

Chapter 2

Cities of Sub-Saharan Africa: Failed or Ordinary Cities?

Abstract This chapter outlines the theoretical and methodological framework that guided the research process. It presents a critical review of the main theoretical references, including post-colonial, informality, and vulnerability studies, and lays out the arguments and reflections that led to the formulation of the research question. Inadequate interpretive and planning approaches are defined as being caused by ‘asymmetrical ignorance’, and the basic content of alternative approaches is identified, particularly the ‘people as infrastructure’ approach. In order to explore the limits of asymmetrical ignorance, the study focuses on the interaction between urban development and environmental change in peri-urban areas of the sub-Saharan city by investigating households’ environmental management practices. This knowledge is essential not only to shed light on the development and environmental management dynamics in peri-urban areas and the interdependence thereof with urban areas, but also to define the necessary conditions for effective adaptation to environmental change.

Keywords African urbanism • Informality • Post-colonialism • Urban bias • Rural–urban • Vulnerability • Agency • Black urbanism • Dar es Salaam

2.1 Urban Development and Planning: An Overwhelming Distance

There are two main reasons for challenging the generalizations made about contemporary African cities. First, because it allows one to move away from preconceived normative ideas about African cities that are based on ‘urban planning’ theories and practices developed in other parts of the world, particularly regions with global economic centrality, and towards an approach that accepts urban reality from a variety of different perspectives. Many studies, inspired mainly by post-colonial theories, have sought to overcome the categories and stereotypes of Western urban planning when examining African cities (Roy 2009; Freund 2007;

Robinson 2006; Simone 2004; Pieterse 2009; Murray/Myers 2006; Gandy 2005; Parnell/Pieterse 2014). Such studies represent an exciting moment in African urban thought, which is opening up to new interpretations and representations of the city. Some of these ideas concentrate on the myriad creative modes through which African 'urbanity' capitalizes on its own environments, and explore the difficulties and freedoms generated by life in African cities. These explorations are based on the idea that the residents of African cities can invent and develop creative strategies in order to mould their urban environment into flexible and appropriate spaces.

The second objective of this investigation of African cities (see Chaps. 3–6) is to build on the aforementioned studies in order to achieve a deeper understanding of the relationship between the city and natural resources, and between development of African cities, with all their unique characteristics, and the environmental changes currently underway. These objectives are reached through the case analysis of Dar es Salaam, specifically its peri-urban areas, based on fieldwork, desk research and discussion with other international scholars working on the topics of peri-urban areas, climate change adaptation, and environmental management in the cities of least developed countries. The elements of dynamism, complexity and diversity in contemporary African cities come to the fore as light is shed on the relationships that the people living in those cities have with natural resources, and on how urbanization conditions and is conditioned by such relationships, and by development policies and strategies at the global level.

2.1.1 Cultural Bias: From Post-colonial Studies to 'Asymmetrical Ignorance'

The human experience in Africa constantly arises in debates in the field of urban studies, as well as anthropology, sociology and economics as an experience that cannot be understood through an exclusively negative interpretation.

Post-colonial studies need an alternative to the dominant interpretation in which Africa is never considered a place that possesses characteristics of human nature, or when it is, such characteristics are given less value, considered less important, and of inferior quality. Through this elementary and primitive lens, Africa is rendered unfinished, lacking in something, incomplete. Mbembe (2001: 8–14), in his work *On the Postcolony*, identifies two keys to understanding the debate over Africa as a foreign and exotic land. The first refers to the idea of strange and monstrous discoveries made by abandoning familiar paradigms; Africa is to be understood for what it is, an entity with its own raw, brutal and savage characteristics. The second key is 'intimacy', according to which the African possesses a self-referential structure that renders him human, but belonging at the same time to a world that we cannot access, in which we can intervene to educate the African about our more

human way of life (Mbembe 2001). It is on these bases that, according to Mbembe, Africa is constructed as an object of experimentation.¹

Gathering a series of observations on how Africa is interpreted and represented, Mbembe reaches a tough conclusion that echoes the principles of old colonialism. He emphasizes how Africa is the image of foreignness *par excellence* in both daily life and in academia, and represents a universe at the margins of the Earth, where reason is quashed. He asserts that the inaccessibility of the obscure African universe is caused by the absence of an autonomous discourse on Africa: 'In the very principle of its constitution, in its language, and in its finalities, narrative about Africa is always pretext for a comment about something else, some other place, some other people. More precisely, Africa is the mediation that enables the West to accede to its own subconscious and give a public account of its subjectivity' (Mbembe 2001: 3). Such a scathing judgment is justified by the permanence of the prejudiced belief, still alive today, that African social groups belong in the category of simple and traditional societies.² From this prejudice derives the image of Africa as a *farmakos*, or the Western obsession with what is missing, with absence, non-being, identity, difference and negativity; in other words, with nothing. According to Mbembe, this image goes beyond the problem of Western thought as the *other with respect to the other*, as defined by de Certeau, or as the opposition between truth and error, reason and madness, as maintained by Foucault and Muralis. Rather, it is a 'principle of language and classificatory systems in which to differ from something or somebody is not simply *not to be like* (in the sense of being non-identical or being-other); it is also *not to be at all* (nonbeing). More, it is *being nothing* (nothingness)' (Mbembe 2001: 4). It is in these terms that Africa is attributed with a particular unreality, the image of nothing, the abolished and the non-existent.

In debating how to highlight aspects of political thought and the political, social, and cultural reality of contemporary Africa in terms of their intrinsic value, or for comparative study with other societies, political science and economics still maintain the prejudices outlined above. Other disciplines, inspired by Foucauldian and neo-Gramscian or poststructuralist paradigms, such as historiography, anthropology, and feminist critique have concentrated, according to Mbembe, on the single problem of how *hybrid, fluid and negotiated* identities are invented (Mbembe 2001).

¹An understanding of the various reasons for this state of affairs raises a series of questions about the condition and experience of the other, and the diversity with which the Western philosophical tradition has always clashed. In the relationship with Africa, the concept of 'absolute otherness' is recognized as a polemic and sometimes extreme argument, used in the West in order to affirm its own difference from the rest of the world. In many aspects Africa therefore constitutes a metaphor through which "the West brings into play the origins of its norms, constructing an image of itself and integrating it into the sum of indicators that reaffirm what it imagines to be its own identity" (Mbembe 2001).

²Mbembe refers to three main elements in order to characterize traditional societies: facticity and arbitrariness, a strong connection to the tradition of magic, and the symbolic and the prevalence of the person over the individual (Mbembe 2001: 11–12).

These disciplines, with the pretext of avoiding single-factorial explanations of domination, have reduced the complex phenomena of the state and power to 'discourses' and 'representations', while forgetting the material aspect of such discourses and representations. The rediscovery of the subaltern subject and the accent placed on its inventiveness have been transformed into perennial invocation of the notions of 'hegemony', 'moral economy', 'agency', and 'resistance' (Mbembe 2001). Mbembe's criticism of such disciplines is that nearly all authors, embracing the Marxist tradition, have continued to operate as though economic and material conditions of existence had an automatic reflex and find direct expression in a subject's consciousness; to explain the tension between structural determinants and individual actions, they fall into the trap of functionalism. Basing themselves on questionable dichotomies, these authors maintain that everything becomes clear as soon as one is able to demonstrate that the subjects of the action, subjugated (dominated) by power and the law (the colonized, women, farmers, labourers), possess rich and complex consciences that are capable of opposing their state of oppression; power is constantly contested and reconfigured until its own targets reappropriate it (Mbembe 2001).

Even after Marxism was no longer used as an analytic tool and pan-comprehensive project, and after dependence³ theories were abandoned, a "false dichotomy between the objectivity of structures and the subjectivity of representations" continued to persist. This distinction allowed all that was cultural and symbolic to be relegated to one side, while everything economic and material (Mbembe 2001) was placed on the other. According to Mbembe, this constituted a rejection of the philosophical perspective that negated any reflection on African society and deprived it of legitimacy. Nevertheless, an instrumental paradigm that is too reductionist to shed light on the fundamental questions related to the social reality of Africa continues to dominate in every field.

Mbembe's position is based on two observations. One maintains that social reality in Africa is formed by a multiplicity of practices, products and objectives, and not merely discursive and linguistic practices, but also doing, seeing, listening, tasting, smelling, and touching. For all those who participate in the production of the 'African self', these practices represent 'significant human expressions' that render the African subject similar to every other human being who is engaged in 'significant acts' that nevertheless do not have the same meaning for another person (Mbembe 2001). The second observation is that the African subject does not exist independently of the actions that create social reality, separate from the process through which those practices have intrinsic meaning.

From the perspective of urban studies, Mbembe's text is imbued with inputs from the political geography of post-colonial power, which are abstractly theoretical and provocative, but are not particularly comprehensible in spatial terms

³According to the perspective of dependence theories, rapid urban growth, the commercialization of peri-urban activities, and the land market are considered destructive for the livelihoods of households and institutions (Mbiba/Huchzermeyer 2002: 125).

(Myers 2011: 45). The question of whether the colonial period has truly been overcome remains unanswered in African studies. A vast branch of African urban studies⁴ (Beall/Fox 2009; Freund 2007; Mbembe/Nuttall 2004; Pieterse 2010; Murray/Myers 2006; Myers 2011; Simone 2004, 2010; Simone/Abouhani 2005; Roy 2005, 2009; Roy/AlSayyad 2004, Bryceson/Potts 2005) has recently developed around this basic question and on the common lens of development through which African cities are studied (Robinson 2006: x) and ‘measured’ with Western indicators (Myers 2011: 1). The hypothesis constructed by Jennifer Robinson is that there is a lack of knowledge on African cities primarily as a result of what Chakrabarty defines “asymmetrical ignorance” (Robinson 2003: 275), which is blinding and misleading.

2.1.1.1 Negative Interpretive Approaches

Although the urbanization process in sub-Saharan Africa has produced a series of interpretations among researchers, in the academic literature on African cities there is a general consensus that the accumulation of ‘worrying’ characteristics, such as unregulated growth, the scarcity of gainful employment opportunities in the formal economy, serious environmental decline, the lack of sufficient housing at accessible prices, the lack or inadequacy of infrastructure, the absence of basic social services, impoverishment, criminality, inadequate management of the city, and the increase in inequality, lead to a permanent condition of urban crisis (Rakodi 1997; Tostensen et al. 2001).

There is no one widely shared opinion regarding the causes of the ‘urban crisis’ underway, or on how to change the situation.

While some attribute the urban crisis mainly to rapid population growth (the demographic explosion) and to adverse economic conditions, others attribute it to corruption, poor management, or the failure of municipalities to provide the institutional and juridical supports necessary to stimulate entrepreneurial growth and development (Tostensen et al. 2001: 7, 10–11).

There are also notable differences among models of urban growth and development. In fact, most of the scientific research on African cities tends to ignore their differences and historical specificity, concentrating instead on common characteristics. In general, contemporary representations and debates have produced mechanistic (and simplistic) images of spatial incoherence, overcrowding, impoverishment, unemployment, decline, negligence, organized crime, daily violence, inter-ethnic conflicts, civil disorder, environmental degradation, pollution, rebellious behaviour, and juvenile delinquency (Murray/Myers 2006: 1).

