Exploring the role of climate leadership in supporting and informing sustainable land use planning in the context of African cities

Karien Erasmus, Principal Climate Change Advisor, Promethium Carbon
karien@promthium.co.za
+27 82 905 2383
E-Travel House, 23 Eaton Avenue
North wing, Second Floor
Bryanston, 2021, South Africa

Carl Erasmus, Senior Town Planner (Pr Plan A/1823/2014), AECOM
carl.erasmus@aecom.com
+27 72 212 6138
263A West Avenue, Centurion, 0157, South Africa

INTRODUCTION AND BACKGROUND

The 2015 Paris Agreement on climate change calls for ambitious greenhouse gas (GHG) mitigation efforts to limit global warming to a maximum 2°C to curb climate change. The Paris Agreement, the C40 organisation as well as the Initiative for Climate Action Transparency (ICAT) emphasise the role of non-state actors[1], such as cities, in setting ambitious mitigation targets and developing appropriate adaptation measures. Climate change is one of the most significant challenges currently facing the world. The World Economic Forum's most recent Global Risks Report, ranks extreme weather events and the failure of climate change mitigation and adaption as the two highest risks, both in terms of likelihood and impact[2].

Climate change is inextricably linked with urbanisation and the functions and operations of urban complexes such as cities. Due to its numerous and interdependent components and a lack of proven theoretical approaches towards a solution, "human interaction with the natural environment is a highly complex and therefore a wicked problem"[3]. Due to the time pressure involved, complications involving developing and developed nations, weak centralised decision-making systems, and a consistent overlooking of the gravity of the problem, Levin, Cashore, Bernstein and Auld go a step further and define climate change as a "super wicked problem"[4].

The impacts of climate change, as a super wicked problem, present multifaceted challenges and occur at different levels within the city context: (1) the physical impacts of climate change such as increased temperature and precipitation patterns; (2) the biophysical impacts of climate change as a result of shifting climatic parameters; (3) the social impacts of climate change. African cities, in particular, are vulnerable to these impacts of climate change and more so due to their existing socio-economic challenges and the unique way in which African cities grow. Dynamic informality, service delivery backlogs and increasing inequality are but some of the features of African urbanisation that pose significant challenges to sustainable land use planning.

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1 ICAT. 2018, Inititiative for Climate Action Transparency: Non-State and Subnational Action Guidance, Washington, Institute, W.R.

2 WEF. 2919, *The Global Risks Report 2019,* Geneva.

3 Metcalf, L. & Benn, S., 2012, Leadership for Sustainability: An Evolution of Leadership Ability, Journal of Business Ethics, 112(3),369-384.

4 Levin, K., Cashore, B., Bernstein, S. & Auld, G., 2012, Overcoming the tragedy of super wicked problems: constraining our future selves to ameliorate global climate change, Policy Sci, 45,123-152.

Sustainable land use planning is critical in supporting the growth of African cities. Also, land use planning is a critical tool in developing and implementing climate change adaptation measures which speak to urban resilience through (1) compact city form; (2) transit orientated development; (3) the integration, management and eventual phasing out of informality as well as the (4) safeguarding of and appropriate interface with ecosystem services.

Leadership is critical in driving and cultivating sustainable land use within the context of climate change. Many African cities lack appropriate and robust land use planning tools which can enable them to develop in a manner that recognises and integrates land use and climate change risks. Within this context, the Responsible Leadership theory provides an applicable framework through which to drive sustainable land use planning. Responsible leadership recognises the need for urgent action, within the complexity of the current economic environment, for long-term gains. Responsible leadership represents a move away from past leadership styles, specifically within the last two centuries, where leaders have traditionally focused on maximising short-to-medium term shareholder profits, often at the expense of strategic resources such as the environment. This applies to land use planning where immediate pressures or a lack of long-term planning have resulted in knee-jerk reactions instead of long-term spatial functionality.

CLIMATE CHANGE: THE WICKED PROBLEM OF OUR TIME

Metcalf and Benn[5] argue that multifaceted problems, with interrelated propensities and impacts, can be defined as wicked problems. The reason for this is that these complex problems share a number of features: they have numerous and interdependent components and there is a lack of proven theoretical approaches in terms of a possible solution[5]. According to the authors, "human interaction with the natural environment is a highly complex and therefore a wicked problem"[5].

However, Levin, Cashore, Bernstein and Auld go a step further and specifically define climate change as a "super wicked problem"[6]. This is due to the four key attributes of the climate change challenge[6]:

- Time is of the essence: the world has a short window of opportunity in which to act decisively with regards to limiting global greenhouse gas emissions;
- The developed world, which arguably bears the most responsibility for climate change, continues to emit significantly more than developing countries but also seeks to suggest solutions to lowering greenhouse gas emissions;
- The centralised decision-making systems to guide, manage and regulate decisions regarding climate change are weak; and
- Due to a consistent overlooking of the gravity of the problem, responses are delayed into the future.

