Chapter 10
Towards Climate Change Resilient Cities in Africa – Initiating Adaptation in Dar es Salaam and Addis Ababa

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Abstract The chapter explores the possibilities and barriers for integrating climate change adaptation into urban development and planning in the case study cities of Dar es Salaam and Addis Ababa. It identifies adaptation measures in collaboration with stakeholders that are meaningful and need urgent attention across various parts of the urban governance system and discusses possible pathways towards increased city resilience.

The study shows that only limited momentum exists among city stakeholders for a broad citywide adaptation strategy addressing the complexity of climate change impacts in both case study cities. This is – for the time being – due to inability to address all measures relevant for making the cities resilient as several more urgent issues, such as rapid urbanisation and poverty, take precedence among stakeholders. Therefore, a more incremental approach of addressing the most pressing matters that can mobilise a range of stakeholders and create synergistic effects with other critical urban problems needs to be prioritised. Such projects can furthermore create knowledge and relations between important actors and institutions.

In Addis Ababa, the project that stakeholders could support and that could address the immediate flooding and drought problems of the poor was 'integrated water management', a citywide approach based on the common interests and possible synergies across city sectors and levels for better water management. In Dar es Salaam, the governance system appears to be too fragmented to drive a

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similar institutionally-led adaptation effort. Here 'integrated local projects' in the most vulnerable areas addressing land management, upgrading and livelihood projects generate most resonance among stakeholders.

Keywords City resilience • Incremental approach • Integrated projects • Vulnerable areas • Water management

Introduction

Climate change is expected to present serious challenges for cities all over the world, and in particular in the least developed countries. The five CLUVA case study cities Dar es Salaam, Addis Ababa, Saint Louis, Douala and Ouagadougou are already confronted with severe effects such as flooding and drought (Chap. 1). The cities need to become more resilient[1] and adapt to present and future effects of climate change despite the many challenges. The question is how to do so?

This chapter initially presents a theoretical framework for spatial strategy-making (Healey 2009) and identifies a number of measures which are commonly considered important for adaptation in African cities (Parkinson et al. 2007; Douglas et al. 2008; Satterthwaite et al. 2009; de Sherbinin et al. 2011; UN-Habitat 2011; Jha et al. 2012; Roberts et al. 2012) in order to guide us in a strategic process towards more climate change resilient cities in terms of possible actions. Due to existing deficits in governance systems it is not realistic that these measures can be implemented without mobilising broad support from a wide variety of actors (Roberts 2008; Healey 2009) and without having to deal with a diversity of barriers (Chap. 9). It is therefore important to focus on the ability of measures to *act in practice* rather than to be mere 'desk-strategies' listing the right things to do without receiving the necessary commitment from key stakeholders (Healey 2007, 2009).

It is important to recognise that we refer to *a particular understanding* of strategy-making which differs from the strategy-making of the 1960s in European spatial planning, which aimed for comprehensive master plans prepared by experts based on the modernist faith in the power of scientific analysis to predict and shape the future. Such rational planning approaches focused mainly on physical patterns of spatial development. As the comprehensive master plans failed to deliver the desired outcomes, planning theory evolved towards more collaborative approaches acknowledging the importance of gaining knowledge and support from a variety of actors as well as the futility of making detailed plans and strategies for the long term in a highly dynamic and unpredictable environment. Consequently the idea of strategy-making and strategic planning processes changed accordingly

[1] By resilience we refer to the literature on evolutionary resilience, i.e. 'the ability of complex socio-ecological systems to change, adapt, and, crucially, transform in response to stresses and strains' (Davoudi 2012: 302) in order to maintain important functions (Chap. 9).

(Salet and Faludi 2000; Albrechts 2004; Healey 2007). Thus when we talk about strategy-making and taking the first steps in a strategic process towards more resilient cities we understand strategy-making as an interactive and collaborative process of identifying the most important issues for a broad range of actors in the cities, a process of scoping and creating momentum for action, a process that builds on both local, context-specific knowledge and expert knowledge and a process of selecting and framing short and long term actions that resonates with stakeholders (Healey 2007, 2009). This process may or may not result in a written strategy, but has the explicit aim to create transformations in practice.

With this in mind, the aim of the chapter is to explore the possibilities and barriers for integrating climate change adaptation into urban development and planning by means of initiating a strategy-making process searching for momentum and possible ways to frame adaptation to create action in practice. We seek to answer the question of how to approach making cities more resilient with a particular focus on adaptation towards urban flooding. Which adaptation measures have the most realistic chance of being implemented in the two case study cities? And where can support and momentum be attained across various parts of the urban governance system (Healey 2009)? The CLUVA case study cities have not yet come far in adapting to climate change, and therefore flooding and drought are rapidly becoming pressing problems (Herslund et al. 2012). We have chosen the two CLUVA cities: Dar es Salaam and Addis Ababa as case studies as these cities showed most interest in the topic, and because both cities were in a process of developing city-wide master plans, making the identification of possible adaptation measures salient. Furthermore, while the cities share some of the same challenges they are widely different in terms of geography as well as governance systems (see e.g. Chap. 9 of this volume). In Dar es Salaam lives have been lost and hundreds of people have been resettled after floods in 2011. In Addis Ababa floods each year force a number of families to leave their homes, occasionally destroy the houses completely, and have severe impacts on urban farming and livelihoods (Jørgensen et al. 2012).

In the two case study cities climate change adaptation is rarely mentioned explicitly in city plans or sector plans, and furthermore when there are plans and planned activities which might improve resilience, there are severe implementation deficits (Herslund et al. 2012; Vedeld et al. 2013). Thus an integrated urban climate change adaptation strategy seems far off. At the moment, in both countries climate change is being addressed at the national level (see section "Who is in charge?"), and coping with the effects by local communities or individuals is ongoing (Herslund et al. 2012). The city level is rather weak or missing, but possibly an important nexus for a more strategic urban climate change adaptation by being the point at which community-based adaptation options may be linked to the funds and skills of sectors and ministries at the city and national levels (Jørgensen et al. 2014), and thus the entry point for our attempts to initiate a strategy-making process. Urban authorities have a key role to play in making cities more resilient to climate changes (UN-Habitat 2011), but the question is where to start when climate change adaptation tends to drown in more urgent urban

development problems? In the case study cities massive annual population increase and the resultant increase in demand for urban services and land have set a rapid pace of urbanisation that the city planners are struggling to address. Consequently, the cities already suffer from an 'adaptation deficit' due to housing backlogs, lack of sanitation and drainage, etc., leaving the urban poor living in informal settlements in a vulnerable position (Dodman et al. 2011; START 2011). In Dar es Salaam 70 % of the city are informal areas[2] (Kombe 2005). In Addis Ababa the situation is similar as a large part of the city consists of slums and informal settlements with low or no service provision (UN-Habitat Ethiopia 2008; Jørgensen et al. 2012).

The main contribution of this chapter is – in collaboration with city stakeholders – to explore the possibilities and barriers for getting climate change adaptation on the agenda and into African city development by taking the first steps in a strategy-making process. It searches for momentum in order to extract the most realistic measures and possible entry points from where to proceed with making cities more resilient. The work is mainly based on workshops with multiple stakeholders conducted in the case study cities Dar es Salaam and Addis Ababa in March 2013 but also on interaction with stakeholders throughout the CLUVA project 2010–2013 (Chap. 1 and www.cluva.eu), interviews with resource persons and people living in vulnerable areas (see section "Methods").

Theoretical Framework

Our approach is, as mentioned, strongly inspired by Healey's version of spatial urban strategy-making, which we relate to adaptation planning. Thus we introduce this approach and demonstrate why it is relevant in the African context. Then we move on to adaptation and measures that literature identifies as important in an African context, as well as important conditions for implementation.

