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URBAN TRANSPORT AND ENVIRONMENTAL JUSTICE - STATUS QUO IN THE USA AND IMPLICATIONS FOR GERMANY

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This report follows U.S. American spelling rules.

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Abbreviations

µg	microgram
AB	Assembly Bill
ACE	Alternatives for Community & Environment
BART	Bay Area Rapid Transit
BRT	bus rapid transit
BRU	Bus Riders Union
CA	California
CAA	Clean Air Act
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
DOT	Department of Transportation
EC	European Commission
EIS	Environmental Impact Statement
EJ	environmental justice
EO	Executive Order
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GHG	green house gas(es)
GIS	geographic information system(s)
ISTEA	Intermodal Transportation Efficiency Act
m ³	cubic meters
MA	Massachusetts
max.	maximum
mg	milligram
MoU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
MTA	Metropolitan Transport Association
MTC	Metropolitan Transportation Commission
NAAQS	National Ambient Air Quality Standards
NCHRP	National Cooperative Highway Research Program
NEJAC	National Environmental Advisory Council
NEPA	National Environmental Policy Act
NGO	non-governmental organization
NY	New York
PM	particulate matter
ppb	parts per billion
ppm	parts per million
SACOG	Sacramento Area Council of Governments
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users

SB	Senate Bill
SCS	Sustainable Communities Strategy
TIGER	Transportation Investment Generating Economic Recovery
U.S.(A.)	United States (of America)
VMT	vehicle miles travelled
yr.	year

0. Prologue

The following text was written as a report on the knowledge gained during my trip to the United States as a McCloy Fellow in Environmental Policy and through my associated research. It is also intended as a tool for disseminating the information I gathered and the insights I had – such as they were - to other people in research, administration, communities and advocacy groups interested in issues relating to environmental justice and urban transport. I have made every effort to correctly cite all the sources other than my own work which I have used in producing this report with one exception: I have not quoted by name the people who kindly agreed to meet with me, not even in the cases where I have used literal quotes from my interview protocols. This is in no way meant to be a disregard to the contribution they have made to my work – on the contrary their input has provided the essence of what can be read in the following. However, I promised everyone I spoke with to only use my records for producing my report and not to pass on any of the interview material to third parties directly. At the same time, I found it important to distinguish between material taken from written and from oral sources and also to sometimes use literal quotes as they were best suited to convey certain issues or angles.

A list of the people who have contributed to my work can be found in Appendix 1. I would like to thank everybody on that list for answering my questions, providing me with additional material from their own resource base and in several cases also for extending my network of contacts by setting up spontaneous meetings with other actors in the environmental justice arena. Projects like the one documented here are always reliant on people being prepared to make time and finding so many individuals happy to meet my request for an expert interview during the preparation of my trip was a valuable experience in itself.

1. Introduction

In the United States (U.S.), the equity of the distribution of environmental burdens has been receiving political attention since the civil rights agenda began to include environmental justice (EJ) issues in the 1970's. As a result of bottom up impulses and demands from activists, EJ has been increasingly relevant in the planning process in the U.S. (Maschewsky 2004; Kloefer 2006), resulting eventually in the enactment of *Executive Order 12898 Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* in 1994 and in the U.S. Department of Transport's 1997 *Order to Address Environmental Justice in Minority Populations and Low-Income Populations* (FHWA - Federal Highway Administration & FTA - Federal Transit Administration 2000). This development has been paralleled – and sometimes also preceded – by the scientific analysis of EJ issues in North America and the EJ concept has over time also expanded to include many broader aspects of social justice, such as transport poverty and social exclusion issues (Lucas 2004). In Germany on the other hand, EJ is generally considered to be separate from such wider issues. It is not anchored in planning and political processes and – partly for this reason – there has thus far also been little public or political demand for research of this issue¹. This is partly due to the fact that socio-spatial segregation of urban populations is less pronounced in Germany than in the U.S. and that the social distribution of environmental burdens is thus less uneven (Kloefer 2006). There is, though, a growing interest in EJ in the German research community, predominantly but not exclusively in the area of social studies and public health (Elvers, Gross & Heinrichs 2008) – which also means that the EJ perspective in Germany is not being introduced or demanded by local activists, non-governmental organizations (NGOs) or a grass roots movement but rather through a more top-down, research lead perspective.

Those studies, which have looked at the distribution of environmental burdens in Germany, have generally found some degree of injustice in the way that different sub-groups of the population were affected by the environmental parameters which were investigated (cf. reviews by Bolte & Kohlhuber 2008 and Bunge & Katzschner 2009). This has clear implications for public health, social equity and quality of life. Generally, an excess of environmental burdens - e.g. in the form of local emissions from transport such as noise, nitrous oxide or particulate matter – is always a concern from a human health perspective. This problem is exacerbated, however, for certain parts of the population due to the risk of multiple deprivation: population groups, which are already socio-economically disadvantaged, have a limited choice of residential locations. They tend to be more exposed to various environmental burdens (Lampert *et al.* 2005; Maschewsky 2008), raising the issue of cumulative exposures. They are also less able to care for their health (Mielck & Bolte 2004) and often less able to reach health care facilities Gaffron, Hine & Mitchell 2001).

In Germany, there is still a lack of empirical data from environmental justice studies in different sectors, transport being one of these (cf. Elvers 2005; Köckler 2008). Transport activities are highly relevant to EJ concerns, however, as they create some of the main environmental burdens on human health in the form of gasses, particulate emissions and noise. This is especially true in urban areas where the density of both people and traffic is highest. But even in such areas, the spatial distribution of these burdens is very uneven. In relation to transport emissions, EJ research is thus concerned with analyzing, comparing and evaluating the exposure of different socioeconomic population groups in and around their home (cf. FHWA & FTA 2000; Cairns, Greig & Wachs 2003;

¹ The Federal Environment Agency (Umweltbundesamt) has, however, in recent years commissioned several reports to ascertain the *status quo* of EJ research in Germany and also co-published two volumes of a journal on environmental health issues, which focus on EJ (Bolte & Kohlhuber 2008; Bunge & Katzschner 2009; BfS - Bundesamt für Strahlenschutz *et al.* 2008, BfS *et al.* 2011).

Maschewsky 2004; Wewer & Pape 2007). While this is the primary research perspective in Germany, researchers in the U.S. are increasingly also looking at ways to characterize cumulative exposure risks and their effects on different groups of the population: *“Assessing cumulative exposures and their related health effects is the next big challenge for epidemiologists interested in the geographies of injustice”*. (Jerrett 2009, p.232). Another important area of investigation are the measures which can be designed and implemented to reduce or prevent excessive environmental burdens for those, who are most at risk from exposure and at the same time least able to take any preventive or curative measures to protect their health (see Section 4.1).

As there is no single and universally accepted definition of environmental justice, it appears useful at this point to clarify how the concept is understood in the context of this report. In their 2004 publication on *Effective Methods for Environmental Justice Assessment* for the National Cooperative Highway Research Program (NCHRP) and thus in the context of transport, Forkenbrock & Sheeley define EJ as follows :

“the fair treatment of all people in terms of the distribution of benefits and costs arising from transportation projects, programs, and policies.’ The term ‘fair’ means that a disproportionate share of adverse effects will not fall upon low-income or minority (protected) populations. A disproportionate share of adverse effects in turn implies that the distribution of benefits to a protected population is not commensurate with the costs that this particular population would bear. It is important to keep in mind that the value of a benefit or the adversity of a cost may vary among population groups. Therefore, it is necessary to present the expected effects of a transportation change to these populations as accurately and clearly as possible and then to fully consider the perspectives of protected populations when planning, constructing, and operating transportation facilities.” (Forkenbrock & Sheeley 2004, pp.2–3)

While this definition covers most of my own understanding of EJ in the transport context, I would qualify it in two places. Firstly, while in keeping with the Clinton administration’s 1994 Executive Order (EO) 12898 on Environmental Justice, the limitation to low-income or minority populations should not be foregone conclusion in my view, as other groups (defined for example by age, gender or other parameters) could also suffer environmental injustice. Secondly, EJ concerns and investigations should not be limited to the effects of transportation changes, as existing situations might also warrant action to ensure that particular groups do not suffer a *“disproportionate share of adverse effects”* (*ibid.*).

2. Objectives and scope of the project

The McCloy Fellowship project is embedded in my ongoing research on environmental justice and urban transport² and has the following objectives:

1. to discuss the *status quo* of investigations on environmental justice and transport with a number of U.S. researchers from different disciplines in order to gain a clearer understanding on how and to what extent approaches and methodologies from there are transferable to Germany
2. to discuss the additional aspects of individual time use patterns as well as household location choice with respect to EJ and urban transport as the applicant has found these to be great potential relevance for exposure risks, yet they are very rarely discussed in this context on either side of the Atlantic
3. to interview actors in the public domain involved with environmental justice related decision making to be able to better contribute to the discussion on how EJ concerns can be

² www.vsl.tu-harburg.de/de/Forschung/Projektx?welche_nummer=90

embedded into German planning guidelines and decision making for both urban and transport planners

4. to interview community level and grass-roots actors on environmental justice and urban transport to find out about their experiences with existing legislation and planning guidelines and where they see scope for improvement

3. Methodology

The fellowship provided me with the opportunity to interview a number of experts on EJ and transport. Of these, 11 were from the research community, 7 worked in public administration and 8 were from non-governmental organizations and advocacy groups (see Appendix 1, p.27 for a full list). The interviews were based on a list of open questions, which I sent to my interview partners in advance of our meeting and which was in each case tailored to the person's professional context and subject focus. These lists were intended as a starting point rather than as a set questionnaire, which needed to be 'completed' during the interviews. Deviations and additions were possible and occurred frequently, though I did attempt to ensure that those questions central to my research objectives were discussed. With the permission of the participants all interviews were digitally recorded. This was based on the agreement that I could use the recordings as a basis for my report, would not pass them on to third parties and would clear any direct quotes with the respective source.