⁴Many theorists, whose own roots are in post-structuralism and who choose to construct their work on African theories and practices, often emphasize the informal, the invisible or the new geographies of connection, movement, fluidity, flexibility, and contingencies as relevant in creating the urban areas of Africa (Myers 2011: 139).

This near-obsession as regards ‘urban pathologies’ and continuous failures—to the total exclusion of nearly everything else—reduces city life in Africa to a dystopic nightmare, where the “eschatological evocation of urban apocalypse” (Gandy 2005: 38) feeds the unilateral perception of such ‘Afro-pessimists’ (Murray/Myers 2006: 2), who suggest that the cities of Africa, and Africa in general, are so irredeemably chaotic and disorganized that they are far from their own ‘redemption’.

Murray and Myers, drawing into the field of urban studies several aspects that have already been evinced by Mbembe, affirm that this disproportionate attention to the ‘uncontrolled’ or ‘chaotic’ urbanization process in Africa coincides with a kind of unreflecting sensationalism that has indelibly marked Africa as the ‘Dark Continent’, where ‘tradition’ and custom obscure rational-legal authority, where primordial ‘tribal’ devotions are rooted and permanent, where popular beliefs triumph over good sense, and the neo-patrimonial leadership works hand in hand with corruption, favouritism and widespread mismanagement of urban affairs (Abdoul 2005; Enwezor et al. 2002; Tostensen et al. 2001 in Murray/Myers 2006).

In the search for the ‘meaning’ of African cities, some look at the decay of physical infrastructure, the distribution of mechanisms for promoting social collaboration and the absence of the institutional framework necessary for social cohesion, and conclude that the cities in Africa simply ‘don’t work’. Others have attached themselves to the notion of ‘African exceptionality’, the idea that urban development works everywhere except in Africa, because the cities are intrinsically different and uniquely incapable (Roe 1999, cited in Murray/Myers 2006: 6).

These approaches concretize what can be defined as the *negative interpretive approach*, which has dominated much of the academic literature on urbanization in Africa. In fact, much of that literature implicitly or explicitly begins with normative prescriptions for how cities should ideally function. Framed in this way, urban sprawl in the African metropolis generally appears to be an exemplary expression of failed, distorted or impeded urban planning, in which the requisite bases and attributes of true urbanity that indicate the urbanization process elsewhere are missing.

2.1.1.2 Positive Interpretive Approaches

In contrast with the approach outlined above, a more fruitful *positive interpretive approach* has also been developed, which begins with the premise that the cities in Africa are, as Abdoumalik Simone asserts in his *For the City Yet to Come: Changing African Life in Four Cities* (2004: 1–2), ‘works in progress’ moved forward by the inventiveness of ordinary people and held together by inertia and slow adaptation to changeable circumstances.

This new emphasis on temporariness allows one to conceive of African cities as places in which the possibility of becoming urban is not predetermined (Murray/Myers 2006: 6), in which enormous amounts of creative energy have been

ignored and damaged (Simone 2004: 2), places that contain the seeds of new types of urban forms and solutions (Freund 2007: 171).⁵

Moving beyond a diagnostic mental attitude based on normative injunctions is a prerequisite to discovering and appreciating the historical specificity of African cities and how they simultaneously construct themselves and are constructed (Simone 2004: 15–16).

The proposal of Jennifer Robinson seems to exceed (overcome) the extreme faith and mistrust in African cities, maintaining instead an “ordinary city” perspective (Robinson 2006) according to which the city seems to resist a priori analytical classifications and hierarchies. This allows one to view the city as a historically specific entity, rather than an incarnation of abstract models (Amin/Graham 1997; Robinson 2006). Broadening the urban studies field of inquiry in this way provides a basis for deeper understanding of the nuances of diverse urban experiences and the complexity of urbanization in different parts of the world (Murray/Myers 2006: 10).

Simone (2010) asserts there is a need to begin with a discussion of cityness, from movements, to experiments, to ‘peripheral’ experiences of the ‘black’ city as a stimulus for overhauling the state of the periphery. He develops his argument by indicating five manifestations of peripheral life.

Peri-urban areas are one of these manifestations and, like the rural–urban interface, they have been the subject of much of the debate on the ‘periphery’. Analysis of such areas allows for the identification of cognitive elements that are useful in overcoming preconceived interpretations, since they represent a rich area in which rural–urban interdependence at the local and regional level and the connected ecological, social and economic relations are more evident (Simone 2010: 51–59).

Similarly, Pieterse (2008: 2–3) seeks to draw connections between analyses that address the daily practices in most urban areas. According to that author, it is in informal settlements that post-colonial cityness is most likely to emerge. Such informal settlements represent an area of opportunity and autonomy in various spaces in the city, though in a localized manner, and those areas require a ‘relational’ and ‘pluralist’ understanding (Pieterse 2008: 106) in order to better grasp the relations between informal settlements and the formal vision of urban order,

⁵From a historical perspective, Freund analyzes the era of globalization and the consequent exclusion of Africa from “global cities” (Freund 2007: 171) in contrast with Afro-pessimism. He underlines the positive aspects of African cities and their creative and original responses to changes in the global economy, pointing out that some of the changes that are occurring in other world cities are also occurring in Africa, and the possibilities for transformation are considerable. They contain ‘the seeds of new types of urban forms and solutions’ (Freund 2007: 172), and are not merely the helpless victims of colonial and post-colonial attempts to implement modernist plans. Globalization is not, therefore, something that ‘strikes’ Africa from outside, rather it works within Africa in a way that suggests future models. Some strategies for pursuing development are clearly exclusive in this context, but the alternative solutions that people develop in order to carry on with their lives, which are increasingly ‘urban’ (according to forecasts), are the most unpredictable. In this sense the future is open, uncertain, and not without contradictions (Freund 2007: 172).

knowledge that is necessary in order to define directions and actions that are of concrete use in improving certain conditions.

One of the most interesting and distinct characteristics of this new and growing literature on urban Africa is its vast and valuable intersection of urban theory and planning practice (Myers 2011: 15). The theoretical attention paid to settlements that are marginalized and informal, invisible, necropolitan or ordinary in various African cities (Myers 2011: 14) is important but insufficient when constructing a new interpretive approach. Urban studies must also address *practice* as well as the subsequent attempt to define how the urbanization process can contribute to improving the quality of life of inhabitants (Roy 2007).

2.1.2 Urban Bias: Legacy and Continuity in the Conceptualization of Development and the Rural–Urban Relationship

If one criticism of African urban studies is that most of the analytic approaches adopted apply models of urban development based on the characteristics of major Western cities, another limit derives from the continued use of analytic categories and differentiations developed in specific historical and territorial conditions that may no longer be relevant to contemporary circumstances. One example is the tendency in the academic literature to divide the world economy into the simplified spatial categories of central and periphery, which is often linked to similar tendencies to draw a clear distinction between ‘peripheral urbanization’ (cities of the Third World and urban peripheries) and ‘central urbanization’ (cities of the First World and urban centres) (Murray/Myers 2006: 9). These categorizations negate a nuanced interpretation of the urbanization process, and ignore historical specificity, social complexity, and the differences between various cities and within the same city.⁶

Cities have been viewed from time to time as the product of economic change, motors of modernization and obstacles of development. These visions of the ‘urban’ and the related interpretations of the relationship between urban and rural spaces have strongly influenced the interpretive approaches to African cities and the rest of the world, and particularly the view of environment and natural resource management in urban and rural contexts.

The development debate has directed those interpretive approaches, and has developed mainly around changes in the relationship between agriculture and industry and the distribution of investments between various sectors. The goal of

⁶“Abandoning dichotomies (such as the rural-urban divide) allows us to fight the tendency, generally present in both academic and popular literature, to group all African cities under the same generic umbrella of examples of the Third World or peripheral urban planning” (Murray/Myers 2006: 9).

development policies has almost always been economic growth (Tacoli 1998b: 149–150).⁷

2.1.2.1 Urbanization as a Product of Economic Change

During the post-war period, cities came to be viewed by modernist theorists as the natural consequence of economic growth and investment in urban infrastructure and industry. The economic development model based on the ‘traditional’ (rural) agricultural sector was replaced by ‘modern’ (urban) industrial sectors in a growing economy. Until the mid-1960s, rural–urban migration was encouraged by the lack of manpower in urban areas and the possibility of keeping salaries low (Lewis 1954; Tacoli 1998b: 150). In Tanzania, the post-independence migration from rural regions to Dar es Salaam was, and still is, attributable to the economic and social opportunities offered by the city.

The expansion of modern industry, guided by key economic sectors, was linked to spatial concentration and inequality, resulting in irregular development and polarization, which were seen as the inevitable condition of countries in an initial state of economic growth. Such imbalances were considered solvable through the distribution of benefits in the surrounding urban area (Hirschman 1958, in Beall/Fox 2009: 21–24), but difficult to overcome once they had been established (Myrdal 1957 in Beall/Fox 2009: 21–24).

At the time, regional planning theorists and professionals thought that spatial disparities could be mitigated through targeted interventions. Policies were theorized that would encourage the growth of medium-sized cities in peripheral regions and help develop poles of urban growth (Friedmann/Alonso 1975), maintaining that urban centres could be used to guide regional development in nations with less-developed economies. At the beginning of the 1950s, the term “over-urbanization”⁸ (Hoselitz 1957; Sovani 1964; Rakodi 1997) was linked to the emergence of concerns over the level of urbanization in Latin America, Africa, and Asia. Cities were increasingly characterized by the development of squats, shantytowns, and favelas, fuelling fears of the social and political impacts of urban growth.

⁷The Rome Club has been developing a variety of theories and manoeuvres for degrowth (e.g. transition towns) since the 70s (Illich 1994; Latouche 2005; Bateson 1976; Bologna 2004; Brown 1980).

⁸Over-urbanization refers to the relationship between the national level of urbanization and work force distribution across various sectors (e.g. agriculture, manufacturing, industry, and services). A country would be defined as over-urbanized (or under-urbanized) if the relationship between the percentage of the urbanized population and the percentage of the work force employed in industry was significantly different when compared with the same relationship in advanced economies. At the 1956 UN conference it was declared that in over-urbanized countries, urban and rural poverty exist one beside the other (Sovani 1964: 113, in Beall/Fox 2009: 20).

Such concerns were amplified by dependency theories that criticized the fact that development was inevitably related to inequality, unbalanced growth and the 'natural' evolution of the urban system over time. They maintained that development in the towns and cities of less economically advanced countries favoured Western economies rather than local areas. Cities were seen as commercial centres in an international system where primary goods moved from rural producers to international metropolises, via the markets in cities, regional centres, and capitals, creating a dependence pattern defined as 'parasitic urbanization'.