Strategic Planning Relevant to the African Context

Adaptation of a city to climate change is complex and will involve different sectors and levels of governance (Chap. 9). To obtain multi-benefits and harvest synergies between measures, coordination and a strategic prioritisation of efforts are key (Leck and Simon 2013; Lund et al. 2012; Roberts et al. 2012). According to Albrechts (2004), for spatial planning to be 'strategic' it must at least be characterised by prioritisation focusing on a limited number of key issues that are

[2] By informal areas we mean areas that are outside the formal urban structure, i.e. there are no formal plans governing development, and no formal provisioning of infrastructure (housing, roads, sewerage etc.).

considered most urgent. "As it is impossible to do everything that needs to be done, 'strategic' implies that some decisions and actions are considered more important than others and that much of the process lies in making the tough decisions about what is most important" (Albrechts 2004: 752). Healey's (2009) idea of 'strategic planning' relies on a collaborative process where learning through more pragmatic and incremental measures and activities characterised by a broad and diverse involvement of local stakeholders, forms a basis for finding out what 'really matters' and what is most important to do (Albrechts 2004; Healey 2009). In these approaches, the linking of efforts and learnings throughout the process is necessary to build up knowledge, networks and collaboration. According to Healey (2009), for a plan or strategy to be 'transformative', special attention must be paid to four contextual dimensions for it to have an effect in practice.

The first of these contextual dimensions, *mobilising attention,* is about finding the momentum for a specific strategy. What forces and actors are driving or supporting a climate change adaptation agenda? What are the opportunities for an agenda 'to take on' and to be supported? The second dimension, s*coping the situation,* includes finding out what is at stake, and in which arenas strategic ideas and visions can be promoted. Who are the critical stakeholders active now and what is the relative power of a particular strategy-making initiative in relation to other ongoing urban dynamics? The third dimension, *enlarging intelligence,* involves mobilising knowledge resources. Urban development dynamics as a field is too complex to be covered by a single discipline – multi-disciplinarity is needed both from academics and professional practitioners from different fields. Also, the people who live or work in the areas that the strategy aims to influence must be involved. What is going on locally? The fourth dimension, c*reating frames and selecting actions,* is about developing the projects and ideas that have power to create transformations. Frames arise through collective processes of 'sense-making'. The process allows those involved to position their activities in a wider context and create a way of valuing and justifying what they do (Healey 2009) (Fig. 10.1).

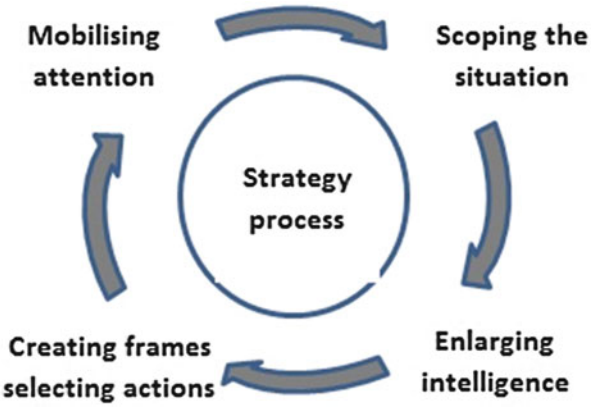

Fig. 10.1 Spatial strategy-making consists of four dimensions: mobilising attention, scoping the situation, enlarging intelligence and creating frames/selecting actions (Adapted from Healey 2009: 442)

Healey's approach is to be understood as a reaction to the strategic planning of the 1960s following a rational planning approach and made up of logic and progressive stages in planning, beginning with clear goals and comprehensive assessments giving exact and reliable knowledge of present conditions and projections of the future (Allmendinger 2009). This was to be followed by detailed, all-encompassing planning and implementation carried out by professionals. In the rational approach, scientific, expert knowledge was seen as the most reliable and legitimate type of knowledge as it claims objectivity (and is the basis for prioritising and deciding what is most important to do) (Bryson 1995). In Europe, this approach largely failed (Albrechts 2004; Healey 2007). Nonetheless, in African countries and cities it is often the rational planning approach that is taken as a heritage from colonialism (Watson 2009). Master plans are being prepared by ministry officials and foreign experts, without much involvement of stakeholders and affected residents. And also in the African context these plans largely fail due to a variety of reasons (Watson 2009). Consequently, more attention must be paid to the strategy-making process and to involving local knowledge (Albrechts 2004; Healey 2009; Watson 2009). Perhaps it is even more pertinent in an African context due to the fragmented governance system and the widespread lack of resources which makes stakeholder mobilisation and support more crucial.

With a starting point in Healey's dimensions we will initiate a search for measures where momentum, support and resonance with the experienced problems of a varied set of stakeholders in the case study cities can be found. Furthermore, we will discuss the barriers and opportunities as well as the possible road towards the fourth dimension – *selecting actions and frames*. In the following we identify a number of adaptation measures that might be relevant for the selected case study cities.

Adaptation Measures

City adaptation to climate change is a relatively new field and according to leading researchers and main development agencies in the field there is no exact tool-kit for how to do it mainly because of uncertainty of climate change impacts, their complexity and context dependency (Bicknell et al. 2009; UN-Habitat 2011). Surveying contemporary literature on planning for climate change adaptation and urban flood management in developing cities, recent guidelines for city climate change adaptation and urban flood management by UN-Habitat, the World Bank, World Meteorological Organisation, UNIDSR and experiences from climate change adaptation activities in Durban, we have identified several groups of important measures for adaptation (see Fig. 10.2 for a summary).

The main measures relate directly to spatial initiatives to reduce the vulnerability to one of the most urgent climate change related challenges; that of urban flooding. *Land use management* is extremely important because poorly planned and managed urbanisation strongly contributes to the growing flood hazard (Tucci 2007; UN-Habitat 2011; Jha et al. 2012; UNIDSR 2012). As cities and towns sprawl to

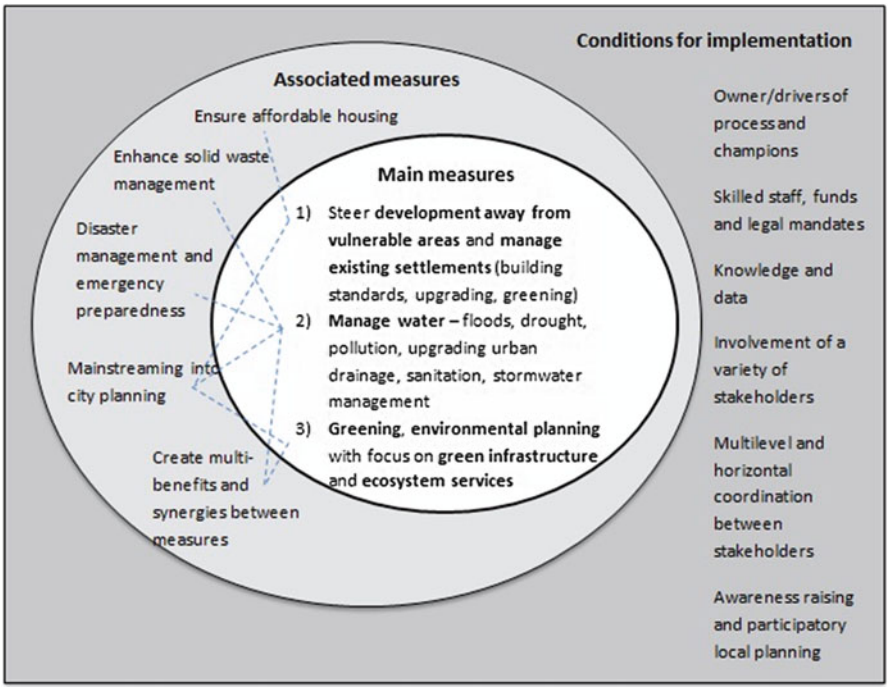

Fig. 10.2 Main and associated adaptation measures to increase resilience to climate change as well as the main conditions for success

accommodate population increase, large-scale urban expansion often occurs in the form of unplanned development in floodplains as well as in other flood-prone areas. Furthermore, a very high proportion of urban population growth and spatial expansion takes place in the dense, lower-quality informal settlements where sanitation and drainage infrastructure are lacking, and public services, such as solid waste collection, are highly insufficient (Parkinson and Mark 2005; Douglas et al. 2008; Satterthwaite et al. 2009). Improved land use and higher building standards (Chap. 3) can directly reduce vulnerability by directing settlements away from flood prone areas and by creating buildings that can withstand occasional flooding.

