SURE Sustainable Development
of Urban Regions

Sustainable Development of Urban Regions

Handout One.
From Research to Action – Lessons Learned. Beyond the *SURE Synergy Workshop 2*.

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Sustainable Development of Urban Regions

BMBF Funding Priority

»Sustainable Development of Urban Regions« (SURE)

Implementing research for sustainability and resilience – that is the core task of the *SURE funding priority*. Within the framework of the BMBF the *SURE funding priority*, ten *collaborative projects* develop locally implementable solution strategies for the sustainable use of resources and an improved quality of life in urban regions in China and Southeast Asia. The development and testing of concepts for a sustainable transformation of fast-growing urban regions are thereby in the focus. The concepts lead both to the strengthening of ecological factors and to greater resilience in face of natural disasters and other consequences of climate change. The permanent implementation of solutions on site and their transferability to other urban regions in East and Southeast Asia are particularly important concerns of the *SURE projects*.

SURE Synergy Workshop 2

The *SURE funding priority* strives for a practical and concrete implementation of projects, thereby bringing about change. For this reason, the *SURE funding priority* faces tension, firstly between *action and research* as well as between *research and implementation* (in many ways). The research agendas of the individual *SURE projects* therefore include transdisciplinary and transformative research formats through which innovation, knowledge production and finally implementation for the sustainable development of urban regions are to be achieved.

For this reason, the *SURE Synergy Workshop 2 – from Research to Action – Lessons Learned*, addressed the theoretical issues of transformative, action-oriented and transdisciplinary research as well as the duality of research and implementation by learning from the practical experiences of previous research programmes and projects.

1 Knowledge & Background: Urban Transformation and Research

1.1 Transformative and action-oriented Research

Transformation can basically be understood as a process that leads to qualitative changes. These changes can then result in fundamentally different forms of thinking and action, of systems and structures. Clearly, such long-term changes result from a collection of short-term actions in which research processes play a crucial role. Although research findings can contribute to change, understanding *how* to implement change is still limited and rarely the focus of academic consideration (Fazey et al., 2018, 55f.).

In this context, two forms of the so-called *transformation research* will be distinguished: *Mode 1* (also referred to as *first-order transformation research*) is concerned with the description and analysis of change processes, where results are disseminated through knowledge transfer. Mode 1 is seen as the *traditional knowledge* and thus as a complex of ideas, methods, values, norms that does not need to include practical solutions and decisions, as it takes place within the framework of universities and research institutions. In *Mode 2* (also referred to as *second-order transformation research*) new knowledge is generated from action and learning. This kind of research focusses less on *understanding problems* but rather on *how research contributes* to processes that lead to solution approaches. Here, science can thus be understood as an active process of intervention that works either directly in practice or more indirectly through the generation of knowledge. It also refers to forms of knowledge production that have the character of application-oriented, practice-integrated, interdisciplinary research (Fazey et al., 2018, 56ff.; Gibbon et al., 1994, 1ff., 10f., Langemeyer, 2021, 185).

Today, there is a growing trend towards more Mode 2 research, the co-creation of results from research and practice, and the greater involvement of researchers in interventions designed to bring about change. This is based on the assumption that even if solutions are a first step, it is also necessary to know *how* to implement change in practice. For this reason, there are also an increasing number of examples dealing with this very interface of academia and practice which point in the direction of a change towards this more *action-oriented production of knowledge*. Such knowledge production relates to the real circumstances of politics, society, and ethics. It is thus an integrated approach that also includes creativity, imagination, and innovation. Moreover, it takes equal account of academic as well as practical forms of knowledge (Fazey et al., 2018, 61f.; Gibbon et al., 1994, 1ff., 4f., 10f.).

Action-oriented knowledge production can also be considered to be relevant due to the fact that researchers fundamentally influence society through their theories, concepts and findings. These, in turn, reinforce the way researchers perceive and approach the world they are embedded in. In other words, researchers are inevitably embedded in the systems they observe and analyse. Therefore, the development of practical knowledge requires a shift in the way

researchers view themselves. Rather than seeing themselves as apart from the system, researchers should instead see themselves as a part of the universe. The aim is to conceptualise research in such a way that it comes from within the system that is being studied (Fazey et al., 2018, 61f.). These are the very challenges that the projects of the *SURE funding priority* focus on. Through research formats such as *Labs* and *Transition Arenas*, innovation and knowledge production are linked in creative and transdisciplinary research formats.

