

Environmental justice in urban areas – Development of practically oriented strategies and measures to reduce socially unequal distribution of environmental burdens

Summary

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von

Christa Böhme, Thomas Preuß, Arno Bunzel, Bettina Reimann,
Antje Seidel-Schulze, Detlef Landua


Deutsches Institut für Urbanistik gGmbH, Berlin

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Herausgeber:

Umweltbundesamt
Wörlitzer Platz 1
06844 Dessau-Roßlau
Tel: +49 340-2103-0
Fax: +49 340-2103-2285
info@umweltbundesamt.de
Internet: www.umweltbundesamt.de

 /umweltbundesamt.de

 /umweltbundesamt

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Durchführende Institution (Name, Anschrift)	Deutsches Institut für Urbanistik gGmbH (Difu) Zimmerstraße 13-15, 10969 Berlin
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Author(s) (Family Name, First Name)	Böhme, Christa Preuß, Thomas Bunzel, Arno Reimann, Bettina Seidel-Schulze, Antje Landua, Detlef
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1 Summary

Project background

Although it has been clear for a long time that social conditions, environmental quality and health are correlated, only in the past few years has social status become a key indicator for environmentally-related health issues and (once again) become part of the public discussion in Germany. The amount of data available to illustrate the connection between social conditions, environmental quality and health is therefore incomplete – both on the federal and state level, as well as on the municipal level. Monitoring and reporting systems that link social, environmental and health-related data – even on a small scale – are widely lacking. Individual investigations nevertheless reveal the following: The connection between low social status and increased environmental disturbances (noise and air pollution, lack of green areas and open spaces, adverse bioclimatic conditions) is reflected in socially disadvantaged areas.

Against this background, the theme of environmental justice in urban areas - understood as the prevention and reduction of socio-spatially concentrated, health-relevant environmental burdens, as well as a socially just access to environmental resources - is increasingly gaining attention in Germany. However, this has mainly only aroused scientific interest in various fields (public health, social and environmental sciences, urban and land use planning). In (municipal) practice, it has hardly been “taken up”. Strategies and measures for implementing environmental justice in municipalities (and municipal planning) are therefore still widely lacking.

Objectives and research questions

The research project “Environmental justice in urban areas” provides foundations for establishing the topic of environmental justice in municipal practice. It seeks answers to the following practical/application-oriented research questions:

- How can integrated consideration of environment, health, social issues and urban development be established as a foundation for planning and decision-making in municipal practice? How can integrated consideration be standardised and stabilised (monitoring procedures – environmental/socio-spatial urban audit system)?
- Which formal and informal instruments, especially related to planning and environmental law, and financial instruments can be used to relieve heavily burdened areas, and how can the emergence of such areas be avoided? Where is it necessary to broaden the range of instruments?
- What approaches, strategies and measures for relieving heavily burdened areas, or avoiding the emergence of such areas, can already be found on the municipal level?
- What are the targeted results when testing and validating instruments, procedures and measures to create more environmental justice in selected municipalities?
- Which recommended actions can be derived from already existing municipal approaches and applied in individual cities for preventing and reducing the spatial concentration of health-relevant environmental burdens, as well as ensuring socio-spatially just access to environmental resources in other cities and urban areas?

Project components

Work is being done on various project components that are interlinked in terms of content. Together, they guarantee a coherent research design:

- *Expertise “Small-scale monitoring approach ‘Environmental Justice in Urban Areas’”*: The central basis for preventing and reducing the socio-spatial concentration of health-relevant environmental burdens is, first of all, an appraisal of the situation in cities. This calls for monitoring that illustrates the relevant characteristics of the social structure, environmental quality and health conditions on a small scale with the help of valid indicators. It must put municipalities in a position to observe socio-spatial inequalities and identify areas that are faced with multiple burdens. Against this background, the goal of the expertise was to offer a manageable and conclusive set of indicators for this type of monitoring to municipalities.
- *Expertise “Instruments for maintaining and creating environmental justice”*: The objective of this area of expertise was to examine what formal/informal planning and regulatory instruments, as well as organisational, cooperative, informative, participatory and financial instruments are suitable for combating the unequal socio-spatial distribution of health-relevant environmental burdens, risks and environmental resources. The instruments were assessed on the basis of their relevance for the improvement of health-relevant environmental conditions, as well as in enabling socio-spatial differentiation.
- *Municipal case studies*: Even though the topic of environmental justice is, as yet, hardly established in municipal practices, a number of municipalities are (at least selectively) involved in activities that, while not carried out under the label “environmental justice”, are still aimed at the prevention and reduction of spatially concentrated, health-relevant environmental burdens, as well as at ensuring socio-spatially just access to environmental resources in urban areas. Against this background, the case studies aimed to investigate municipal environmental justice practices in five selected cities (the district of Tempelhof-Schöneberg in Berlin, Bottrop, Bremerhaven, Leipzig and Mannheim).
- *Symposium “Potentials for more environmental justice in urban areas”*: The objective of the symposium, held on 19 and 20 November 2012 in Berlin, was to discuss how to improve the environmental and living conditions of residents in urban districts characterised by health-relevant environmental problems as well as social disadvantages, and how environmental, health and social interests can be integrated more strongly. Preliminary results of the research project were also introduced and discussed.
- *Simulation game*: The objective of the simulation game carried out in conjunction with Berlin’s Friedrichshain-Kreuzberg district and the cities of Bottrop, Düsseldorf, Mülheim and Nuremberg was to test and validate administrative, organisational and legal instruments used to create a higher degree of environmental justice in municipal administrations, as well as to identify and work on approaches that are transferrable and practically applicable.
- *Summary of results and conclusions* as well as *recommended activities* for the federal government and states, and in particular for municipalities.

Definition of “environmental justice”

Generally speaking, a binding definition of the term “environmental justice” does still not exist in Germany. The research project “Environmental justice in urban areas” seeks to thematically consolidate the topics social conditions, environment and health, which are all implicit in the term “environmental justice”. Against this background, environmental justice is understood as a normative concept oriented towards the prevention and reduction of socio-spatial concentration of health-relevant environmental burdens, as well as ensuring socio-spatially just access to environmental resources. In this way, environmental justice is aimed at avoiding and eliminat-

ing environmentally-related health problems and creating the best possible chances for good health in a given environment.

Environmental justice thus describes a desired situation, which generally implies the need to take action. It understands that people “require protection” and references the guiding principle “the establishment of equal living conditions” anchored in Article 72, Paragraph 2 of the German Constitution. The term thus unites the classical objectives of health-relevant environmental protection (avoiding or eliminating environmental burdens) with the objective of socially just access to a healthy living environment as derived from the principles of equality and the social state. Environmental justice can therefore be used to ensure an integrated strategy in the policy areas environment, health, urban development and social affairs.

Three different aspects of environmental justice can be defined here:

- *Distributive justice*: just or suitable distribution of (unavoidable) environmental burdens, as well as environmental resources
- *Equitable access*: equal access to environmental resources
- *Procedural justice*: equal opportunities to take part in informative, planning, hearing and decision-making processes for all those directly affected by environmental interventions.

Environmental justice focuses on urban areas or urban regions as a rule, and may refer not only to the physical environment (natural and constructed environment), but also to the social environment (individuals, groups, social networks). The research project “Environmental justice in urban areas” primarily focuses on the physical environment.

Environmental justice: Approach and motivation of municipal politics and administration

To date, the term “environmental justice” has not been included in Germany’s municipal administration and policy. It needs further explanation and is often considered synonymous with “environmental compatibility” or “ecological justice”, even though their definitions are not the same. In addition, the word “justice” has been used in many other contexts, such as education, the disabled, generational issues, the elderly and social affairs. In municipal practice, the “inflationary” use of the term “justice” has reached the limits of what seems doable and implementable. This is why the term “environmental justice” is critically regarded in municipal practice.

Regardless of the debate surrounding the suitability of the term, it seems necessary to communicate the relevance of environmental justice in municipal activities and to more closely identify the players that are involved as well as affected by it, in order to vitalise the term. From a municipal perspective, the following aspects are important for argumentation and communication:

- There are multiple points of contact for the topic of environmental justice in municipalities, especially in the areas of urban development/planning and environment. Integrated urban (district) development concepts, the urban development programmes “Social City” and “urban redevelopment”, sustainability concepts and initiatives, the “Local Agenda 21”, as well as plans and concepts from the environmental field have been working with important components of environmental justice for some time now.
- The term must be clarified to municipalities using indicators on the condition of the environment, social situation and health, in order to illustrate spatial focal points and concerns. This also allows the connections between sub-areas and the resulting multiple burdens experienced by many municipalities to be graphically represented and com-

municated to the politics. The information, data and indicators required for this are already compiled in municipalities, but must be refined and amalgamated in a suitable fashion.