Better handling of stormwater and *improvement of urban drainage* are also essential to adaptation (Tucci 2007; UN-Habitat 2011; Jha et al. 2012). Many urban dwellers in developing cities experience flooding and environmental health problems because of lacking or ineffective drainage systems and ill-planned construction that blocks natural watercourses (Parkinson et al. 2007; Douglas et al. 2008; Satterthwaite et al. 2009). Recent thinking towards more sustainable drainage practices is encouraging the use of landscape-based, natural drainage arrangements rather than upgrading the sewer system of an area. Landscape based methods are often referred to as Sustainable Urban Drainage Systems (SUDS) (Armitage et al. 2012). In theory, SUDS offer several advantages also for developing

cities such as the possible creation of multiple synergies like improved conditions for urban agriculture, provision of structures for stormwater management in informal areas and freshwater aquifers recharge also addressing the drought problems (Fryd et al. 2010; WRGC 2013; Mguni et al. 2014).

Related to SUDS is the increasing attention to the *ecosystem services* of the urban landscape and green spaces. Urban green spaces and wetlands provide services in the form of infiltration and storage of stormwater, which are key to adaptation. In addition other climate benefits can be realised: urban green spaces reduce urban heat island effects, reduce air pollution, and improve recreational opportunities, while urban wetlands provide important hydrological functions for flood alleviation and maintain river/stream flows during the dry season, etc. (Bolund and Hunhammar 1999; Biggs et al. 2010; Mafuta et al. 2011; Balaban 2012; Roberts et al. 2012; Nickel et al. 2013) (see also Chap. 4 of this volume).

While these main measures are essential, they need *associated measures* to be implemented (Fig. 10.2). The ability to direct settlement away from flood prone areas requires available alternatives for affordable housing (Satterthwaite et al. 2009). The creation of effective drainage systems calls for a more effective management of solid waste, which otherwise contributes to flooding by blocking drainage systems. When flooding occurs, effective disaster risk management procedures are needed, including early flood forecasting to avoid loss of lives and property (Jha et al. 2012). Disaster risk management also includes resettlement of people from risk areas, which must include economically feasible reconstruction of productive activities like jobs and education with sufficient income generation and restoration of livelihoods (de Sherbinin et al. 2011).

As climate change thus affects land use planning, drainage, waste management, green area management, and housing, it is important to mainstream adaptation measures into all the relevant sector plans (Roberts 2008). Furthermore, a focus on multi-benefits should be set, as climate change effects are complex and might not occur exactly as predicted. Therefore, it is meaningful that measures taken are also beneficial for other purposes (Roberts 2008, 2010; Lewis 2009), such as the mentioned added values of green areas and ecosystem management for biodiversity, mitigation, recreation, health, etc. Moreover, as 'economic development' is the key concern for most city governments in emerging countries, climate change adaptation needs to go hand-in-hand with development aspects (UN-Habitat 2011; Simon 2013). Kok et al. (2008) argue that there are considerable synergies to be harvested if development is pursued simultaneously with an effort to reduce vulnerabilities. These include reduced poverty, improved health, energy and food security and infrastructure, for instance.

Conditions for Success

As the complexity of adaptation (Fig. 10.2) and Healey's dimensions (Fig. 10.1) indicate, multi-disciplinarity and collaboration between multiple scales of governance and across sectors are essential for collaborative strategic planning.

This is especially valid for climate change adaptation, as the socio-ecological systems which are affected by climate change cut across scales and sectors.

Skilled staff and access to funding are a common precondition to be in place for new planning themes and adaptation measures. Carmin et al. (2012) concludes that the successful adaptation in the two resource restrained cities of Durban and Quito has been driven by internal incentives, knowledge and awareness. Furthermore, short-term action has been essential. The process of developing headline strategies and visions must be accompanied by on-going concrete activities and mainstreaming into sector plans in order to generate knowledge (*ibid.*).

An *institutional owner* and one or more 'champions' are also needed to take on responsibility for putting climate change on the agenda, and to drive the process and mobilise stakeholders towards implementation by means of their intimate understanding of the power dynamics within a city (Healey 2009). Champions can be politicians, public managers and staff, local leaders and people involved in NGOs who have specific knowledge and engagement in the matter (Taylor et al. 2012). Capacity building efforts are a possible way to further support "champions" in dealing with the manifold challenges of adaptation to climate change (Roberts et al. 2012).

But champions exist only in relation to their *'followers'*; while the champions are the catalysts for change, change is not the act of one individual but a result of an alignment of interests and resources (Brown et al. 2013). Hence, another precondition for transformative adaptation strategies is the involvement of a variety of stakeholders (e.g. public, private, NGO, local groups, university, utility companies) both in order to create ownership and to gain resources of different kinds (UN-Habitat 2011).

Awareness-raising at all levels of government and among people in affected areas on the projected and experienced impacts of climate change is also an important condition for climate change adaptation. Education and awareness-raising can be done by linking practising planners, engineers and local community leaders in arenas where knowledge and experiences of impacts and possible solutions can be exchanged (Roberts 2008; Herslund et al. 2012). A tool proposed in the UN-Habitat guidelines (2011) for regulating land use and building structures within designated vulnerable areas is local land use plans. Developing such local land use plans in collaboration with the local communities in question can create ownership and awareness of the situation. Measures developed in collaboration with local people are then in better compliance with the actual problems in the particular area.

Because of the complexity of climate change many various types of knowledge are needed. Effective adaptation will therefore require that many different sources of knowledge are tapped. This can be done by forming partnerships to knowledge institutions, such as universities, at different levels (Roberts 2010), by observing and including local citizens in activities and meetings and by engaging a wide array of stakeholders. However, producing accurate, reliable data that takes into account the climatic, environmental, technical, as well as social aspects is also a complex task. Furthermore, it is not sufficient to produce data and knowledge, it must also be updated and managed by a responsible institution where it can be accessed and used (Nyed and Herslund 2013).

The CLUVA research has revealed significant challenges to climate change adaptation and disaster risk management in Dar es Salam and Addis Ababa (see also Chap. 9; Herslund et al. 2012; Jørgensen et al. 2014). It is clear that changes in governance and planning systems and institutions are required in order to improve effectiveness and capacity of the city to adapt. This involves improved multi-level and inter-sectoral coordination, increased involvement of local people and local levels of administration and improved data management. However, it also becomes apparent that there is potential in decentralisation and that involvement of affected people from informal settlements can provide vital information, both to local planning authorities and to citizens which may lead to improved practices. In the following we explore the barriers and opportunities for adaptation and identify possible adaptation measures in Dar es Salaam and Addis Ababa which may have a realistic chance to become implemented by initiating a strategy-making process in the two cities.