2.1.2.2 Urbanization as an Obstacle to Development

At the end of the 1970s, rural–urban migration was no longer seen as an economic incentive and rapid urbanization became a problem.⁹ The negative view of the city as a parasitic and dystopic space that prevented development, as opposed to the motor of regional and national economic modernization, was solidified with the urban bias thesis (Lipton 1977; Bates 1981; Argawala 1983).

Adapting Lipton's theory to Africa, Bates (1981) emphasized not only the economic dimension of the problem, but also the superior political power of cities as compared with small farmers. He argued that Nyerere's government was perpetrating urban-biased policies directed at privileging urban dwellers with favourable urban wages and food subsidies relative to rural peasants' agricultural commodity prices.

After the support given to the Tanzanian state in the 1960s and 1970s, many Western donors, led by World Bank and the International Monetary Fund, criticized the role of the state as the central agent, the over-centralization of government and parastatals in Dar es Salaam, and the accountability of bureaucratic agencies. Charges of corruption and incompetence against governmental and parastatal agents were aligned with the theory of urban-bias (Lipton 1977).¹⁰

The 'green revolution', begun in the 1970s, sought to increase agricultural productivity in low- and medium-income countries and to introduce more productive crop varieties and improved agricultural practices. Those debates and policies led to strategies for managing rural–urban migration in order to prevent over-urbanization. Improved control of urbanization was expected to improve the living standards in rural areas and cities. If agriculture became more productive and if adequate social and recreational services were provided in rural areas, people would not move to the

⁹“It was clear that the creation of employment in the manufacturing sector was lower than expected and could not absorb the rapid growth of the urban population. Concerns regarding over-urbanization translated into policies that sought to limit workers' migration towards the city. At the same time, the first studies on the informal sector (Hartm 1973; ILO 1972; Weeks 1973) joined the debate already under way on the development potential of that sector (Portes et al. 1989; Moser 1978; Standing/Tokman 1991)” (Tacoli 1998: 150).

¹⁰The World Bank published its version of the urban bias theory and a critique of the bureaucratic underperformance of the African modernizing state.

city. However, Todaro (2000) reinforced the political implications of Lipton's urban bias thesis arguing that rural–urban migration was rational because it was based on expected rather than actual benefits, and that this was inevitable due to the imbalance between rural and urban economic opportunities in the majority of low- and medium-income countries.

These ideas were in line with the opinions of many of the leaders of low- and medium-income countries of the period, including Julius Nyerere in Tanzania, who sought to address the problem of poverty among farmers by reducing the differences between rural and urban welfare (Beall/Fox 2009: 21–24).

While international dependency theories achieved notable success during the 1970s, a liberalistic 'counterrevolution' began to appear which eventually dominated development studies during the 1980s and 1990s. The Structural Adjustment Programmes, although they were introduced to reduce the discrepancy between rural and urban incomes (and therefore to reduce rural–urban migration), did not allow equal access to international markets for all producers, which aggravated social disparities in the city and the countryside. In Tanzania, the social services and subsidies initiated under Nyerere were gradually eliminated, creating pressing cash needs for peasants (Bryceson 2002). Migration as a survival strategy, together with diversification of income, has therefore continued to be an essential element of livelihoods and accumulation strategies for those who live in the rural–urban interface (Tacoli 1998: 151).

The lack of consideration for cities that derived from the diffusion of the urban bias thesis beginning at the end of the 1970s is reflected in the *Poverty Reduction Strategy Papers* (PRSPs), which predominantly emphasize the relative importance of rural poverty and development, while giving less consideration to urban poverty (Tacoli 1998).

Given the demographic trend of rapid growth, the inevitability of urbanization, the undeniable importance of cities in economic development, the obvious increase in poverty and urban inequity, the continued influence of the urban bias thesis is difficult to understand for some authors. Jones/Corbridge (2010) have highlighted its limits, arguing that the urban bias thesis can be redefined without reducing it to a generalized model of city–countryside exploitation, which would be misleading if applied to individual urban or rural social classes. The urban bias thesis has promoted limited consideration for urban poverty and economic dynamism in many cities of developing countries, generating an imbalance between rural and urban areas in the political sphere, an imbalance that should be levelled (Jones/Corbridge 2010: 16). However, the concentration of economic and political power can offer advantages when constructing dynamic regional economies and livelihood strategies based on mobility.

Urban bias was also questioned because it neglects the organization, objectives, and expression of political institutions, which may have implications for the power and well-being of the rural sector. A conception of rural interest that is strictly focused on economic issues was also considered a limit of urban bias theory, arguing that the cross-cutting nature and complexity of rural cultural identities and

interests may weaken the countryside more than the power of the city (Varshney 1993).

Moreover, the complex interactions between rural and urban economies and governments, and the arbitrary way in which urban and rural are distinguished were used to question the rural–urban comparisons of the urban bias theorists, and a ‘large city bias’ or “capital city bias” (Hardoy/Satterthwaite 1989) was proposed to label the mainstream government policies subsidizing consumer, business or land owners in capital or large cities.

2.1.3 The Rural–Urban Relationship and Politics of Development: Approaches to Environmental Planning and Management of the Peri-urban Interface

In 2008, the population of urban areas exceeded that of rural areas for the first time in history (UN 2008). The 2014 revision of the *World Urbanization Prospects* indicated that 3.9 billion people, or approximately 54 % of the world population (expected to increase to 66 % by 2050), live in cities, while rural population was close to 3.4 billion, and is expected to decline to 3.2 billion by 2050 (UN-DESA 2014). Urban population growth is concentrated in the less-developed countries where it is estimated that by 2017 a majority of people will be living in urban areas (UN-DESA 2014).¹¹

It is expected that modalities of growth will vary considerably between continents and settlements, both in terms of typologies and dimensions. Africa, as well as Asia, is urbanizing faster than other regions and is projected to become 56 % urban by 2050. In the countries of the Global South, a growing portion of the population lives in the areas surrounding large cities. In such areas, which have hybrid rural–urban characteristics, living conditions depend on local natural resources, such as arable land, water, fuel, and living space (Tacoli 1998).

Spatial policies (regional and local) are generally used as instruments for obtaining a better balance between city and countryside and for reducing migratory pressures on urban centres. The failure of such policies is often attributed to a lack of recognition of the complexity of rural–urban interactions, which involve spatial and sectoral dimensions (Tacoli 1998: 3).

Research on planning and management of areas with hybrid rural–urban characteristics in ‘developing countries’ have been mostly oriented towards poverty reduction and have sought to directly meet the needs of the most vulnerable, or to render more sustainable the livelihood strategies based on the use of land and natural resources (Mattingly 2009: 38; Simon et al. 2004). Power dynamics and

¹¹The global urban population is expected to grow approximately 1.84 % per year between 2015 and 2020, 1.63 % per year between 2020 and 2025 and 1.44 % per year between 2025 and 2030.

relationships of cause and effect that reflect non-homogeneous socio-economic and environmental realities remain little explored. Studies that have concentrated on the ‘negative’ aspects and problems of the development dynamics in cities (poverty, precarious health and environmental conditions, etc.) have paid little attention to the structural causes of peri-urban settlement formation and their unsustainability and vulnerability. Such causes include the expulsion of the population from central areas of the city in search of more liveable areas and more accessible resources (land to cultivate, water that can be drawn directly from natural sources, etc.) or competition for the right to use the areas most favourable for tourism development.

2.1.3.1 Neither Urban nor Rural: Definitions

A variety of perspectives can be found in the literature on areas that can be defined as neither rural nor urban. From a morphological-landscape point of view, attention has been directed to low density and apparently random, scattered or fragmented and discontinuous forms of land use that can neither be classified as urban fabric nor as true rural areas. From this perspective, such areas are described as a ‘type’ or operational dynamic of land use, such as zones of separation between the city and the country (the urban fringe theory), or the dynamic and rapid transformation of rural areas into urban ones (the urban sprawl approach). In both cases, areas with hybrid rural–urban characteristics are viewed as ‘anomalies’¹² of the urbanization process and as the evolution of rural areas. Some authors, however, consider rural–urban transition zones to be a specific environment. In some cases, it is recognized that such areas have their own ‘identity’ as peri-urban (or semi-urban) as a “distinct ecological and socio-economic system under an uncertain institutional regime” (Allen 2006: 32). In other cases, following the suburbanism approach defined by Ekers et al. (2012), they are considered an expression of the global suburbanization process, “the combination of non-central population and economic growth with urban spatial expansion”.

The approach adopted in the present research considers peri-urban areas as having their own specificity; however, in this book this distinction should be understood not as a defining approach that lays out conceptual boundaries, but more as an explorative (inquisitive) approach. Peri-urban areas are considered the location of a peri-urban way of life, which suggests a reframing of the question of the urban in sub-Saharan Africa.

In order to overcome a conceptualization that is centred mainly on physical aspects (distance from urban areas, density or infrastructure), the present work refers to a gradient between urban and rural poles. That gradient can only be understood by examining the dynamics of interaction in the rural–urban interface (Simon et al. 2001), by paying attention to socio-economic heterogeneity and the complex

¹²Anomaly is understood in this case not as an extraordinary phenomenon, but as an imperfection and a deformation of urban or rural areas.

institutional balance (Tacoli 1998, 2003; Mattingly 1999; Allen 2003), by examining the mosaic of ‘natural’ ecosystems, ‘agricultural ecosystems’, and ‘urban ecosystems’ involved in the flow of materials and energy required in urban and rural areas (Morello 1995) and by analyzing the system of governance (Ekers et al. 2012).

From this perspective, the rural–urban interface represents the context in which many changes, flows, and rural–urban interactions materialize, generating problems and opportunities not only for the communities that live in the interface but also in terms of the sustainable development of adjacent rural and urban systems. In this last sense, although the framing of the debate has changed considerably since Lewis’ time, the correlation between rural-poor and urban-rich, as well as approaches that reconfirm this dichotomy in the theoretical sphere, in conceptualization, policies, and practices (institutional), are still present. Moreover, suburban theorists consider the suburbs “as an area’s constellation of public and private processes, actors, and institutions that determine and shape the planning, design, politics, and economics of suburban spaces and everyday behaviour” (Ekers et al. 2012; Mabin et al. 2013; Buire 2014; Todes 2014).

2.1.3.2 Planning the Peri-urban Interface: Urban Fringe or Transition Zone Between Rural and Urban?

These analytical approaches inform policies and plans. From a planning and management perspective (for development), two distinct lines of thought exist (Budds/Minaya 1999: 21). Both involve an approach that considers the specific characteristics of rural–urban areas, and define them as the peri-urban interface (a debate that has been advanced considerably through the *Strategic Environmental Planning and Management for the Peri-urban Interface* project, undertaken by the University College London’s Development Planning Unit).

One of these lines of thought prevails among international agencies, such as USAID, UNICEF, the World Bank, and CARE, as well as in the rural planning and management manuals for the area (e.g. Dala-Clayton et al. 2002; Mattingly 2009: 38). Their interpretation assimilates peri-urban areas to ‘slums’ (drawing from urban fringe theory), meaning settlements characterized by low-quality housing, insufficient levels of infrastructure and services, and no recognition of the legal right to occupy land (Beall/Fox 2009: 27). This simplification, in addition to concealing the socio-economic diversity and variety of settlements found in peri-urban areas, fails to account for the resources that such areas provide to their own inhabitants and to the entire city.

