Bundesministerium
für Verkehr, Bau
und Stadtentwicklung

STADT KLIMA
ExWoSt

Climate friendly urban development in practice
Results of the exploratory focus StadtKlimaExWoSt
Final conference on October 9th and 10th 2012

Lead of the initiator to the report on the final conference concerning the StadtKlimaExWoSt-model projects

The long-term trend towards rising temperatures and extreme weather conditions is unbroken, worldwide and in Germany as well. Investments in communal infrastructure have to be carried out adjusted to climate change. In 2011, the World Economic Forum (WEF) stated consequences of climate change as the greatest of all global risks. Even though it was ousted from first place by the topics financial crisis and economic disparity in 2012, this shows the enormous significance which is ascribed to climate change.

Against the background of an aging and thus more heat-sensitive population, spatial and urban development adjusted to climate change is one of the pestering tasks for planning on communal and regional level. The course for future development has to be set by now, because normally today built infrastructure is laid out for 20 to 100 years. The aim is to create a robust and resistant infrastructure against climate change, which means a reduction of vulnerability against direct and sneaking consequences of climate change as well as building up capacities for climate protection and adaption.

Within the field of research "Urban Strategies and Potentials to Tackle Climate Change: Local strategies and potentials to tackle climate change ('StadtKlima')", short StadtKlimaExWoSt, the necessity to be prepared for the consequences of climate change has been investigated from 2010 to 2013.
The so-called Städteregion Aachen, the Nachbarschaftsverband Karlsruhe as well as the cities Bad Liebenwerda, Essen, Jena, Nuremberg, Regensburg, Saarbrucken and Syke have achieved exemplary status. From treating lanes of cold air on the entire urban level over the improvement of microclimate in the quarters through more green and unsealed areas to the prevention of local flooding through provision within the sanitary environmental engineering: There is a wide range of methods. Despite this broad band width of climate projections, the trends of climate change build a reliable foundation already now. Nevertheless, in communal practice we have to face the problem that in most cases there is only a willingness to take precautions for climate change just after big loss events. This willingness soon is overlaid with current issues of the day – until there is another flooding or heat wave.

Thus, actions already contributing an improvement to quality of life in the cities are suitable for providing climate adaption such as green areas and water expanses. The good examples from the model projects and a special advisory tool, the StadtKlimaLotse, are available for all interested stakeholders.

The final conference of the StadtKlimaExWoSt-model projects has shown a wide range of examples of use. Central finding of all ExWoSt-projects within this field of research "StadtKlima" is the 'proved and tested reality', to recognize climate adaption as a cross sectional topic, which integrates actions of almost all spheres of activity in urban development.

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für Bau-, Stadt- und
Raumforschung
im Bundesamt für Bauwesen
und Raumordnung

Five theses on the previous findings of the field of research:

1. The existing instruments of law-making and promotion are now, after the BauGB-climate amendment of the BMVBS, suitable and adequate to integrate climate adaption into urban development. But it is essential, to communicate its potential as well as to provide communes and other stakeholders with **guidelines on taking action**.

2. **Climate adaption must become common knowledge in urban development.** This concerns legal instruments and informal processes of urban development policy as well as questions on promotion. This retrieves a big chance for a sustainable urban development policy on the communal level.

3. For promoting political enforceability of adaption strategies on all levels it is important to **search strategic partners**, for example during the sectoral planning of flood control or landscape management.

4. As in all fields of urban development policy the **inclusion of private stakeholders** is also essential for climate adaption. Private-law contracts of communes with private owners are possible instruments, to better involve them. You can think of a **special** form of **owners' community as a "climate adaption alliance"**, too.

5. **Flexible spatial patterns** are needed until claims of usage are settled on a long-term base. This could be realized for example with setting priorities for a temporal order of future demands on areas or allowing temporary use. A **flexibility within the planning process** is required, e.g. by making use of the temporary building law and by not making all-or-none-decisions about the future use of area reserves.

Upon completion of the model projects of StadtKlimaExWoSt in 2013, the field of research will be continued with scientific expertise and editing the results.

