an increase in tax to 45.03 cents per litre from only 18.6 cents before 2011.

Several blending regulations are in place for petrol (10 percent) and diesel (7 percent). Biofuels, however, are increasingly treated with more caution with regard to their emission benefits over their life cycle and are also perceived less positively by the general public (Anderson-Teixeira, Snyder, and Delucia, 2011). In 2009, the government released a regulation to ensure the sustainability of biofuels under consideration of life-cycle emissions (Biokraftstoff-Nachhaltigkeitsverordnung). The regulation states that biofuels can only be declared as sustainable if they result in emission reductions of at least 35 percent over the production and supply chain compared to fossil fuels. Biofuels that do not meet these standards are not eligible for tax reductions and the biofuel quota.

A key vehicle for future activities of the federal government on alternative energy carriers and mobility options is the Mobility and Fuel Strategy. The strategy, currently being developed by the federal government, builds on a broad-based dialogue process with about 400 businesses; associations; and experts from society, industry, politics, and scientific community (BMVBS, 2012). In 18 workshops and expert discussions in 2012, the stakeholders expressed their points of view on current challenges and future needs for political action in the different fields of the transport sector, with focus on fuels. The first stage of the process had stakeholders addressing relevant challenges and identifying unresolved issues. The second stage introduced expert knowledge on these issues, while on the final stage, the stakeholders proposed political measures for the development of a sustainable transport system.

3.3. Freight Transport and Urban Logistics

One of the measures to improve the efficiency of long-haul road freight transport in Germany that received international recognition is that the road-use toll rates for trucks were assessed based on the vehicle's emission class and number of its axles. For a three-axle heavy vehicle, the charge per kilometre ranges from 10 to 23 cents, depending on the emission standard of the vehicle. In 2010, the heavy-vehicle road-user charge (LKW-Maut) generated €4.48 billion, of which €600 million are earmarked for the reduction of light-duty vehicle taxes (€100 million) and the promotion of low-emission vehicles, driver trainings, and environmental programmes (€450 million). It is estimated that the heavy-vehicle toll will lead to reductions of 0.3 million tonnes of CO_2 by 2020 compared to 2005 (UBA, 2009). So far, no detailed ex-post evaluation with a focus on its climate change mitigation aspects has been carried out.

Table 5.3. German Heavy Vehicle Road User Charges (€/km)

Year	Axle configuration	Exhaust emission standard			
		EURO IV and cleaner	EURO II and EURO III		Pre-EURO and EURO I
2003	Up to 3 axles		€0.10	€0.13	€0.15
	4 and more axles	€0.12	€0.15	€0.17	
2005	Up to 3 axles		€0.11	€0.14	€0.16
	4 and more axles	€0.12	€0.16	€0.18	
2010	Up to 3 axles		€0.10	€0.23	€0.15
	4 and more axles	€0.12	€0.15	€0.18	

Source: Doll and Schaffer (2007).

City logistics concepts have been applied in Germany with varying degrees of success. In general, they aim to improve efficiencies in the delivery and collection of goods, consolidating trips, increasing load factors, and reducing handling and transaction costs. Among the solutions that have been implemented in Germany are regulations (traffic restrictions, low emissions zones), transport pricing and taxes, transport planning, and the development of infrastructure dedicated to urban freight (lorry lanes, delivery and loading spaces, urban consolidation centres). Many cities in Germany have dedicated loading zones, either as zones where private parking is restricted or as separate space with dedicated infrastructure. Often, delivery or loading in these zones is time-restricted. Some public authorities provide research and development funds and regulative support for urban consolidation centres where deliveries can be consolidated for the last kilometres of the trip into the target area. The consolidation of deliveries is intended to lead to a high level of vehicle utilisation and to alleviation of local environmental and traffic concerns. However, the effectiveness of city logistics concepts has very often been negatively affected by competition between shippers and by conflicting objectives. Consequently many urban consolidation centres either closed down or operate below capacity.

4. Outcomes and Impacts

A cornerstone of Germany's policy approach, sustainable development is widely accepted by all major parties, business community, and labour unions. While it is acknowledged that current measures will not be sufficient to bring transport on a 2-degree pathway, some countries have shown reasonable progress. Germany, France, and Japan are three of the few developed countries that have seen a policy-led decline in GHG emissions in recent years. These countries stand out as they have seen their energy-use-related GHG emissions stabilise or even decrease despite economic growth over the same period (IPCC, 2014). Germany has committed to reduce GHG emissions by 40 percent if the other EU member states would agree to the EU's 30-percent reduction target for 2020. The framework of this economy-wide target is Germany's Integrated Climate and Energy Program, which sets out policy measures for the energy sector.

Among the industrialised countries that have already achieved a relatively low level of per capita CO_2 emissions in the transport sector, France, the United Kingdom, and Germany have made noticeable progress in recent years with well below 2 tonnes of CO_2 emissions (Figure 5.3), still far from stabilisation levels consistent with a 2-degree scenario, but lower than those of many OECD countries.