The report is thus based firstly on the material collected during the interviews, secondly on written material, which I was provided with during my visit (reports, scientific papers, leaflets, etc.) and thirdly other appropriate literature obtained through my own searches.

4. Urban transport and EJ research in the U.S.

4.1. Current perspectives, tools and methodologies

One important aspect of looking at EJ research in the U.S. was finding out what issues were actually considered worthy of investigation, what sorts of environmental hazards³ as well as populations groups were being looked at and what the methodological *status quo* was. The following table provides a broad classification of papers which have been (co)authored by the researchers whom I interviewed⁴. It should be borne in mind, that the interview partners were approached mostly with a view on whether they had done any work pertaining to EJ and urban transport. The studies listed in Table 1 thus illustrate the work of a specifically selected group of people and do not – and were not intended to – present a review of all U.S. EJ research nor even all work relating to EJ and transport.

In addition to the topics listed in Table 1, several people also reported that they were working on projects intended to improve the way in which both planners and members of the public can access and interpret the results of travel demand, emission and exposure models and analyses. The primary motivation for such work was to make relevant information widely available and also comprehensible so that public participation, community consultation and decision making can be as informed as possible.

³ It should be noted that access to environmental resources such as green spaces and clean water is also an EJ issue. However, this report will focus on health hazards in the form of emissions.

⁴ In one case, an interview had been agreed but had to be cancelled.

EJ discourse	
	Deakin 2007; Schweitzer & Valenzuela (jr.) 2004; Schweitzer & Stephenson (Jr.) 2007
policy making and EJ	
	Bhatia 2011; Karner <i>et al.</i> 2009; Morello-Frosch, Pastor (Jr.) & Sadd 2002; Sanchez, Stolz & Ma 2003; Schweitzer 2008b; Schweitzer & Zhou 2010; Sze <i>et al.</i> 2009
distributive injustice	
transport emissions related	Buzzelli & Jerrett 2007; Schweitzer 2006; Schweitzer & Valenzuela (jr.) 2004; Schweitzer & Zhou 2010
not transport emissions related	Altshuler 2010; Balazs <i>et al.</i> 2011
methodological	
measuring and modeling air pollution	Arain <i>et al.</i> 2009; Bai, Eisinger & Niemeier 2008; Cakmak <i>et al.</i> 2003; Eisinger <i>et al.</i> 2003; Forkenbrock & Schweitzer 1999; Karner, Eisinger & Niemeier 2010; Kolovos <i>et al.</i> 2010; Sahsuvaroglu <i>et al.</i> 2009a; Sahsuvaroglu <i>et al.</i> 2009b; Su <i>et al.</i> 2009a; Timoshek <i>et al.</i> 2010; Wu <i>et al.</i> 2007; Yura, Kear & Niemeier 2007
health related methods	Jerrett <i>et al.</i> 2003; Jerrett & Finkelstein 2005; Jerrett, Gale & Kontgis 2010; Maclachlan <i>et al.</i> 2007; Payne-Sturges <i>et al.</i> 2006; Sahsuvaroglu & Jerrett 2007; Sahsuvaroglu <i>et al.</i> 2009a
identifying populations with cumulative risks / exposures	Molitor <i>et al.</i> 2011; Sadd <i>et al.</i> 2011; Su <i>et al.</i> 2009b,
other	Buzzelli & Jerrett 2003; Schweitzer 2008a
studies on health effects	
	Bhatia & Seto 2011; Jacobs, Bhatia & van Derslice 2010; Jerrett <i>et al.</i> 2009; Jerrett <i>et al.</i> 2010; McEntee & Ogneva-Himmelberger 2008; Morello-Frosch, Pastor (Jr.) & Sadd 2001; Morello-Frosch, Pastor (Jr.) & Sadd 2002; Sahsuvaroglu & Jerrett 2007; Sahsuvaroglu <i>et al.</i> 2009a; Wier <i>et al.</i> 2009

Table 1: Publications relating to transport and EJ (co)authored by experts interviewed for this report

It was noted by several experts, that there is comparatively little public debate and also research on the issue of noise and population exposure, its effects or measures for reduction. One possible reason cited for this fact was that Federal funding relating to the Noise Control Act of 1972 was discontinued in 1981 and that responsibility for noise control was delegated to State and local levels in the same year.⁵

⁵ www.epa.gov/air/noise.html [accessed October 27th, 2011]

At the same time it is worth considering the other strands of scientific investigation, which are currently being followed in the U.S. In most cases, real world measurements of emissions only provide small amounts of data due to time and financial constraints on such work. They thus either provide reasonably detailed information for small sampling areas or they cover large areas but at a scale, which makes the differentiation of exposure risks to street or even block level difficult or meaningless. Modeling emissions and their dispersion and distribution is thus an important part of diagnostic EJ research. A large part of EJ research in the U.S. is still in this area (see also Table 1). Current shortcomings of EJ research which were noted during the interviews or respectively, additional areas of interest and relevance to be explored further are the following:

1. quantifying cumulative exposure levels in (and around) the home from different agents and different sources (ideally using personal exposure monitors as one way of ascertaining exposure pathways)
2. assessing health effects of such cumulative exposures, including the effects of other stressors; Some experts also pointed out, though, that by and large there was enough knowledge about adverse health effects of various agents and that in addition, it should be enough to accept people's right to wanting to live in a pleasant environment. Furthermore, if health effects are described or quantified on the basis of cumulative exposure, the burden of proof becomes an issue, especially since firstly, in real world contexts, it is very unlikely that all emissions can be reduced simultaneously, secondly (existing) enforceable regulations generally do not cover all agents, that are affecting - or might in combination affect - health and thirdly, even if this were the case, the different agencies responsible might (for political and/or budgetary reasons) try to shift the onus of taking action to another actor.
3. looking in more detail at how local measures for emission reduction (rerouting of traffic, increasing settlement densities to reduce vehicle miles travelled - VMT) affect overall emissions (e.g. at regional level) and population exposure levels ("*density is not a magic bullet*").
4. incorporating the consideration of time use patterns to ascertain how people's presence in different places (home but also e.g. work or school) affects their overall risk of exposure to various agents
5. ascertaining to what extent the current network of air quality monitors actually makes it possible to assess people's exposure levels
6. calibrating and improving the models (emissions, dispersion, immission) currently in use; 'Improvement' in this context can also mean building robust yet more simple models using less detailed metrics to make the tool and the result more accessible and useable in the decision making process (e.g. using traffic densities as an indicator of where intervention is required⁶ rather than breaking transport emissions down into different health relevant agents, which are then modeled, discussed and targeted separately).
7. improving the interfaces between various software tools (e.g. emission models and geographic information systems - GIS) to make analyses and representation of results easier
8. investigating in more detail and for more cases to what extent emission burdens for different population groups have changed over time and where possible identify the reasons for any changes observed; Findings from such studies would serve to strengthen

⁶ This approach is e.g. being taken for sampling vulnerable populations for the National Childre's Study in Worcester, MA, where average daily traffic density (estimated as average daily numbers of cars per square mile per block-group) was used as a proxy for road/transportation stress (incl. air pollution, traffic accident risk and traffic congestion (Downs *et al.* 2010, p. 1320).

the work on the impacts of certain policies – or rather the actual measures implemented – on the distribution of environmental burdens the processes.

9. ascertaining, whether it is possible to describe under which circumstances communities are least able to resist or defend themselves against any projects they perceive as damaging, unjust or threatening
10. mutually validating scientific and community perspectives on EJ problems, as the concerns of those (potentially) affected do not always match emission loads and health risks which can be or have been identified

One issue, which along with noise seems to be little investigated in the context of emission exposure and reduction, are pollutant dispersal beyond the local scale, the resulting background loads and how they affect locally measured (or modeled) pollutant levels. In Europe, on the other hand, this question is receiving attention regarding both particulate matter and NO_x. In the case of the latter, it has for example been found that local measures might be insufficient to tackle local breaches of legal limits of NO₂ due to long range transport and photochemical as well as other urban atmospheric processes involved (see e.g. Bloss 2009, Kurtenbach 2011). It should be added that one expert stated, legal limits of NO₂ were hardly being breached, which was a reason why not much modeling was being done for it (and thus concerns about the role of background loads would be less relevant, too). According to the same expert, this situation might change though, as soon as new data collection methods for emissions were introduced.

4.2. The time-use perspective and household location choice

The second objective for the fellowship trip (see Section 2) was to receive some feedback on the potential relevance of time use patterns for exposure levels and on the role of perceived traffic-related burdens in household location choice (see also items 4 and 8 from the list in Section 4.1).

Several experts concurred, that looking at the **time use patterns** of different groups would make an important contribution to providing more precise ideas about their actual – and comparative – exposure levels (cf. item 4 from the list in Section 4.1). However, it was also stressed that for example work place exposure might actually create the biggest health problems for some people (one stark example being toll booth attendants on highways). Portable personal exposure monitors were mentioned as one of the best ways of getting accurate data on people's actual levels of exposure. However, these firstly imply high methodological costs, both financially and in terms of recruiting a representative (and reliable) sample population. The all-inclusive approach means secondly, that identifying the best areas for remedial measures can become difficult, if different shares of the pollutant load measured cannot clearly be attributed to any particular source or activity location. It can also mean that actors potentially responsible for implementing such measures might try to shift that responsibility if the emission source falling within their jurisdiction cannot clearly be identified as the main or only source of a problematic pollutant load.

Household location choice could create dynamics, which affect average exposure levels for different population groups over time (cf. item 8 from the list in Section 4.1) depending on the primary motivators for location decision. These can be related to health considerations (avoidance of environmental burdens, proximity to health care or green areas) or to transport accessibility (proximity to infrastructure or services) – which is more likely to increase the loads of traffic related emission burdens. However, location choice frequently depends on household budgets (nowhere else is comparable and affordable), employment (proximity to the work place), education (proximity to a school or college) or community issues (proximity to family, friends, social peers, houses of worship, etc.). Negative discrimination (landlords who do not rent to certain groups in certain areas; members of certain ethnic groups feeling unwelcome in certain areas) can be another motivator for

location choice. When considered at the population level, location choice can add up to trends for specific population groups. Overall, such questions belong to the area of research, which rather than or in addition to answering the question “*Is there a problem and if so, what is it?*” seek to also explain how it happened (cf. Szasz & Meuser 1997). Several experts concurred that it would be helpful if not important to answer this question in order to be able to devise effective measures for curing present or preventing future EJ problems.