- Central themes of municipal politics and administration, such as “improving living quality”, “creating a sustainable city worth living in” and “health equality”, are broadly accepted and are generally congruent with environmental justice in terms of objectives. This makes it easier to sensitise municipal stakeholders to the objectives of “environmental justice”.
- Combining activities related to environmental justice can generate added value for municipal politics and administration, e.g. increased cross-departmental collaboration, integrated approaches and solutions, the more efficient use of budgets and subsidies, and last but not least, image enhancement.

The aspects mentioned above are prerequisites for placing environmental justice on the municipal agenda. They are measures aimed at making the combating of unequal social distribution of health-relevant environmental burdens and risks, as well as environmental resources, acceptable to the majority, i.e. when decisions are reached about spatial and content-related preferences.

The topic of “environmental justice” can be placed on the municipal agenda if suggested by the political domain. Alternatively, the municipal administration can convince the municipality that it will make financial and personal resources available for the purpose of environmental justice through an internal suggestion mechanism and by avowing itself to a basic resolution (commitment on the part of municipal stakeholders). Finally, broad publicity and suitable forms of public participation are needed to permanently involve both acting and affected stakeholders in environmental justice programmes, concepts, plans and measures.

Beyond the need for a more pronounced formulation and definition of the term, as well as the sensitisation and motivation of municipal politics, administration and other stakeholders, the following is also clear: additional incentives are needed in municipalities to establish the topic of environmental justice. To do this, subsidies, competitions and pilot projects are needed, which should primarily be initiated at the federal and state level. One cannot expect environmental justice to be placed on the agenda simply because it is indirectly anchored in the German Federal Building Code¹, especially because the term, as illustrated above, has not been introduced.

Both the results of case studies and the simulation game indicate that environmental justice should not be implemented separately in administrative activities. Instead, the objective should be to integrate environmental justice into existing concepts, plans, target-setting and guideline processes, especially in the area of integrated urban (district) development. This kind of approach is viable due to the integrated character of informal urban development instruments.

¹ Section 1 Paragraph 6 No. 1 and 7c: Taking into account the general requirements for living and working conditions conducive to the health and safety of the population, as well as for renewable energy sources, nature protection and the preservation of the countryside.

Data, indicators, monitoring

To identify urban sub-areas in which environmental burdens are concentrated in conjunction with health and social disadvantages, small-scale citywide monitoring of the environmental situation, as well as the social and health situation in the municipalities, is needed. The objective here is to compile, consolidate and evaluate data and indicators on these three areas that may already be available in the municipalities. Firstly, monitoring of this kind can form the basis for political decisions and administrative actions in municipalities, with the objective of avoiding or reducing multiple burdens. Secondly, this type of monitoring can provide important clues as to which instruments and subsidies need to be implemented and can serve to assess the efficiency of the measures. Thirdly, the results of the monitoring process can be used for public relations work as well as for motivating both civil society and those affected.

Against this background, a two-stage monitoring approach was developed for the research plan based on the results of the pilot project “Environmental justice in the Federal State of Berlin”, among others. The first stage involves a citywide, small-scale consideration of the areas social situation, environment and health, using basic indicators and the visualisation of the results with the help of a geographic information system involving thematic individual maps, as well as a map of multiple burdens (by overlaying the thematic individual maps). The objective of this first stage is to identify municipal areas with multiple burdens. The second stage of the suggested monitoring approach focuses on an in-depth analysis of the areas already identified as being burdened through the use of more comprehensive indicators and supplementary qualitative surveys (e.g. resident surveys). This allows the environmental situation to be determined, as well as the social and health situation in the area. The results are also visualised in this second stage, supplemented by textual area profiles. The basic and in-depth indicator sets involved in this monitoring approach serve as a suggestion to municipalities. Depending on the available data and the possibilities of linking this approach to available monitoring routines, the suggested indicator set can and should be modified and adapted by the municipalities.

The following basic indicators are suggested:

- *Social situation:* Percentage of the long-term unemployed, percentage of the labour force receiving social welfare benefits (“Hartz IV”), percentage of child poverty and youth unemployment
- *Environmental situation:* Exposure to street noise, particulate matter and nitrogen dioxide, provision of public green spaces
- *Health situation:* Percentage of overweight and obesity cases, as well as cases of gross motor dysfunctions taken from school entry health checks.

