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1st Workshop on Climate change at the local level in Istanbul

October 30 and 31, 2014

Marmara University, Hydarpaşa Campus, Istanbul

Workshop Summary

Written by Kerstin Krellenberg

The workshop *Climate change response at the local level in Istanbul* was organized within the framework of the German-Turkish project C*limate change response at the local level in Istanbul* (CLIST) - *Mutual learning among cities and actors* with the aim of presenting and discussing climate change response activities in megacities from different perspectives. Among the participants of the workshop (60 in total) were representatives from Turkish Metropolitan administrations, Turkish politicians, international and national scientists as well as representatives of international organizations.

First DAY - October 30, 2014

The event started with the **Welcome speeches** of Project Head **Dr. Kerstin Krellenberg** from the Helmholtz Centre for Environmental Research in Leipzig (UFZ, Germany), United Cities and Local Governments, Middle East and West Asia Section (UCLG-MEWA) General Director **Mehmet Duman**, Vice Director of Marmara University **Prof. Dr. Erol Özvar**, **Dr. Carsten Krück** from VDI Technology Centre representing the German Federal Ministry of Education and Research and **Mustafa Tahmaz**, Director of the Department of Environmental Protection and Control of Istanbul Metropolitan Municipality. Unfortunately, the mayor of Istanbul Mr. Dr. Kadir Topbaş had to cancel his participation at the very last minute on the same morning of the workshop.

The **Keynote speech** was given by **Georgia Rambelli** from ICLEI Europe via video-conference. In her speech, Rambelli highlighted the importance of cities in the context of climate change according to their large energy consumption and greenhouse gas emissions as well as their vulnerabilities to sea level rise and natural hazards such as floods, landslides and storms. In this context she also highlighted the need for poverty alleviation. Talking about the role of local governance in responding to climate change, she pointed to the wide ranging responsibilities of community administrators (policy, regulations), service providers (education, health, owners / managers of infrastructure) and leaders, providing direction for setting examples, motivating and stimulating economy. In order to underpin the already long-lasting history of climate action, she summarized the main activities of the last two decades undertaken at the global level and acknowledged the most recent developments with an intensified focus on cities. She pinpointed the *Compact of Mayors* as well as the *carbonn Climate Registry*, as world´s leading reporting platform of local and subnational governments. At local level, she discussed the inclusive, smart and efficient city that can be sustainable if societal concerns such as well-being and quality of life are ensured, natural resources and ecosystem services protected and economic processes considered. Rambelli presented some desirable visions for the city of tomorrow: clean energy and air; efficient, clean and healthy mobility and transport services; energy efficient buildings and mixed housing development; mix of quality green infrastructure and ecosystem services. She stressed that those visions can only be achieved by back-casting and fore-casting, building on good data, strategies, plans and action. Thus, having in mind that cities are especially complex she highlighted the wide range of different actors that need to be engaged in order to develop a vision of the city that is inclusive and not top-down. This calls for changes in governance models as well as reliable and continuous partnership between industry, commerce, science, institutions, NGOs, social organizations, etc. If all actors put their pieces together, good governance and management can make it work. This calls for integrative approaches based on a step-wise methodology: analyzing, planning, implementing, monitoring and reporting. By giving practical examples from Rio de Janeiro and Mexico as well as introducing a platform of innovative

tools for *Low Carbon Solutions for Local Development Challenges* and a *Toolbox of Methodologies on Climate and Energy*, she concluded with highlighting some mayor challenges of cities for transitions such as unsynchronized cycles of planning, decision-making and investment, lack of technical expertise and knowledge, difficult access to financing, public procurement criteria and traditional governance and management culture. As the key factors of a successful transition she pinpointed clear long-term goals and visions, a solid analysis of potentials and opportunities, a consequent alignment of plans and investments with the goals and visions, and a good regulatory framework.