1.2 Transdisciplinary Research

Scientific research programmes and projects such as those of the *SURE funding priority* are often conducted by teams with participants from different disciplines. They usually include research institutions, national governments, local and regional authorities, international organisations, networks and alliances, NGOs and CBOs as well as partners from the private sector.

The sustainable transformation requires overcoming disciplinary boundaries and implementing practices of change. In the article *Science is a Powerful Source of Global Change* Hacker states that interdisciplinary cooperation, based on disciplinary excellence, can contribute to developing an integrated scientific approach aimed at supporting sustainable development. Hacker underlines that the whole range of disciplines is required to address the social, economic, and environmental dimensions of sustainable development (Hacker, 2018, 11). But it should be considered that the cooperation of different disciplines in research projects must go beyond interdisciplinarity, since it reacts to the fact that appearing problems do not (always) originate within disciplinary boundaries. Therefore, transdisciplinary research is needed "[…] as a problem-oriented approach to research [..] (that) resolves disciplinary boundaries in favour of participative generated solutions (Hanschnitz et al. 2009, as cited in David, 2018, 277)."

In this sense the co-production of knowledge and interventions within the research environment can contribute to sustainability transformations. Three generic mechanisms of impact generation can be identified:

- promoting systems, target, and transformation knowledge for more informed and equitable decision-making,

- fostering social learning for collective action, and

- enhancing competences for reflective leadership

To shape transdisciplinary research processes that foster potential for societal change, five major fields have to be addressed: problem relevance, connectivity, roles and responsibilities, interests and concerns, and collaboration culture (Schneider et al. 2019, 28ff.). In the context of transdisciplinary research, not only challenges of *scientific* character arise, but also in the *practical implementation*. These challenges and issues of transdisciplinary and action-oriented research were therefore the subject of the *SURE Synergy Workshop 2 – From Research to Action*. In addition, the action-oriented approach is a key element in enhancing social learning, a concept that leads to knowledge production in order to initiate change. Action-oriented research is thus an essential component of the individual *SURE projects*.

1.3 Action Research

The action-oriented production of knowledge leads to the concept of *action research*. Kurt Lewin was the first to coin this term and he defines action research as a self-reflective spiral of planning, action, observation and reflection cycles based on so-called feedback loops. It is thus focused on the creation of knowledge that emerges in a practical context, with *action* at the centre of the research project (Brandbury Huang, 2010, 93; Herr and Anderson, 2015, 3ff.).

Basically, action research has two main goals – improvement and involvement. Improvement can work in three areas: the first area is the improvement of practice, the second is the improvement of the understanding of practice by its practitioners and the third is the improvement of the situations in which practice takes place (Carr and Kemmes, 2004, 164f.; Brandbury Huang, 2010, 95ff.). Through action research, practitioners and researchers join together in a common task, which can overcome the duality of the roles of research and practice (Carr and Kemmis, 1986, 158, 163ff.). Thus, an important feature of action research is that the role of the academic researcher shifts to the people traditionally referred to as the research subjects. Action research is thus an enquiry conducted by or with a community, but never at or about them. It is designed to meet the immediate needs of people in a specific framework, and it is this utility of knowledge generated by action research that is one of its major strengths (Herr and Anderson, 2015, 2ff.).

The most defining characteristics of action research are thus its participatory character, its democratic impulse and its contribution to social change. In this, action research can be seen as an embodiment of democratic principles in research that enables participants to influence, if not determine, the conditions of their own lives and work, to collectively critique and finally influence circumstances (Carr and Kemmis, 1986, 158, 163ff.). At the same time, action research operates in the challenging area of tension between action (improving practice) and research (producing valid knowledge) (Herr and Anderson, 2015, 5).

The holistic implementation of the *SURE funding priority* has to face these tensions between action and research in many ways if the ambition of a transdisciplinary and transformative research agenda for the sustainable development of urban regions is to be achieved. In this context, overarching questions of effective interventions in complex systems are a major and current challenge for urban research. The *SURE funding priority* strives for practical and concrete implementations and thus aims to bring about change. As the *SURE funding priority* acts internationally, its focus is on issues of implementation beyond national borders and within international contexts. Linking the implementation-oriented research agenda with the goals and opportunities of international organisations, not only of international development cooperation organisations, but also of other institutions such as development banks or climate change, financing mechanisms is evident and will be worked towards.