A second interpretation dominates the activities of other agencies and programmes that are more attentive to questions of environmental management and conservation of agricultural land (e.g. the Natural Resources Systems Programme, the IDRC through the Cities Feeding People Programme, and the FAO) and considers the peri-urban interface a transition zone between rural and urban areas (Budds/Minaya 1999: 21).

There is a significant difference between the priorities and intervention strategies of these two approaches. The agencies that limit themselves to considering peri-urban areas as fringe areas tend to support interventions with an urban perspective, generally concentrating on lack of infrastructure, provision of potable water and sanitary systems, education, and community health. Agencies that have a more environmental focus recognize that peri-urban areas also contain rural zones near the city limits. As such, they concentrate on the management of natural resources, including urban agriculture and the effects of pollution, and promote the development of more sustainable practices rather than the development of urban infrastructure.

2.1.3.3 A Common Strategic Element: Community Participation

Most development agencies demonstrate a strong commitment to community participation as a management strategy for peri-urban areas. Over the course of the debate on development and environment, participation has emerged as a method of expressing the needs of the most vulnerable. Having a voice in the political sphere represents a central element for improving one's quality of life. A report by the British Department for International Development¹³ on the challenges of urban development in poor contexts (DFID 2001), emphasized the diversity of people's needs and the importance of their participation in identifying which services they need, where such services should be located, and how the potential benefits should be distributed. The report also highlighted the importance of having the capacity/possibility to participate in decision-making processes, and to play an active role at every level of the development process, in a manner that allowed people to identify and monitor the improvements that they felt were needed. Specifically with respect to environmental planning and management in peri-urban areas (see Sect. 3.1.1), the criteria for participation refer to the collective use of individual powers. Addressed collectively, changes can be managed in a more practical way, and the impacts of environmental transformations affect everyone within a given area, therefore each person will benefit from improvements (Allen et al. 2003). Different actors have varying capacities and strengths, some contributing with practical knowledge, others with institutional knowledge, and others still with financial means or labour. A successful process must be defined on the basis of all these potential contributions in order to achieve sustainable development (Allen et al. 2003).

¹³Here we refer to the assertions made in the agency's Strategy Paper, *Meeting the Challenge of Poverty in Urban Areas. Strategies for Achieving the International Development Targets* (2001: 24), as an example.

2.1.3.4 Peri-urban Livelihood and the Inevitable Transition to Urban Status

In the sphere of the livelihood approach, developed mostly in the early 2000s and focused on environmental management and local community participation, the centrality of the livelihoods in the peri-urban interface (Simon et al. 2004) led to renewed interest in urban expansion as a phenomenon that could influence the availability and accessibility of resources (means of subsistence) (McGregor et al. 2006). In most cases, this interest has translated into a focus on urban and peri-urban agriculture, in response to cities' increasing food demands, and practiced in areas where non-agricultural use of land is also an option, unlike in rural agriculture (Maxwell 1999).

Although this focus addresses the issues of land and food security and may be useful for environmental management, it does not consider the complexity of people's livelihood strategies (Mattingly 2009: 38). An agriculture-centred discourse on peri-urban areas may have important implications and political consequences. Although agriculture could be practiced for long periods of time by farmers who are already integrated into the urban economy, Mattingly (2009) argues that peri-urban agriculture in developing countries is an inevitably temporary activity in nearly all cases. It is located in areas that will eventually assume urban uses, since those who practice peri-urban agriculture are in transition from a rural economy to an urban one. Moreover, peri-urban agriculture in developing countries could be practiced by the poor as a livelihood activity, but also by individuals with higher income levels as a supplementary activity. In any case, the changes in land use (and in the environment more generally) can have considerable impacts on the livelihoods of people who live in the areas defined as peri-urban. As such, policies and interventions for better environmental management, local food security, and support for small farmers (especially related to land) must consider the effects that they will have on people's lives and livelihoods and support the 'transition' of people living in peri-urban areas from a rural life to an urban one (Mattingly 2009: 50).

At this point a problem of planning competence arises, around which institutions should develop plans sensitive to the social and economic characteristics of peri-urban areas.

Some authors maintain that policies and projects for natural resources may not reflect local priorities near urban areas, since income generating activities (Brook/Dávila 2000) that are not based on natural resources become more important, and may be undervalued by political decision-makers who are more oriented to solutions focused on natural resources. A rural administration concentrates mainly on rural environmental issues that affect the majority of its residents; however, with the rise of urban development, they need to be more oriented towards the urban. Local rural administrations can do more to support agriculture in the areas adjacent to the city by providing technical consulting (to improve agriculture and soil fertility, access to credit and security of property) and doing more to protect the land

rights and the interests of farmers, including those that conflict with more powerful and aggressive urban administrations (Mattingly 2009: 50).

Urban administrations are equally responsible for the impacts of their actions. They are responsible for the new demand for land and waste management, often extending their territorial planning to rural areas and beyond municipal boundaries. Their rapid acquisition of large areas may destroy rural livelihoods. According to Mattingly (2009), they should plan city expansion in a way that allows vulnerable farmers more time to undertake rural–urban transition, and should act directly or indirectly to provide better compensation for the land rights of which such people are deprived. According to Mattingly, in both rural and urban institutions, new goals, knowledge, competencies, and experts are necessary for improved transition to urban economies, improved food security for a larger number of people, and possibly also for the management of rural and urban migration in general. Providing support for changing livelihoods through appropriate policies and actions related to land could help people to better face the difficulties related to urbanization processes, to maintain or increase food and income sources and develop competencies that are of value in urban economies.

The extent to which the transition to a totally urban environment is the inevitable destiny of all peri-urban areas is a point of discussion in the present study. Does the shift from rural to urban occur in any case, and is people's end goal to settle in peri-urban areas? Or do such areas represent a hybrid space that continues to straddle economies, forms, spaces, flows, and relations that are both urban and rural, while at the same time neither urban nor rural? How do people address the anthropic and natural environmental changes that are occurring in such areas: with an attitude of resistance, or flexibility/adaptation? Why?

The assumption outlined above often translates into policies that support transition and that provide security of property and agricultural support, and this begs several questions.

If access to land in these areas represents, in the majority of cases, an important component of livelihoods, is it equally true that security of access to land corresponds to possession of a land title? What are the modalities of access to land and resources? What relationship is there between so-called 'informal' and 'formal' modalities?

2.1.3.5 Peri-urban as the 'Black Periphery' and the Emblem of Suburbanization

Widening the analytical perspective of African peripheries (and peri-urban areas) in his book *City life from Jakarta to Dakar. Movements at the Crossroads*, Abdoumalik Simone investigates the reasons why what is defined as 'periphery' represents an extremely important place for urban life (cityness), and encourages us to take a step back in our reflections on urban life (Simone 2010: 14). Independently from the relationship between conceptualizations of peri-urban areas and the periphery, the author describes peri-urban areas as one of the five

manifestations of periphery, thus providing interpretative elements that allow for a broadening of the conceptualizations that have been outlined above. Defining peri-urban areas as places of transition and connection that function in a variety of ways, Simone identifies four main characteristics of those areas: they are places where migrants first settle before moving to the city centre; they are territories of agricultural production contributing to subsistence in peri-urban areas themselves and providing products to urban markets; they are the areas to which nearly all environmental costs are exported (i.e. waste, polluting industries, and congested transportation hubs); they are boundary areas in which temporary, residual or new links with the city and with rural areas are maintained and intersect (Simone 2010).

Particularly in Africa, the impact of city expansion and the demand for resources in surrounding areas competes directly with the use of rural land. In such areas, urban residents maintain ties to rural existence as a socio-cultural tendency. Access to employment, housing and sociality in urban areas are often subordinate to the way urban residents relate to specific rural resources, such as land, rural livelihoods, and local policies. In other words, what urban residents are able to do in the city (for example how they find a house, or how they work in cooperation with others in order to build their livelihoods) may sometimes be a function of how they position themselves with respect to historic rural connections (Simone 2010).

These reflections highlight how urban and rural areas are connected by complex moral economies that require both a clear distinction and interconnections between the two domains.

The main challenge is to determine how rural and urban residents, households, and communities can support each other without the occurrence of abuses of power. This kind of reciprocal relationship requires, according to Simone, “that people imagine themselves living in a translocal topography that incorporates the rural and the urban not as clearly defined and opposed domains, but fractured ones, with different connotations, expectations, practices and strategic orientations” (Simone 2010: 53–54). From this perspective, peri-urban areas are also a mix of temporality. This means that it is difficult to understand what kind of development is occurring or is about to be undertaken, what is increasing and what is declining (Simone 2010: 54). In most cities, architecture, infrastructure, and land development have been used as instruments to induce new institutional and social urban relationships in relation to how decisions are made, what is considered possible or useful in the city, and how financial responsibilities must be defined and risks assessed (Simone 2010).

Shifting to a political ecology perspective, a recent set of studies on suburbanism that focus on suburban governance¹⁴ argue that ‘a suburban perspective’ is very important to this shift in perspective on the modalities of governance in the peripheral city (Ekers et al. 2012).

¹⁴They propose three distinct but complementary modalities of suburban governance: the state, capital accumulation and private authoritarianism to critically discuss the governance of suburbanization and diverse ways of suburban life.

Conceiving suburban governance as “the constellation of public and private processes, actors, and institutions that determine and shape the planning, design, politics, and economics of suburban spaces and everyday behaviour” (Ekers et al. 2012: 406), they include peri-urban areas among the different suburban forms of urban decentralization. On the one hand, they highlight how “powerful processes of uneven development, capital accumulation, migration, and agricultural transformations have resulted in varied forms of peri-urban development that touch all urban-regional spaces” (Ekers et al. 2012: 406). On the other hand, they discuss power relations, inequality, and marginalization, which profoundly affect the trajectories of suburban growth and decline, influencing social and ecological histories of suburban transformations and forms of everyday life.

2.2 Agency and Environmental Management Practices

The relevance of social relations in the informal sphere (as the primary means of city development), and of how “micro policies define local dynamics and the conditions of the unprivileged” become clear in the debate on African cities (Lourenço-Lindell 2002: 21–22). Attention should be paid to the social bases of informal livelihoods, as they are the forms of social organization and interaction that support and limit the life strategies of people living in peri-urban areas.

Although it does not enter into the particulars of the nature and composition of such social networks, the analysis of practices for management and access to resources, and for adaptation to environmental change in peri-urban areas, has indicated the extent to which such practices and strategies are based on those relationships (and determine the capacity to act). The dependence on natural resources and the structure of such social networks therefore assumes a central role in terms of the capacity to adapt to environmental change.

Life, and in some cases survival in cities (and especially in informal settlements such as peri-urban areas) is based on ‘face-to-face’ interactions,¹⁵ while one can rarely trust institutions that have few resources and an impartial approach to resolving conflicts and to relationships in urban society (Lourenço-Lindell 2002). Networks of personal relationships are the instrument through which people can access living space, land to cultivate, credit, information on prices, and assistance in difficult circumstances, and are therefore the basis of their livelihoods.