Report on the lectures and panel discussions
Editor: Valentum Kommunikation on behalf of the BMVBS/BBSR
January 2013

Short introduction

On October 9th and 10th 2012 the final conference "Climate friendly urban development in practice – Results of 'StadtKlimaExWoSt'" took place in the Federal Ministry of Transport, Building and Urban Development.
Prof. Dr. János Brenner (BMVBS) welcomed more than 300 guests from municipal administration and sciences. First, he recalled the key aspects of the program: Besides the handling of uncertainties and risks and the factual need for action, he emphasized the identification of appropriate action strategies, which cope with the specific local requirements. Furthermore, the question how political decisions can support the process in an efficient way was received with great interest. Against this background, the conference showed current action strategies, their impact and transferability on other cities and regions as well as future measures.

Prof. Dr. János Brenner

unclosed the first conference day in the „Erich-Klausener-Saal" in the Federal Ministry of Transport, Building and Urban Development

Introducing the Urban Development Plan Climate of Berlin

„Protecting climate, strengthening environment, creating new jobs": That is the slogan of the climate political working program of Berlin's Senate. It is based on the four columns reduction of CO_2-emissions, new jobs on the green markets, preservation of Berlin as green metropolis as well as an early preparation for consequences of climate change and combines them to an integrated model. The Urban Development Plan (StEP) Climate follows the guiding idea, to ensure and strengthen the high quality of life in Berlin as a living, tourist and business location in times of climate change. Climate protection and climate adaption are seen as complementary strategies and pose the foundation for a climate friendly urban development in Germany's capital, in which the concept of the dense city and therefore the city of short ways should stay valid. Der StEP Climate names four spheres of activity, which will be formative for urban climate change: The biological climate in settlement area with increasing temperature rise, the green and open spaces, which suffer from the climatic heat load and present themselves as the most effective step adapting to climate change at the same time, the heavy rain occasions, which have an essential influence on the quality of water, and climate protection.
A systematic of effectiveness of single actions in different structural city-types arrives to the conclusion, that it is always necessary to combine various actions and that a single action will never be enough. Urban areas with a primarily need for action and adequate for the implementation of action plan projects are identified.
The StEP Climate trusts in "No-Regret"-methods, which have positive effects for the city, independent of the actual dimension of climate change. Finally the success of climate friendly urban development is built on the acceptance of the people – in Berlin as well.

Secretary of State Christian Gaebler

Senate Department for Urban Development and the Environment, Secretary of State for Transportation and Environment

Highlights of StadtKlimaExWoSt

Nine cities and city regions with different faces, which intensely dealed with various key aspects of urban adaption to climate change: Thus ExWoSt looked like at the beginning. In a two and half years' period with a lot of communal activities as well as workshops and conferences beyond communal boundaries, diverse approaches and the challenges of climatic and urban development within the ExWoSt-project were reflected. A continuous exchange of information on individual and common milestones as well as stumbling blocks took place.
Already during the preparative groundwork at the beginning of the project it was revealed that associated elements (e.g. forming new and using existing networks as well as public relations) were of diverging significance. Analysis of the current state as basis for the identification of climate changes and consequences showed, that especially small municipalities do not necessarily need complex model calculations. In most cases, plausible estimations are sufficient. Furthermore the analysis expressed that primarily non-climatic parameter (e.g. economic/demographic structural transformation, financial situation) define the particular vulnerability. Despite their differences, which result from their structure and concept as well as their analysis and evaluation of the current situation, all model projects estimated consequences of heat as the greatest one, followed by those of extreme rain and flooding.
Concerning possibilities and willingness of adaption the focus of the examination was put on exposition factors compared to other components. In regard of this, a solid base of evidence proved itself to be required for the instruction of ideas to adapt. The realization of the developed implementation strategies originated a wide range of concrete actions for urban development, public relations, communal and private cooperation and finally integration of climate adaption into communal planning. The distribution of the results with especially developed instruments and products (e.g. brochures, online-tools) is currently in progress and inspires other communes to transmit the nine different approaches grown during the ExWoSt-project.

The Federal Research Assistence

Dr. Andrea Rüdiger, TU Dortmund
Frank Schlegelmilch, BPW baumgart + partner

Climate friendly urban development: Regional – integrative – multifunctional

Climate change bears no delay. It does not stop at borders. Adaption to climate change is at its beginning. The experiences of the model regions have to be communicated, thus other cities and communes, but also other countries worldwide, benefit from the expertise of Germany.
This topic does not end on the present day. We will intensely deal with it in the following years. Our cities have to become greener and more worth living. Mobility and building activity, climate protection and adaption need to be connected.
The contributions of the first conference day about the field of research StadtKlimaExWoSt further show: The conception and realization of climate friendly urban development highly depends on conditions and challenges of each region. Against the background of the transferability of approaches and actions won within this field of research to other communes, the consideration of individual aspects seems to be relevant in particular.