Methods

Case studies were chosen as a method because the selection of appropriate adaptation measures is expected to be highly context-dependent as resource availability, administrative and political support, institutional anchorage, etc., will have an influence on which measures are likely to be implemented. The two case study cities face many of the same challenges but are quite different both in terms of geographical features and governance systems. As such they offer useful insights for adaptation efforts of other cities. Both cities were in a process of master plan revision. During our surveys, in Addis Ababa city researchers were directly involved in the master plan process, whereas in Dar es Salaam, the planning was undertaken by foreign consultants affecting our choice of interventions even though the basic approach was similar in the two cities. In both cities we had workshops at city and local levels supplemented by interviews with key informants identified during workshops or by our city partners. During our first workshops in both cities we mainly explored vulnerability as experienced by stakeholders at different levels in the cities as well as how the different actors coped and addressed the challenges they faced. In the later workshops we focussed more concretely on identifying measures that would have potential to achieve support from, or at least make sense, to actors at different levels. These later workshops are thus the main empirical basis of this chapter. Figure 10.3 shows a flow chart of our interventions in the two cities.

Local level workshops were held on-site for three main reasons: Firstly, to gain knowledge of local perspectives, insights of experienced problems and possible measures, and to understand how flooding affected peoples' daily lives; secondly, to give participants the opportunity to show the effects and measures taken, e.g. how high water levels had been, locations of small ditches that had been dug to drain the areas, where possible physical measures could be undertaken, etc.; and thirdly, simply to give people an opportunity to tell their stories in their own context.

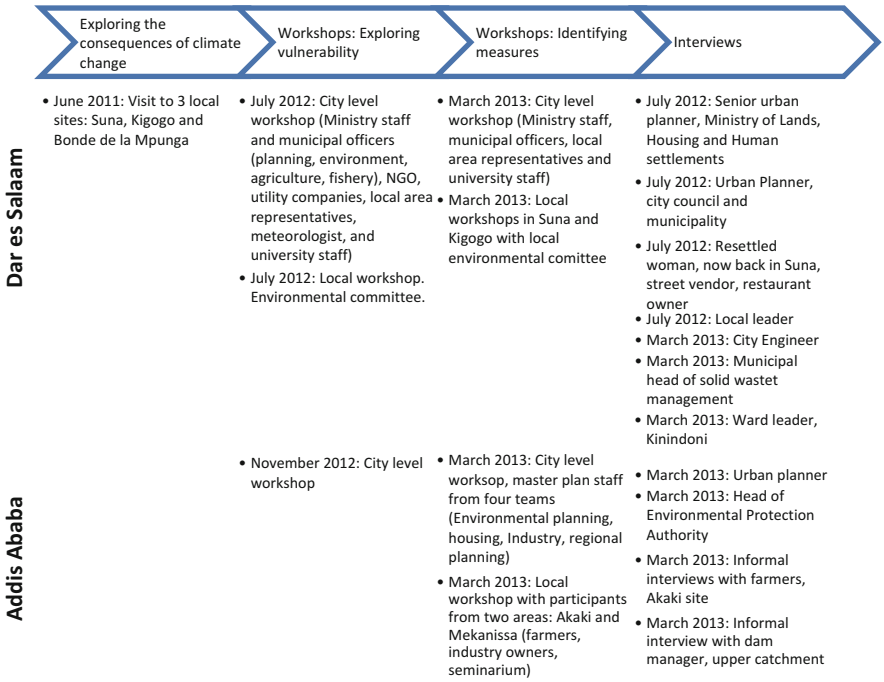

Fig. 10.3 Flowchart of workshops and interviews in Dar es Salaam and Addis Ababa

City level workshops aimed to engage stakeholders from different institutions in common discussions of both the causes of problems and possible solutions and measures. In Dar es Salaam, city level workshops included ministry staff, municipal officers, local area representatives, utility companies and university staff. In Addis Ababa, we had a unique opportunity to engage with the sector teams preparing proposals for the upcoming revision of the city structure plan, where CLUVA university partners were participating. This made it possible to discuss which adaptation efforts could be meaningfully integrated in the city level plan. Here the city level workshop did not include local area representatives or ministries. The advantage of limiting the city-level workshop to plan revision teams was that participants in the middle of an actual planning process could focus on concrete measures to improve the future of the city. One limitation was that these specialists did not sufficiently represent the complexity of the governance situation in the city. The actual opportunities to move forward are probably much more complex than the sessions indicated.

The main limitation of the stakeholder interactions in both cities was the difficulty in getting all invited to attend and achieving representation from all relevant, important sectors and levels of governance. This was partly due to an apparent lack of interest from these actors, lack of contacts among local facilitators and to practical barriers such as severe congestion problems in Dar es Salaam making it difficult to get to the workshops' venues. In particular, the actual

decision-makers and leaders were hard to involve as well as politicians who are in a strong position to set the agenda for adaptation and need to be on board to create momentum. Likewise, the number of NGOs that took part was limited, although they play a crucial part in adaptation because they can mobilise resources. In consequence, we were only able to extract a partial understanding of the situation. Thus, our processes, results and recommendations should be seen as a first step of a strategic process in the cities to adapt, where further involvement and stakeholder interaction is needed.

Interviews aimed to gain more depth with particular perspectives which had been identified at the workshops as particularly important. In Dar es Salaam, the areas identified were: urban planning, which resides both at Ministry and City Municipality levels; resettlement practices, as these were perceived as ineffective; and solid waste management, as solid waste was considered a main contributor to flooding. In Addis Ababa, the interviews were more related to institutional anchorage as this had been identified as being key for implementation, which had been severely challenged in previous planning efforts.

In the following we first explore the situation in Dar es Salaam and then in Addis Ababa, identifying the current efforts and barriers to adaptation, measures needed, and detected entry points that could hold potential as a starting point for a wider adaptation effort in the cities.

Results

Integrated Local Projects in Dar es Salaam

Who Is in Charge?

In Tanzania a National Adaptation Policy was prepared in 2007 by the Environmental Ministry that is mandated to request other government departments to include actions on climate change adaptation and to ensure that environmental committees and officers are in place at all governance levels. However, these are in fact only in place at national level. Concerning disaster risk, it is the Disaster Management Unit in the Prime Minister's Office that oversees risk reduction in the whole country (see Chap. 9). It is also at the national level where there has been an on-going initiative by the Ministry of Lands and Human Settlements (MLHS) to prepare a new master plan for Dar es Salaam City. The last urban plan for Dar es Salaam is from 1979. In the inception report made to initiate the new master plan process, no reference has been made to climate change as such or to the challenges the city is likely to face in the future (Vedeld et al. 2013). Moreover, the MLHS has outsourced the preparation of the new master plan to foreign consultants without incorporating a participation process with involvement of local stakeholders.

In Dar es Salaam there are three municipalities: Kinondoni, Ilala and Temeke and a City Council which in principle coordinates trans-municipal matters. In the

municipalities there are two further levels of governance: Wards and Mtaas (Sub Wards) (see Chap. 9, Fig. 9.2 for organogram). The municipalities are responsible for a number of the elements important in climate change adaptation including waste management, drainage, detailed land use planning, and the enforcement of land use and building regulations. The common land use planning practice includes zoning of hazardous or unbuildable areas, but presently there is no guidance on management of such areas and no mechanisms for enforcing land use development control in informal settlements (Vedeld et al. 2013).

