

## Summary

With the emissions scandal (Abgasskandal) in fall 2015 and the resulting legal consequences an intensive debate about the topic Mobility and air quality in our cities started in Germany. Actually one is looking intensively for solutions how traffic can be organized more mankind oriented and more ecologically. A solution can only be found by an intensive networking of motorized Individual traffic on the one hand and with public transport on the other hand. By that a systematic electrification and digitization of the traffic and an increasing shift from individual traffic to a far more attractive public transport is imperative. In this context further elements of the association of environment (Umweltverbund) like cycling or walking have to be further promoted.

### 1.1.1. Trigger of the debate: the emission scandal

The emission scandal, starting in fall 2015, initiated an intensive debate in Germany and made the topic Mobility the most important issue in our country. As a consequence of the diesel scandal and in context with the legal challenges such as the legal actions of the “Deutsche Umwelthilfe” and the infringement proceedings as well as the legal action of the European European Union at the European Court of Justice the topic „Mobility“ has become of high importance. After the national forum diesel and the two municipal summits in autumn 2017 under the direction of chancellor Angela Merkel a clear focus was put on e-mobility and the promoting of public transport and cycling.

The starting point of the scandal about manipulated exhaust emissions of vehicles of Volkswagen started in September 2015 when Volkswagen admitted, that the exhaust emissions of the vehicles had been electronically manipulated during the admission tests. The issue of transgression of the annual average of nitrogen dioxide of 40 µg per cubic meter is however in many German cities independent from this question.

### 1.1.2. Political reactions on a national level

#### 1.1.2.1 The national forum diesel

On 2nd August 2017 the federal ministers of finance, traffic and digital Infrastructure, economy and energy as well as education and research and the prime ministers of these so-called “Autoländer” met the representatives of the automotive industry in a National forum Diesel. Central results of this forum consisted in making important contributions to reduce the nitrogen dioxide emissions quickly to ensure sustainable mobility and preventing driving bans.

In the declaration after that national forum it was literally said: “the costs of the retrofitting have to be borne by the producers” and further on: “That producers have to give the clients a warranty on those parts which are affected by these measures”.

The federal ministers and prime ministers concerned expressed the expectation, “that the producers create with self-financed competitive measures (Umstiegsprämien) incentives for the change from diesel vehicles of an older standard than Euro 5 to vehicles with the most modern exhaust treatment or electric vehicles”.

In a declaration following this forum promotion programs were announced to reduce exhaust emissions which should serve the improvement of air pollution control and sustainable mobility.

The financially most important statement of the declaration was as follows: “ for the support of the cities for a long run shaping of sustainable and emission free mobility the federal government will launch on a “fund: Sustainable mobility for the city” endowed with 500 million Euro and co financed by the automotive industry“

#### 1.1.2.2. The first municipal summit of September 4, 2018

Under the direction of chancellor Merkel a continuation of the consultation of the federal government with the cities and “Länder” for clean air took place. In the context of this municipal summit one concluded that “the Conservation and improvement of air quality” is of highest importance and one is committed to the limits for nitrogen dioxide and fine particles. In this meeting one agreed, to reject driving bans for single engine systems and one announced to impose a fund “sustainable mobility for the city”.

The German chancellor announced another 500 million Euro on top of the 500 million Euro of the diesel summit of 2nd August financed by the Federal Republic of Germany. She also stated, that in the coming years there further efforts will be necessary, nevertheless the federal government can not anticipate the decisions of the German Bundestag. One communicated that those cities affected by the limit exceedance should benefit from the funds, which measures were above the limits.

#### 1.1.2.3. The second municipal summit of November 28th. 2017

In the context of the press conference after this second municipal summit chancellor Merkel pointed out that since the first municipal summit a “federal-Länder-city“-team had been working hard on developing a special program. The chancellor announced in this context an additional municipal summit in which the representatives of the automotive industry should report about what measures are in progress in their sector. Furthermore the chancellor emphasized that measures should be taken to enable affected cities to proceed these quickly and effectively. Further on it was said, that special regulations are provided for financially vulnerable cities.

To facilitate the work of the regarding support programs the chancellor announced, that a hotline will be established in the ministry of traffic and digital infrastructure with concrete contact people for the affected cities. The chancellor also stated that this 1 billion Euro would be an announcement for the year 2018 and that the support program should be stabilized. A highly important result in the announcements of the chancellor was, that this support program is only a facet and “ that it has to become a change in the whole city mobility“ within the frame of a “Verkehrswende”.