Secretary of State Rainer Bomba

welcomed the audience on the second day of the conference.

Climate monitoring and climate projections: Impacts of climate change on cities and city regions

Cities have their own climate, which is influenced by manifold processes as raised energy consumption and higher CO_2-emissions. Thus Paris and Berlin are only two examples for urban isles of heat, which show higher temperatures in contrast to their surroundings. While such an influence of climate change on cities is well documented on base of measures and projection calculations, it lacks in (calibrated radar) data on the impacts of precipitation distribution. Right now only specifications from short time series (about seven years) exist. However, planners need this information about spatial variations and temporal progress to calculate climate projections. With the deduced climate models on three levels (global, regional, local) the influence a change of land use for instance has on temperature can be simulated well. Against the background of climate friendly urban development on base of climate monitoring and projections, there is a need for further research concerning the relevance of facade design and construction material in contrast.

Dr. Paul Becker

Germany's National Meteorological Service, Vice president

Climate friendly urban development

There are close relations between climate protection and climate adaption. However one cannot speak of the “one-and-only” adaption strategy in general. There are many different stakeholders, approaches and basic conditions.
A successful development of a climate friendly city is based on a broad acceptance in general public. Above all this can be reached best, if deployed measures promise benefits at present and show synergies with other goals of urban development – which means they are multifunctional. Nevertheless, there is a wide consensus that climate adaption is an integrated part of urban development. The greatest challenge is to make concrete and comprehensible statements on this topic without ignoring existing uncertainties. Against this background especially informal approaches (communication and cooperation included) are important. The results of the StadtKlimaExWoSt-model regions show, that there is a high demand for practical examples and transferable approaches in climate friendly urban development. However, the online-tool StadtKlimaLotse (urban climate guide) may considerably help stakeholders.

Prof. Dr. Stefan Greiving

plan + risk consult

PANEL I: Climate change and its influence on urban development - Evaluation of climate consequences and deduction of actions

Climate change has many consequences: Increased heat waves and extreme weathers like heavy rain and storms are expected. There are different approaches to identify concrete consequences for cities and to develop specific methods for protection and adaption. On the one hand, a scientific conducted procedure with different method packages (e.g. ENVELOPE or MUKLIMO_3) provides findings on current and future climate scenarios. Thus, the specific affection of single communities and districts is determined, which generates individual actions depending on local conditions. On the other hand, one can also think of widely defined bottom-up methods, in which agricultural, economical, administrative, political and scientific stakeholders discuss risks and potentials of climate change for their specific region jointly and, based on this, work out action plans.
Which approach finally fits best to identify consequences of climate change, to model their impacts on cities and to draw conclusions for urban development, has to be considered with respect to local conditions and instruments of the specific area in the end.

Panel I: Climate change and its influence on urban development – Evaluation of climate consequences for deduction of actions

v.l.n.r.
Dr. Harald Behrens, Mayor Stadt Syke, model region Syke
Uwe Kurmutz, ThINK Jena, model region Jena
Peter Trute, GEO-NET Umwelt-Consulting GmbH, model region Karlsruhe

PANEL II: Reactions on climate change within urban development – key aspects of action and instruments

There are manifold key aspects of action and urban areas, in which climate adaption can take place by using different instruments. The planning of high quality open landscape can help to reach a cooling effect in consequence of a better air exchange. Concerning a climate friendly adaption of industrial real estates, it is especially important, to communicate risks of climate change openly to promote a target-oriented collaboration with resident and resident willing companies. The encouragement of cooperation with private stakeholders is urgently required for realization of instruments like more greening of facades, roofs and inner courtyards as well as less sealing, to adapt whole quarters to the impacts of climate change.
During the realization of actions, the city regional, local and settlement structural levels have to be distinguished to ensure a promising orientation in each case. Especially the adaption in stock poses a central challenge. Within climate friendly urban development different limitations have to be considered, that can be attributed to the protection of historic buildings and monuments, high demands of use, public or political acceptance, financial ability, city growth and higher demand for living space as well as tourism for example.