The first Panel **Towards urban sustainable development and resilience – Environmental, economic and social dimensions of climate change and interlinkages** included three input-presentations that intended to highlight the social, economic and ecological dimension of climate change in cities. **Dr. Radley Horton** from Columbia University in New York started with his talk about the *Urban Environmental Challenges of Climate Change*. Giving background information about the occurrence of changes in climate, both natural and man-made, he presented figures on observed as well as projected climate changes at the global level. He highlighted climate extremes (e.g. heat waves) as potential changes where natural variability combines with gradual mean changes in temperature. Horton explained the processes that influence on the mean sea level and the uncertainties about the sources of ice sheet melting. He established the link between seal level rise and coastal flooding which is very likely to increase in frequency, extent, and height as a consequence of the former. He underpinned general data with projections for New York and presented maps showing potential areas to be impacted by floods in 2020 and 2050. Horton claimed that for a long time, cities were ignored in global climate change research, although cities present uniquely relevant factors such as multiple environmental stresses, majority of global population, hubs of economic activity and frequent location on coasts, major rivers or lakes. As a consequence, cities are on front line in both causes and effects of climate change, producing a high amount of greenhouse gas emissions, associating a large demand of primary energy and immense energy consumption although there are large variations in energy use in cities due to different climate and development levels. The effects are mostly felt in consequences of extreme heat, intense rainfall and sea level rise. The second speaker of this Panel, **Dr. Bariş Karapinar** scientists at Boğaziçi University in Istanbul looked at the *Social and economic challenges of climate change in urban areas*. He started from global climate change projections and based his argumentations mainly only the most recent IPCC data from 2014. Talking then about flood and droughts in Istanbul, he established the link to socio-economic factors such as poverty, accessibility, rise in food prices etc. In this context, Karapinar highlighted the main impacts that can already be felt today such as water shortage and health problems. **John O'Brien,** representing United Nations Development Programme (UNDP) in Europe and Central Asia, gave his presentation on *Climate change and Sustainable Green Cities – the role of UNDP*. He defined the "Sustainable green city" as a city designed with consideration of environmental impacts, dedicated to the minimization of required inputs of energy, water and food, etc. Given the urban age it is cities that provide the greatest opportunities to address world's environmental degradation and to work towards sustained global environmental benefits. For the sustainable green city development, increased importance should be given to green spaces, the development of new and sustainability oriented indicators, innovations of green growth, possible impacts of crisis as well as vulnerability and resilience. From the perspective of UNDP, more integrated approaches are needed in order to

develop new projects that are multi-disciplinary towards environmental problems in cities. O'Brien presented the GEF (Global Environment Facility) which is a partnership for international cooperation to address global environmental issues, focusing in the case of UNDP on an integrated approach for sustainable urban development. This approach targets cities with more than 5 Million inhabitants, Istanbul being one of the cities. O'Brien concluded with pointing to the need of real action.

After these three input presentations **Dr. Carsten Krück** from VDI Technology Centre and **Dr. Mehmet Hilal Kaplan**, Member of Turkish Parliament and its Environmental Commission reflected on the inputs given. **Krück**, having a sociology background and a current governance focus acknowledged the need for more integrated approaches. He underpinned that adequate methods are necessary in order to work jointly with different stakeholders. Furthermore, he highlighted that climate change brings many hidden factors. Problems like public health are very close to the citizens. He encouraged especially decision-makers to be more creative as finally all is about governance. **Kaplan,** Member of Turkish Parliament, highly appreciated the scientific inputs and demanded to hand those presentations over to politicians in order to inform them. In this context, he stated that there is still a big difference between scientific knowledge and political actions. He gave some clear examples from climate change related problems in Kocaeli, talking about floods, droughts and food security. He mentioned Turkey's huge emissions and the delay in the application of renewable energies. In this regard, Turkey should come closer to European countries. At the end of his speech he asked again to take science more seriously and to be aware of the climate change related risks we are facing. The following discussion was lively and around questions of exchange and communication between science and policy, the reasons of politicians for not acting, risk perception and foreign funds for climate change adaptation.

The second Panel followed the idea of presenting different governance approaches applied in cities at different levels (regional and municipal). **Cansu Tekin** from **Kadıköy Municipality** (Istanbul) presented on *Possibilities and challenges of proactive climate change response of a district municipality*. She showed a wide range of ongoing activities in Kadıköy, related to climate change response (e.g. avoiding plastic bags, constructing cycle ways, using electric vehicles, implementing solar panels, wastewater treatment, and grey water reuse, etc.). Kadıköy was one of the 14 municipalities of Regional Environmental Centre's (REC) climate friendly campaign and among the first Turkish municipalities that calculated their CO2 emissions. Tekin talked about the energy plan that is under development in the district municipality with the attempt to reduce GHG emissions up to 20% in 2020. In this context, Tekin also presented figures of Kadıköy's corporate energy consumption and GHG emissions related to different sectors, including the proposal of effective reductions in the different sectors. In her speech she presented not only an impressive range of activities ongoing but likewise pointed to the limits they are facing as a district municipality. **Dr. Şafka Hengirmen Tercan**'s presentation on **Gaziantep and Muğla Metropolitan Municipalities** was delivered by Özge Sabuncu via video-conference. The presentation started with the case of Gaziantep where the first climate action plan of a Turkish Metropolitan Municipality was developed and implemented. As Tercan is now working at Muğla Metropolitan Municipality, the presentation focused on this city, pointing in particular to the potential of renewable energies. Being a tourism city, the energy consumption patterns of Muğla in houses, trade centers and tourism sector are very high. Therefore, the city started some renewable energy projects (biogas production in wastewater