Similar to land use control, urban services like drainage and solid waste management are not offered in informal areas. Concerning solid waste, it is entirely left to the local communities in informal areas to transport the waste to municipal waste collection points and often these points are far away. Throughout Temeke municipality[3] there are four major collection points. A third of the local communities in the municipality have formed an organisation around waste collection. In the rest of the communities the collection is not formalised and is either done by informal collectors or not at all. The solid waste manager in Temeke municipality estimates that only between 20 and 40 % of the waste produced in informal areas end up at the collection points (Mbarouk and Mamuya 2013). From the collection points it is then the responsibility of the municipality to bring the waste to the landfills. However, due to insufficient funds for fuel, maintenance of trucks and wages for the drivers, less than half of the waste at the collection points is transported to the city landfill by the municipality. In total, this means that it is only 10–20 % of the waste produced in the informal areas that end up in the landfill (*ibid.*). This results in considerable amounts of waste clogging up rivers, open areas and drainage structures, leading to increased flood risk.

Local Adaptation

Flooding is affecting the everyday lives of people in the informal areas around rivers and in low lying areas. It destroys houses, and affects livelihoods and mobility. According to inhabitants of the vulnerable sites, problems with flooding are increasing, and local sites visited were all seriously affected in 2011.

The vulnerability to flooding has many faces in the local communities as low quality services and poor physical structures intensify the problem. Moreover, poverty and lack of assets limit what the people can do themselves (see also Chap. 6 of this volume). On top of this, mistrust, conflicts and deficient participation end up making people stop taking action (Fig. 10.4).

At the first city session (Fig. 10.3) stakeholders discussed what made the city and local areas vulnerable. Particularly, the lack of basic services (e.g. poor drainage, inefficient waste management and lack of sanitation) was rated as important

[3] The total population of Temeke municipality in 2012 was 1,368,881 according to the Population and Housing Census 2012 (National Bureau of Statistics 2013).

Fig. 10.4 Abandoned houses in local areas destroyed by floods (Picture: Dorthe Hedensted Lund 2013)

together with high population density. Also, how well local communities were prepared and the degree of participatory decision-making were mentioned to be key items for the vulnerability to flooding.

Coping with vulnerability seems to be a very local concern, however. It is mainly the community and individuals who have taken action up to now, such as cleaning of river areas, organising an excavator to dig out waste and silt from waterways, constructing drainage channels, raising the ground level, as well as conducting door-to-door waste collection. However, lack of coordination among coping activities can also intensify the problem (e.g. the raising of the ground level or construction of drainage by individual households may negatively impact other households). Moreover, the development of new, larger-scale middle-class housing may redirect water to the poorer households, which end up with even more water in their houses (John et al. 2012).

The actual measure taken by authorities to deal with the problems of flooding in 2011 was resettlement of people from affected areas. In one case study Ward, 370 households were affected.[4] A third of them were not entitled to resettlement as they were tenants, but the rest were moved to tents in the outskirts of the city.

[4] The population of the Ward was approximately 37,000 according to the 2012 Population and Housing Census General Report (National Bureau of Statistics 2013).

However, half of them are back again today. People returned mainly because they could not make a living far away from the main markets and public transportation. According to the local Ward leader, he cannot prevent people from coming back. He and the municipality have the right to tell people to leave, but the issue of political interference and patronage is strong. In his Ward, a local spokesman of the resettled people that returned, came back, contacted a municipal councillor of his own party and got him to stop the municipal public officers from taking action. However, as the Ward leader also said, people have no other option of where to go, so he will not try to intervene. The resettlement has caused anger among the inhabitants who have stopped the local organisation of waste collection, and also the monthly cleaning session of the river areas is on stand-by for the time being.

Adaptation Measures Needed

The city sessions (Fig. 10.3) in Dar es Salaam revealed that stakeholders across different governance levels and sectors were aware of the problems of flooding and easily could list several factors contributing to vulnerability. They all felt that flooding had become a pressing problem for the city and shared both personal and professional experiences where they had come across flooding. In spite of that they lacked both tools and resources, but also support from their leadership in actually addressing it. The measures listed by stakeholders were better land use management (of vulnerable and also open/green areas), improved urban services and better disaster management (resettlement). On top of this, the stakeholders also pointed out that social matters needed high priority, both in vulnerable areas and in the resettlement of people (Table 10.1). However, a discussion of the possible

Table 10.1 Adaptation measures listed by stakeholders of Dar es Salaam city

Focus	Measures	Responsible	Barriers
Land use development control	Stop building or minimise bad effects from building in vulnerable areas	Municipalities/Ministry of Lands and Human Settlements	Lack of enforcement
			No plans and maps
	Protect green zones		Political interference
Disaster management	Early warning systems	Disaster management unit	Lack of resources and competences
	Resettlement programs		
Social improvement	Help people in vulnerable areas	No actor feels responsible	
	Participatory rehabilitation		
Physical services	Improve storm water drainage systems	Municipalities/Ministry of Local Government and Regional Administrative	Scarce resources
	Improve solid waste collection		Not involved in informal areas

responsible actors and institutions for taking action on the suggested measures created debate.

Most of the measures, such as land use management and provision of services are already the responsibilities of the municipalities and of the Disaster Management Unit (resettlement). However, the Disaster Management Unit does not have resources for providing compensation to all resettled and to actually prepare the areas where people were resettled to and deal with the social and livelihood matters of the resettled. The municipal engineers and planners also expressed frustration with their ability to actually improve on waste management and stop the building activities that are taking place in vulnerable areas. The main reasons mentioned by the stakeholders were lack of the following: resources; proper plans and maps on vulnerable areas; and guidance on managing such areas. Furthermore, the municipality does not have resources to work in the informal areas. Additionally, several cases were mentioned where politicians had overruled their decisions and let developers build on vulnerable lands. The municipality representatives pointed to the Ministry of Lands and Human Settlements (which is responsible for the new master plan) to take on a larger responsibility. The municipal actors felt they had not been properly involved in the master plan process and hoped that better maps, designations and guidance on managing vulnerable areas would be available (Table 10.1). Also, the Ministry of Local Government and Regional Administration (under the Prime Minister's Office), were pointed at to play a stronger role in coordinating local projects and making sure that flooding was tackled and coordinated with surrounding areas.

The stakeholders investigated ways to proceed in providing better urban services and land management, while resources, plans or guidelines are scarce. Suggestions were to make a 'river plan', 'focus on the most vulnerable areas' and to 'help local communities'. Discussions centred on combining upgrading efforts of the physical structures with livelihood projects and land use management plans. Among the stakeholders it was acknowledged that the NGO-run upgrading programmes may be the most important adaptation efforts in the city.[5] Thus, collaboration with NGOs would be of great importance for the future.

Entry Points for Adaptation Measures

Stakeholders generally agreed on the listed general measures (Table 10.1), even though, for some individuals, it was the first time they had actually discussed climate change and flooding with colleagues and the other stakeholders. However, even for those who regarded climate change as a plausible cause of flooding, they felt that the issue of climate change was too abstract to let real action follow. One comment was that the city should not 'wait around' for projections and the

[5] Projects such as 'Citywide Strategy for Upgrading Unplanned and Unserviced Settlements in Dar es Salaam' and 'Community Infrastructural Upgrading Programme (CIUP)'.

making of grand plans when they actually had many current problems with flooding to tackle. Another comment was that talking of climate change would make it too easy for the politicians to delay action on the problem because of the long time-frame.