#### 1.1.2.4. Masterplans for the cities

Parallel to this discussion the federal ministry of Traffic and digital infrastructure called for tenders for measures which should promote the development of individual master plans for clean air. The business leading federal minister at this time, Christian Schmidt, said at the decree handover: “ with our promotion notifications and with our special representative we encourage the implementation of our immediate program “clean air”. We offer a quick and unbureaucratic support for the cities. They can now develop taylormade measures which can guarantee effective and quick improvement of air quality. It’s our target to avoid driving bans. We want more mobility with less emissions“ .

1.1.2.5. Regional conferences with those cities which exceed the limits of nitrogen dioxide  
Speedily the dialogue process with the affected cities went ahead in January 2018. In five regional conferences 350 participants from the affected cities could be reached. These regional conferences were about familiarizing the representatives of the limit exceeding cities with the 11 promotion programs. Additionally they had the chance to meet their responsible contact person in charge at these conferences.

### 1.1.3 Political reactions on a European level

On January 30. 2018 Commissioner Vella led a meeting in Brussels with nine member states of the European Union, which exceed the limits of nitrogen dioxide and particulate matter. The cause of this hearing were the ongoing infringement proceedings of the European Union against Germany, France, Italy, Spain and Great Britain regarding nitrogen dioxide on the one hand and against Hungary, Slovakia Romania and the Czech Republic regarding the fine dust pollution on the other hand.

Commissioner Vella opened the hearing with drastic words, expressing that air pollution would be “an invisible death for our citizens in the European Union”. Furthermore he expressed that the governments have to solve the problem “otherwise they would be a part of the problem themselves”.

General director Daniel Calleja Crespo clearly stated, that every fifth citizen of the European Union is affected by fine dust and every eleventh citizen of the European Union is affected by the nitrogen dioxide issue. In 130 cities of the European Union the NOx limits are exceeded.

Following the statements of the nine ministers or secretaries of environment commissioner Vella expressed his expectation, that the member states should take action with restrictive measures to fulfill the justified expectations of the European citizens regarding their health. Commissioner Vella stated literally: “ we have to finish the non-acceptable exceedings as soon as possible”. Finally Commissioner Vella set a deadline of 10 days to the affected member states within which they should submit measures.

In a letter of February 11th 2018 the federal government submitted far-reaching proposals to reduce their nitrogen dioxide exceedings. One proposal in this letter considering public transport free of charge started an intensive discussion.

In this public discussion the proposal was unfortunately shortened, as the expression “consider” was clearly dropped”. It’s not astonishing that many cities and public transport companies expressed their criticism of this proposal. Only in the city of Hamburg this proposal would lead to a loss of income off 800 million Euro every year, comparable with the costs of building the Elbphilharmonie.

An interesting point in this letter also was also, that in five model cities i.e.Essen, Bonn, Mannheim, Reutlingen und Herrenberg, the efficiency of the corresponding innovative measures should be tested.

In a meeting with the mayors of these model cities on February 26th 2018 iit was remarkable, that none of the cities involved wanted to look into free of charge public transport.

### 1,1,4. Legal and political consequences

The judgement of the Supreme Administrative Court regarding admissibility of driving bans was discussed very controversially. On the one hand, the supporters of the “blue badge” felt

encouraged by the judgement considering the identification of non-problematic vehicles regarding their nitrogen dioxide pollution. On the other hand the indication that the Supreme Administrative Court focused on the principle of appropriateness, which would not justify a general driving ban was pointed out.

Far reaching consequences have been taken in the coalition treaty between the parties of CDU/CSU and SPD of March 12th 2018. In this treaty the partners committed themselves to fulfill the climate targets of Paris and to secure affordable mobility. " For this a lot of measures are necessary, as for example the promotion of e-mobility, public transport, rail transport and more efficient and cleaner combustion engines, including retrofitting and steadying the measures within the framework of the National Forum Diesel.

Furthermore it is stated, " together with the Laender and the cities we want to reinforce our efforts for the improvement of air quality, especially in the highly affected city centers. We want to avoid driving bans and improve clean air. We want to support cities when complying with emission limit values within the framework of their clean air masterplan rather than accepting general driving bans.

Regarding retrofitting, the coalition treaty states: "In particular we want to reduce pollutant emissions caused by road traffic from the start. This includes - as far as technically possible and economically justifiable - technical improvements at the existing vehicles.

The coalition partners commit themselves to update the „immediate program clean air“ :” We want to update the „immediate program clean air 2017-2020“. Programs of the federal government and programs of the Laender can be accumulated”.

Finally the coalition partners want to support „the change of the carpools of administrations, taxi services, trades as well the public transport to emission poor or emission free propulsion technologies by reevaluating the support program.

In this context it's interesting, that the focus should not only be on e-mobility, but also on hydrogen technology and that the national innovation program hydrogen- and fuel cell technology should be continued.