The suggested monitoring approach was assessed as being generally feasible and adaptable in the simulation game. All the municipalities involved in the simulation game have access to small-scale data covering the social and environmental situation, in order to identify areas with multiple burdens using the basic indicators that were suggested for the first stage. The case study results confirm the availability of comparatively good data on the social and environmental situation. This is not the case when it comes to health data, however. Although all the municipalities involved in the simulation game have access to data on the basic indicators suggested for the first stage, this data generally does not pertain to small-scale areas. The situation is similar for the case study cities. In general, however, the municipalities involved in the simulation game support the suggestion of using indicators taken from school entry health checks. They point out that the health status of preschoolers is, in fact, related to the burdens and re-

sources found in the respective environment. Unlike adults, one can generally assume that children in this age group have spent most of their lives in the same area.

The following became clear in the simulation game: Classifying urban sub-areas in terms of environmental justice necessitates weighted indicators. Furthermore, to determine where action is needed, intervention values are vital. As a precautionary measure, the objective here is to determine intervention values that are stricter than the legally stipulated threshold values in each municipality.

In addition to the (separate) statistical offices, central municipal data interfaces include the administrative organisations for urban development/planning, the environment, social affairs and health. Furthermore, data interfaces between the municipality and other data holders, such as the Federal Employment Agency (BA) or state authorities, could be of importance.

The necessity of deploying geographic information systems for data overlay and the visualisation of multiply-burdened spatial situations is undisputed, both by the case study municipalities and those involved in the simulation game. When it comes to the actual application possibilities, however, there are divergent assessments. Most case study municipalities have problems with the interdepartmental deployment of geographic information systems due to disparate systems. Planning administrations frequently only have access to isolated systems. The municipalities involved in the simulation game do, however, believe that the interdepartmental deployment of a geographic information system is possible.

Fields of action, measures and projects for environmental justice

Activities to create more environmental justice in municipalities can target, on the one hand, the reduction and prevention of environmental burdens, and, on the other hand, improved access to environmental resources. A distinct focus on structural and open-space measures, as well as internal development projects is clearly shown, both in the municipalities involved in case studies and those involved in the simulation game. Moreover, the urban sub-areas that require more environmental justice are normally socially deprived areas/neighbourhoods which are often assisted areas in urban development programmes of the Social City and urban redevelopment schemes.

The results from the case studies and the simulation game show a wide range of possible measures and projects, predominantly in the following fields of action:

- *Reduction of noise exposure caused by traffic*, e.g. by using noise-reducing solutions for road surfaces/landscaped tramlines, installing soundproof windows, introducing speed limits
- *Air pollution control and the urban climate*, e.g. transit bans for trucks/traffic control measures, reducing overheating by promoting green areas, reducing the number of local heating points
- *Energy-efficient retrofitting of existing buildings*, e.g. insulation, consulting on energy refurbishment and healthy indoor air
- *Environmentally-friendly mobility*, e.g. raising the attractiveness of public transport, promoting pedestrian and bicycle traffic, promoting electromobility
- *Family, child, youth and senior-friendly neighbourhood development*, e.g. in terms of street planning, reducing hazards in traffic areas, creating barrier-free environments

- *Development of green spaces and play areas*, e.g. preserving and creating small green areas, playgrounds and exercise areas, creating temporary green interim area usage, roof and facade greening, de-sealing of courtyards
- *Environmental and health education*, e.g. creating areas where people can experience nature and the environment, providing environmental and health information to adults.

Something shared by all the proposed activities and projects is that they predominantly go beyond mere compliance with the limit values laid down by specific laws and regulations for risk protection – in as far as the prevention and reduction of environmental burdens go – and are more geared towards prevention.

Various constellations of stakeholders and various degrees of participation can be observed for the implementation of measures and projects in the various fields of action. While the appropriate municipal governments and state agencies are primarily responsible for the reduction of noise and air pollution, projects and measures in the activity fields “Energy-efficient retrofitting of existing buildings” and “Environmentally-friendly mobility” involve many external stakeholders, e.g. real estate owners, housing associations, transport companies and interest groups promoting bicycle/pedestrian traffic. The same holds true for the “Family, child, youth and senior-friendly neighbourhood development” activity field. What’s more, this field, like the fields “Development of green spaces and play areas” and “Environmental and health education”, is virtually predestined for broader participation when implementing projects and activities – e.g. of residents, students and parents, as well as children and youth organisations.