The *Synergy Workshop 2* of the *SURE funding priority* was conducted in the context of the conceptual framework outlined above, with a focus on collaborative reflection on the *duality of research and implementation*. The target group of the following comments and recommendations are therefore not only the participating *SURE projects*, but also funding organisations, including those from the aforementioned professional fields.

2   Workshop Report: SURE Synergy Workshop 2

2.1   Intentions and Process

The intentions of *SURE Synergy Workshop 2 – from Research to Action – Lessons Learned,* held on 17 June 2021 were to share experiences from previous programmes and projects, to get insights into different research programmes and projects and to learn from each other's experiences. In addition, the workshop intended to address the duality of research and implementation, to deepen implementation issues and to establish contacts to external organisations.

The *SURE Synergy Workshop 2* was related to work package 3 of the *SURE Facilitation and Synthesis Research Project.* A key objective of this work package is to ensure the impact beyond the projects and to support reflection and self-reflection to observe progress of projects and the *SURE funding priority* towards impact.

The first part of the *SURE Synergy Workshop 2* consisted of four contributions on the topic *from Research to Action – Lessons Learned*. The four contributors were asked to briefly introduce the project or programme and share the framework, the approach, and the key ideas. However, the focus was on the success and failure factors, the project design and project work that led to impact. The workshop's second main part was a moderated panel discussion, where the lessons learned were further detailed.

2.2   Contributions

2.2.1   Future Megacities Programme (FMP)

The FMP was founded by the *German Federal Ministry of Education and Research (BMBF)* and lasted from 2005-2013 (Preparation Phase: 2005-2007 / Main phase: 2008-2013). Its six focus areas were Energy and Sun, Mobility and Transportation, Urban Resources, Planning and Architecture, Governance and Participation and Capacity Development. The focus of the FMP in the second phase was on application-oriented research to develop model solutions for sustainable urban development with focus on energy efficiency and climate change adaptation. The FMP project ecology included projects in South America, Asia, and Africa, more precisely: China, India, Morocco, Ethiopia, Peru, Iran, Vietnam, South Africa.

Experiences and results from the FMP were presented by Carsten Zehner who is a consultant for urban development, planning and management.

2.2.2   Cities fit for Climate Change (CFFCC)

CFFCC was part of the International Climate Initiative (IKI). The German Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety (BMU) supported this Initiative based on a decision adopted by the *German Bundestag*. The project also cooperated with the *German Ministry of the Interior, Building and Community* (BMI). It lasted from 2015-2019. Its focus was on integrated urban planning and climate change research (Energy, Health & Sanitation, Transport, Water, Housing, Urban Green, Waste) with the aim to apply a climate-proof urban development approach (best practice) in three cities which are very different in terms of culture, population etc. The cities were Santiago de Chile, Chile; Durban, South Africa; Chennai, India.

Experiences and results from the CFFCC were presented by Dr. Daphne Frank who is senior climate coordinator for the Department of Africa at the *Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)*.

2.2.3   Megacities – Megachallenge: Informal Dynamics of Global Change Programme (MM)

MM funded by the *Deutsche Forschungsgemeinschaft (DFG)*. Lasting from 2006–2013 the programme consisted of 13 interdisciplinary, international projects including the disciplines geography, meteorology, urban planning, sinology, and anthropology. Its main focus and aim were to gain deeper understanding of one of the most important mechanisms and practices of worldwide urbanization – the dynamics of informality within megacities. The research was conducted in Dhaka, Bangladesh, and the Pearl River Delta, China.

Experiences and results from the CFFCC were presented by Prof. Dr. Frauke Kraas who is Professor and holds the Chair of *Human Geography, Department of Geography* at the *University of Cologne*.

2.2.4   Results from Research Projects in Tanzania

Different research projects in Tanzania, funded by DFG and BMBF and conducted between 2000 and 2014 like the *Research for the Sustainable Development of the Megacities of Tomorrow, Trunk Infrastructure and Urban Growth – Managing Rapid Urbanisation in Poverty in Dar es Salaam, Tanzania (2005-2007)* and *Regulating Informality – The Influence of Planning Standards on long term Sustainability of Urban Settlements – the Cases of Dar es Salaam/Tanzania and Durban/South Africa (2011-2014)* were discussed. Contents of the projects are the translation of urban infrastructure ideas and planning models as well as the adaption in water and sanitation systems in African cities. The focus was, among other things, on the perception of the individual research projects in the target countries and their differentiation from development aid.