4.3. Lessons for EJ research in Germany

The situation in Germany regarding research looking specifically at the links between transport emissions (noise, gasses, particles) and EJ is quite different from that in the U.S. A comprehensive review of the overall *status quo* in German EJ research found 17 studies published between 1999 and 2007, which differentiated burdens or effects of transport emissions on different population groups by socio-economic parameters (Bolte & Kohlhuber 2008). Not all of these studies focused solely on transport and, as another overview paper drawing on both the Bolte & Kohlhuber review and further research concluded, the great majority were based on the analysis of secondary data sets from either small scale epidemiological studies or regular, nationwide survey. Most of these data sets relied on the subjective reporting of environmental burdens and nuisances (from both traffic and other sources), few also measured and/or modeled these (Bunge & Katschner 2009) and only one compared objective and subjective measures of exposure to emissions generated from transport (Köckler *et al.* 2008). Some more work on exposure or health effects using modeled or measured data or a combination of both has been done in Great Britain (e.g. Brainard *et al.* 2002; Brainard *et al.* 2006; Briggs, Abellan & Fecht 2008; Fairburn, Walker & Smith 2005; King & Stedman 2000; Mitchell 2005; Namdeo & Stringer 2008; Pennycook *et al.* 2001; Pye *et al.* 2001 and Wheeler 2004). However, the spatial distribution of different socio-economic sub groups of the population in Germany will differ from both the UK and the USA. Both poverty levels and racial and ethnic diversity differ in these countries and these are the most frequent parameters according to which environmental injustice is generally diagnosed. It is thus still important to enlarge the body of empirical knowledge to ascertain to what extent different population groups are actually differently affected by transport emissions in Germany and which parameters best serve to identify differential impacts.

The work done in North America⁷ on measuring the differential impacts of different road transport related pollutants (mostly particulate matter – PM – and nitrous oxides) as well as their health impacts should be a useful source for comparing and possibly adapting approaches of enquiry in Germany. Particularly the work done on cumulative impacts and vulnerability indices merits close attention. There is also some work looking at the level of agreement between air quality modeling and the physical measurement of certain pollutants which again is worth looking at, particularly as and when more EJ studies in Germany start to integrate objective measures of pollution exposure.

The conceptual discussion of the EJ concept and of how to ask the right questions in EJ research in the U.S. can also provide interesting input to the – as yet nascent – debate in this field in Germany.

⁷ Several of the papers cited in Table 1 refer to cases in Canada.

5. The political and legal framework for EJ related decision making and campaigning

5.1. Federal EJ-related legislation, orders and strategies

The Civil Rights Act

As has been stated previously, scientific research into EJ to some extent and certainly political, policy and legal considerations of environmental justice were originally triggered by community protests over local problems with specific sources of pollution or emissions (cf. Deakin 2007). The main piece of legislation, under which many environmental justice related legal suits were and are still being brought is Title VI of the Civil Rights Act of 1964. Section 601 states that *“No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.”* In the context of transportation this means specifically, that any highway or public transport projects, which are financially supported by Federal money, must fulfill the above requirements. Section 602 of the Act gives Federal agencies the right and the duty to ensure compliance with Title VI in actions or programs for which it is responsible. Since private plaintiffs must show intentional discrimination if they file suits under Section 601 – which is often very difficult – it was more common for environmental justice cases to be brought under Section 602, where the requirement is merely to show disparate impact (Deakin 2007), i.e. that an action or program has a (disproportionately) different (negative) impact on certain groups than on others. However, in 2001 the U.S. Supreme Court ruled that there was no private right to bring actions under Title VI on disparate impact issues but only in cases where intentional discrimination could be shown (*ibid.*; United States Commission on Civil Rights) This has made it much harder for EJ cases to be heard. Under the current ruling, only the Attorney General can bring cases on account of disparate impact, which, as one expert put it, almost means that the government has to sue itself. But even that was said to have happened. In addition, it is still possible for private entities to complain to Federal agencies about a potential neglect of their duties under Section 602, which the agency then has a duty to investigate. If a concerned party is not satisfied with an agency’s finding, it can then potentially sue that agency under Administrative Procedures Act, alleging that an action or inaction is *“arbitrary, capricious or not in accord with the facts”* (Deakin 2007, p. 56).

Executive Order 12898 and associated orders

Environmental justice was first explicitly established as a basis for political decision making with the passing of the 1994 **Executive Order 12898 Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations** of the Clinton administration. One interviewee called it the *“most amazing piece of environmental non-legislation”*. It was greeted as an important signal, but an EO has no legal status, thus public bodies cannot be taken to court over a possible non-compliance. EOs do express the intentions of an administration, however. EO 12898 stipulated that *“to the greatest extent practicable and permitted by law, [...] each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States”* (Section 1-101) and that *“the head of each Federal agency shall be responsible for ensuring compliance with this order. Each Federal agency shall conduct internal reviews and take such other steps as may be necessary to monitor compliance with this order.”* (Section 6-601). EJ activists considered it an important step forward that the EO included income in addition to race as a possible descriptor for a disproportionately impacted population (see also Box 1).

Box 1: The National Environmental Advisory Council

The NEJAC is a group brought together to enable EJ stake holders to provide outside advice to the EPA on its EJ related activities. It currently comprises 26 members representing the following groups: academia (3), community groups (6), industry and business (5), non-government organisations and environmental organisations (6), state and local governments (2) and tribal governments/indigenous groups (3) as well as one federal officer (National Environmental Justice Advisory Council 2010). It is funded with approximately \$ 0.5 Million, including 1.5 person years of staff support p.a. and travel costs for its members attending the annual to twice yearly meetings. The NEJAC members are selected by the EPA and rotated to provide good opportunity for involvement, though the council's charter does not detail the criteria for selecting members nor the frequency of their rotation (U.S. EPA - Environmental Protection Agency 2008b).

The EO also mandated the Environmental Protection Agency (EPA) to convene an interagency Working Group on EJ (Section 1-102) and for each Federal agency to draw up an internal EJ strategy within 12 months, on the progress of which the agencies were to report to the Working Group within 24 months of the Order being established (Section 1-103). The Interagency Working Group currently comprises representatives of 17 Federal agencies as well as some White House offices and its role is seen to be *“to guide, support and enhance federal environmental justice and community-based activities.”*⁸ In August 2011, the heads of the 17 Federal agencies signed a *Memorandum of Understanding on Environmental Justice and Executive Order 12898 “to renew the process under*

Executive Order 12898 for agencies to provide environmental justice strategies and implementation progress reports.” (Section I.B, U.S. Federal Government 2011) and *“to establish structures and procedures to ensure that the Interagency Working Group operates effectively and efficiently.”* (Section I.C, *ibid.*), among other purposes. All signees agreed to have their agency's most current EJ strategy (drafts) posted on-line by the end of September 2011 and to have a final version posted by February 11th 2012, which is then to be periodically reviewed. In addition, annual progress reports about the implementation of the strategies are to be submitted to the Interagency Working Group (*ibid.*)⁹ As the EO, the Memorandum of Understanding (MoU) has no legal status and creates no right to legal actions in the case of any non-fulfillment or non-attainment of its stated goals. The signing of the MoU signals both a renewed political commitment and the fact, that the – very similar – stipulations on (inter) agency work towards EJ that were contained in the original EO have not been fulfilled thus far.

However, EO 12898 did result for example in the U.S. Department of Transportation's (DOT) *Order on Environmental Justice* of 1997¹⁰, which states in its preamble that

“The DOT Environmental Justice Order is a key component of DOT's June 21, 1995 Environmental Justice Strategy (60 FR 33896). The Order sets forth a process by which DOT and its Operating Administrations will integrate the goals of the Executive Order into their operations. This is to be done through a process developed within the framework of existing requirements, primarily the National Environmental Policy Act (NEPA), Title VI of the Civil Rights Act of 1964 (Title VI), the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (URA), the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), and other DOT applicable statutes, regulations and guidance that concern planning; social, economic, or environmental matters; public health or welfare; and public involvement. The Order is an internal directive to the various components of DOT and does not create any right to

⁸ www.epa.gov/environmentaljustice/interagency/index.html [accessed November 4th, 2011]

⁹ Further information about the Interagency Working Group can be found at www.epa.gov/environmentaljustice/interagency/index.html [accessed November 4th, 2011]

¹⁰ www.fhwa.dot.gov/environment/environmental_justice/facts/dot_ord.cfm [accessed October 13th, 2011]

judicial review for compliance or noncompliance with its provisions.” (U.S. DOT - Department of Transportation 1997)

DOT agencies followed suit (Deakin 2007). The Federal Highway Administration for example issued an equivalent order in 1998 (U.S. FHWA 1998)¹¹. An accompanying publication on transportation and EJ from the FHWA (FHWA & FTA 2000) explains the how different actors concerned with allocating and utilizing Federal funding for transportation projects can “*successfully integrate Title VI and environmental justice into their activities*” (*ibid.*, p.7). For State DOTs this entails for example developing the methodological capacity to assess both positive and negative impacts of transportation activities on different population groups, to improve their public involvement activities to not just enable but ensure (!) meaningful participation of minority and low-income populations and to work with other decision makers to provide intermodal systems, that improve the natural and human environment for such groups. Metropolitan Planning Organizations (MPOs)¹² are for example directed to improve their methodological capacities to be able to both assess Title VI compliance of long term transportation plans and determine the residential, employment and mobility patterns of low-income and minority populations to be able to identify the needs of these groups and to avoid injustice in how benefits and burdens of transportation investments affect different population groups.