A clear indication, that a "traffic change"(Verkehrswende) is intended by the federal government is the following statement: „ we want to transform the National Platform e-mobility“ into a platform „The Future of Mobility“ which is meant to deal with the further development of automotive industry”

Outstandingly innovative is, in this context the intention of the coalition partners, that autonomous vehicles should be tested and used legally in public space in legal certainty. „Till the end of the election period, we will create the legal conditions for fully automated vehicles“. Finally one intends, that the users of public transport can go nationwide via smartphone with an electronic ticket within the transport networks.

#### 1.1.5. Features of a "Verkehrswende" towards sustainable mobility

A concrete consequence of the „Dieselgipfel“ was the implementation of an expert group with the topics traffic control, digitization and networking. This team expressed not only a concrete vision of the "Verkehrswende" but named also a lot of measures how to reach this aim. This means, that the "Verkehrswende" consists on on the one hand of the sector digitization, traffic control and networking and on the other hand of a bundle of further measures for strengthening and extension of public transport and bicycling.

One important trigger in this context is the integration of information technology in the traffic process to ensure a stronger networking of the traffic users and a better networking of the different means of transport and mobility services.

The networking aims at a better interaction between individual motorized traffic and public transport but also between public transport and bicycling and walking. In addition demand oriented arrangements can complete classic public transport.

A digital based public transport system is by itself a prerequisite for a future federal e-ticketing system and can make its use more attractive.

Tickets are sold via smartphones, online-shops or chipcards. With a new standardized architecture of mobility data access barriers at the purchasing of tickets and conventional sales channels can be reduced.

In this context one can speak of a consistent vision of sustainable mobility with the aim of creating an affordable and available offer of mobility. This should be ecologically compatible and economically acceptable. Its aim is to optimize highly automated driving, digital traffic information systems and traffic management systems. Connecting public transport with the non-motorized traffic contributes to sustainable mobility.

With digital technologies traffic control can be developed further to an intelligent system, which can reduce congestions and environmental pollution and can react flexibly to current values of air quality. This vision is not just an abstract idea, but one can derive concrete measures from it.

#### 1.1.5.1. Measures in the sector of traffic management

Measures of traffic control in the form of establishing and using traffic management systems are in the focus. This is done by establishing a parking guidance system within the framework of an integrated parking management system, the offer of an intelligent lorry routing, or bundling and guiding the urban traffic and delivery logistics.

By influencing the traffic flows traffic can be handled according to demand and can be assigned according to the scarce capacities of some infrastructure.

#### 1.1.5.2. Measures of the Mobility management

These measures have the aim to reduce car rides or to shorten them and to shift them to more environmental friendly traffic means to contribute to the reduction of air pollutants, One has to establish management capacities in the Mobility centers which can be settled at the traffic companies. There it's their task to record, deliver and use the mobility data. These data can be gathered by suitable sensors or by smartphones.

It's important to establish some information platform to gather mobility data and to deliver the data for an exchange between the different traffic systems. Furthermore it is important to deliver passenger information systems with real time information about traffic connections and arrival times to support a changeover from the motorized individual traffic to public transport

#### 1.1.5.3. Measures in the context of multi-modality and mobility services

It's indispensable to establish and extend sharing offers for bicycles E-scooters etc. and they have to be integrated seamlessly into the public transport system.

#### 1.1.5.4. Digitization of planning processes

The local planning processes, the detection of independence and the implementation of necessary steps are not possible without digital planning tools, networked data and digital presentation of documents. The planning processes have to anticipate the links between public transport and other modes of mobility like digital services and make them flexibly manageable.

As there are repeatedly gaps in a system of multi-modal mobility there has always to be the target to close these gaps.

Bicycle highways offer a possibility to improve the attractiveness of commuting in the city centers by bikes or Pedelecs.

Furthermore, it is necessary that with a specific size of the estates the radially organized public transport connections between the city and the outskirts have to be supplemented by additional tangential connections by a rapid bus system.

The report of the expert group, consisting of different representatives from federal ministries, different "Länder" ministries and also local associations and local communities makes the final proposal to create a national network of competence for sustainable Urban mobility and to continue with this until the year 2030.

The network is meant to create a comprehensive offer of knowledge transfer possibilities and exchange of experience especially in the form of best practice examples and to identify obstructions and accelerate the implementation process.

In this context there a proposal was presented to create a management board for managing financing possibilities of federal funds as well as funds from the EU and the Länder, initiating effective projects and measures to implement sustainable mobility as well as ensuring communication, education and exchange of knowledge by suitable measures.

As pointed out above, the concrete proposals of the expert group concerning the topic sustainable mobility gained an outstanding importance. Already today one can state without any exaggeration, that there is a chance in every crisis and that the „diesel debate“ can be described as the initial trigger of the "Verkehrswende".