Experiences and results were presented by Dr. Wolfgang Scholz who is part of the academic staff at the *Faculty of Spatial Planning of Dortmund University*.
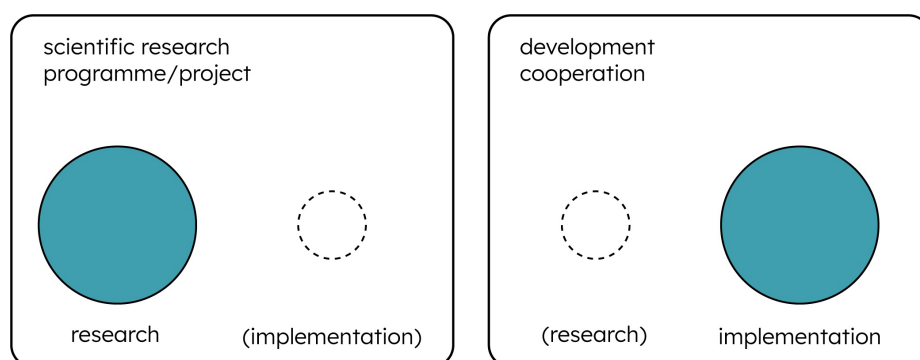
2.3   Key Topics and Findings

When considering both the *theoretical framework* of transformative research, transdisciplinary approaches, action-oriented formats and the *practical lessons learned* from the *Synergy Workshop 2*, the following issues can be synthesised: *Mandate and Benefits, Cooperation and Communication* and *Flexibility and Redesign*. In the international context, the duality of *scientific research projects* and *development cooperation* is particularly evident and was therefore a main topic of *SURE Synergy Workshop 2*.

2.3.1   Mandates and Benefits

Basically, two different types of projects can be identified: the *scientific research project* and the *development cooperation*.

As illustrated in graphic 1, there is, in the majority of cases, no or only a very limited research phase in the development cooperation. The focus in development cooperation is clearly on developing and implementing interventions at the local level.

The scientific research project, in contrast, has an extensive phase of research, knowledge production and data collection. There is no or only a short phase of implementation. Here, the focus is clearly on knowledge production, although this can also be generated through practice-oriented approaches such as action research.

Graphic 1: Similarities and differences in research project and development cooperation

Experience shows that it is essential to clearly highlight *mandates* and *benefits* of the specific research project, thus creating transparency. Clarifying the project's approach is especially important for the reason that research projects can be misunderstood as development cooperation. Unlike research projects, development cooperation provide funding for a practical implementation of visible projects at the local level. In contrast, approaching projects that only serve research and the pure purpose of gaining academic knowledge or collecting data without implementing anything concrete at the local level leads to misunderstandings. The reason for this may also lie in the fact that research projects use similar approaches and methods and are based on the same challenges as development cooperation, so that a clear distinction between the project types is not immediately obvious. In order to avoid those misunderstandings and disappointments, it is particularly important to create transparency right from the

outset in regions where experience with development cooperation already exists. It would also be helpful to highlight both mandates and benefits of the specific research project, as this may not bring about the expected implementation.

However, while this very mandate is clearly defined in development cooperation the mandates in research projects can be more abstract and may not be specified in detail from the outset. For this precise reason, the researchers must be aware of their own role. The researcher is a *facilitator of change* and the research project provides a platform on the basis of which change can be initiated. At the same time, the researchers must be aware that they are not bringing about immediate change in the partner countries. Therefore, there is a need for critical reflection in the communication with local partners about the real benefits and especially the question of *who* actually benefits from the research project.

Although mandates and benefits are easier to demonstrate in the context of development cooperation, there are also limitations and challenges in the context of practical approaches. Due to the fact that development cooperation have a clear agenda set by the donor or funding agency, there is also a fixed time frame. This results in the pressure to invest the financial resources in exactly this framework, which makes changes to the project only possible to a limited extent.