Should greenhouse gasses not decline significantly and through immediate action the world is facing the loss of ecosystems, the drastic change of human systems and widespread global pressure[6]. It is in this context that scientists and key role players such as the Intergovernmental Panel on Climate Change (IPCC) recommend that average global temperatures should be

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5 Metcalf, L. & Benn, S., 2012, Leadership for Sustainability: An Evolution of Leadership Ability, Journal of Business Ethics, 112(3),369-384.

6 Levin, K., Cashore, B., Bernstein, S. & Auld, G., 2012, Overcoming the tragedy of super wicked problems: constraining our future selves to ameliorate global climate change, Policy Sci, 45,123-152.

limited to 1.5°C above pre-industrial levels[7]. The Paris Agreement succeeded in an initial target to limit global temperatures to 2°C above pre-industrial levels. The 2°C target was revised on the basis that it was not ambitious enough to limit the expected material medium to long-term climate impacts.

CLIMATE CHANGE IN CONTEXT OF AFRICAN CITIES

Africa will be significantly impacted by climate change. Climate change will exacerbate existing socio-economic challenges, whilst also creating new "pressure points"[8].

In addressing these challenges the article emphasises the role of the "green economy" and the transition to a "low carbon economy" [5]. These economic approaches could provide Africa with an opportunity to play a leading role in changing the global, conventional approach to growth as well as maximising the opportunities of a low carbon growth focus.

Of specific interest are ten "essential measures for addressing climate change by greening the economy in Africa"[5]. These are:

1. Leadership is required to drive, and negotiate, a desired end-state in terms of African climate resilience[5].
2. Climate change is a multi-dimensional challenge, requiring sound governance systems and structures[5].
3. Growth strategies could include taxation to support a green economy (Anon., 2010:20).
4. Effective adaptation strategies should consider "food security, disaster risk reduction and social protection"[5].
5. It is critical to identify and enable large scale investment in both adaptation and low carbon development alternatives[5].
6. Infrastructure development, maintenance and renewal must happen within the context of a carbon-constrained world[5].
7. Incentivising green economy opportunities within the trade and industry sector, ensuring access to low carbon technologies and building partnerships with the private sector[5].
8. Rethinking resource use in order to manage food security and environmental safeguarding[5].
9. Re-evaluating values and a specific focus on including youth and women as key drivers of, and stakeholders to, change[5].
10. Building capacities to address climate change, supporting innovation and harnessing science to provide practical input with regards to sustainable development[5].

This article offered a welcome consideration of the critical role of climate change adaptation, specifically within the context of Africa's developmental challenges. Often the climate change discussion is biased towards mitigation actions and requirements, and adaptation are only considered, if at all, as an afterthought. Yet, due to Africa's current vulnerabilities driven by severe socio-economic pressures, climate change adaptation should enjoy a much more immediate focus, specifically with regards to assisting vulnerable communities in being able to build their own resilience[5]. Sustainable land use planning plays an important role in this regard.

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7 IPCC. 2018, Global Warming of 1.5 Degree Celsius: An IPCC special report o the impacts of global warming of 1.5 degree Celsius above pre-industrial levels and related global greenhouse gas pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty (Summary for Policy Makers), Switzerland.

8 Seventh African Development Forum. 2010. Climate changne adn sustainable development in Africa: An overview. Addis Ababa, Ethiopia, 15 October 2010:46.

Land use planning, as part of the shift to a low carbon economy could create the necessary synergy between climate change adaptation and mitigation driving opportunities for investing in mitigation whilst unlocking economic opportunities related to climate change adaptation.

However, current trends in land use planning would beg the question: Are we really taking climate change adaptation seriously as part of land use planning? A key indicator in this regard is how countries are defining a sustainable energy mix. Energy is key in terms of managing climate mitigation targets as well as contributing to the resilience of communities through energy access. Africa has an abundance of renewable energy resources – solar, wind and hydro power. In addition, African cities are faced with immense waste challenges which could be an untapped energy resource. This article makes specific note of the fact that Africa can "leap-frog" towards cleaner and more sustainable energy sources[5]. Yet, many African cities fail to introduce renewable energy options at scale and continue to drive a coal-fired energy base.

In addition, Africa's low income countries cities are under immense pressure in the face of growing urban populations. Bedarff and Jakobeit[9] found that the majority of migrants and displaced persons move to cities, especially metropolitan urban centres in the Global South. An in-migration of people into urban areas often result in informal, unhealthy and dangerous living conditions due to the fact that migrants do not have the financial capacity to afford formal housing[9]. This leaves cities heaving under the pressures of growing social discontent, health and environmental risks as well as a growing population who might not have access to basic service delivery.

Climate change will exacerbate existing spatial planning issues in African cities. Filho et al. confirms this by noting that "…African cities are underrepresented in climate change research and assessments of successful adaptation initiatives…This is partly because local climate change challenges, vulnerabilities, priorities, and intensities are diverse, varying across countries"[10]. Key climate change issues include rising temperatures; sea-level rise; increased frequency and intensity of storms which could result in flash flooding or landslides and prolonged periods of drought[10].