The stakeholder sessions did not reveal any adaptation efforts or ready-to-go initiatives to start from, but reinforced that something must be done, particularly in the vulnerable informal areas, and both in terms of improved physical structures and land management. Furthermore, it became obvious that any interventions need to be combined with livelihood projects and involvement in order to make any difference. It seems the local level may provide the only promising opportunity for starting efforts. As community groups organise themselves to fill the infrastructural and service gaps left by centralised institutions, it is easier to anticipate that adaptation could start here. It is difficult, however, to envisage the adaptation of Dar es Salaam being the result of institutionally-driven (top-down) decision-making, as the institutional set-up and governance system currently appear to be preoccupied with more pressing urbanisation problems to allow for a meaningful adaptation. Thus, instead of 'waiting around' for yet another master plan, adaptation could initially take a starting point in 'integrated projects' on a local level to support and build on what is already taking place in the vulnerable informal areas. Such integrated projects would need to combine upgrading, livelihood activities and land management.

Another necessary starting point would be to integrate climate change adaptation and flooding into the master plan and sector plans, although this does currently not seem likely.

Integrated Efforts in Addis Ababa

Who Is in Charge?

In Ethiopia the Federal Environmental Protection Authority (FEPA) has taken the lead in elaborating a climate change adaptation plan. The city of Addis Ababa also drafted a "climate change adaptation action plan" in 2011 (Jørgensen et al. 2012). However, no sector or institution has taken ownership or been given the authority to follow up with integrating climate change adaptation in plans, sectors and projects so far (Herslund et al. 2013). As the city structure plan was being revised during our field work (2013) and climate change was being addressed directly (mitigation) and indirectly (environmental sector) our main focus was to explore the opportunities for adaptation at city level in this revision process.

The previous structure plan from 2002 addressed a number of issues of relevance to create resilience to climate change, such as protecting and rehabilitating the green structure, the provision of sanitation services and waste management to a larger proportion of the citizens, provision of formal housing opportunities, rehabilitation of settlements, and resettlement of people living in vulnerable informal

settlements despite that climate change adaptation was not mentioned. However, most of these intentions were never implemented because of insufficient resources, lack of coordination, legal frameworks and lack of stakeholder involvement imposing major barriers to do so (ORAAMP 2002; Desalegn 2013).

Addis Ababa is divided into ten Sub-Cities and 116 Woredas (districts). The legislative body of Addis Ababa is the City Council, and the administrative functions are located in a number of sector-based bureaus and authorities, which have different institutes under them (Hailu 2013). The structure plan revision is organised as a project office under one of these institutes; the Urban Plan and Information Institute (Desalegn 2013), with 18 teams related to different sectors consisting of staff from in- and outside of the city administration. The structure plan project office was established in 2012, with the intention of being dissolved as soon as the city structure plan would be in place. The structure plan has now been prepared and is waiting for political approval (Master plan staff workshop 2013).

After the approval, the Urban Planning Institute is responsible for down-scaling the structure plan to local development and action plans. There are no set guidelines and procedures as to the involvement of local communities in the development of plans and no specific involvement sessions are foreseen. The structure plan stipulates the desired strategic development, whereas the local development plans serve to guide the implementation. The local development plans, however, only offer guidelines to the different implementing departments in the city administration and not specific regulations (Desalegn 2013).

Local Adaptation

The local workshop participants (Fig. 10.3), being representatives of different farming associations, an Evangelical seminar and the metal industry had experienced severe flooding on several occasions over the last years. Flooding reduces the number of harvests during the year and causes erosion which affects farming lands. It has destroyed production material and forced factories to close down for long periods. Flood risk also led to psychological strains as floods occurred as flash floods from which people have barely escaped. Moreover, the workshop participants were concerned with the pollution of the rivers having negative health effects.

The participants did not, however, attribute the increasing flood problems to climate change but to urbanisation and construction, as well as poorly communicated and managed releases from the up-river dams. In response to this the dam manager claimed that releases are properly announced. Because of uncertainty over rainfall, the dam management staff is unable to release smaller amounts of water before the rainy season, because if rainfall is low, Addis Ababa cannot be supplied with drinking water.

The coping strategies to flooding consist of making constructions to protect properties from water, e.g. building small dikes, dumping soil and planting trees as buffers. But individual efforts in some cases have adverse effects on other residents as local dikes increase flooding in other areas, for instance. A coordinated effort

Fig. 10.5 A member from the Akaki urban farmers association is sharing his experiences (Picture: Dorthe Hedensted Lund 2013)

is needed to reduce siltation, minimise blockage of the rivers and make sure there are areas where the river can flow over in a controlled way along the river. Furthermore, there is a need to make more controlled discharges from the dams, or to have buffer capacity in the upper areas to obtain a more steady flow of water, and not to cause flash floods. Also, pollution control needs to be enforced to reduce the negative health effects on people and livestock (Fig. 10.5).

According to the local participants flood protection, such as the establishment of buffers, is the responsibility of the local Environmental Protection Authority, but they do not find that they receive sufficient help. Some have requested to be relocated, but did not receive any response from government. The local participants are convinced that they should have a say in the structure plan revision process as they are the victims of the present development.

Adaptation Measures Needed

From the workshops and interviews (Fig. 10.3) a number of concrete adaptation measures were identified such as conservation of catchment areas, river rehabilitation, provision of formal, dense housing leaving space for green areas for

Table 10.2 Adaptation measures listed by structure plan teams in Addis Ababa

Focus	Measures	Barriers
Water management	Controlled and well communicated dam releases, coordinated effort to avoid siltation of rivers, upstream buffer areas to avoid flash floods	Lack of resources, coordination difficulties, unpredictable amounts of rain
Green areas and rivers	Designate green corridors along rivers (for flooding buffer zones, SUDS, reduce pollution and recreation)	Inhabitants must be resettled
		Poor waste management
		Green area initiatives in last structure plan still not implemented
Housing	Provide formal housing (dense in order to preserve more land for green areas)	Lack of resources
Pollution	Improve pollution regulations	Lack of enforcement

stormwater infiltration, enforcing pollution regulations, etc. Climate change and adaptation were issues considered by the structure plan teams on regional planning, housing, industry and environment who participated in the city session (Fig. 10.3). The participants identified the main challenges of climate change to be urban flooding as well as drought.

In relation to hinting at important measures for climate change adaptation the most progressive sector was the environmental sector which focused on how green areas could contribute to adaptation. A further concern was pollution, which aggravates the negative effects of flooding. The environmental sector presented a number of proposals for the structure plan revision in order to maintain and rehabilitate green areas in the city, focusing on their importance for multiple functions. In that respect sustainable urban drainage systems (SUDS) were also considered to be relevant, as infiltration of rainwater could improve the groundwater supply. A second proposal was rehabilitation of the six major rivers[6] in the city. Green corridors along the rivers would secure green recreational areas near all households, reduce pollution and create flood buffer zones. This, however, would require that informal settlers along the river are resettled, and that waste management is improved to avoid direct release of industrial and domestic pollutants in the rivers. The team thought that leading politicians have an interest in green areas, and that this interest can be further developed. The director of the Addis Ababa Environmental Protection Agency (EPA) agreed with this (Hailu 2013) (Table 10.2).

The housing sector also mentioned some proposals indirectly related to adaptation such as the provision of formal housing opportunities. A reason for informal settlements is the large backlog of formal housing. Furthermore, new housing should increase the density in order to conserve space for open, green areas. Most of the housing in Addis Ababa is presently not connected to a sewerage

[6] Akaki, Bulbula, Bantyketu, Kebena, Tinishu Akaki, Ras Mekonen rivers.

system, but has septic tanks with insufficient capacity to properly maintain and empty. Therefore, huge investments are needed in housing and infrastructure such as sewerage and water supply, both to redirect stormwater and to minimise pollution of receiving water bodies.