The importance of social networks and relationships has likely taken on more importance as a result of the ‘urban crisis’, specifically the criticalities evinced by the debate on Global Climate Change in African cities, extreme weather events (tsunamis, flooding, etc.) and the stresses to which cities are subject. In this difficult

¹⁵Although there has been a considerable increase in the diffusion of and access to communications technology, due to poor infrastructure many African cities are still fully or partially excluded from the ‘network society’ at the centre of Castells’ ‘information capitalism’ (1998: 92–95, cited in Lourenço-Lindell 2002: 22). Nevertheless, they do constitute another type of ‘network society’.

environment, where there is a constant lack of resources and uncertainty, other kinds of rights must be activated to create opportunities to address this crisis and reduce vulnerability. Through the creation of links with others, people generate reciprocal expectations, developing needs and creating new rights and rules which govern relationships and orient behaviour.

2.2.1 *Vulnerability Is not Inherent*

A variety of debates have developed around the question of ‘assistance’ relationships. In particular, two broad debates have arisen regarding the concepts of *vulnerability* and *livelihoods*.¹⁶

The first of these was born of criticisms of conventional approaches to poverty as regards their excessive focus on variables related to income, and their undifferentiated and passive view of the poor. At first, the term *vulnerability* was proposed as a conceptual instrument that would allow for a broader consideration of the dimensions of hardship, including isolation (Chambers 1989; Rakodi 1995; Watts/Bohle 1993, in Lourenço-Lindell 2002: 22). Unlike poverty, vulnerability does not mean lack or want, but defencelessness, insecurity, and exposure to shocks and stresses (Chambers 1989: 1). As such, material poverty cannot necessarily be seen as the only source of vulnerability, nor can all poor people necessarily be seen as equally vulnerable. From this perspective, connectivity (the total of social relations) takes on a central role in the definition of people’s ‘well-being’ (quality of life).

The Livelihood Framework was also developed to understand people’s many activities and the modes in which they live. In this framework, livelihood components are people’s capabilities, and the tangible or intangible means that they have at their disposal.

The present research pays particular attention to the ‘intangible’ dimension that consists of needs (for concrete means or support) and the exercise of informal rights and rules that are created to support life in the urban and peri-urban sphere. In informal contexts considered lacking in infrastructure and services, one wonders how that dimension contributes to supporting or integrating the role of formal (institutional) infrastructure and services, and how they, in turn, define the relationships between people who live in peri-urban areas, environmental management, and access to resources. Individuals’ and communities’ capacities to address environmental changes, and to develop livelihoods that allow them to mitigate or avoid the negative impacts thereof, depend on precisely these relationships, and on the informal and ‘intangible’ production of infrastructure and services.

The tangible and intangible dimensions of the Livelihood Framework therefore become the elements that determine vulnerability to environmental change,

¹⁶As old and new variants of the debates on ‘informal security systems’ and the tradition of ‘social networks’ (Lourenço-Lindell 2002: 22).

specifically autonomous adaptive capacity in peri-urban areas. The objective of this research is to discuss, on the basis of the results of the data analysis, a spatial homogenization in which urban means rich and equipped with infrastructure (if slums are excluded), while peri-urban is a synonym for periphery, marginal, poor, and 'lacking'. In the hopes of shedding light on that homogenization, the analysis of several peri-urban areas of Dar es Salaam has been conducted in order to identify the elements that express their environmental and social complexity. This research assumes that vulnerability is not intrinsic (and that not all poor people are equal), rather it is attributable to the conditions of a given context, which depend considerably on the physical environment and on social networks, in addition to the intrinsic characteristics of people or groups of people (see Chap. 4).

2.2.2 The Role of Agency in Informal Settlements

Nevertheless, this study is not a mere application of the Livelihood Framework, and in fact does not provide exhaustive documentation of the components of the livelihoods of households living in peri-urban areas. It is focused, rather, on a few elements of informal (local) livelihoods, and on the intangible practices and relationships that develop around them (modalities of accessing and managing natural resources, actions and means of autonomous adaptation to environmental change).

The debate on the capacity to work and to develop livelihoods in the informal sector, which consists of relationships that are broadly developed in a variety of disciplines, oscillates in some cases between a celebratory approach and a victimization of the individuals in those areas, which often fails to consider the role of people as agents of spatial transformation and management and as political actors (Loureço-Lindell 2010).

On the basis of such limitations, a variety of approaches have been developed that have given a central role to the agency of people in terms of the economy and in informal settlements. Some of the literature has addressed the living conditions in the urban sphere and strategies of income production, emphasizing the diverse modalities with which people do their best to face difficulties such as the contraction of the formal employment market (Rakodi/Lloyd-Jones 2002). Other authors have stressed the various typologies of social networks through which people support their informal activities and income production in crisis situations (Loureço-Lindell 2002).

Recent studies have pointed to the capabilities and opportunities generated by temporary and new relationships and extended forms of collaboration between people with different cultural and social backgrounds in urban African areas (Simone 2004: 10–13). From this perspective, water networks and land access modalities can be seen as 'platforms' in which people collaborate in a 'silent' but effective manner (Simone 2004). Moreover, daily social practices and informal networks are, in some cases, intentionally disguised and concealed so that the State will be unable to distinguish and govern them. In this way, people are able to resist

government decisions and collaborate through ‘tacit power’ (Simone 2004). In a broader sense, other researchers are paying increasing attention to local (informal) practices, not as marginal manifestations of chaos and decline nor as a deviation from normative Western ideals, but as the basis of a social system in which a different kind of urbanity (city) is possible (Simone 2004; Pieterse 2008). Daily informal practices are viewed from a political perspective as ‘insurgent citizenship’ (Pieterse 2008), since they are the actions through which people live and interact with the urban space in order to meet their needs, as is widely evident in cities (Lourenço-Lindell 2010).

2.2.3 Human Agency and Power

Although some authors maintain that the theoretical framework of human agency, like the livelihood framework, can help to clarify conflicts and contradictions in peri-urban areas (Mbiba/Huchzermeyer 2002: 122), critical aspects and limits of human agency theory have also been highlighted with respect to the acquisition of power, the means to act or not act, and the capacity to obtain results and influence events. Those authors maintain that although various studies of livelihoods and changes in peri-urban areas involve an understanding of power through their focus on capacity building and governance (Rakodi 1998; Nittingham/Liverpool 1999, in Mbiba/Huchzermeyer 2002: 122), there has been an ambiguous use of the concept of power when exploring the contradictions and conflicts in peri-urban areas. They suggest that analyses should explore the impacts of the responses adopted by institutions and by various socio-economic interests, and the links with changing conditions in peri-urban areas. Beyond the generally convergent variety of approaches used in the study of change in peri-urban areas, one must also bear in mind the way in which they are mediated by contextual variables such as place, time, history, scale, and diversity of actors. Thus arises the need for research on peri-urban areas that recognizes these contextual factors, as well as the relative issues of language, culture, governance and power (Mbiba/Huchzermeyer 2002: 127).

Other authors criticize the agency approach because the combination of the population’s limited power, the weakness of formal institutions, and the decentralization of participatory approaches has favoured influence peddling, rather than promoting democratic forms of governance and relationships of transparency and monitoring between the state and society (Meagher 2010, in Beall et al. 2010: 197). Meagher, hoping for less descriptive and more analytical approaches, maintains that the density of social connections is less important than what networks actually connect to for city inhabitants. For example, an abundance of solidarity networks that connect poor people to each other in a horizontal manner can be associated with a lack of resources and political influence. Networks that require or generate links with more influential segments of society are often more effective. Referring to the work of Lourenço-Lindell (2002) and Simone (2001), Meagher suggests that

a web of horizontal connections and associations can ‘exacerbate rather than reduce vulnerability’. The political voice of the poor runs the risk of being limited by the impossibility of connecting with formal government (institutions), by their lack of social and economic power, and by the consequent failure to represent their own interests within the governance structure. As regards defining policies for supporting the construction of livelihood networks and community-based solidarity associations, efforts should be made to draw associations closer to institutions and government actors. This means that promoting what is defined as “participatory development”, which is not just social relationships and self-help, necessitates greater attention to power (Beall et al. 2010: 198).

As Roy (2005: 148) has asserted, the celebration of self-help in the wake of the work of authors such as De Soto (2000) or Hall/Pfeiffer (2000), runs the risk of obscuring the role of the state to the point of rendering it unnecessary, and actually reaching the point in some cases of legitimizing privatization through neocommunitarianism models. On the other hand, in the interaction between informal networks and formal systems of government, imbalanced power relations, and exclusive systems of land management can be generated that should be carefully evaluated.

2.2.4 Building the City: ‘People as Infrastructure’

Some African cities (e.g. Lagos) are used as models for the future due to their capacity to function despite an apparent lack of coordination or planning. However, some think this approach risks condemning many of the populations of African cities to perennial disadvantage and poverty (Murray/Myers 2006: 237). Upon closer examination, African cities are beginning to develop their own vision of African urbanization (Odendaal 2012; Ngau 2013) through which an authentic dialogue can be opened that reflects the experiences of other rapidly growing cities in the Global South, bringing the African city to the fore in terms of decision-making and political debate.¹⁷

Abdoulaliq Simone’s extensive study of African cities, which combines urban planning and the postcolonial literature, has viewed African cities as examples of daily resistance against the inadequate responses of urban planners and development, rather than as failed cities.

In contrast with the vision of African cities as having fallen into ruin, Simone (2004b: 407) argues that these ruins constitute a highly urbanized social

¹⁷“The cities of the Global South have begun to take on an important role in urban planning theory, to the point that such cities no longer represent an anomalous category, but a fundamental dimension of the global experience of urbanization. A focus on cities such as Lagos has the potential not only to illuminate a peculiarity of the African experience, but also to answer broader questions on the nature of modernity, urban governance, and the interaction between flows of global capital and material conditions that actually exist in the Global South” (Gandy 2006: 250).

infrastructure capable of facilitating the intersection of social relationships and expanding spaces of economic and cultural operation. With the aim of revealing the potential of African cities and the ways in which their unique characteristics can be activated for the development of urban planning policies, Simone develops the concept of ‘people as infrastructure’, which emphasizes economic collaboration between residents who are apparently marginalized and impoverished by urban life. Infrastructure is commonly conceived in physical terms, as road networks, pipelines, and cables, which render the city productive by reproducing it and distributing residents, zones, and resources in specific formations in which the energy of individuals can be more effectively exploited and recorded. Simone hopes to extend the notion of infrastructure to people’s activities in the city, characterizing the African city as a set of infinitely flexible, dynamic, and temporary intersections of residents (complex combinations of objects, spaces, people, and practices) who act without clearly defined notions of how the city should be lived or used. These connections become infrastructure, a platform for social transitions and livelihoods that allows for and reproduces city life. “This process of conjunction, which is capable of generating social compositions across a range of singular capacities and needs (both enacted and virtual) and which attempts to derive maximal outcomes from a minimal set of elements”, is what Simone defines as “people as infrastructure”¹⁸ (Simone 2004b: 410–411). This concept is crucial to the present research, which recognizes this type of infrastructure in peri-urban environmental and resource management and adaptation practices, and argues that they are a key point in analyzing African cities and informal urban planning and decision-making in sub-Saharan cities. Referring to the contributions made by Lefebvre and De Certeau, Simone argues that African cities survive mainly through a combination of heterogeneous activities exercised and elaborated through pathways that are configured in a flexible way. These flexible configurations are not pursued in opposition to urban priorities or non-African values, but as specific approaches to achieving the stability and regularity that non-Africans in the city have historically tried to achieve (Simone 2004b: 408).