Panel II: Reactions on climate change within urban development – key aspects of action and instruments

v.l.n.r.
Prof. Dr. Axel Schmidt, University of Duisburg-Essen, model region Essen
Thomas Kleinebrahm, Stadt Essen, Office for Environment, model region Essen
Prof. Dr. Dirk Vallée, RWTH Aachen, model region Aachen
Sascha Saad, agl, model region Saarbrücken
Carmen Dams, City of Saarbrücken, model region Saarbrücken

PANEL III: StadtKlimaExWoSt on trial – Planning and local politics implementation

One of the essential factors of success while realizing climate adaption in the context of StadtKlimaExWoSt is the active involvement of people, for example with surveys on climate affection, but also with accompanying public and press relations. This is the basis for a successful implementation of further planning and local politics steps, to enhance climate friendly cities and communes. To ensure an efficient realization of plans, certain local politics conditions like correspondent resolutions of city and local councils as well as participation of local politicians should be given. In this context, planning actions can be implemented, to assure permanent life quality of the population. This includes for example plantation (hedges, alleys), greening of the backyard or roof, lighter colored surfaces, achieving cooling effect. It is essential to integrate climate adaption as action field in on-going processes of urban development. Actions of adaption which are realized with existing instruments are particularly the most successful ones.

Panel III: StadtKlimaExWoSt on trial – Planning and local politics implementation

v.l.n.r.
Susann Kirst, City of Bad Liebenwerda, model region Bad Liebenwerda
Annegret Weidig, City of Nuremberg, Office for the Environment, model region Nuremberg
Joachim Scheid, Valentum Consulting Group GmbH, model region Regensburg
Prof. Dr. Christian Jacoby, Jacoby Raum- und Umweltplanung, model region Regensburg
Angela Elis, moderator

Panel discussion -
„Experiences of StadtKlimaExWoSt: Chances and limitations of strategies for climate adaption in practice“

Vital part of the conference was the panel discussion, which drew conclusions from the perspective of the different departments based on the past two years' work. Also, the participants dealt with the question, how climate adaption can continue in the different model regions after the end of the StadtKlimaExWoSt-project. Within this, the panel discussed how successful results can be perpetuated and triggered ideas can be implemented. Finally, there was a consensus, that in the meantime climate adaption has become a permanent topic and therefore a steady task for German cities.

Panel discussion: „Experiences of StadtKlimaExWoSt: Chances and limitations of strategies for climate adaption in practice“

v.l.n.r.
Dr. Harald Behrens, Mayor of the city Syke
Carola Scholz, Ministry for Building, Housing, Urban Development and Transport of the Land North Rhine-Westphalia,
Dr. Werner Görtz, Head of the Office for the Environment Düsseldorf, and Chairman of the Expert Commission on Environment of the German Association of Cities
Angela Elis, moderator
Dr. Matthias Lerm, Head of the Town Planning Office Jena

Dr. Harald Behrens, Mayor of the city Syke
"Referring to the topic climate adaption one can gain great sympathy of the citizens, which often is not possible with the complex issue of climate change. Especially regarding the importance of the maintenance of green areas, this can be achieved well. There is no progress without an active integration of the citizens. Merely if this works a perpetuation of the issue can be reached.
The triggered process must continue, because we´ve put plenty of work into it, built networks and, most of all, accumulated a lot of knowledge. Referring to me, I can say: 'I will continue!'"

Carola Scholz, Ministry for Building, Housing, Urban Development and Transport of the Land of North Rhine-Westphalia
"The Land of North Rhine-Westphalia has always supported the field of research StadtKlimaExWoSt. As representative of the federal state level we have to consider the planning sovereignty. But we support the cities by encouraging integrated urban development und related to this integrated concepts of action. These are financially supported by urban development promotion programs. It does not make any sense, to optimize only in one direction, but to combine all relevant aspects."

Dr. Werner Görtz, Head of the Office for the Environment Düsseldorf, and Chairman of the Expert Commission on Environment of the German Association of Cities
"German cities have done a lot concerning the field of climate adaption in the past few years. Mainly this is due to the fact, that there is a certain 'pressure of awareness' providing local politicians with arguments to vote for the implementation of correspondent actions in the committees. Climate adaption has become a permanent task for German cities!"