The regional planning team and the industry team were mainly concerned with drought and water scarcity, particularly with how the city could preserve water. All in all, the participating revision teams were all very concerned about water management: ensuring water availability and minimising floods, as well as coping with the negative effects of climate change that could be expected in the future.

Entry Points for Adaptation Measures

There is awareness among the Addis Ababa city structure plan team that flooding and drought can be expected to get worse as climate change progresses. To the extent that we were able to scope the situation, there appears to be commitment to deal with this issue, particularly when framed as integrated water management. The local citizens are severely affected by water issues. Also, the different teams in the structure plan revision are aware of water management problems and have a number of proposals. Flooding and adaptation is becoming more important at the Addis Ababa Environmental Protection Agency (AAEPA) as funds are earmarked according to the director, and some of the conservation strategies related to the upper catchments and the river buffers are important activities creating more resilience in Addis Ababa.

Framing adaptation as *water management* is promising as it is a relevant issue in many sectors and among the local people. Benefits from an integrated water management plan would likely improve the resilience of Addis Ababa to climate change, and the sectors present at our workshop would have a role to play in the creation and implementation of such a proposal. An integrated water management plan was thus considered a useful frame by pointing to concrete actions as well as synergies and benefits, such as conservation of water for periods of drought, increased infiltration to reduce the runoff to rivers, decreasing pollution of water resources by means of watershed protection and creating buffer zones along the rivers. Among the different stakeholders, the idea of integrated water management was more relevant than a strategy to deal with climate change, because water management was directly related to problems already being felt. In order to make an integrated water management plan it is important that the relevant and necessary sectors in the structure plan as well as different local stakeholders are working together to coordinate efforts, which may prove to be a challenge. The structure plan revision process was very pressed for time, and so far the teams had only focused on their own areas and no integration had occurred. Furthermore, the lack of human and financial resources, fast human resources turnover, lack of commitment, and insufficient legal frameworks, which have caused implementation failure before, are still present. These barriers will need to be addressed with respect to implementing an integrated water management plan, and framing adaptation

as water management does not reduce the complexities of harvesting the possible synergies.

Integrated water management cannot be achieved by any one institution but requires coordination and collaboration among a number of different authorities, which is doubtlessly challenging in the current institutional set-up. The structure plan teams stressed the necessity of *institutionalising* climate change adaptation and water management at both federal and city levels and to create commitment in government to properly address the issue. The city-level participants especially argued that it will be meaningful to form a new institution or to transfer authority to anyone that either promotes collaboration between existing institutions or combines the authority necessary for regulation and implementation. Furthermore, actions would have to be prioritised as capacity is insufficient to take on all of the identified measures. The stakeholders all identified the EPA at different levels to be the obvious institution to take on ownership of integrated water management and thereby adaptation. This, however, calls for some restructuring of the EPA and probably a new institution to support collaboration and integration would be needed. As such, there may be an opportunity to address adaptation as an institutionally led process, anchored in the EPA. But this needs to be combined with local efforts to address the serious problems being experienced.

Discussion

The case studies illustrate that the challenges of climate change adaptation for developing cities are many and severe. As the cities grow quickly, large urban service and management deficits arise. Insufficient solid waste management, drainage and sanitation combined with limited land use management and enforcement make up much of the present problem with flooding, drought and pollution. Thus, whether it is the effect of climate change or it is climate variability, the cities are not resilient.

Searching for Momentum

Climate change adaptation has been dealt with at the national level in the environmental sector of both cities. In neither city has the agenda of climate change adaptation been taken on explicitly. In both cases local vulnerable communities live and deal with flooding, drought and pollution in their everyday life and cope in many of the same ways by digging drainage, raising the ground level, cleaning up waste, etc. The local people manage to cope but find themselves very alone in these efforts. They also feel they should be more involved in planning and decision-making processes being relevant for adaptation to climate change.

At the moment, only limited momentum has developed among stakeholders and in the political system for a broad city-level climate change adaptation strategy. For many stakeholders, it was the first time at the workshops they were confronted with the issue of climate change and had to reflect on adaptation.

In the cities, stakeholders were initially sceptical towards large plans such as an overriding climate change adaptation plan, as it is too abstract and not sufficiently focused on the pressing problems experienced in everyday life of citizens and administrators. In both cities the implementation of large plans like flooding plans, master plans, and similar, have been lacking. However, while cities might not have come so far in the steps towards making their city resilient, they are already experiencing problems that most probably will be aggravated by climate change and there is an awareness of flooding and drought being very serious problems for city development across levels and sectors.

In Addis Ababa a strong interest across city sectors and levels was identified for water management, including provision of potable water, flooding and pollution. These are problems that all stakeholders can easily relate to and consider highly important. Combining local plans and integrated water management could be a good match as local waste management, local drainage solutions and social efforts to help people being resettled or find livelihoods can be combined with water protection, creating conditions for the plans to become a reality. A combination of top-down and bottom-up activities could most probably be a necessary step in Addis Ababa to increase the chance for implementation of their plans.

In Dar es Salaam the institutional landscape seems too fragmented for city-level top-down integrated water management planning at the moment. Here a bottom-up approach in local projects seems to be a more realistic starting point. As in Addis Ababa, local plans can be used to address different vulnerabilities while also integrating local needs for new livelihoods. As mentioned before (see section "Conditions for success") UN-Habitat (2011) proposes local plans as a tool for better regulating land use and building structures within designated vulnerable areas. However, local projects would also have to consist of upgrading basic services, social projects and possibly the promotion of 'climate proof' livelihood activities, like urban agriculture, that also work to enhance the ecosystem services of open areas to find resonance among local inhabitants (Chap. 4).

Scoping the Situation

Synergies and coordination are the main strengths of integrated efforts, however, it is also their weakness in the present urban governance situation of the two case study cities where multi-level and cross-sectoral coordination is limited. In such a governance situation, 'champions' are needed to drive efforts forward. Even if there is resonance with experienced problems, if no real commitment is made from an institution or other actors, any measures are less likely to be implemented.

The city and municipality seem like the 'natural' level for coordination of possible integrated projects. The municipality is the main actor in adaptation as

also identified by stakeholders, being responsible for urban services and land use management. However, in Dar es Salaam no obvious city stakeholder is in place to initiate or push for an effort. The 'integrated local projects' would need a national level kick-start, either from the Ministry of Environment, as the only institution explicitly addressing climate change adaptation, or the Ministry of Lands and Human Settlements that coordinates the master plan.

In Addis Ababa, main champions are the CLUVA partner (Ethiopian Institute of Architecture, Building Construction and City Development) and the university staff taking part in the revision of the city structure plan. They are pressing to get climate change and water management integrated into different sections of the plan. A challenge here is how to create ownership in the municipality and coordination between offices afterwards when the project staff that has prepared the structure plan steps out and the municipality offices need to take over. Stakeholders point to the EPA to be the institutional anchorage point, but also that it has to be strengthened to take on this task.

'Climate change adaptation' as a main theme in the structure plan in Addis Ababa does not appear to have become a reality so far. In the form of enhanced focus on water management the topic could become a subject being included in several topics in the structure plan, but it may also end up 'only' being integrated into the environmental section where the CLUVA partner (the university) is driving the effort. In Dar es Salaam, integrating climate change adaptation in the master plan in revision does not seem likely and the plan might not be effective as other city institutions and implementing actors have not been much involved in its development; many of them do not even know of its existence.