His ethnographic work on the city of Johannesburg reveals that the growing distance between how Africans actually live and the normative trajectory of urbanization and public life constitute a new field of economic action (Simone 2004b). With limited institutional support and financial capital, the majority of urban African residents contribute, even if only a little, to collaborative processes and barely participate in the mediatory structure that prevents or determines how

¹⁸This notion seeks to extend what Lefebvre (1974) intended by the social space of practices, modalities of organization on a variety of scales, and connections that link expressions, attractions and repulsions, likes and dislikes, and changes and fusions that effect urban residents and their social interactions. The modes of doing and representing things become an increasing ‘familiarity’ with the other. They participate in a changeable series of reciprocal exchanges, in such a way that positions and identities are not fixed, nor in some cases can they even be determined. These ‘urbanized’ relationships reflect neither the dominance of a linguistic history or structure, nor a chaotic primordial mix (Simone 2004b: 411).

individuals interact with each other. This apparently minimalist proposal (bare life) nevertheless allows countless possibilities of combinations and exchanges that exclude all definitive judgements of effectiveness or impossibility. Throwing into the mix their profound particularisms of identity, origin, destination, and livelihood, urban residents generate a sense of unjustifiable movement that could remain geographically circumscribed or cover great distances (Simone 2004b).¹⁹

Simone (2010: 264–333) contrasts his position with the emphasis on control and sovereignty, and with attempts to revitalize the colonial present through new forms of militarization, which are cardinal characteristics of the present era that prevent one from paying attention to the modalities with which a great number of urban residents do more than “submit to the sentence of a simple life”.

Simone’s objective is to “provide a theoretical basis from which to promote a sense of ‘multiplicity’ in urban African development”, which means “the ability to negotiate between knowledge of locally produced urban development and that which is produced externally, and to increase the influence of African experience and contributions in the consolidation of knowledge of urban planning in general” (Simone 2010: 241).²⁰

2.2.4.1 The City of Black Urbanism

The need to recognize that ‘non-cities’ have led to their reclamation through the development of Black Urbanism, as a strategy that does not seek to identify a particular type of ‘urban’ but draws attention to several dimensions of urban life that are too often ignored (Simone 2010).

Black Urbanism is therefore a pretext for explaining how ‘platforms’ of engagement and collaboration can be constructed, beginning with the ‘intricate’ experience upon which the majority of urban areas of the world are based in various ways. Such experiences include the ways in which people live and share space and resources with their neighbours, construct and participate in networks of

¹⁹In this sense, Simone moves closer to those who criticize classical policies of separation between *bios* and *zoe* (e.g. Agamben). Illich, in a conversation with Rahnema said “the possibility of a city being an environment that fosters a common search for good has disappeared. [...] The drive for progress has extinguished the possibility of shared foundations for development. Irrespective of economic level, the good can arrive only from the type of complementarity that Plato, and not Aristotle, had in mind. To dedicate oneself to the other generates a unique space that allows for all that you ask: a mini-space in which we can agree on the search for the good” (extract from *Lo Straniero*, Year VIII—n. 45, March 2004).

²⁰Simone (2010) has continued his work with the book *City life from Jakarta to Dakar. Movements at the Crossroads*, which connects African cities with Asian ones (Simone 2010: 14). He opens the debate by connecting the processes of African cities with those of other areas and develops the idea of “Black Urbanism” (Simone 2010: 268), drawing together a variety of situations and strategies that have worked in the long history of African people’s movements in the ‘urban world’. His use of the concept of ‘blackness’ is based on the hope that in the end it will be freed of its racial baggage.

relationships, evaluate their possibilities and keep various options open for the future, maintain the information rich environment that is necessary in order to continuously adapt their way of life, accumulate and manage resources, and overcome or manage specific difficulties.

Within this framework, ‘people as infrastructure’ can allow the cities of the South to have a “leading role in the creation of new synergies, transversal investments, commons, distribution networks, and multilateral alliances within which policies and key agreements are defined” (Simone 2010: 15–16), and offers a powerful means of re-evaluating humanity and citizenship without referring to the economic state of the African city (Simone 2010: 124–125). This leads Simone to partially redefine the “right to the city” as “the right to be chaotic (disorganized) and inconsistent, or to seem disorderly”, conceived not as the right to be left alone, but to engage, to be an object in motion, and an actor of urban transformation (Simone 2010: 331).

The concept of self-organization in relation to that of ‘blackness’ becomes a device for connecting the various experiences of people of colour in the world (Simone 2010: 296–297). Some authors criticize this approach for using a “black geography that is too vague” (Myers 2011: 13), which is a useful contribution in terms of broadening the horizons of urban studies and connecting African and Asian cities, but is less relevant in terms of understanding more tangible elements related to what cities are able to do and why.

2.2.4.2 How to Reinterpret the Sub-Saharan City Through the Concept of ‘Adaptive Capacity’

Considerable debates have developed on the main challenges that African cities must face (Myers 2011), for example regarding how to overcome the colonial inheritance of poverty, underdevelopment and socio-spatial inequity, and how to approach the management of informal sectors and settlements, governance and justice, creation of a non-violent environment, and globalization.

Despite the fact that many of the above-mentioned post-structuralist urban theories in African studies offer an innovative way to read city and urbanization processes, their alternative vision may still appear vague and difficult to interpret to many readers.

A more tangible way to analyze the complexities of what is going on in African cities is still needed (Myers 2011: 115). In particular, attention should be paid to the ‘systemic drivers of urban development’ including decision-making in urban politics, the infrastructure, technology, and landscapes of a city’s spatial structure, and how the resulting inequalities are addressed (Pieterse 2008).

The question of how theoretical concepts of specific African cities can be combined with practical and experiential issues of urban life to alleviate social vulnerability to environmental change remains unanswered, and merits further consideration from economic, social, and environmental perspectives.

The question of environment, people's relationships with natural resources, and how those relationships influence and are influenced by urbanization processes has often been a minor aspect in the aforementioned debates. Within the urban bias thesis it was sometimes mythicized to the point of negating the legitimacy of an urban African environment, which was seen as the destroyer of the primitive man-nature utopia. In other cases it has followed in the wake of modernism and structuralism, developing around the sanitation and infrastructurization of the urban environment. In both cases, the dichotomy between rural and urban persists, as well as the impossibility of attributing hybrid rural-urban spaces, which occupy the interface between city and countryside, to their own non-transitory dimension.

The debate over and programmes for sustainable cities, initiated at the Rio Conference in 1992, shed light on the relationship between urban development and natural environments, and are relevant at the political level. However, in practice a dichotomous and sectorial Western approach continues to dominate urban planning. The debate on climate change that has developed in recent years has brought the environmental question to the fore, challenging both interpretative models and planning strategies and instruments at the global level, particularly in the areas that are more vulnerable to environmental change. The natural disasters and environmental stresses that we are now witnessing (the result of the combined effects of global environmental change and local anthropic activities, including urban development) necessitate new approaches to sustainable development (Simon 2007).

Cities, which are the causes and 'victims' of the environmental changes currently underway, are called on to respond through mitigation that acts on the causes of those changes and through adaptation to climate change that develops new spatial planning strategies (see Chaps. 4 and 5).

2.2.4.3 Towards Adaptive Strategies for the Sub-Saharan City

The goal of adaptation is to reduce the negative impacts of environmental change. Improving adaptive capacity in the peri-urban areas of sub-Saharan African cities is a priority for researchers because such areas are particularly vulnerable (Satterthwaite 2007; Tacoli 1998), and because attempts at environmental planning and management in those areas have proven to be ineffective in many cases (Friedman 2005). Although the approaches that have recently been theorized and applied are quite diverse (the resilience approach, the vulnerability approach, integrated approaches, etc.), they all seem to share certain assumptions that could lead to the implementation of inadequate strategies. In other words, a perspective that is heavily oriented by and constructed on the basis of Western epistemological and urban-centric models (cultural bias), which Robinson (2006) would call 'asymmetrical ignorance', is used in the interpretation of urban development processes and therefore in the evaluation of vulnerability and adaptive capacity. It is often assumed that all peri-urban areas are homogeneously poor or are transition zones destined to complete their process of urbanization. If those assumptions are

not true of the context in question when identifying the local level factors that are determinative for adaptive capacity and defining the interaction between those factors, attempts to improve capacity may actually exacerbate the impacts of climate change and impede adaptive capacity. For example, considering agricultural activities as marginal or inevitably temporary can lead to the selection of adaptive strategies, such as accelerating the urbanization process, that may in fact render land access more difficult and may have negative impacts on people's livelihoods while also limiting their options for adaptation (see Chap. 4). In that case, rather than compensating people for the damages caused by environmental change (attributable mainly to the activities of Western countries) adaptation plans and measures would run the risk of causing further injustices generated by a lack of awareness of the dynamics in peri-urban and other areas that contribute very little to the emissions of greenhouse gases.

In contexts like sub-Saharan Africa, where the growth of cities is extremely rapid, settlement modalities are predominantly informal, and public and private funds are limited, it is essential that efforts to reduce vulnerability to environmental change be developed on the basis of people's autonomous activities. Beginning with local practices, and reconstructing what Simone defines the 'social infrastructure' upon which the strategies and actions that people undertake to address and adapt to environmental change depend, can shed light on the gap between the way people in African cities actually live and the normative trajectory of urbanization (Simone 2004: 407).

Providing the elements that will help to bridge this gap is the goal of contemporary research into the factors and processes that determine adaptive capacity in specific contexts, such as the peri-urban areas of Dar es Salaam. Adaptive capacity, crucial to reducing vulnerability to environmental transformations (see Sect. 5.2), is constituted by *autonomous adaptation practices*, which are unplanned and spontaneous, and by *planned adaptation* (institutions) (Stern 2006). The purpose of investigating the synergies and contrasts that may exist between the two modalities of adaptation, and the purpose of identifying the factors that constitute *adaptive capacity*, is to clarify the potential to bridge the gap between formal strategies of spatial planning and management and people's lifestyles in peri-urban areas, which generally depend directly on natural resources and 'informal' management and production of space.