In discussing these fields of action for the advancement of environmental justice, possible adverse effects of measures designed to improve environmental quality have been addressed by municipalities involved in case studies and those involved in the simulation game. These include the problem of possible gentrification, i.e. the displacement of long-established residents due to the upward revaluation of neighbourhoods coupled with subsequent rent increases. Especially in cities with a tight housing market, the dynamics of development could lead to environmental justice measures not benefiting the socially disadvantaged target groups that are being focused on, but rather a range of more well-off population groups.

Instruments for environmental justice

Planning and implementing measures and projects for greater environmental justice in municipalities requires a range of different instruments.

With regard to instruments of formal planning and environmental regulations, the various sovereign powers of intervention represent a “tool box” that can be used according to the respective requirements. These particularly include:

- Strategic environmental assessments and environmental impact assessments
- Urban land-use plans (preparatory land-use plans, legally binding land-use plans)
- Special urban planning legislation (especially for urban renewal, urban restructuring and the Social City)
- Plant and area-based emission control (including air pollution control planning, noise reduction/noise action planning)
- Instruments of nature conservation law, particularly for improving recreational opportunities in the living environment (landscape planning, impact regulation under nature protection law, etc.).

Informal planning instruments are not required by law, but are under the discretion of municipalities to implement as needed. Geographical expansion and thematic prioritisation of informal plans can be flexibly adapted to the requirements of each individual case. Informal planning instruments are also characterised by a greater openness to interagency/integrative analyses and methods of resolution. Moreover, they are characterised by a wide range of options for cooperation and participation with stakeholders who are not within the administration. Informal planning instruments are particularly beneficial when laying the foundations for integrated activities with regard to health-relevant environmental burdens and social stressors. In so doing, they can form the basis for both municipal environmental measures and investment projects. In the context of environmental justice, the following informal planning instruments could come into play:

- Integrated urban (district) development concepts, including the integration of air pollution control and noise action plans, for example, as well as transport development plans, development plans for green spaces, climate change mitigation and adaptation concepts and other formal and informal plans
- Sectoral concepts for overall areas and sub-areas, such as transport development plans and concepts, green-space concepts, climate protection concepts, health plans
- Key municipal resolutions on environmental justice
- Urban monitoring (continuous data and indicator-based observation of spatial developments).

With regard to financing instruments, it should be noted that the scope for voluntary expenditure, i.e. expenditure which is not legally binding, is very limited in many municipalities due to municipal budgets being structurally underfunded. The funding programmes of the federal government, the federal states and the European Union are therefore of key importance – in particular, urban development funding programmes for the Social City and urban redevelopment, as well as noise reduction programmes. Should there be financial leeway in the municipalities, municipal funding programmes may also come into effect, e.g. for courtyard, facades and roof greening measures or for noise reduction.

When taking an overall look at the scope of instruments pertaining to formal planning and environmental law, as well as informal planning instruments and financing instruments, it becomes clear that each instrument offers specific potential for improving environmental justice. However, none of the instruments examined can be used in and of itself to provide environmental justice. Rather, an entire set of nuanced instruments should be used and tailored to one another, keeping their many interactions and synergies in mind, depending on the situation at the outset.

The initial position is a legally stipulated high standard in terms of environmental requirements for new projects and plans. In existing settlements, the prevention of health threats in conjunction with existing environmental burdens must be, at the very least, legally ensured and provided. In some areas, there are also requirements in place for a subsequent adjustment with the aim of improving environmental standards. However, the possibilities to exert influence are lower in existing settlements.

The integrative compilation of all relevant objectives and measures needed to create a higher degree of environmental justice requires the use of a correspondingly integrative planning instrument. Integrated urban (district) development concepts are particularly suitable to this end, as prescribed in the areas of urban renewal/urban reconstruction and in domains of the Social City, which can also be used as informal guide plans for other areas as well. Urban land-use

planning as an instrument of overall spatial planning is also based on integration. The integration and consolidation of instruments of environmental law in the overall spatial planning is of key importance, as these instruments do not take socio-spatial aspects and social situations into account. Moreover, these instruments are only geared toward single, but not multiple burdens.

A distinct lack of implementation of these instruments was mainly observed with regard to health concerns. This is particularly true when dealing with “human health” as an area requiring protection in the environmental impact assessment/strategic environmental assessment, but also with regard to statutory agency participation in the planning process. A spatially-oriented municipal health plan as a new and informal planning instrument could improve this situation and contribute to a more systematic consideration of health issues.