Public transport providers, who are specifically named as providing an “*essential service for many low-income and minority populations who have no other way to get to work, shopping, child care, medical appointments, recreation, or other destinations.*” (*ibid.*, p.8), are seen to support civil rights and EJ principles, if they for example ensure that their investments result in equitable levels of service to low-income and minority populations and “*avoid, minimize or mitigate disproportionately high and adverse effects*” (*ibid.*) on these groups.

Since furthermore both State DOTs and MPOs have to certify Title VI compliance in allocating and utilizing federal funding, legal actions against them can be initiated if an argument can be made that their Title VI review has been inadequate.

The Office of Environmental Justice and Plan EJ 2014

In the wake of EO 12898, the Office of Environmental Justice was created within the EPA in 1994 (formerly Office of Environmental Equity, est. 1992). Organizationally, it is part of the EPA’s Office of Enforcement and Compliance Assurance and currently has 20 staff. As is the case in most larger organizations or bodies, the implementation of any non-statutory strategy or the fulfillment of its goals are not a foregone conclusion. It is part of the remit of the Office of Environmental Justice to work on the EJ agenda within the EPA by identifying how EJ can or should be incorporated into EPA policies and programs. It also manages certain EJ related activities such as the Interagency Working Group on EJ described above and the National Environmental Justice Advisory Council (NEJAC).

At the time of my fellowship trip, the U.S. EPA had also just published its *Plan EJ 2014* – so named to commemorate the 20th anniversary of EO 12898. It is a strategy that is intended to “*help EPA integrate environmental justice into the Agency’s programs, policies, and activities*”¹³ (a goal that can be said to be in fulfillment of Sections 1-101 and 6-601 of the EO as quoted above). The plan is further intended to provide an agency-wide perspective by identifying **cross-agency focus areas for action**

¹¹ Both of these orders provide definitions of the terms minority populations, low-income populations and disproportionately high adverse effects.

¹² which are for example responsible for developing transportation plans and programmes in collaboration with State DOTs, transit providers, local agencies and the public

¹³ www.epa.gov/environmentaljustice/plan-ej/index.html [accessed November 4th, 2011]

together with strategies and actions linked to each focus area, which are the following (the comments on each focus area are based on my interview at the Office of Environmental Justice):

1. **Incorporating Environmental Justice into Rulemaking:**
The goal is to ensure, for example, that air quality standards are equally beneficial or adequate for everyone, taking into account different susceptibilities or cumulative exposure. One challenge in this context is finding mechanisms that ensure, everyone who should be heard can actually participate in the relevant process. Depending on where hearings are held, people might need to travel (partly a financial issue) and not everyone has the required specialist knowledge e.g. on mitigation technologies for refinery emissions.
2. **Considering Environmental Justice in Permitting**
This generally happens at state level, where more stringent standards can be implemented if the State administration so decides. However, implementing standards is also a cost question and most states have budgetary limitations. They also need to decide how to deal with e.g. cumulative impacts from different sources and how this affects permitting. EPA needs to brief the States in this context but the final decisions rest with them.
3. **Advancing Environmental Justice through Compliance and Enforcement**
Lisa Garcia (senior advisor to the EPA's Administrator Lisa Jackson and supervisor of the OEJ) is working to focus the Enforcement & Compliance Program on EJ issues by targeting certain facilities and/or populations. The EJ focus is thus shaping the selection of enforcement initiatives, such as one relating to e-waste.
4. **Supporting Community-Based Action Programs**
The goal is to involve communities and support them in being at the table (see also point 1). Small grants of up to \$25,000 are provided e.g. for community training on specific issues or technical assistance in dealing with particular problems to empower the communities in exchanges with e.g. facility owners.
5. **Fostering Administration-Wide Action on Environmental Justice**
The EPA can "*turn off the pipe and make the pollution go away*" as far as specific facilities are concerned, but there are wider issues such as better jobs, better housing and better transport. EJ is a cross-cutting concept and requires action at many levels and in many areas. Additionally, for example in the transport context, when there might be issues relating to traffic emissions, achieving EJ also becomes a question of inter agency compliance

The last point should also touch upon the remit of the Interagency Working Group, which in its Charter states that it "*will serve as a clearinghouse to help identify opportunities for targeted interagency collaboration on environmental justice, and will help facilitate interagency coordination, including for research, data collection, and analysis*" (U.S. Federal Government 2011, Section 9). To what extent such collaboration would cover or influence daily decision making in an example such as the one described above, is not evident from the information available.

5.2. Other Federal legislation relevant to transport emissions

The following sections provide a summary overview of the most important pieces of federal legislation which were mentioned or discussed by the experts I spoke with as having some relevance to controlling or limiting emissions from transport activities. Often this was also set in the context of finding remedies for environmental injustice or trying to ensure that existing environmental quality would not be deteriorated. The pieces of legislation discussed in the following as well as the description of their content thus reflect both a selection made by my interview partners and/or my intention to keep the information contained in this report relevant to my objectives

National Environmental Policy Act of 1969 – NEPA

NEPA is relevant to Federal development and investment projects and stipulates among other things, that Environmental Impact Statements (EISs) are required when Federal activities relating to e.g. airports, highways or military complexes are proposed (these may include alterations, construction, purchase and even legislation). An EIS must be prepared by the Federal agency proposing the activity if a preceding – and much less detailed – Environmental Assessment has identified the need to do so and all EISs are reviewed by the EPA. They must contain detailed information on the environmental consequences of the proposed actions as well as the impacts of reasonable alternatives to those actions. NEPA also mandated the creation of the Council on Environmental Quality, which in turn issued guidance on how to incorporate EJ considerations into the EIS process (Council on Environmental Quality 1997). Among other advice, it details six principles for Federal agencies to follow during NEPA processes. They should

- consider the composition of the affected area to determine whether low-income, minority or Tribal populations are present and whether there may be disproportionately high and adverse human health or environmental effects on these populations,
- consider relevant public health and industry data concerning the potential for multiple exposures or cumulative exposure to human health or environmental hazards in the affected population, as well as historical patterns of exposure to environmental hazards,
- recognize the interrelated cultural, social, occupational, historical or economic factors that may amplify the natural and physical environmental effects of the proposed action (including the physical sensitivity of the community or population to particular impacts),
- develop effective public participation strategies, acknowledging and seeking to overcome linguistic, cultural, institutional, geographic, and other barriers to meaningful participation,
- assure meaningful community representation in the process, beginning at the earliest possible time, and
- seek Tribal representation in the process.

(based on *ibid.*, p.9)

This guidance does not define a mandatory process. While it is intended “to further assist Federal agencies with their NEPA procedures so that environmental justice concerns are effectively identified and addressed” (*ibid.*, p.1), it does not guarantee that the principles outlined above are actually adhered to in NEPA procedures. An important shortcoming, which was pointed out by community advocates, was that, while EISs are mandated, it is not defined how their findings should influence actual decision making. The EPA’s webpage on NEPA and EJ¹⁴ presents the U.S. Air Force’s strategy for incorporating EJ considerations into the EIS process (Air Force Center for Engineering and the Environment 1997) as a best practice example.

Clean Air Act

In 1990, the U.S. Congress passed the latest major amendment of the Clean Air Act (CAA) (U.S. Congress 1990), which was first signed by Richard Nixon in December 1970. Among other requirements, this Act provides that the U.S. EPA must set National Ambient Air Quality Standards (NAAQS) for six common air pollutants: particulate matter, ground-level ozone, carbon monoxide, sulfur oxides, nitrogen oxides and lead. They are generally referred to as the *criteria* pollutants, because the permissible levels are set by the EPA in accordance with scientifically based criteria relating to their human health and/or environmental impacts. The health related limits are called the primary standards, those relating to environmental effects are called secondary standards¹⁵. The

¹⁴ www.epa.gov/compliance/nepa/nepaej/index.html#federal-guidance [accessed November 4th, 2011]

¹⁵ www.epa.gov/airquality/urbanair/ [accessed November 2nd, 2011]

standards are to be reviewed at least every five years (§7409, Section d). The current NAAQS are shown in Table 2.

Pollutant	U.S. Primary Standards			U.S. Secondary Standards	German Air Quality Standards
	Level	Averaging Time	Specifications	Level and Averaging Time	Level and Averaging Time
Carbon Monoxide (CO)	9 ppm (10 mg/m ³)	8-hour	not to be exceeded more than once per year	none	10mg/m ³ ; rolling 8-hour average
	35 ppm (40 mg/m ³)	1-hour			
Lead (Pb)	0.15 µg/m ³	rolling 3-month average		same as primary	0.5 µg/m ³ ; annual
Nitrogen Dioxide (NO ₂)	53 ppb (= 0.053 ppm)	annual (arithmetic average)		same as primary	40 µg/m ³ ; annual
	100 ppb	1-hour	3-year average of the 98 th percentile of the daily maximum 1-hr average at each monitor within an area to be ≤ 100 ppb	none	200 µg/m ³ ; hourly (18 breaches max./yr.)
Particulate Matter (PM ₁₀)	150 µg/m ³	24-hour	not to be exceeded more than once p.a. on average over 3 yrs	same as primary	50 µg/m ³ ; 24-hour (35 breaches max./yr.)
Particulate Matter (PM _{2.5})	15.0 µg/m ³	annual	3-yr average of weighted annual mean PM _{2.5} concentrations from single/multiple community-oriented monitors to be ≤ 15.0 µg/m ³	same as primary	25 µg/m ³ ; annual (from 2015)
	35 µg/m ³	24-hour	3-yr average of 98 th percentile of 24-hr concentrations at each population-oriented monitor within an area to be ≤ 35 µg/m ³	same as primary	-
Ozone (O ₃)	0.075 ppm (2008 std.)	8-hour	3-yr average of the 4 th -highest daily max. 8-hr average ozone concentrations measured at each monitor within an area over each year to be ≤ 0.075 ppm	same as primary	120 µg/m ³ ; rolling 8-hour average (24 breaches max./yr.)
Sulfur Dioxide (SO ₂)	75 ppb	1-hour	3-yr average of the 99 th percentile of the daily max. 1-hr average at each monitor within an area to be ≤ 75 ppb	none	350 µg/m ³ ; hourly (24 breaches max./yr.)