However, the idea of implementation is not far removed from research projects, and in order to bridge the gap between research results and implementation, implementation phases are already part of BMBF Research Projects, which is also the case in the *SURE funding priority*. Here, compared to the research and development phase, the implementation phase only takes up a rather small part and rather serves the goal of supporting the local partners in obtaining or acquiring funding. The implementation phase within the framework of BMBF Programmes thus primarily serves to empower local partners by supporting them in identification of suitable financing and funding models and in the formulation of applications for funding. Nevertheless, finding suitable funding models for implementation is as crucial as it is time-consuming and should be integrated as a standard work package into research agendas.

2.3.2 Cooperation and Communication

A successful project does not only require transparency, but also trustful and honest communication on several levels: internally (within international research teams), externally (with cooperation partners) and publicly (within and beyond the scientific community).

When considering the first level – communication and work within the team – a strong project coordination as well as an excellent and effective team that works on the project and constantly keeps the goals in mind are basically the key to a project's success.

External communication mainly concerns the network of cooperation partners, which should be as diverse as possible and should involve a wide range of stakeholders (e.g. academia, practitioners, politician, and implementers). However, building trusting cooperation with cooperation partners takes time. Because resources are distributed unequally and imbalances exist, it is even more important to frame the research agenda together with those who will be affected by the project and to initiate joint activities from the outset.

In developing the research agenda, considering the given needs of cooperation partners and local requirements are equally important. To meet the latter, developing an understanding of the context, cultural requirements and local challenges is essential. In addition to the joint action-oriented approach, it is above all the exchange with local experts and the conduction of stakeholder workshops or household surveys which must be considered to pursue a reality-based approach adapted to local needs. Another central field of action for the implementation of a successful project is to bring together actors who can initiate change and build capacity. Here, an important and specifically addressed target group are the practitioners and implementers on the ground. At the same time, specific formats and methods are needed to reach this target group in the best possible way.

It is precisely the local institutions such as universities and schools that bring together important actors who can initiate change – in this context especially schools are often overlooked as possible strong partners.

Another factor for a successful project execution is the communication of the research results to the public and a good PR strategy. In addition to the general external project's presentation (e.g. website), this also means publications and scientific papers that are internationally comprehensible and are also published in the communities, local and important journals of the partners. In order to ensure intercultural comprehensibility, the scientific papers should also be written in the partners' languages.

2.3.3 Flexibility and Redesign

However, there is a variety of challenges when working with different partners. Fundamental and significant obstacles can be the *effects of changing structures* in the partnerships. Changes in personnel can result e.g. from political elections and new coalition compositions. On the one hand, such changes have a considerable impact on institutional structures e.g. by changing the division of individual departments due to new associations within ministries. On the other hand, such changes have immense influence on the time frame and thus on the course of project work in general, as such processes can lead to a slowdown and to a thematic shift. Especially elections not only change the personnel involved, but also the pressing issues. For this reason, it is recommended to take external conditions such as the political context and upcoming elections into account when planning activities and a project's schedule.

The possible extent of changing structures points to the need for flexibility and the possibility to respond to such changes in the research agenda. To ensure the success of a project, the research agenda should, firstly, be co-designed together with the local academic partners from the outset in order to be able to better assess possible local changes. Secondly, the research design should allow for flexibility and the possibility of redesign in order to respond to unpredictable events and findings and to address local needs.

The current Covid-19 pandemic and its difficult-to-estimate local courses are an obvious example of such unpredictable events.

The flexibility of a programme or project seems not only a necessity for responsiveness, but also creates space for constructive experiences and opens up new, previously unsuspected possibilities.

What can be learned from experience is that this very possibility of flexibility, which can also lead to a redesign of the research agenda, is an important lesson in addressing actual local needs and, in case of doubt, questioning and resetting the chosen course.

3   Lessons Learned: Conclusion & Recommendations

3.1   Conclusion

Reflecting on the impulses of the *SURE Synergy Workshop 2*, it can be learned that in general there are different interests of research and practice and that this duality of implementation and research reveals gaps in knowledge. The lessons learned from *SURE Synergy Workshop 2* highlight existing contradictions and conflicting interests. In this context, the question can be asked whether the researcher's approach can be perceived rather as an obstacle than an advantage. It is obvious that there are partial contradictions between the intrinsic motivation of the researcher, the research agenda and the local requirements, which might be subject to change. Therefore, researchers need to ask themselves whether their approach is appropriate to the goal of transformation. In general, it can be emphasised that an approach that is primarily oriented towards Mode 1 does not meet the demands of transformative research, for which Mode 2 methods are needed.