The central question around which the present study is constructed is whether a reinterpretation of sub-Saharan cities through the concept of adaptive capacity to environmental change can contribute to the development of a different interpretive model of the contemporary city. In other words, whether it is possible to build a new interpretation of the contemporary city that challenges and develops alternatives to 'dominant' planning approaches, and overcomes the dichotomies, categories, and partial approaches of traditional urban geographies. In operative terms, the research question seeks to translate the interpretive approach, centred on informal practices and on the agency of people, into the terminology of adaptive capacity in order to bring the issue of environment and environmental changes to the fore in the literature on sub-Saharan Africa.

2.3 Introduction to the Case Study: Peri-urban Dar es Salaam

The development of the case study, from the selection of the city to the fieldwork and data analysis, is constantly linked with the cumulative theoretical approach outlined in the above paragraphs. The following section introduces the salient elements of the present study, conducted over approximately three years (2009–2012) with constant support from Ardhi University in Dar es Salaam. The results are presented in subsequent chapters, together with further theoretical material that became necessary as the research progressed in order to respond to questions raised by the primary data.

This study focuses on the interaction between urban development and environmental change in peri-urban areas of the sub-Saharan city of Dar es Salaam. It seeks to reconstruct the synergetic effects of such interactions on the totality of resources that are available and/or accessible to the households that live in those areas, and to understand how their livelihoods change accordingly. In other words, this research seeks to investigate how the households that currently depend on natural resources (land, water, vegetation, etc.) change their relationship with natural ecosystems, in terms of environmental management practices and resource use, in order to meet their needs and face future and ongoing environmental changes. More specifically, the study inquires as to whether diversification of income sources continues to be people's main strategy for coping with those changes, whether the practice of urban agriculture still maintains a prominent role in such diversifications, and to what extent the combined effect of urban development and climate change condition the sustainability thereof.

These knowledge elements are considered essential, not only in order to shed light on the development and environmental management dynamics in peri-urban areas and their interdependence with urban areas, but also in order to define what conditions are necessary for effective adaptation. In the face of environmental change, what do peri-urban inhabitants count on to secure their future? Do they consider the possibility of using other natural resources? Do they try to achieve greater independence from natural resources by starting non-agricultural activities? Do they embrace a totally urban lifestyle? The answers to such questions have been researched through a series of investigations undertaken in the peri-urban areas of the city of Dar es Salaam in Tanzania.

The choice of Dar es Salaam as a case study was made on the basis of several criteria and preliminary considerations.

First, the research focused on the low- and medium-income countries of sub-Saharan Africa, since they are particularly affected by environmental changes related to climate change, according to the scenarios formulated by the IPCC (2007, 2013). Tanzania is one such country that moreover had already developed programmes and strategies for adaptation to climate change at the national level. In particular, to access the UNFCCC fund for adaptation for *Least Developed Countries* (LDCs), the Tanzanian government presented the *National Adaptation*

Programme of Action (NAPA) in 2007, the National Climate Change Strategy in 2014, and developed several local adaptation and risk reduction plans, whose purpose is to implement the priority projects identified in the NAPA.

While these planning efforts have concentrated mostly on rural regions, the government has also paid attention to Dar es Salaam, and studies to evaluate the city's vulnerability and specific adaptation options have been developed (Dodman et al. 2011; Kebede/Nicholls 2012; other studies elaborated in the CLUVA²¹ project and ACCDAR project;²²). In fact, as a result of its location and physical configuration, Dar es Salaam constantly feels the effects of climate variability, with periodic floods and droughts as well as coastal erosion and progressive salinization of the aquifer (Faldi 2011; Faldi/Rossi 2014). These effects have notable repercussions in terms of economic activity and people's living conditions, in addition to their impact on the environment upon which many inhabitants depend for their livelihoods (UN Habitat 2009).

Furthermore, Dar es Salaam, like many sub-Saharan cities, contains an extensive peri-urban area with 'hybrid' characteristics, contamination of rural and urban forms and practices, and temporary uses, activities, and 'informal' settlements. Such areas have been the subject of numerous studies by Tanzanian academics (Kombe/Kreibich 2000; Kombe 2005; Kironde 2001; Lupala 2002a, b; Davila 2002; Ricci 2012b), and the debate over what future planning for those areas should be is particularly lively, especially following recent discussions of the city's new strategic plan. As regards the objectives of the present research, the absence or inadequacy of planning instruments and policies that consider 'non-urban' settlements and 'informal' activities is an additional reason to develop interpretive models that are capable of nurturing alternative visions and strategies for this part of the city.

This study is built on the assumptions that peri-urban areas and the activities undertaken therein are an integral part of the city and play an absolutely relevant role in urbanization processes, and that the phenomena and characteristics that affect them must be included in the planning process (and in environmental management) as a fundamental resource. The research hypothesis is that peri-urban areas' adaptive capacity to climate change depends on four main factors:

1. The typology and totality of the environmental impacts of climate change at the local level. *What environmental cycles will be modified? To what extent?*
2. Rural-urban dynamics and relationships, land use to the urban fabric. *If and how are they/will they be impacted by the environmental transformations caused by*

²¹CLUVA is a Seven Framework Programme project which aims to develop methods and knowledge for African cities to manage climate risks, to reduce vulnerabilities, and to improve their coping capacity and resilience towards climate changes. It focuses on five African cities, including Dar es Salaam. Further information about the project is available at: <http://www.cluva.eu/>.

²²*Adapting to Climate Change in Coastal Dar es Salaam* (ACCDAR) is a three-year project co-funded by the European Commission. Most of the studies on biophysical and social vulnerability in Dar es Salaam are accessible at: http://www.planning4adaptation.eu/041_Papers.aspx.

climate change? How and to what extent do they contribute to the resilience of the urban and regional systems to which they belong? How does climate change impact urbanization processes by accelerating or slowing anticipated dynamics?

3. Autonomous local capacity to address the consequences of climate change. *Is there knowledge or experience related to adaptation to environmental change and climate variability? On what key factors and local actors is adaptive capacity based?*
4. Institutional capacity for environmental management and urban planning. *Does a planning system exist for peri-urban areas? At what level of government? How effective is it, and for which issues? Do local administrations see funds for adaptation to climate change as an opportunity? If so, to do what?*

The field research included four types of investigation. The first is Household Questionnaires, which sought to identify lifestyles and modalities of resource use in peri-urban areas (30 questionnaires were administered in 6 subwards of peri-urban areas, and 10 in 2 subwards of an urban area). The questionnaire drafting and the face-to-face administration process played an important role in the collection of information relative to the various aspects investigated, but above all it allowed for a continuous learning process through which different types of language and knowledge were tested. While organizing the research and questionnaire administration, it was possible to observe and experience different areas of the city, and to discover the relationships between the inhabitants of peri-urban areas and formal or informal institutions, as well as the roles of and interactions between such institutions. Although such information was not the direct result of the household questionnaires, it constitutes an equally, if not more important contribution to knowledge of peri-urban areas and their dynamics.

The second type of investigation involved Ward Questionnaires (WEO—*Ward Executive Officer*, SWO—*Subward Officer*) and District Questionnaires (WPO—*Planning Department*, Environmental Engineering Department (water management), Agriculture and Livestock Department). These included a series of interviews and questionnaires conducted in various institutional sectors at the local level, in order to gain an understanding of policies, urban planning, and environmental management instruments in peri-urban areas, and projects that were either already concluded, under way or in the planning stages.

The kind of research entailed field surveys and database reviews aimed at gathering data and information on the actual state of natural resources, infrastructure and services, land use and informal activities, and environmental pressures and criticalities in the peri-urban sphere.

Lastly, interviews with national level research centres, governmental institutions, and NGOS were conducted in order to understand from a policy perspective the programmes and instruments used to manage natural resources, adapt to climate change, and implement the NAPA, national policies on urban and territorial development, and environmental and urban planning strategies at the national and local level.

Moreover, the results of this field study have been validated and enriched with findings from successive investigations conducted between 2010 and 2013 under the Adaptation to Climate Change in Coastal Dar es Salaam (ACCDAR) project.²³ Together with multidisciplinary investigation of biophysical and social vulnerability to environmental change, the ACCDAR project also included the administration of the above-mentioned household questionnaire to 6000 households in peri-urban areas of Dar es Salaam located in the coastal plain.

2.3.1 Household Questionnaires

This questionnaire was designed to collect information that would be useful in terms of defining the elements and dynamics through which the ‘platforms’ of action (to use Simone’s terminology) that allow people to address environmental change are constructed. In other words, the goal was to understand how such platforms are constructed, how they operate in order to reproduce life in peri-urban areas, and how they allow people to connect social transactions and livelihoods in order to adapt to or resist the changes underway (elements that will be defined as autonomous adaptive capacity).

The questionnaire’s four areas of inquiry were defined on the basis of this perspective.

Households were chosen as the universe of study because this allows for a better understanding of how and why people organize their collective and individual processes and activities within the family’s decision-making mechanism (Preston 1994). The livelihood strategies of the family nucleus therefore provide relevant information in terms of collective and individual processes of environmental management and adaptation strategies.

The specific objective of the household questionnaires was to collect information on the following four areas of investigation, which were identified through a review of the literature on peri-urban areas (aimed at identifying the elements needed to define point 3 of the research hypothesis, regarding the context being studied and discussed in the previous paragraph):

- I. Rural–Urban Interaction
- II. Access to environmental resources and services (land, water, energy, etc.)
- III. Management of resources (or environment) (water, waste, land, etc.)
- IV. Climate Change: environmental changes and autonomous adaptation strategies.

²³ Adaptation to Climate Change in Coastal Dar es Salaam is a three-year project co-funded by the European commission. More information about the project is available at: <http://www.planning4adaptation.eu/>.

Rural–urban interactions, the economic flow of resources and socio-cultural relationships is fundamental to understanding the dynamics of urban and territorial development. The rural–urban dichotomy has been addressed in key documents that are at the crux of the UN Habitat mandate. As emphasized by the Istanbul Declaration and paragraphs 163 and 169 of the Habitat Agenda, urban and rural areas are interdependent from an economic, social, and environmental point of view. An integrated approach and balanced and mutually supported rural–urban development are therefore necessary. As such, the first area of investigation seeks to understand the environmental challenges and opportunities created by the rural–urban interaction (Allen/You 2002), which manifest most obviously in the peri-urban interface and are an essential element for implementing any planning practice. From this perspective, rural–urban interactions also indicate the spatial and economic interdependencies that exist between the two worlds (both are present in peri-urban and urban areas) as elements upon which several autonomous adaptation options are based.

The questions related to *access to resources* aim to identify, on one hand, the use and management regime in the distinct ecological and socio-economic system under the uncertain institutional regime (Allen 2006) that is characteristic of the peri-urban interface. On the other, those questions are geared to obtaining a first analysis of vulnerability and adaptation possibilities in peri-urban areas. The possibility of accessing water, land, the coast, and primary materials constitutes a determinative factor of the adaptive capacity of communities (Satterthwaite 2007).