While environment and climate change are the core elements of the policy framework now, the development towards a more efficient economy started with the 1970s oil crisis. After the first decade of energy efficiency and conservation policies, the outcome was already becoming distinguishable. By 1985 or 12 years after the first oil price shock, the total primary energy consumption was about the same as in 1973. While the economy grew by nearly one quarter over the same period, the number of licensed cars increased by 8.8 million to 25.8 million, and the number of centrally heated dwellings rose by about 3 million units to some 25 million (Schiffer, 1986). Not only did the numbers increase, but cars also attained larger engines and homes became larger and more comfortable. Despite this significant increase, total energy consumption practically remained constant. During the years of setting the political and policy course from the first oil price shock through the decline of the oil price in the mid-1980s, the German case shows a picture of a combination of oil substitution and conservation of energy (Hohensee, 1996). In these years (1973–1984), the primary energy consumption of petroleum decreased from 208.9 million tonnes coal equivalent (MTCE) to about 161 MTCE, representing a decline of almost one quarter (Statistisches-Bundesamt, 2006). This development had provided a good basis from a societal and economic perspective for more ambitious measures that culminated in the Energiewende, the transition to a low-carbon energy system, which included the phaseout of nuclear power in Germany and the shift towards renewable energies, increasing the share from 17 percent today to more than 80 percent in 2050 and reducing GHG emissions by 40 percent by 2020 and at least 80 percent by 2050.

5. Implications for Policy and Practice

Political continuity and integration

Germany is a typical consensus democracy where political decisions are often based on a broad coalition between major political parties and relevant stakeholders. German legislators have a manageable number of negotiating partners who represent large constituencies. Consultations with the major peak organisations leave the German members of Parliament and ministers with a relatively high level of certainty about the positions of relevant stakeholders, which helps shape policies and paves the way for successful implementation. The policymakers' perception translates into tangible numbers when comparing the consultation process of the German Eco-Tax legislation. In Germany, 45 chief executives of the key interest organisations (unions, employers, energy industry, environment, energy consumers, tenants, landlords, etc.) are heard by the members of the select committee. Each interest domain is represented by no more than three individual organisations; some are even represented by only one, with sufficient mandate to bargain on behalf of a large group. The

German approach to sustainable development is based on the concept of political balance and broad policy coalitions to ensure durability. As in other corporatist countries, Germans are used to being regulated and German legislators are used to regulating (Scruggs, 2001). It is important to note that corporatist structures alone do not necessarily lead to better environmental outcomes. Until the 1970s, the German corporatist structures, particularly unions and employers, resulted in more negative environmental performance. The focus of the unions was to ensure high employment rates through economic growth, often at the expense of environmental sustainability. However, when environmental and energy resource pressures increased, sustainability issues were incorporated and a new consensus was formed.

Policy integration

The German policy approach is driven by a systemic approach that aims to generate synergies among policy objectives, which link to the desire to build coalitions among stakeholders. For example, from the perspective of climate change mitigation, while vehicle efficiency and low-carbon fuels may have the biggest potential to reduce CO_2 emissions, these do not fully reflect a broader sustainable development perspective. A multimodal and integrated policy approach can minimise rebound effects, overcome split incentives, and achieve a higher level of socio-economic co-benefits (Givoni, 2014). Energy efficiency and low-carbon fuels have a key role to play in decarbonising the transport sector. However, the strategies are the measures that yield substantial opportunities to contribute to sustainable development.

From the perspective of climate change, the considered co-benefits of sustainable transport measures such as air quality, safety, energy efficiency, access to mobility services, and other factors are in fact the driving factors, particularly at the local level, for policy intervention (Goodwin, 2004; Hultkrantz, Lindberg, and Andersson, 2006; Jacobsen, 2003; Rojas-Rueda, Nazelle, Tainio, and Nieuwenhuijsen, 2011). As transport relies almost entirely on petroleum products, energy security is a major issue for the sector products (Sorrell and Speirs, 2009; Costantini et al., 2009; Cherp et al., 2012). Energy security is directly linked to climate-change mitigation actions that focus on fuel switch options, such as biofuels and electrification (Leiby, 2007; Shakya and Shrestha, 2011; Jewell, Cherp, and Riahi, 2013) and demand-side measures, such as fuel efficiency, shift to more efficient transport modes, and compact urban design (Cherp et al, 2012; Leung, 2011; Sovacool and Brown, 2010). These strategies are also likely to improve access to mobility services and reduce transport costs, which positively affect productivity and social inclusion (Banister, 2008; Miranda and Rodrigues da Silva, 2012) and provide better access to jobs, markets, and social services (Banister, 2011; Boschmann, 2011; Sietchiping, Permezel, and Ngomsi, 2012). Improved access is likely to have positively impact employment. A major cost factor generated by inefficient transport systems is congestion. Time lost in traffic was valued at 1.2 percent of GDP in the UK (Goodwin, 2004); 3.4 percent in Dakar, Senegal; 4 percent in Manila, Philippines (Carisma and Lowder, 2007); 3.3–5.3 percent in Beijing, China (Creutzig and He, 2009); 1–6 percent in Bangkok, Thailand (World Bank, 2002), and up to 10 percent in Lima, Peru, with daily travel times of almost 4 hours (JICA, 2005; Kunieda and Gauthier, 2007). The combination of various policy objectives that can be addressed by an integrated multilevel policy and governance approach provides a solid basis for durable policies that can have long-lasting impacts. Climate change, air quality, noise prevention, safety, energy security, and productivity are key policy objectives for local and national policymakers, even if in varying degrees (De Hartog, Boogaard, Nijland, and Hoek, 2010; Jewell et al., 2013; Rabl and de Nazelle, 2012; Tiwari and Jain, 2012).

Both the integrated political and policy approaches are vital factors to the (relative) success of Germany's sustainable development over the last decades. While institutional structures are not easily transferable to Southeast Asian countries, the general approach might at least be of some guidance when developing policies in the region. This would include the development of a wider strategic framework and the aim to build broader coalitions to create policy continuity, in particular in sectors that rely on long-term infrastructure and investment.

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