treatment plants, the potential of European cycle routes (EUROVELO), the solar power plant "Infinite Source Sun" that is the first on-grid photovoltaic system that was accepted and engaged by Turkish Electricity Distribution Company (TEDAŞ) in the area of unlicensed electricity generation in Turkey, and photovoltaic systems built in Muğla University). For the purpose of environmental protection, many activities are planned in the next future in Muğla such as the preparation of an Energy Action Plan and a Climate Change Action Plan. Thirdly, **Dr. Kerstin Krellenberg** presented an integrative, inter- and transdisciplinary approach elaborated for developing a Regional Climate Change Adaptation Plan for the **Metropolitan Region of Santiago de Chile**. She highlighted first of all the need to provide in-depth information on who (and what) is vulnerable and why to climate change in order to develop context-specific response at the local level. Furthermore, the complexity of megacities in general as well as the wide range of actors involved, calls for comprehensive and integrative strategies. Like in Turkey, Chile also firstly developed climate change strategies at national level without a clear urban focus. This was the initial point of an international research project that started from estimating climate change for the Metropolitan Region of Santiago de Chile, working on the impacts of these changes in precipitation and temperature etc. on energy and water supply and demand and vulnerabilities to flood and heat hazard. The heart of the project thus was a participatory process that brought a wide range of actors from public and private institutions, ministries, the Regional Government, civil society and research together in a series of 10 roundtable meetings in order to develop adaptation measures to the impacts that climate change involves. The result was an Adaptation Plan together with a Manual for Implementation and further information material for practitioners and selected municipalities. Krellenberg talked about the constraints and benefits that evolved during the 2.5-year process of developing that plan at the science-policy interface and concluded with some suggestions for Istanbul: to establish a comprehensive and continuous participatory process to develop jointly climate change responses for Istanbul; within this process develop scientific data regarding climate change and related impacts and vulnerabilities in key sectors; based on this data, start the development of context-specific measures (mitigation and adaptation); link this to the existing guiding framework documents at national level, and take existing plans, programmes and policies at all levels into account. The final presentation in this panel was give by **Dr. Radley Horton** on the case of **New York City**. Horton talked about the First New York City Panel on Climate Change (NPCC1) that Mayor Bloomberg convened in 2008. Leading climate and social scientists and risk management experts worked together to identify future climate risks facing New York City. This was part of an overall New York City Adaptation Process, ongoing between 2008 – 2011, including also a Stakeholder Task Force and a City-wide Sustainability Office. Taking Hurricane Sandy as an example he talked about Science in Place … Science in Time. He said that the better the impacts are forecasted, the better we know about critical infrastructure systems and vulnerable communities, and the better we can prepare for disaster. Thus, despite advanced forecasts and preparations, Hurricane Sandy caused huge damages like flooding of subway lines, closure of tunnels, etc. The unforeseen impacts included gas shortages, hospital evacuations, and fires. Comparing flood maps to inundation zones he showed that current risk levels were highly underestimated. In consequence, after Hurricane Sandy, Mayor Bloomberg re-convened the NPCC in order to provide updated climate risk information for the Special Initiative for Rebuilding and Resiliency (SIRR). Thereby, Sandy can be considered as a tipping point and key actions for coastal protection are now defined in order to prevent future disasters. Horton concluded with some lessons

learned: the importance of community groups in immediate disaster response and that every city needs 'Science in place … Science in time'. In this context he pointed out to the UCCRN - the Urban Climate Change Research Network - an international network that aims at enabling cities to fulfill their climate change leadership potential in both mitigation and adaptation.