Finally, it has become clear in all instrument segments that two key issues are of paramount importance for ensuring a more successful environmental justice strategy:

- On the one hand, the question of political expediency arises. Many of the instruments mentioned can only be fully effective in relation to the goals of environmental justice when the responsible political decision-making entities within the municipal authorities support the objectives pursued. Political “will” is the fundamental prerequisite for greater environmental justice.
- On the other hand, financing measures to improve the health-relevant environmental conditions is generally a huge challenge. The structural budgetary problems faced by many municipalities are a serious obstacle here. The sustained, targeted, and coordinated organisation of financial incentives for more environmental justice through funding programmes of the federal government, the federal states and the European Union are therefore all the more important.

Cooperations for environmental justice

The collaboration between various functional departments in municipal government is of key importance for the successful implementation of measures to bring about improved health-relevant environmental conditions and promote environmental justice in accordance with socio-spatial requirements. In addition to the administrative units for urban development/urban planning, environment, health and statistics, the responsible authorities for youth services and social planning should be included, as these are needed to ensure a stronger thematic integration. The concrete form of municipal collaboration will also have to be based on location-specific structures and the respective administrative capacity. With regard to district-wide member municipalities, it must be taken into account that many responsibilities for environmental, health, youth services and social services are normally based in the administrative district itself.

To ensure the cooperation of the functional departments, the relevant interfaces must first be identified. The formation of formal cooperation structures in the form of focused environmental justice interagency working groups is not necessarily essential. Informal forms of interagency cooperation may also be promising as an integrative approach for establishing environmental justice. However, for this to succeed, the right individuals, i.e. dedicated persons willing to cooperate, must be addressed in the administration.

Generally speaking, existing inter-agency coordination rounds should be utilised with regard to environmental justice; new structures should not be created. Interdepartmental working groups created in the context of the Social City programme and the associated neighbourhood management should come into special consideration here, as should pre-established public au-

thority groups created in the context of integrated urban development planning, the Local Agenda 21, or urban redevelopment programmes.

However – as shown by the results from both the case studies and the simulation game – health administrations are generally underrepresented in all these working groups and circles, and therefore must be included more frequently than has previously been the case. The concentrated involvement of health authorities requires a stronger (socio-) spatial focus on their tasks, so that these administrations can participate in spatial planning and concepts. With a view to environmental justice, it is also necessary to integrate administrative units which focus on the environment and health at an early stage of the urban development process, in order to ensure that environmental and health issues are adequately addressed. Statutory agency participation in the formal planning process generally comes at too late a point in time for proper involvement.

In the view of those municipalities that took part in the simulation game, the urban development/urban planning, environment and health departments generally come into consideration in a coordinating capacity or a general management role. This is reflected in the results of the experts' reports, case studies and simulation game, which show that administrations for urban planning/urban development are very well suited for assimilating the issue of environmental justice due to their experience in integrating plans and measures with a socio-spatial focus.

In addition to inter-administrative cooperation, essential factors for the successful establishment of the topic of environmental justice and the implementation of relevant plans and measures in multiply burdened areas include the existence of interfaces between the municipal administration and municipal policy – in the form of committees and commissions, for example – as well as cooperations between the administration and external stakeholders. Such stakeholders include environmental and nature conservation associations, Local Agenda 21 groups, citizens' initiatives, foundations, the housing industry, private real estate owners and local owner groups, businesspeople and investors. Cooperation, including with stakeholders of civil society, companies and private owners, can help by using their ideas, interests and commitment for joint activities and projects and thus improve the health-relevant environmental conditions in multiply burdened neighbourhoods. In general, this cooperation takes place on the basis of informal agreements. But it may also be regulated formally in connection with new construction projects or urban restructuring and development measures through urban development contracts with property owners, businesspeople and investors. In addition, due to its interface function between the administrative and district levels, neighbourhood management in the context of the Social City programme is a structure that can and should be used for cooperation with stakeholders outside the administration. For instance, neighbourhood management could be used to support private initiatives to form local owner groups in multiply burdened neighbourhoods (housing improvement districts), e.g. through targeted consulting with a view toward eliminating health-relevant environmental deficits in the living environment, among others.