Table 2: Current National Ambient Air Quality Standards set in accordance with the U.S. Clean Air Act (data source: www.epa.gov/air/criteria.html#1 – accessed November 2nd, 2011) and German equivalents (Die Bundesregierung 2010) Note: For better legibility, some of the information contained in the sources table has been omitted, this table thus does not show full legal details.

The Clean Air Act stipulates that the EPA must designate areas as meeting ('attainment') or not meeting ('nonattainment') the NAAQS. Furthermore, all states have to develop a *general plan* to

attain and maintain the NAAQS and a *specific plan* to remedy nonattainment of NAAQS in any of their areas. Collectively, these plans are called State Implementation Plans. They must be developed by state and relevant local agencies and approved by the EPA. In § 7408, the CAA also contains a specific section on transportation air quality planning (see Appendix 2, p.35)

Box 2: Number of monitoring sites for CAA criteria air pollutants nationwide (data: U.S. EPA - Environmental Protection Agency 2008a)

According to the EPA's 2008 Report on the Environment, the nationwide monitoring network for the CAA's criteria pollutants (see Table 2) contained the following number of monitoring stations:

- **carbon monoxide:** 375 monitoring sites in 2006 (with 144 providing sufficient data to assess CO trends since 1980)
- **lead:** 161 monitoring sites in 2006 (with 15 providing sufficient data to assess lead trends since 1980)
- **nitrogen dioxide:** 369 monitoring sites in 2006 (with 87 providing sufficient data to assess NO₂ trends since 1980)
- **particulate matter: PM₁₀** – 902 monitoring sites in 2006 (with 301 providing sufficient data to assess PM₁₀ trends since 1988); **PM_{2.5}** – 786 monitoring sites in 2006 (with 752 providing sufficient data to assess PM_{2.5} trends since 1999)
- **ozone:** 1,194 monitoring sites in 2006 (with 201 providing sufficient data to assess ozone trends since 1978)
- **sulphur dioxide:** *no comparable information*

One of the experts I interviewed commented on the CAA saying that while the existing NAAQSs were poor, they were “*the best we’ve got*” and they provided advocacy and community groups with tools to at least delay harmful projects (though only sometimes stop them). In Los Angeles, they also provided a basis for the Bus Riders Union to protest fare increases on the grounds that they would force poor people to stop using public transport and buy and drive old, polluting cars instead. However, one of the researchers I spoke to judged the CAA to be a very successful piece of legislation, “*without which many urban areas in the United States would be uninhabitable*” and the improvements in air quality seen over the last forty years were said to have benefitted low income people to a large extent. While it could be argued that the EPA was too conservative in

the way they set the limits for pollutants (e.g. the limits for ozone limits could be lower), they were always very careful about building the scientific argument for their decisions as they knew that these were very closely scrutinized from many sides. The major problems seen by this expert was the fact that the monitoring of the pollutant levels was inadequate (see also Box 2) and that there was insufficient knowledge on cumulative health impacts. While limits for individual pollutants might thus be scientifically defensible, there was no basis for judging how they should be viewed in situations where people were affected by more than one of them. In the context of transport emissions for example, it is actually very unlikely that only *either* NO₂ *or* particulate matter affect people in near roadside locations (especially since nitrous oxides can actually be a constituent part of PM). Another interview partner pointed out, that in the case of conflicts between CAA stipulations and transport related projects such as highway extensions, acceptable project mitigation could include measures such as soundwalls, sealing up affected homes through providing tighter fitting windows and filters for air conditioning. This would do nothing to improve outside air quality, though, and further it reflects a very narrow view of how acceptable air quality standards are defined.

Federal Transportation Funding Bill

Among other issues, the Federal transportation funding bill stipulates on what grounds Federal money earned from the fuel / gas tax is to be allocated to federal transportation projects and how it is to be allocated to State projects, for which Federal subsidy is being sought. In 1991, the Intermodal

Transportation Efficiency Act (ISTEA) marked the first time, that road transport and mass transit were both covered by the same piece of legislation. Depending on the stipulation in the (funding) authorization bills, different shares of the overall transport funds authorized at the federal level are now pre-allocated to highway projects or transit investments. The latest such bill was the *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users*, SAFETEA-LU for short, which was passed in August 2005 by the George W. Bush Administration and regulated federal transportation spending till 2009. Under the SAFETEA-LU, a total of \$286.4 billion was guaranteed as funding for federal surface transportation programs. This included \$52.6 billion for federal transit programs¹⁶, i.e. somewhat less than 20%. The bill defines programs, under which the funds are to be allocated and one interviewer commented, that there were currently 108 programs under which funding could be allocated, which was ineffective and impossible to evaluate. At the time of writing, the Federal Highway Administration lists 51 programs and provisions with relevance to its activities on its website¹⁷ while there are 18 on the website of the Federal Transit Administration¹⁸. Most of the funding - \$193.2 billion - was to be distributed through the Highway Trusts Fund, which funded programs such as Interstate Maintenance, National Highway System, Congestion Mitigation and Air Quality Improvement, the Highway Safety Improvement Program and the Surface Transportation Program, which, though, can also fund capital transit projects for example (Office of Legislation and Intergovernmental Affairs 2005).

Until today, no follow up bill has been passed and funding for surface transportation projects is allocated on the basis of short term extensions of the last bill. The Oakland-based NGO Urban Habitat is campaigning to have a civil rights element incorporated into the next transport bill to allow both organizations and individuals to take legal action if Federal transport spending results in discrimination against them or their community.

Several criticisms were leveled at the federal funding bill as it stands. It was seen as ineffectual in terms of achieving a more integrated transport system, that the funding for highway projects was largely allocated to the states according to a formula considering the vehicle miles travelled in that state and the lengths of highways while transit projects had to compete with each other for funding allocation at the federal level for funds that were heavily oversubscribed. Theoretically, the states could use some of the funding for highway projects to fund capital investment in transit or even non-motorized transport projects, but this was said to happen very rarely. Experts advocated a clearer definition of policy purposes (e.g. building highways or getting people efficiently from a to b?) and in this context also called for better performance standards (such as targets for modal split or reducing green house gas emissions) and regulation to actually help achieve such goals, once they were defined. Subsidies should only be granted for projects which were included in a state or regional transportation plan, which contained clear performance goals and authorities, which did better in achieving such goals should subsequently also receive more funding. Finally, it was pointed out that the federal gas tax – the revenue source for federal transport funding – stood too low at 18 cent/gallon and had not been raised since 1993, thus having lost effectively about 50% of its value to inflation. Also, the gas tax revenue had so far been supplemented by about an extra third of its value from other federal sources and the Republican party was trying to have this element removed in the upcoming bill.

Under the *American Recovery and Reinvestment Act of 2009*, a further federal funding tool for transport projects was created, the *Transportation Investment Generating Economic Recovery*

¹⁶ www.fta.dot.gov/legislation_law/12314.html [accessed November 23rd, 2011]

¹⁷ www.fhwa.dot.gov/safetealu/factsheets.htm [accessed November 23rd, 2011]

¹⁸ www.fta.dot.gov/12314_6538.html [accessed November 23rd, 2011]

(TIGER) Grants. Applications could be made for both highway and transit projects and funding was to be allocated on a competitive basis to foster innovation across different areas of transportation investment, which one expert commended as being an unusual but welcome decision process. The first TIGER funding round saw 1,456 applications of which 51 projects totaling \$1.5 billion in grant support were funded, including “improvements to roads, bridges, rail, ports, transit and intermodal facilities”.¹⁹ One expert called this the “first multi modal program” as it included passenger road transport, freight transport projects and also bike lanes and greenways, which in the Bay Area at least, partly also run through disadvantaged communities.

5.3. California state legislation

Assembly Bill (AB) 32: Global Warming Solutions Act

AB 32 was passed in 2006. It stipulated that the emissions of green house gases (GHG) in California had to be reduced to the 1990 level by 2020. This was determined to have been 427 million tons of CO₂ equivalent. Among other mechanisms for achieving this goal, a cap and trade mechanism was introduced. AB 32 also calls for consultation with the environmental justice community to be consulted in implementing the act (as well as e.g. industry sectors, academic institutions and environmental organizations; Section 38501 f) and for an environmental justice advisory committee to be convened to advise on implementation issues (Section 38591 a). Nevertheless, controversy arose over the GHG effect of cap and trade being considered by the California Air Resources Board (CARB) as the main criterion for decision making. As a result, CARB was reported to now also have to consider the local effects of AB32 related measures as otherwise, emission reductions at a remotely located facility or one near an affluent area might be traded against a maintenance of the *status quo* by facilities in more populous, minority or low-income areas. Main stream environmental NGO’s were said to have been dissatisfied with these developments in some cases and one expert judged, that there seemed to be little if any synergies between climate protection and EJ concerns. This link could be strengthened, if funding from cap and trade schemes was for example used to improve transit services in urban areas with low-income populations and for other schemes promoting and enabling a mode shift away from the car. Examples would be creating livable streets (including street green, seating and shelter) and improving the infrastructure for non-motorized travel. It was also pointed out to me, that the so-called unincorporated communities in California (as presumably elsewhere) often suffered the worst underfunding of public infrastructure²⁰. This expert suggested that the funds generated from the cap and trade mechanism for the Community Benefits Fund could be used to address basic needs in such communities – such as clean drinking water or bus shelters to protect from the Californian summer sun – in a more determined and targeted fashion.

Senate Bill (SB) 375: Sustainable Communities and Climate Protection Act

One expert described this as a “climate change companion bill to link up land-use and transportation”. It requires CARB to develop 2020 and 2035 targets for reducing GHG emissions from passenger vehicles in each of the 18 regions covered by one of California’s MPOs. The MPOs must then prepare a Sustainable Communities Strategy (SCS) demonstrating how these targets will be met through integrated land use and transport planning. It is also mandatory for MPOs to draw up

¹⁹ www.dot.gov/recovery/ost/ [accessed November 23rd, 2011]

²⁰ They are governed by the County Board of Supervisors, which was said to be less responsive to the concerns of small, individual communities than the mayors of incorporated communities would be.