Similarly, modalities of *resource management* (water, refuse, energy, etc.), which were researched using the third type of data collection, is relevant as regards the vulnerability of resident communities in a given territory. For example, in a context such as Dar es Salaam where solid refuse is often abandoned on the ground, buried, left in waterways or burned due to the fact that there is no refuse collection system, one can predict environmental and health risks related to events such as flooding, strong rains or water provisioning from surface and underground bodies of water that come in contact with dumped refuse. Access to and management of resources reflects how the formal dimension of access to land, water, and other natural resources, which are based on neighbourhood relationships and social networks, are fundamental in determining alternative solutions in the event of changes to certain conditions in the environment (e.g. the drying up of a water source). Where the formal action of institutions is partial or absent, resource management also reflects the importance, if not the necessity of a collaborative dimension in the protection of resources and the environment.

Lastly, the questionnaire was designed to acquire knowledge on the *practices and strategies of adaptation* to environmental change being implemented at the local level, which must be considered when identifying priority adaptation actions, as established at the COP 7 (Decision 28/CP.7). Specifically, the present study sought to determine which environmental changes had been observed by residents of peri-urban areas, to what cause residents attributed those changes, and the strategies they adopted in order to address them in both the medium- and long-term. Autonomous adaptation practices are an example of how the three previous areas of

inquiry, combined with other aspects, can lead to decisions aimed at eliminating or mitigating negative impacts of the environmental changes underway, which can alter access to and management of resources as well as livelihoods (whether or not they are linked to income production), thus implicating alterations to rural–urban interdependence.

Variables deemed strategic in terms of adaptive capacity in peri-urban areas were also defined. A sample of households that was considered representative of the local reality was defined and involved in a pilot study that sought to verify the effective importance of those variables and the validity of the questionnaire with respect to the research objectives.

The selection of universe type and sample unit was defined on the basis of spatial and sociological criteria that could be subdivided into three main groups.

2.3.1.1 Selection Criteria for Areas

The areas in which the questionnaires were administered were selected following a series of site visits in the three municipalities of Dar es Salaam and an analysis of the literature on the city's peri-urban areas. Wards were selected that had the following characteristics:

- presence of rural and urban activities (agriculture, animal husbandry, commercial activities, schools, transportation);
- presence of informal settlements and activities;
- medium-low density settlements (one lot equal to 0.08–6.0 ha);
- settlements located in areas with different environmental characters (coastal areas and hinterlands with different morphologies);
- settlements proximate to relevant natural resources (rivers, ocean, humid areas, forests).

2.3.1.2 Selection Criteria for Households

The identification of which households to involve in the questionnaires was conducted with the support of subward officers, community leaders, and street leaders on the basis of the geographical requirements outlined above. Family selection was also based on criteria of socio-economic and cultural heterogeneity in order to obtain a representative sample in terms of income, education, and family composition. In addition, all households selected were dependent on rural and urban activities and resources and settled in the area in a generally stable manner, and thus were in a position to have knowledge of local resources and evolving local dynamics.

2.3.1.3 Questionnaire Design

The questionnaire was prepared with the collaboration and support of the Department of Environmental Engineering at ARU University in Dar es Salaam. An initial draft of the questionnaire was discussed and revised with urban planners and environmental engineers from that university who then approved the final version and the Swahili translation, which made it possible to interview subjects of any cultural level. The final questionnaire is semi-structured and contains 21 questions which are subdivided according to the four thematic sections discussed above. The closed-form questions are multiple choice, hierarchical or dichotomous, and the open questions left space for interviewees to leave comments and suggestions.

The choice of a semi-structured questionnaire as opposed to an open interview facilitated organized data collection and analysis. Within the questionnaire, independent and dependent variables are identified, and through the relationship between them and the physical-environmental variables, information was gathered with which to define the knowledge framework of the pilot study.

The questionnaire administered to the chosen sample is divided into five parts. The first part is related to the interviewee's basic data (age, gender, employment, education, etc.) and the other four parts are related to the four areas of inquiry identified above.

2.3.1.4 Questionnaire Administration

Authorization from the same institutions that approved the fieldwork was necessary for the administration of household questionnaires. A declaration of interest, support and shared research objectives from a local institution (ARU University) was needed, as well as the corresponding request for authorization to carry out such research in the territory of interest. That request was made to the Municipal Director of the Kinondoni municipality, who granted authorization to obtain the consent of WEOs (*Ward Executive Officers*) and Subward Officers in the wards of interest. They then appointed a *Mtaa Executive Officer* (MEO) or a Community Leader to support the organization and administration of questionnaires.

Dar es Salaam is a city-region, and has a regional administration with a Dar es Salaam Regional Commissioner, as well as a City Council led by the Mayor. It is comprised of three Municipal Councils (Ilala, Kinondoni and Temeke), which correspond to the three districts of the region of Dar es Salaam. Districts are subdivided into divisions, which are then divided into wards. Wards are divided into subwards, which in turn contain streets (*mitaa*) in the case of urban and peri-urban areas, and villages in the case of rural areas.²⁴

²⁴Divisions contain many Wards, which are comparable to districts, while *mtaa* and villages are comparable to neighbourhoods.

In light of the criteria outlined above, questionnaires were administered in the Kinondoni District because Ilala, where the economic-operational centre of the city is located, is densely built-up, while the Temeke District is mainly rural due to the near total absence of road networks. Within the Kinondoni district, four wards were selected: Kawe, Kunduchi, Bunju and Msasani (Fig. 2.1). In each ward, two subwards were selected and five questionnaires were administered in each. Specifically, in Kawe the subwards of Makongo and Changanikeni were chosen, both of which are in the internal area of the subward rather than the coast, because the coast of Kawe is highly urbanized; in Kunduchi, the subwards of Mtongani, on the coast, and Madale, in the west of the internal zone of the ward, were chosen. In Bunju, on the other hand, questionnaires were administered in Boco, located on the northern coast, and in Bunju A, in the interior of the area. A total of 40 questionnaires were administered, 10 of which were collected in the Msasani Ward, which is completely urbanized and therefore not included in the present study, but which is useful in terms of identifying the differences between urban and peri-urban areas within the themes explored in the questionnaire. In the selected areas, interviewers administered questionnaires in Swahili to the households identified by the Community Leader or *Mtaa* Leader who supported the questionnaire administration, together with personnel from ARU University.

2.3.1.5 Data Analysis

The data collected through the questionnaires was analyzed using both qualitative and quantitative methods. Findings from this analysis were integrated with results from the extensive questionnaire (involving 5 % of the Dar es Salaam population) administered under the ACCDAR project between September and November 2011. The questionnaire involved a broader sample; however, it includes all the wards sampled in the first household questionnaire administered in 2009, which was used as pilot investigation.

The data collected through the questionnaires administered in 2011 were reorganized in order to facilitate analysis using statistical software. Two main types of analyses were carried out.

A first, univariate analysis was conducted using SPSS in order to extrapolate the data through frequency analysis and determine how many times a particular response was given within the study sample, or how many times a given variable had the same value. Absolute frequency was obtained for each variable, which indicates the total number of cases in which a given variable or a modality thereof occurs, and the relative (or valid) frequency, which is based on the relationship between absolute frequency and the total number of cases examined. The relative frequency percentage provides an immediate picture of the situation and allows for rapid comparisons.

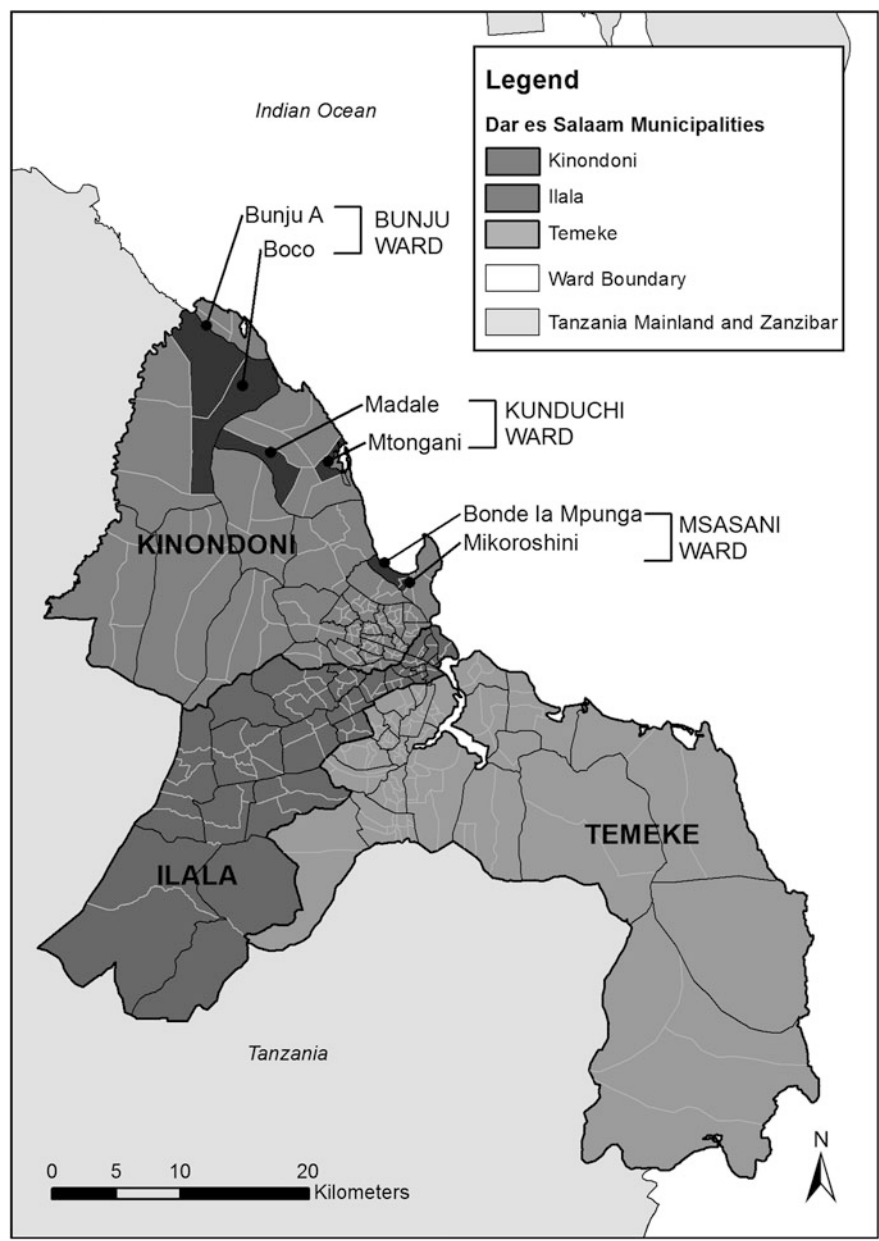


Fig. 2.1 Dar es Salaam boundaries and sampled wards and subwards. *Source* Administrative boundaries (Dar es Salaam City Council 2007)

A second, bivariate analysis was conducted using the distribution of conjoined frequencies, or the intersection of two simple (or univariate) frequency distributions. This facilitated the development of contingency tables in which the relationship between two variables was examined, highlighting the cases in which a concomitant variation of respective variables occurred (e.g. variations in education correspond to an individual's occupation).

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of Adaptive Capacity

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