Environmental justice and participation

In addition to distributive justice and access justice, procedural justice is an important aspect of environmental justice. Procedural justice is defined as the equal opportunity to participate in information, planning, consultation and decision-making processes for all those directly affected by environmental interventions ("fair deal"). A key criterion for environmental justice is thus the early involvement of those potentially affected by a plan or measure. They must have the ability to exert influence on the processes and the impacts of environmental interventions.

Participation is not only an important aspect of environmental justice with regard to decisions concerning environmentally-friendly (or environmentally-harmful) plans and measures. The distribution and accessibility of environmental resources also play an important role. For instance, it is necessary to take the specific interests and needs of neighbourhood residents into account and actively involve them in designing or redesigning green areas in the district. This ensures that green spaces will later actually be used by the residents.

The following are among the key instruments and elements of participation with regard to environmental justice:

- Formal participation procedures in the context of urban land-use planning and environmentally-related sectoral plans (early public participation, public displaying of plans, etc.)
- Forms of informal participation, such as planning workshops, district conferences and forums as part of urban development planning and other informal planning processes
- Activation/empowerment with the goal of participation and the assumption of responsibility (including environmental education).

Previous municipal practice has shown, however, that some population groups are either hardly reached or are not reached at all through formal and informal participation processes. This particularly holds true for those groups who, due to their social, educational and income status, their language skills or their cultural origin, only represent their interests poorly in classical participatory processes. But these are frequently the very same population groups which live in the urban sub-areas where environmental burdens and social and health inequalities are concentrated and indeed overlap.

In municipal practice, outreach (“go” structures) and the activation of participation approaches in the neighbourhood or district have been found to be particularly compatible and successful in addressing socio-economically disadvantaged residents. In particular, local district managers involved in implementing the urban development programme Social City are considered pivotal for communicating with and engaging the participation of socio-economically disadvantaged populations who are unlikely to otherwise participate. In the opinion of the municipalities, multiply burdened population groups can be reached especially well through such forms of local, low-threshold participation fieldwork. Project-based forms of participation (including hands-on participation in projects geared towards the development of open space) and target group-oriented methods, which have often been tested in the migrant milieu, are considered particularly promising, including participation offers in the residents’ native languages and the addressing of residents through knowledge disseminators.

Environmental education can increase the ability of residents in multiply burdened areas to participate in environmentally-relevant decision-making and also lobby for better environmental conditions. However, this will only be achieved if environmental education is specifically catered to these groups and takes their possibilities and limitations into account. Through the continuous offers of environmental education, the target group of socially disadvantaged residents has so far only been reached to a limited extent. Few environmental education offerings and projects have been targeted at these population groups to date. The potential of environmental education to strengthen socially disadvantaged groups in terms of environmental awareness and participation skills is, therefore, not being used optimally in current practice. Only by empowering people to partake in active participation will opportunities be opened that reduce the vulnerability of people to environmental health risks.

One key reason for the frequent absence of precise activation and participation offers made available to socially disadvantaged populations affected by multiple environmental burdens is the municipal administrations' lack of methodological expertise. In many municipalities, this is often directly related to a lack of human resources. Certainly, one possible and very promising alternative is to hire third parties to conduct activation and participation processes. Nevertheless, in many places it appears necessary to sensitise and educate administrative employees with regard to the participation of population groups that are particularly affected by multiple environmental burdens. Since the form, target and intensity of stakeholder participation also depends on the level of political "will" in the municipality, this also applies to municipal politics.

Recommendations for creating more environmental justice in municipalities

The following recommended actions are primarily aimed at municipalities, but some are also aimed at federal and state governments. They are broken down by fields of action, which, in the research project, have been found to be of vital importance for the systematic approach in municipalities to create more environmental justice:

- Integrated administrative actions
- Political anchoring
- Monitoring
- Development of objectives, measures and projects
- Implementation of planning instruments as well as instruments of environmental law
- Use of financial resources
- Participation and involvement of those affected.

Interfaces and docking points may arise in these fields of action that allow environmental justice to be introduced into running processes as a cross-sectoral theme, and thus to qualify these processes with a view towards improving the quality of life in cities. One doesn't always need to "hit the jackpot". Taking action "in small steps", in which priorities are initially set within just a few fields of action, can lead to the successful implementation of environmental justice in municipal activities.