Regional Transportation Plans and when the SCS has been passed, it is to become part of this plan, which can be enforced at the federal level²¹.

Within the MPO regions, only projects which fit into the SCSs can receive federal subsidies. At the same time – as one expert explained – it was important to get developers on board when preparing SCSs in accordance with SB 375 as the implementation of the strategies depends on them. One incentive for developers to plan and build in accordance with an SCS is that housing or commercial developments which fit into the strategy can be relieved from certain environmental impact assessment requirements which are mandated by the California Environmental Quality Act (CEQA, last amended in 2010). This can for example be the case if the developments are to be located in high transit access areas (served with a minimum 15 min. service frequency during rush hours).

From the research point of view, one question arising from SB 375 is how well the effects of different measures on GHG and other emissions can actually be predicted with current models and what additional tools or modules are needed to assess differential social and thus EJ-related impacts. One expert reported, that the models originally used by the Bay Area Metropolitan Transportation Commission (MTC) were highly inadequate for both purposes and that external expertise was brought in by TransForm, an NGO from Oakland, to help MTC adjust their methodology.

Diesel Quality

The California Air Resources Board sets the quality standards for fuel sold in the state. The Californian regulations regarding both diesel and gasoline quality were reported to be stricter than the federal standards, though those were also being improved further. However, since the vast majority of train lines in the U.S. are not electrified, most trains are operated with diesel engines and their fuel use is regulated at the federal level. Operators were reported to have agreed to using California diesel when fuelling up in the state – so that was said to now happen in Nevada or Arizona, since lesser grade fuel is also cheaper. In general, the lack of electrification does mean that living near train lines brings more emission issues than just noise, contrary to what would often be the case in Germany.

5.4. Political actors

Several experts spoke about the importance of political appointments at various administrative levels for fostering EJ oriented decision making. This supports the finding of much implementation research, that key actors or champions are an important element in enforcing certain principles or getting strategies turned into practical measures. They often make a key difference to outputs and outcomes, even in situations which on paper are comparable (Gaffron 2002).

At the Federal level, the appointment of Lisa Jackson – a former Commissioner of the Department of Environmental Protection in New Jersey - as Administrator of the EPA was described as a programmatic decision by the Obama Administration to strengthen EJ concerns among other issues. She is the first person of African-American descent to fill this post and is said to have been inspired to care about environmental issues through the incident at Love Canal (Niagara, NY), where schools and homes were built on a known chemical dump site in the fifties and over time, severe health damages manifested themselves in the population. This became national news during the 1970's and 'The Love Canal Disaster' is commonly cited to have been one of the triggers for the rise of the EJ movement in the U.S. (cf. Elvers 2009)²². Lisa Jackson was credited with having made her intentions

²¹ www.arb.ca.gov/cc/sb375/sb375.htm [accessed November 23rd, 2011]

²² However, some sources also claim that the actual link between the chemicals present at the Love Canal site and the diseases and health problems observed there had never been scientifically proven (cf. Elvers 2009). To my knowledge, it has not been disproven, either, though.

on EJ clear very early on by announcing in an EPA staff memo, she would ensure that the EPA would reach out to historically underrepresented communities. She is also said to have revitalized the Interagency Working Group on Environmental Justice, which was originally mandated by EO 12898 in 1994 (see p.9). This was valued as an encouraging signal among staff at the Office of Environmental Justice that their agenda was being strengthened – and it also means, that interagency work on EJ had not lived up to the intentions expressed in EO 12898 nor had the EJ agenda been broadly integrated in the work of the EPA in general. Lisa Jackson also attended a conference on *Translating Science to Policy: Protecting Children’s Environmental Health* in New York City in 2009²³, was reported to have been the first to – unsuccessfully – try to introduce nationwide targets for GHG emissions and to have spoken out regularly in favor of the Clean Air Act (see p.13). In another expert’s view, Lisa Jackson had spoken out in favor of EJ more often than not, had appointed deputies who were “*at least talking a good talk*” and had achieved EJ becoming much more visible procedurally. This was also seen as the reason for the Sacramento Area Council of Governments (SACOG), the transportation planning and funding body of the six-county Sacramento region (CA), to have shown what improvements there were in their assessment of EJ issues with regards to the Metropolitan Transport Plan.

Other appointees of the Obama Administration named as being strong on the EJ agenda or certain aspects thereof were: Daria Neal (Deputy Chief, Federal Compliance and Coordination Section, Civil Rights Division, U.S. Dept. of Justice) and Thomas Perez (Assistant Attorney General, Civil Rights Division, U.S. Dept. of Justice) – both dedicated to Title VI of the Civil Rights Act (see p.9); Melody Barnes (Director of the White House Domestic Policy Council) – interested in reinstalling the private right to sue on Title VI disparate impact issues (see p.9) and Peter Rogoff (Administrator of the Federal Transit Agency), who “*came down very hard*” on Bay Area Rapid Transit regarding the Oakland Airport Expansion plans (see next section).

Several Democrat Los Angeles City Council members supporting bus only lanes in Los Angeles were also named as people providing important impulses for the Bus Riders Union campaign on getting such lanes (a. o. Richard Alarcón; Bernard Parks, a “*fiscal conservative*”; Wendy Greuel, former Council member – see also next section).

One expert interviewed also reported on the experience from her own work, though, which showed that in general there tended to be “*disconnect between community groups and regulators*” on the issues which needed to be looked at, on what needed to be achieved or on *how* to achieve the goals that community groups were advocating. This, however, could also point to a problem of communication between politicians and administrative actors, who are generally the ones who design the measures needed to implement certain strategies and responsible for operationalizing specific goals.

5.5. Evaluations of the *status quo*

Many experts agreed, that the Executive Order 12898 had been an important step forward as it served to direct executive agencies to address issues of EJ concern both in their internal procedures and documents as well as in their outside activities. It thus provided a framework, which could be referred to where shortcomings on EJ were observed. As stated before, the main weakness of the EO was considered to be the fact that it had no legal status and could thus not be enforced. Furthermore, it was possible for new Administrations to simply ignore its intentions as was said to have happened during the Bush government years from 2001-2009. It was also pointed out, though, that not only had the EJ movement matured and research evidence on EJ issues was growing but

²³ ccceh.hs.columbia.edu/conference-material/pressrelease.pdf [accessed November 24th, 2011]

environmental justice was now also present in the academic syllabus, thus anchoring it more firmly in various discourses.

One expert found that while air quality legislation on the whole had been successful in terms of achieving improvements, its link to transport policy had not worked so well. While planning agencies had to show that their measures in that field would not exceed the existing budgets of criteria pollutants, it was generally possible to obtain time extensions for addressing the problem if standards were not met and stricter measures would thus be postponed. It was also criticized, that there was still no real nationwide debate about internalizing more of the external costs of transport.

Another expert strongly criticized the fact, that in the relevant public documents, such as environmental impact assessments under the National Environmental Policy Act, there was no actual analysis of *differential* exposure of different population groups. Typically, results of emission modeling were intersected with socio-economic data to be able to say “*poor people live here – or not, black people live here – or not, rich people live here – or not*”. This was generally not followed up with a comparative analysis of differential impacts on different population groups, despite the existing stipulations to that effect. Such analyses typically only happened *ex post* in academic studies. So while EJ populations are identified, the *comparative* magnitude of their exposure is not. This interviewee did identify marked improvements in the procedures for public engagement in planning decisions, though. People were brought to the table and in some cases, project designs were adjusted in accordance with requests from community representatives. Another interviewee broadly concurred with this view, stating that all the regulations were about defining the impacts rather than being about actually forcing decision makers to take those findings into consideration in their decisions.

6. Urban transport and EJ issues – examples

Many of the experts I interviewed told me about their or other people’s experiences with problems, campaigns and success stories relating to urban transport and EJ. I have chosen the following examples because they illustrate the breadth of issues discussed under this heading, the differences in the actual challenges on the ground between the U.S. and Germany and also the impact that different EJ pieces of legislation and political strategies have had (or in some cases have failed to have). I would like to point out that I have not cross-referenced all the information received during the interviews with other sources and that the following thus in many cases represents the story as I have understood it to be from the people I spoke to.

6.1. Legal action related to the Civil Rights Act

The following examples of law suits brought under Title VI of the 1964 Civil Rights Act were described during the interviews (see also p.9).

In 1994, the Bus Riders Union (BRU) brought a civil rights suit against the Los Angeles Metropolitan Transport Association (MTA) arguing that the planned increases in bus fares (\$1.10 to \$1.35 for a daily pass, discontinuation of a \$42 monthly pass) would result in racial discrimination: most of the bus users were people of color (almost 90% of riders were Latino, Black or Asian/Pacific), some of whom took up to 100 rides a month while the more expensive rail services – which it was argued would be cross financed through the bus fare increases – were and still are predominantly used by white riders. Although the initial decision of the Federal district court in favor of the BRU’s was appealed six times by the MTA, in 1996 a 10-year Consent Decree was signed between the BRU and the MTA. The \$42 monthly pass and lower fares had to be kept, weekly and bi-weekly bus passes were introduced, 2000 diesel buses were replaced by vehicles running on compressed natural gas, which was the cleanest fuel available then (though this is no longer the case), and a further 500 gas

powered buses were added to the fleet. In addition, 1 million extra service hours were purchased (Mann 2007, interview at the BRU). The replacement of the more polluting vehicles was part of the Consent Decree as the BRU had argued, that the people worst affected by fare increases were at the same time also most exposed to the exhaust gasses (both at home and in the streets). However, since among other problems the buses remained overcrowded in spite of the improvements, the BRU attempted to have the Consent Decree expanded by a further five years in 2006. The Federal district court decided against this plea. Since 2006, fares have increased again and bus services have been cut. The MTA is currently under a civil rights review by the Federal Transit Administration (Bus Riders Union *et al.* 2011).