The third Panel was designed with an explicit focus on Istanbul. **Dr. Orhan Sevimoğlu** presented on behalf of the **Istanbul Metropolitan Municipality** the many activities ongoing in relation to climate change mitigation. He started showing the results of a greenhouse gas emission and carbon footprint inventory of Istanbul that was conducted in 2010. Accordingly, the carbon footprint of Istanbul is divided into electricity consumption (35%), transportation (25%), fuel combustion- natural gas (18%), fuel combustion- other (13%), industrial process emissions (3%) and waste (6%). He presented ongoing projects such as Energy Efficient City Lighting, waste management, attempts to increase the amount of green areas, the use of solar collectors, new metro, metro bus and *Marmaray* undersea rail tunnel projects, the running of Euro 5 standard busses, LED traffic signalization and solar energy use, all in order to reduce CO2 emissions. Furthermore, he talked about a traffic warning system and the TEUS early flood warning system which has been completed and is currently calibrated. He also presented a DMS Instant road and weather information system. **Firat Sarap** from **ISTAÇ A.S.** started his presentation on energy projects using waste gas with figures on a national wide greenhouse gas emission inventory of the year 2012, before coming to the Istanbul inventory. The large amount of annual waste produced in Istanbul cannot be compared with any city in Europe, being approximately 5.5 million tons stored in land fill disposals, contributing highly to the overall greenhouse gas emissions (mainly methane). Trying to promote an environmentally friendly energy production, Istanbul is working on Landfill Gas Power Plants. The electricity produced is transferred to the national electricity grid. The following discussion was quiet intense as for many participants the presented figures were new. Questions were around adaptation that does not yet seem to be an issue for Istanbul, the rebound effects of technological mitigation activities particularly in connection with the construction of the third Bosporus bridge and the increase in the production of waste for energy supply.

Closing the first workshop day, Krellenberg appreciated the lively discussion during the day, the interesting presentations and the exchange between actors and disciplines. She summarized that it became again apparent that climate change is very complex and that people see things differently. She highlighted the need for more integrated response that tries to avoid undesirable side effects.

Second DAY: October 31, 2014

The second workshop day was designed to stimulate discussion with representatives of the Istanbul Metropolitan Municipality on preconditions, specific needs and challenges for integrated response to climate change in Istanbul. The group was smaller than the first day and allowed for very intensive and open discussion. The representatives from Istanbul Metropolitan Municipality again highlighted the many activities already ongoing in terms of temperature measurements, construction of green areas, and emergency plans. Based on existing studies, the Municipality is planning in a next step to work on an overall presentation of the situation and to identify hotspot areas. In this context, a link needs to be established to natural disasters, and water resources should be more carefully used. In construction, higher awareness for regulations is important.

From other workshops participants questions arose that were directly dedicated to the representatives of the Istanbul Metropolitan Municipality. The non-existence of a climate plan in Istanbul was brought up. It was highlighted that many cities in the US, EU etc. have those plans and given the importance of Istanbul, it is also needed including short-, mid- and long-term targets. It was discussed that scientists and international institutions should be involved in the development of that plan. Workshop participants also pointed to the socio-economic vulnerabilities, the importance of green areas and the need for more participation. Energy and water resources achieved a lot of consideration, pointing to their limitations and the potential of green energies like solar and wind energy. Infrastructure investments should be resource friendly (e.g. using grey water) and affordable. It was also discussed how gaps in legislation could be overcome and that economic losses need to be compensated. In this context, it was highlighted that there is the potential of scientists to estimate the costs of different options.

The representatives of Istanbul Metropolitan Municipality reflected on these points. They highlighted that the development of a climate plan or strategy is a public authority matter that will be followed up mainly by the Department of Environment from 2015 onwards. This will include scientists. Regarding green areas, they stated that many trees were planted over the last years and that they a very good development can be seen. They agreed that certain gaps exist with regards to legislation. The reuse of rainwater is not yet in the focus as an existing study was not clear in its significance and costs were considered to be too high. Concerning the participation issue, they pointed to the fact that “we are living in a democracy country” but that e.g. green areas are in the property of the Municipality. They underpinned their openness for feedback, also internationally. Already many consultant services are under way, from both universities and private companies.

The main overall conclusion from this workshop is that it was very positive to see people sitting together, scientists, international organizations and representatives from the Istanbul Metropolitan Municipality in order to discuss needs and ideas, by listening to all views. It came apparent from a scientific point of view that although a lot of information exists, there is the need to work explicitly on the interlinkages. So far, the many ongoing projects are hardly interlinked and need a clear framing. Adaptation is still not an issue for Istanbul. Here, international examples could be of help.