Nevertheless, practice often appreciates the innovative perspective of researchers in order to question the procedures of everyday work as well as local routines. It is the action-oriented methods that bring the researchers content-related knowledge and experience from other contexts and thus provide impulses. At the same time, the exchange leads to questioning the researcher's approach from the perspective of practice, as the researcher is confronted with reality outside of their respective field of research. This clearly highlights the positive interdependence between research and practice in the context of action research.

In part, academic results (only) have (only) limited impact on practice, as some research projects are not designed for large-scale implementation. Increasing impact at the local level, more pragmatism and less theory would be needed at this point and in the context of such projects.

It seems obvious to discuss a possible symbiosis of scientific research project and development cooperation or the integration of one into the other. However, challenges quickly become clear: It is above all the time frame of the two project types that makes such a combination difficult. In the duration of a development cooperation, most academic works cannot be completed – a simple example is a PhD project that takes years to generate research results. A

key challenge is therefore to dissolve the duality of research projects and development cooperation at an early stage and to harmonise the processes. In this context, it would be required that transdisciplinary research accompanies action-oriented work in such a way that it can contribute directly to development cooperation projects. The advantage of action-oriented research is that relatively small interventions, such as the implementation of flood protection measures in villages within urban regions, can be used as prototypes and scaled up after successful implementation, e.g. by development cooperation.

Possible approaches to bridging the gap between research and implementation funding could be applied within newly developed phasing models in which BMBF funding priorities foresee BMZ funding to make continuous implementation through GIZ or KFW possible. In the context of funding priorities such as the *SURE funding priority*, it would also reduce the sometimes-caused confusion by the civil society and other stakeholders at the point of implementation, and increase the impact of the funding for both scientific research programmes and development cooperation for the benefit of the quality of life at the local level. Reflecting on this, it can be concluded that the challenges of sustainable transformation require new ways and concepts of genuine transdisciplinary cooperation.

3.2   It is recommended* …

- to examine possible approaches to bridging the gap between research and implementation funding and develop new models linking BMBF projects with BMZ- or GIZ-funded programmes (**A**)
- to establish transparency about the mandate and benefits of the research project from the outset (**A**)
- to involve as many and as diverse stakeholders as possible in the consortium (**A**)
- to shape the research agenda with those who will be affected by the project (**A**)
- to take into account external conditions such as the political context and upcoming elections when planning activities and the time frame of a project (**A**)
- to integrate funding models for implementation as a standard work package into the research agenda (**A**)

- to maintain open and truthful communication on several levels: internally (within international research teams), externally (with cooperation partners) and publicly (within and beyond the scientific community) (**B**)
- to build a trustful cooperation with cooperation partners and to initiate joint activities for this purpose (**B**)
- to bring together those stakeholders who can initiate change and to promote cooperation between authorities and ministries (**B**)
- to communicate research results to the public through publications and scientific papers, as well as through a good PR strategy (**B**)
- to establish a publication and dissemination series as early as possible (**B**)

- to integrate in the research design the possibility of flexibility, which can also lead to a redesign of the research agenda, in order to be able to respond to actual local needs (**A/C**)
- to support in finding funding models and applying for funding (**C**)

To be considered ….
A …**before:** before a funding priority is announced/at the beginning of a funding priority.
B ..**now**: during the course of the *SURE project*.
C …**near future:** at the milestone review/ before the *SURE implementation phase*.

The recommendations are mainly based on the lessons learned from SURE Synergy Workshop 2 and are partly complemented by the theoretical findings.

Further Reading

[Ten essentials for action-oriented and second order energy transitions, transformations and climate change research](#)
[Future Megacities Book Series](#)
[Cities fit for Climate Change. A Sourcebook for Climate-Proof Urban Development](#)
[Handbuch Transdisziplinäre Didaktik](#)
[Homepage cities fit for climate change](#)
[Homepage International Climate Initiative](#)
[Publication Mega Cities Mega Challenge, Informal Dynamics of Global Change, insights from Dhaka, Bangladesh and Pearl River Delta, China](#)
[Water, Megacities and Global Change](#)

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Graphic 1: Illustration by *SURE Facilitation and Synthesis Research Project*