Dr. Matthias Lerm, Head of the Town Planning Office Jena
"In the context of StadtKlimaExWoSt we focused on one question: In what kind of cities do we want to live in the future? I see three different concepts – first Mediterranean historic centers, secondly urban development of the Wilhelminian time with city quarters, big parks and green spaces and thirdly, with reference to the keyword 'summer-resort', the idea that a rise of living quality by the construction of gardens and backyards can be achieved despite of the compactness in housing. I think there is an appropriate concept for every kind of urban quarter."

Prof. Dr. János Brenner, Vice Director of the Department of Urban Restructuring in the Federal Ministry of Transport, Building and Urban Development
"It is important to approach actions of climate adaption via bottom-up-methods.
The communes know best, where the shoe pinches. It is the duty of the federal government to support them. The governmental contribution can be shown in three different ways: by dint of law-making, by financial support, especially in the context of urban development promotion programs, as well as by means of a public discussion in the broadest sense. Research, in particular the transfer of the results of StadtKlima, is included within the latter."

Perspectives and visions for the future city

Climate change is one of the many challenges for cities causing immense changes in the townscape. Cities are notably vulnerable due to high sealing, low vegetation and violative infrastructure. Thus, one has to act on the assumption that they will alter remarkably within the following years and decades. There are different scenarios, which have one thing in common: The factor sustainability will steadily gain in importance in the upcoming years. Climate change poses new tasks to all stakeholders from town planning over offices for environment to the real estate industry. In this context, actions of climate adaption can only work when they are accompanied by the active integration of the citizens.

Dr. Karlheinz Steinmüller

Futurologist, physicist, philosopher

Future prospects

Several summing up conclusions can be drawn of the final conference on StadtKlimaExWoSt. Despite improved climate projections, scenarios and forecasts persist insecure. Even the analysis of the current climate offers risks, which were not predictable thirty years ago. These already known risks are a concrete foundation for taking action. Senior Legal Secretary Manfred Hilgen (BMVBS) also considers this as key aspect by taking the realization of "No-regret"-actions for a climate friendly urban development seriously. "No regret" means, that benefits of taken actions predominate, independent of the actual risks of climate change. Results of StadtKlimaExWoSt provide other communes with a quick help for taking action. They can find a general orientation by using the StadtKlimaLotse (www.stadtklimalotse.de). A more precise decision tool for communal climate adaption is offered by the communal example of Jena, the online-tool JELKAS (www.jelkas.de). Transferring approaches on other regions, it is important to consider individual locational factors (e.g. topography, lack of living space or financial aid) and, based on this, to choose the best option in each case, which can either be realized in a more scientific way (e.g. with analysis of timeline data) or in a more practical way (e.g. with surveying the citizens).
The model projects of StadtKlimaExWoSt were confronted with a young, new topic at the beginning. They developed manifold strategies and actions with different degrees of concretion. The gained knowledge helps other communes to realize their own strategies. In doing so it must be distinguished between climate protection and climate adaption: Due to the fact that effects of climate change are already present and will even be stronger in future, it is important for the cities to prepare for the changed situation. Thereby, the priority is not only environmental protection and prevention in construction, but moreover the preparation for social and economic consequences (e.g. isolation of old people due to heat or desolation of inner cities in favor of air-conditioned shopping malls), which come along with climate change.

Note: Publications on synoptical results of the field of research, the model study as well as on specialized expertise follow in the course of 2013.

Of course there will be further challenges for research (e.g. with the documentation of weather) and in practice (e.g. when realizing actions at stock) after the project StadtKlimaExWoSt, which need to be worked on in future. The persons responsible for and participating in the project on federal level as well as in the model regions wish and aim to continue the project and to maintain the built structures.
Nevertheless, in some places the question raises who will take care of coordinating and financing the developed strategies, which partly are tangent to different administrative areas of responsibility, after deduction of the local research assistance. The cross sectional issue climate includes many different aspects from environment over transportation and building to health, which makes a coordination of the responsible departments indispensable.

The issue climate change and its relevance seem to have arrived in communal administration as well as in the heads of the people by now. One should not underestimate the importance of integrating citizens and central local stakeholders. Only a broad support based on common actions (e.g. taking walks in special districts) and public relations (e.g. integration of local editorial staff) promises a successful constitution of urban development. The sensitive handling of the population and a 'clarity of language' are key elements, to win people over for the topic, especially in small communes.

Senior Legal Secretary Manfred Hilgen

sees the guests on behalf of the Federal Ministry of Transport, Building and Urban Development off.