In 2010, Urban Habitat from Oakland won a case over Bay Area Rapid Transit (BART), the operators of the Bay Area commuter rail system, regarding a planned new connection to Oakland Airport. This branch line had initially been planned with two intermediate stops in a poor East Oakland community, but these were subsequently cut from the plan. BART claimed their EJ assessment (carried out in accordance with Executive Order 12898 on EJ – see below - due to \$70 Mio. of Federal funding being provided towards the overall cost of \$500 Mio.) had been sufficient while Urban Habitat claimed, a Title IV civil rights assessment should also have been done. The court ruled in favor of Urban Habitat, stipulating that the Federal \$70 Mio. had to be used for other transit purposes than the Oakland Airport Connector or lost altogether. This was considered an important victory, as the ruling – which eventually came from the Federal Transit Administration – meant that imminent service cuts and fare increases could be cushioned or avoided²⁴. The airport connector project nevertheless continues to be pursued.²⁵

6.2. Local campaigns

One of my interview partners in San Francisco reported about **a campaign on trying to stop the idling of trucks in residential areas**, which was partly funded by the Bay Area Air Quality Management District. The problem arose due to long distance truck drivers spending the night and keeping engines running to operate their fridges, TVs and other electric equipment in their cabin. The campaign included educating drivers and companies on the health damages associated with this behavior for both the drivers and the communities concerned – especially since many of the trucks in question were not conforming to current emission standards. As often, the companies concerned are small, family owned businesses owning and operating 1-3 vehicles, it was difficult or impossible for many to fund buying new trucks. Small grants were offered to support such purchases but even then, many owners could not afford the change. The Port of San Francisco now offers the option for drivers to hook up to electricity supplies over night, though, which has at least solved some of the problem.

In Boston, a partnership between the Boston-area Youth Organizing Project and Alternatives for Community & Environment (ACE) has been **campaigning for a youth transit pass** for \$10 per month. Such passes are issued free of cost for school children but can then only be used on weekdays outside school holidays and before 18.00 hrs. The campaigners' argument was that firstly, high school students were involved in extra-curricular activities and possible jobs which require them to be mobile outside those time. Secondly, there were other young transit riders in professional training or early employment, who could not afford regularly priced monthly passes. The campaigners ask for passes to be available to people between 12-21 years of age (younger children can use transit free of

²⁴ More information from Urban Habitat on this case can be found at: [//urbanhabitat.org/20years/marcantonio](http://urbanhabitat.org/20years/marcantonio) [accessed October 27th, 2011]

²⁵ BART's official webpages on the project can be found here: www.bart.gov/about/projects/oac/ [accessed October 27th, 2011]

charge). The campaign was supported by a decision maker who helped initiating a pilot program testing such a pass to be able to assess use levels and behavior.

Other campaign work by ACE focuses on **improving bus transit services**, which suffer from crowding issues, a lack of services at night and on weekends and being stuck in traffic as there is not enough prioritization for these. So the campaigners are asking for bus priorities at traffic lights, dedicated bus only lanes and real time service information at bus stops, which is not only available to people in possession of a smart phone. My interview partners also reported on one so-called [sic.] bus rapid transit (BRT) project serving, among others, the Roxburgh district of Boston (which is, at least in part, an economically disadvantaged area). The project was decided on in a top-down process, which elicited a lot of local resistance. The finished BRT service – the Silver Line – features neither dedicated lanes nor signaling priority and was considered to have been mostly labeled as such in order to leverage Federal funds. Apart from having achieved too little improvement for people relying on that service, it has also meant that locally, BRT is no longer seen as a good solution to transit problems.

Bus-only lanes have also been an issue in Los Angeles, where the Bus Riders Union BRU is campaigning on the installation of such lanes on 10 major streets and freeways with congestion problems, including the Wilshire Boulevard, which was reported to be one of the most frequented bus corridors in the nation with up to 90,000 boardings per day and the campaigners have estimated that an additional 17,000 could be added if dedicated lanes led to a faster and more reliable service. The Wilshire Boulevard also connects wealthy neighborhoods from West Los Angeles with the downtown area and residents of these areas opposed the scheme on the grounds that busses would cause accidents (e.g. hitting people when they pulled out of their driveways) and noise pollution. The real reason behind this opposition was suspected to firstly be resistance to any scheme which would take space away from private cars and secondly that there were worries over faster transit services providing access to West Los Angeles for people whom the local residents did not wish to see there²⁶. However, the Los Angeles County Metropolitan Transportation Authority (Metro) decided on implementing such a scheme and was successful in securing Federal subsidies for the measure. Metro is now reporting on its website the completion of the environmental review work for this project and that *“the City of Los Angeles, together with Metro and the County of Los Angeles, is working to begin final design and construction of the Wilshire BRT project”*²⁷. The measures are to include 7.7 miles of peak period bus lanes on a 12.5 mile corridor, signal priority measures and the permission for cyclists to use the lanes during restricted hours. The BRU considers this project a signal, that efforts towards leveraging Federal funds for similar measures on other corridors should be made as soon as possible and would have a good chance of success. If, in addition, the bus fleet was continued to be upgraded to the best available emission standards, the expected modal shift would also make a contribution to improving air quality along these corridors (as well as reducing GHG emissions). What I found somewhat surprising was, that the wealthy residents of Wilshire Boulevard did not consider such an effect a sufficiently desirable benefit to themselves to be in favor of the bus prioritization measures. My interview partners suggested that firstly a lack of awareness and secondly the faith in the quality of one’s own health care could be reasons for this phenomenon. Also, the conviction that the freedom to use a private car was an inalienable right might override all other concerns.

²⁶ A similar motivation was seen as the potential reason for strong local resistance to the above ground extension of the Boston Red Metro Subway line to Arlington, which persisted even when the transport authority offered to put the line underground. The debate was so involved that at one point, opinion polls showed, that a majority of local people were opposed to all options, even the do-nothing scenario.

²⁷ www.metro.net/projects/wilshire/ [accessed November 24th, 2011]

6.3. Local administration initiatives

In San Francisco, the Department of Public Health reported on having built validated models for urban transport noise, vehicle pedestrian injuries and air quality (NO₂ and PM)– with the latter being the most difficult to model reliably, as it is affected by the most variables. The model for pedestrian injuries so far manages to explain 72% of the variance in vehicle-pedestrian accident frequencies and severity between different street corridors. Accident frequencies had been mapped and it was found, that **50% of injuries and 55% of serious and fatal pedestrian injuries happened on 7% of the overall length of the road network**. Since these were mostly also the parts of the network associated with the biggest problems in noise and air pollution, all issues could usefully be tackled together. The accidents were overmanifested in low-income areas (identified by U.S. Census Tracts) and elderly people were overrepresented among the accident victims. One of the worst hot spots for pedestrian injuries was a downtown intersection with high pollution levels and a high density of single occupancy hotels, which mostly house a low-income transient population, who also have a very low vehicle ownership rate (i.e. they suffer most but contribute least to the problem). A multivariate approach showed, that in general, vehicle volumes explained most of the differences and the width of streets was also significant. Proxies for pedestrian volumes were also identified as an explanatory factor. Since *“people are not exposure”*, seeing more accidents where there were more people should still be considered an identifier of a high accident frequency area, which needed to be looked at. At the end of 2010, a Pedestrian Task Force with monthly progress meetings was created following a directive by the San Francisco Mayor, which for the first time set a target of reducing severe and fatal pedestrian injuries (a 50% reduction within 10yrs based on 800 p.a. in 2010). This is a signal – and possibly also a cause – for a shift in public opinion, as in the past, issues such as air quality and noise were seen as external factor, from which people could reasonably be expected to be protected, while in the context of accidents, the phenomenon of victim blaming was often encountered. However, as one of my interview partners put it: *“It is not a reasonable consequence for death to result every time somebody makes an error.”* The Department of Public Health is arguing, that while improvements for the benefits of busses and cyclists and traffic calming measures in residential neighborhoods were important and should be continued, a strategy and traffic calming tool kit for arterial streets was also needed. This tool kit now exists in the form of a list of possible measures including speed reduction, radar signs showing drivers their speeds, lane narrowing, bike lanes, installing temporary parks and a stronger enforcement of speed violations. The work in this area was currently aiming towards short-term targets for the end of 2011 with the next important step being the development of a long-term implementation plan.

Overall, these examples illustrate three main points:

- The overall high awareness of EJ as a potential or actual concern, which is both cause and effect of the related high level strategies and of it being incorporated into many public documents, have made it a much stronger point of crystallization for public and individual concerns, which in Germany might be discussed in different terms such as the question of accident risk or transit fare affordability (if indeed they are discussed).
- The greater economic discrepancies between different population groups in the U.S. compared to Germany combined with a transport system and spatial structures, which are more strongly geared towards and shaped by individual motorized mobility have lead to more severe and more widely occurring cases of transport poverty. Under the wider umbrella of EJ as it is understood in U.S., this has become one of the major campaign issues in what could be termed the EJ community. This aspect has been further strengthened by the greater public and political sensitivity towards issues of ethnic discrimination. Since ethnic minority populations are often also economically disadvantaged, transport poverty can

quickly become an issue of - potential – racial discrimination. This is also the reason that many campaigns being seen to be part of the wider EJ movement are argued on the basis of the Civil Rights Act. It seemed to me from the information gathered during the interviews that where non-compliance with Title VI could be argued or indeed proven, the political clout of the campaign was much greater than in cases, where for example stipulations of the Clean Air Act were violated. One expert commented that people nowadays did not like to be taken back to civil rights issues as “*we are seen to have gotten past issues of discrimination on the grounds of race or national origin*”.

- The greater socio-economic discrepancies in the U.S. also explain the opposition to rail transit projects manifest in specific campaigns and mentioned as a general point in several interviews. Rail transit works most efficiently in high density areas and settlement patterns, which are more traditionally (also) oriented towards the railway network. Where even central settlement areas have comparatively low population densities and the predominant residential land use pattern is characterized as sprawl (low densities over large areas), good quality rail transit will require even more subsidies than it does in more favorably structured contexts – money that is then not available to operate or extend bus services. Combined with a high political value of cutting ribbons on rail investment projects and a historically low regard for busses as a mode of transport – as being used predominantly by colored and poor people – this results in rail vs. bus having a great potential for quickly becoming a race or (income) class conflict.