A major limitation of the stakeholder interaction we have performed is the failure to include top politicians or decision-makers in our sessions. Champions higher up in the system are necessary to push for a more sustainable city development and frame the broader climate change adaptation agenda in the cities. The initial impression is that the 'leadership' in the different institutions represented by stakeholders in Dar es Salaam and the head of the structure plan team in Addis Ababa are not presently tuned into addressing climate change adaptation. More pressing development issues are currently at stake. Furthermore, the stories told about political pressure and patronage do not raise hope for a strong commitment among politicians either.

Creating Frames – The Pathways Ahead

As the stakeholder sessions show, stakeholders are aware of the situation and feel that flooding is a major problem. They see a need for action to be taken which is a first step in the strategy process of creating momentum for adaptation. But as stakeholders and city institutions are short on resources, time and competences, identifying the problems and needed actions (as the sessions started) is one thing. The difficult part is to prioritise measures. In this chapter the prioritisation is based on which actions are likely to have the largest effects, taking resonance and ability

to implement into account. Initially this is not easy as all are pressing problems. Therefore, integrated focused approaches, such as 'integrated water management' in Addis Ababa and 'local plans for vulnerable areas' in Dar es Salaam seem to be frames that can address a combination of problems as well as build on resources, stakeholders and activities already in motion. Framing adaptation efforts under the headline of 'integrated river or water management' in Addis Ababa, or 'helping the vulnerable areas' in Dar es Salaam is thus more likely to gain general momentum and support than a headline adaptation strategy, even though these two strategies may contain some of the same elements. Such initiatives seem to be a more realistic starting point for a 'learning-by-doing' process. Carmin et al. (2012) also found in the South African urban adaptation that headline strategies and visions had to be accompanied by on-going concrete activities and mainstreaming into sector plans in order to generate knowledge. The integrated projects suggested for the case study cities can serve as a tactical process, or as Healey (2009) calls them, 'pragmatic and incremental projects', that can initiate the strategic process and create learning and knowledge, but also collaboration among institutions and stakeholders that at present do not work together. Similarly, Vedeld et al., in Chap. 9 of this volume, refer to this as *'incremental adaptation'* where *'transitional adaptation'* or *'transformation'* involves changes in governance and possibly changes in political as well as cultural values and structures.

To create possible changes in governance bringing together main actors and institutions in initial projects can serve as a starting point for more collaboration across governance levels and sectors. During such a process possible champions could be identified or developed which may serve as a key indicator marking readiness for a transition from incremental approaches in the strategic process to more citywide and coordinated activities and plans. Champions higher up in the system are necessary to push for a more sustainable city development and frame the broader climate change adaptation agenda in the cities in the longer term.

For many stakeholders, it was the first time at the workshops they were confronted with the issue of climate change and had to reflect on adaptation. To continue holding sessions and working towards a more comprehensive and coordinated climate adaptation effort and strategy could be an important tool to inform and make the most important stakeholders aware of the wider problems, while encouraging them to share knowledge and coordinate different concrete efforts. This will have to go on at the same time as the integrated projects take off to provide knowledge and learning to the wider process and develop and strengthen the collaboration among stakeholders.

Conclusion

Urban authorities have a key role to play in strategic adaptation and to make cities more resilient to climate change (UN-Habitat 2011). However, the exploration of ongoing climate change adaptation efforts in the two case study cities, Dar es Salaam and Addis Ababa, reveals a rather weak city-level institutional landscape

for planning, with limited resources and competences as well as deficient cross-sectoral and multilevel coordination and interaction with government institutions and NGOs at the core. So the conditions for the cities to develop a transformative climate change adaptation strategy are not favourable at present.

At the moment it does not seem realistic that all the insufficiencies can be dealt with here and now. However, it is more probable that they can be dealt with in a step-wise manner. Thus, an incremental approach is recommended which is addressing the most vulnerable areas first through integrated, focused interventions that address the combination of problems in particular areas or a cross-cutting but 'forgotten' or 'invisible' topic such as water. At the same time efforts to integrate the topics of water management and vulnerability reduction into main city plans like the structure plan in Addis Ababa and the master plan in Dar es Salaam, should be on-going. This, however, requires that there are champions among the higher level politicians and administrations to drive the effort and that the cities are able to coordinate across institutional levels and sectoral boundaries. Following Healey's (2009) notion of strategic planning, scoping for champions and momentum for even parts of the needed measures should be among the first steps for the cities.

The main entry point in the cities of Dar es Salaam and Addis Ababa for getting climate change adaptation into city development is the urgency of flooding problems that both citizens and professionals already face. There is awareness of the problems and of what kind of measures could make a difference. The general recommendations to make the case study cities more resilient to climate change must include both short term integrated projects as well as longer term efforts to integrate climate change adaptation into plans, policies and practices. As the recommendations mainly build on the local and city sessions and the interviews conducted with a selection of stakeholders, they only capture a partial image of the situation in the cities. Therefore, it should be noted that the measures suggested are just a first step, and a further and on-going process of stakeholder involvement is definitely necessary.

Short-Term Integrated projects and plans addressing pressing and multiple problems currently identified in the cities should be commenced. Other relevant on-going projects like upgrading efforts, housing developments, waste management, and green area development should be coordinated and 'climate proofed'.

Focus should be placed on building networks between the stakeholders of such projects, including local people, NGOs, municipality staff, and national level coordinators to create a basis for coordination, awareness raising, learning-by-doing and the development of champions.

In Addis Ababa

- Develop an 'integrated water management' plan for Addis Ababa that addresses flooding, drought and pollution by watershed protection, designation and management of buffer zones and different 'integrated local projects' in the most vulnerable areas that take into account local waste management, drainage solutions and social issues.

In Dar es Salaam

- Initiate 'integrated local projects' in the most vulnerable areas (and resettled areas) that combine urban service upgrading, livelihood projects and local land use management and regulation.

Middle- and Long-Term Climate change adaptation and measures addressing flooding and drought must be dealt with in main city plans and integrated into policies and practices in the core fields of land use planning, management and mapping, urban drainage and water (waste and stormwater), and environmental planning. In addition adaptation must also be integrated into the sectors and activities of solid waste management, housing, informal area upgrading and regularisation, disaster management and resettlement.

Focus should be placed on involving stakeholders across levels. Local people, municipalities and national bodies, and also relevant NGOs and utility companies, should be involved in the integration and strategy-making of adaptation into the different fields and sectors in order to develop knowledge, create awareness, foster ownership and to improve coordination.

On top of this, network building between relevant stakeholders across the listed fields, sectors and projects should be on-going, including politicians and decision-makers, to enhance coordination and finding synergies across fields and working towards a longer-term city adaptation effort or a strategy closely connected to the problems that the cities face.

In order to move from an incremental approach – the short-term projects – towards a more citywide adaptation effort politicians as well as decision-makers must become part of the process to push towards a more sustainable city. However, a city-level adaptation plan does not need to start with an all-encompassing plan to be effective. It can also be started by coordinating the variety of local projects and activities as well as integrating efforts and sector plans. While such a pathway may not capture all conceivable effects which may result from climate change in the long term, it could more likely foster quick action and be transformative rather than an overarching master plan for climate change adaptation. This in turn will generate experiences and learning that can be applied in the continuing process towards adaptation.

The two cases illustrate that there are no one-size-fits-all solutions, when it comes to adaptation. The important measures to take, according to literature and guidelines prepared by development organisations for climate change adaptation, are numerous (Fig. 10.2). This can be overwhelming for a developing city struggling with a multitude of urban problems. Efforts to make a city resilient have to be explicitly and closely connected to the problems the city already faces in order to be relevant for stakeholders and citizens. A developing city is unable to address *all* the issues which are important to create resilience, but it might be able to address some: those that can mobilise a range of stakeholders and their resources, which can create synergy effects, and which resonate with the experienced problems in the cities.

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