Integrated administrative actions

Recommendations for municipalities

- Identify the roles and responsibilities of administrative areas and external stakeholders and define procedures for the permanent integration of the topic of environmental justice.
- Ensure the cooperation of the administrative areas relevant to environmental justice (especially urban planning/urban development, environment/green spaces, health).
- Verify the possible interface role of the statistics office in terms of using data and indicators to identify urban sub-areas that are multiply burdened.
- Assign a general management role for the issue of environmental justice within the administration.
- Establish appropriate formal and/or informal forms of cooperation within the administration for the development of foundations to create more environmental justice.

Recommendations for creating more environmental justice in municipalities

- Strengthen the socio-spatial orientation of the environment and health departments.
- Train the administrative health department with regard to spatial planning.

Recommendations for federal and state governments

- Promote and support integrated activities on a municipal level, e.g. through stronger anchoring in the funding guidelines, by making working aids available and by supporting municipal knowledge and the exchange of knowledge.
- Strengthen interdepartmental cooperation from the federal and state levels while also stabilising this cooperation, e.g. by implementing a joint programme/common strategy.

Political anchoring

Recommendations for municipalities

- Convey the need, relevance and value of the implementation of environmental justice to municipal policymakers.
- Develop or qualify guiding principles and targets with regard to environmental justice together with municipal policymakers and administrators, and communicate and discuss these openly.
- Resolve, justify and conceptualise the implementation of environmental justice in municipal politics.

Recommendations for federal and state governments

- Assess whether a stronger legal and programmatic anchoring of environmental justice is possible.

Monitoring

Recommendations for municipalities

- Identify multiply burdened urban sub-areas with regard to environmental justice through integrated monitoring (social situation, environment, health).
- Link and develop existing databases and monitoring approaches in the areas of social services, environment and health.
- Select plausible, stable and available citywide and small-scale indicators.
- Use health data relevant to the environment from school entry health examinations.
- Assess the use of other health data if efforts/costs and benefits are in balanced proportion.
- Present the monitored results using a geographic information system.
- Assess the compilation of indices if efforts/costs and benefits are in balanced proportion.
- Examine urban sub-areas that have been identified as being multiply burdened using more in-depth indicators and supplementary qualitative surveys.

Development of objectives, measures and projects

Recommendations for municipalities

- Align the development of projects and measures for more environmental justice on concrete objectives and needs for action, as well as on the opportunities for realisation.
- Identify docking points for the development of projects and measures.
- Obtain proposals for projects and measures from other municipalities.

- Assess early on whether collaboration opportunities with stakeholders that are both inside and outside the administration exist.
- Arrange for the active involvement of residents in multiply burdened urban sub-areas for the development of objectives, measures and projects early on.

Recommendations for federal and state governments

- Identify, document and communicate the best municipal practices for the development of projects and measures for the improvement of environmental justice.

Use of planning instruments and instruments related to environmental law

Recommendations for municipalities

- Combine planning instruments and instruments related to environmental law and use them as a coordinated instrument bundle to achieve more environmental justice.
- Assess formal and informal plans for the possible integration of issues pertaining to environmental justice.
- For strategic environmental assessments and environmental impact assessments, make provisions for a qualified analysis of the effects on “human health” as an area requiring protection.
- Assess the creation of a municipal health plan.

Recommendations for federal and state governments

- Assess the further development of planning instruments and instruments related to environmental law with a view towards strengthening environmental justice in the context of municipal planning and decision-making processes.

Use of financial resources

Recommendations for municipalities

- Check the relevant aid programmes for their suitability in financing measures and projects for more environmental justice.
- Use suitable funding programmes offered by the EU, federal and state governments and municipalities in a targeted manner for multiply burdened urban sub-areas.
- Acquire funds for measures and projects from third parties or contractually secure financing from third parties.

Recommendations for federal and state governments

- Assess the initiation of a funding programme to support environmental justice, align existing funding programmes more strongly on environmental justice and facilitate resource pooling.
- Create subsidy guides for municipalities.
- Initiate and finance pilot projects for the implementation of environmental justice in municipal activities.

Participation and involvement of those affected

Recommendations for municipalities

- Develop and implement suitable participation methods and procedures for addressing socio-economically disadvantaged residents who are unlikely to seek out participation in multiply burdened districts.
- Strengthen the methodological expertise within the administration and integrate external participation experts into the participation efforts.
- Encourage the participation of knowledge disseminators and integrate these individuals in participation work.
- Improve the municipal participation culture or establish and organise this culture to consider the needs of specific target groups.