7. Suggestions for integrating EJ considerations into urban transport planning in Germany

There are four levels which should ideally be addressed in order to lift EJ onto the agenda of transport and urban planning in Germany. On the conceptual level, **the relevance of the EJ perspective for different levels of decision making** should be more clearly and more broadly elucidated, both in terms of social fairness and in terms of its direct relevance to public health considerations. To enable this to happen in an informed and targeted manner, **empirical findings on the relevant issues** – differential impacts, associated health effects, main socio-economic identifiers for groups affected – **need to become more numerous**. The third level would be **the adoption of EJ as a strategic goal** or at least as an angle of investigation and evaluation into governmental policies at federal, state and community levels. A fourth important aspect of operationalizing EJ is **providing actors in public planning with adequate tools**, which allow them to create robust descriptions as well as prognoses on both emission loads and their interaction with the spatial distribution of different socio-economic groups of the population.

As the U.S. experience has shown, anchoring EJ at a high level, especially if this includes a mandate or duty for action at lower levels, can have a trickle down and awareness raising effect. However, since in Germany there is no broad social movement concerned about environmental *injustice* which might create political momentum or pressure for such a step, it is more likely, that well targeted dissemination of relevant scientific evidence or case studies of applying the EJ perspective in decision making with resulting public – and fiscal or political – benefits would create momentum for such high level action.

In the U.S. context it was said that the link between air quality legislation and transport planning was not as strong as parties interested in EJ might have hoped. In Germany, though, national implementation of European Union Directives 2002/49/EC on the assessment and management of environmental noise and 2008/50/EC on ambient air quality and cleaner air have created stronger obligations for local and state administrations to both assess emission levels and take action where

legal limits are exceeded²⁸. This is not only resulting in a fairly broad body of data on emissions, which can be used in EJ studies. It also means that differential impact – if diagnosed – for certain population groups or cumulative deprivation from socio-economic and external factors (such as emission loads) could be used to inform the design and prioritization of remedial measures. Air quality and noise mitigation are generally the responsibility of environmental departments. However, many experts advocate that strategies for emission reduction should always be considered in conjunction with transport planning strategies and measures (e. g. Gertz 2010; Richard & Eckart 2006; Planungsgruppe Nord 2007; Volpert *et al.* 1992). Operationalizing EJ at this level would thus make particular sense as it could go beyond finding remedies for current problems and also become a consideration in designing and evaluating measures with a potential future EJ relevance.

Tools for actors in public planning need to be both user friendly and affordable if they are not to become the exclusive domain of specialized contractors or public bodies of a size sufficient to enable them to purchase and operate them in-house. Since these conditions will in most cases necessitate a certain level of precision and depth of analysis to be sacrificed, it is important to try to optimize the combination of cost, usability and quality of the results. Judging the adequacy of modeling results with respect to EJ and transport depends on what objectives and possibly also targets are being formulated. In the U.S. context it was seen as a weakness of the *status quo* that no actual goals for EJ had been defined for any level of decision making, thus not necessitating the definition of concrete indicators nor any monitoring of levels of attainment. It can also be politically helpful in initiating and financing EJ related measures to be able to show that such activities help to move towards attaining standards or goals set at a (higher) administrative level – particularly if these would be tied to subsidy incentives. This is a step, though, that is only likely to be taken as and when it has been convincingly shown that increasing the level of EJ at the local or regional level will make a significant contribution to reducing external costs of transport or public health costs in general and possibly also create synergies in other areas (e.g.: meeting emissions targets, thus avoiding future penalties levied at the EU level for continued breaches; enhancing the value of a community or region as a location for businesses and a qualified work force). The modeling tools required would not need to be developed from scratch as many commercial and public entities are already offering products that can be used or adapted. In the EJ context it would be important to provide actors with guidance on which tools are appropriated for which tasks, the data demand and possible sources of such data for different models and ideally case studies of previous applications of such models for an EJ related analysis.

On the less formalized level, it can be concluded in line with findings of other implementation studies (cf. Section 5.4) that political champions with an intrinsic motivation for advancing certain issues are maybe not a compulsory but certainly a significant element of getting such issues onto political agendas, into political strategies and also adequately implemented. As would be expected, they can be found – or are motivated – more frequently in contexts, where public opinion or even organized lobbying provide such issues with a political currency but this is not always and exclusively the case.

Many of the suggestions made in this section are not necessarily specific to anchoring EJ at strategic and operational levels in the German political and planning landscapes – they could be applied to other issues as well. However, specifically the topical connection with the obligation for federal states and local authorities to mitigate air pollution and noise exposure in urban areas, where set standards are exceeded, provide a good opportunity for the EJ perspective to be incorporated into evaluation, planning and decision making. For the time being, though, this is likely to rely on the impetus provided locally by specific groups or individuals.

²⁸ In the case of noise, the standards set are voluntary, though, and thus not legally enforceable.

Since in Germany, there is no EJ awareness and lobbying community comparable to the U.S., one of the most important steps to be taken in Germany would be to consolidate the empirical evidence for EJ being an issue that needs to be considered in the context of transport planning. If and when empirical results indeed show the problems and the potential benefits of targeted strategies and measures to be of a certain scale above and beyond the current findings (see Section 4.3), such information seems most likely to be able to convince decision makers that action is not only required from a social point of view but that it is politically arguable as well as desirable.

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Appendix 1 - List of experts interviewed

Researchers

Name	Position, Title	Affiliation
California		
<i>Lisa Schweitzer</i>	Associate Professor	School of Policy Planning and Development, University of Southern California, Los Angeles
<i>Rachel Morello-Frosch</i>	Associate Professor	Dpt. of Environmental Science, Policy and Management, UC Berkeley, Berkeley
<i>Andrea Broaddus</i>	PhD Student	Institute of Transportation Studies, UC Berkeley, Berkeley
<i>Susan Handy</i>	Professor, Director of the Sustainable Transportation Centre	Institute of Transportation Studies, Department of Environmental Science and Policy, UC Davis, Davis
<i>Julie Sze</i>	Associate Professor	American Studies, UC Davis, Davis
<i>Chris Benner</i>	Associate Professor	Human and Community Development, UC Davis, Davis
<i>Deb Niemeier</i>	Professor	Civil and Environmental Engineering, UC Davis, Davis
<i>Jonathan London</i>	Assistant Professor, Director of the Center for Regional Change	Centre for Regional Change, Human and Community Development, UC Davis, Davis
<i>Caroline Rodier</i>	Associate Director, Urban Land Use and Transportation Center	Civil and Environmental Engineering, UC Davis, Davis
Massachusetts		
<i>Yelena Ogneva-Himmelberger</i>	Assistant Professor of Geographic Information Sciences for Development and Environment	Dpt. of International Development, Community and Environment, Clark University, Worcester
<i>Alan Altshuler</i>	Harvard University Distinguished Service Professor	John F. Kennedy School of Government, Harvard University, Cambridge

Non-governmental organizations, advocacy groups

Name#	Position, Title	Affiliation
<i>Francisca Porchas</i>	National Coordinator, Transit Riders for Public Transportation	Bus Riders Union, Los Angeles
<i>Shannon Tracy</i>	California Field Organizer, Transportation For America Campaign	Transform, Oakland
<i>Bob Allen</i>	Director of Transportation Justice	Urban Habitat, Oakland
<i>Marie Harrison</i>	Community Organizer	Green Action, San Francisco
<i>Tamar Shapiro</i>	Director of Urban and Regional Policy	German Marshall Fund, Washington D.C.
<i>Neha Bhatt</i>	Deputy Director of Policy and Research	Smart Growth America, Washington D.C.
<i>Gene Benson</i>	Legal Counsel and Services Program Director	Alternatives for Community and Environment, Boston
<i>Lee Matsueda</i>	Organizer for T-Riders Union	Alternatives for Community and Environment, Boston

Public administration

Name#	Position, Title	Affiliation
<i>Michael Brady</i>	Senior Environmental Planner, Air Quality/Conformity Coordinator	Div. of Transportation Planning, California Department of Transportation, Sacramento
<i>Alyssa Begley</i>	Senior Transportation Planner	Div. of Planning and Local Assistance, California Department of Transportation, Sacramento
<i>Rajiv Bhatia</i>	Director of Environmental Health	Department of Public Health, City of San Francisco
<i>Megan Wier</i>	Epidemiologist	Department of Public Health, City of San Francisco
<i>Heather Case</i>	Director	Office of Environmental Justice, U.S. Environmental Protection Agency, Washington D.C.
<i>Andrew Manale</i>	Program Analyst, Agriculture and environmental policy	U.S. Environmental Protection Agency, Washington D.C.
<i>Maechi Nweke</i>	Environmental Scientist	Office of Environmental Justice, U.S. Environmental Protection Agency, Washington D.C.

Appendix 2 - § 7408 Section (e) of the Clean Air Act

(e) Transportation planning and guidelines

The Administrator shall, after consultation with the Secretary of Transportation, and after providing public notice and opportunity for comment, and with State and local officials, within nine months after November 15, 1990, and periodically thereafter as necessary to maintain a continuous transportation-air quality planning process, update the June 1978 Transportation- Air Quality Planning Guidelines and publish guidance on the development and implementation of transportation and other measures necessary to demonstrate and maintain attainment of national ambient air quality standards. Such guidelines shall include information on—

- (1) methods to identify and evaluate alternative planning and control activities;
 - (2) methods of reviewing plans on a regular basis as conditions change or new information is presented;
 - (3) identification of funds and other resources necessary to implement the plan, including interagency agreements on providing such funds and resources;
 - (4) methods to assure participation by the public in all phases of the planning process;
- and
- (5) such other methods as the Administrator determines necessary to carry out a continuous planning process.