In addition Filho et al.[10] argues that decision-makers face a number of challenges related to, specifically adaptation, planning that is required for climate change adaptation. These include:

- *Uncertainty of urban climate hazards;*
- *Lack of reliable data/measurements to prioritize adaptation actions;*
- *Limited availability of data to understand and track urban vulnerability to climate change; and*
- *Difficulties in integrating scientific information into future legislation and adaptation procedures*.

Sachs[11] suggests that pro-active planning is key to building city resilience. In this regard, this paper's authors would like to add that planning must be supported by continuation, long term planning visioning and practical, appropriate local solutions. The features of city sustainability as described by Sachs[11] which include urban productivity, social inclusion and environmental sustainability, are not short or medium term objectives. These are long-term city resilience

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9 Bedarff, H. and Jakobeit, C. 2017. Climate Change, Migration, and Displacement: The underestimated disaster. Hamburg: Greenpeace Germany

10 Filho, W.L.; Balogun, AL.; Ayal, D.Y. et al. 2018. Strengthening climate change adaptation capacity in Africa-case studies from six major African cities and policy implications. Environmental Science and Policy 86 (2018) 29–37.

11 Sachs, J.D. 2017. The Age of Sustainable Development. New York: Columbia University Press.

goals that should feature in every city plan, whether new or being reviewed. It is through continuity that sustainable urban form, function and development take shape.

THE ROLE OF RESPONSIBLE LEADERSHIP IN LAND USE PLANNING

There are two key features which are particularly to discussing pro-active planning in African cities within the context Responsible Leadership. The first relates to the interdisciplinary nature required for land use planning for climate change and the need to get various different role-players and stakeholders around the table to understand and manage climate change adaptation. The second relates to the fact that land use planning could play an important role in identifying appropriate opportunities for climate change adaptation. This is however dependant on a clear understanding of the impacts of climate change, the pro-active management thereof in terms of both statutory as well as strategic land use planning and balancing these aspects in order to achieve sustainable city growth considering African cities' unique challenges.

These two aspects – a diverse stakeholder group and the need to balance the need to implement appropriate climate change adaptation actions, reminds one of Maak's definition of responsible leadership. Maak[12] defines responsible leadership as follows: "…responsible leadership can be defined as the art and ability involved in building, cultivating and sustaining trustful relationships to different stakeholders, both inside and outside the organization, and in co-ordinating responsible action to achieve a meaningful, commonly shared business vision."

Responsible leadership is key to the land use planning. It is critical to build relationships, across various disciplines within the planning, environmental, economic and engineering sectors. It is equally as important to understand the potential role of sustainable land use, and to create a balanced end-state vision which can inform and guide collaboration amongst all parties.

DEFINING RESPONSIBLE LEADERSHIP

Maak[12] defines responsible leadership as: "…*the art and ability involved in building, cultivating and sustaining trustful relationships to different stakeholders, both inside and outside the organisation, and in co-ordinating responsible action to achieve a meaningful, commonly shared business vision.*" In addition to this definition, Maak[12] highlights that responsible leadership includes the ability to develop and implement a particular vision, with the support of stakeholders. This vision implementation can then contribute to long-term business viability[12].

Pless[13] defines responsible leadership as:

> *A values-based and through ethical principles driven relationship between leaders and stakeholders who are connected through a shared sense of meaning and purpose through which they raise one another to higher levels of motivation and commitment for achieving sustainable values creation and social change*.

Of particular reference to land use planning within the context of climate change, Mirvis[14] notes

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12 Maak, T., 2007, Responsible Leadership, Stakeholder Engagement and the emergence of Social Capital, Journal of Business Ethics, (74),329-343.

13 Pless, N.M., 2007, Understanding Responsible Leadership: Role Identity and Motivational Drivers, Journal of Business Ethics, 74(4),437-456.

14 Mirvis, P.H. 2010. Responsible Leadership Emerging: Individual, Organizational, and Collective Frontiers. Boston: Boston College Center for Corporate Citizenship.

that responsible leadership is a function of the interrelationships between businesses or organisations and society in economic, socio-political, ecological, and moral spheres. These spheres are defined as the investment by shareholders (economic sphere); the responsibility and accountability to a number of different stakeholders (socio-political sphere), the use, intrusion or impact on natural systems and resources (ecological sphere), and the responsibility for the impact of business, its services or products as acknowledged by businesses (moral sphere)14.

This interaction is very relevant to the context of climate change. Climate change, as discussed previously, is a wicked problem due to its interrelated and complex nature. In this regard, the theory of responsible leadership is relevant to the type of problem that climate change poses.

PROPOSED FRAMEWORK TO INTEGRATE RESPONSIBLE CLIMATE LEADERSHIP WITH SUSTAINABLE LAND USE PLANNING

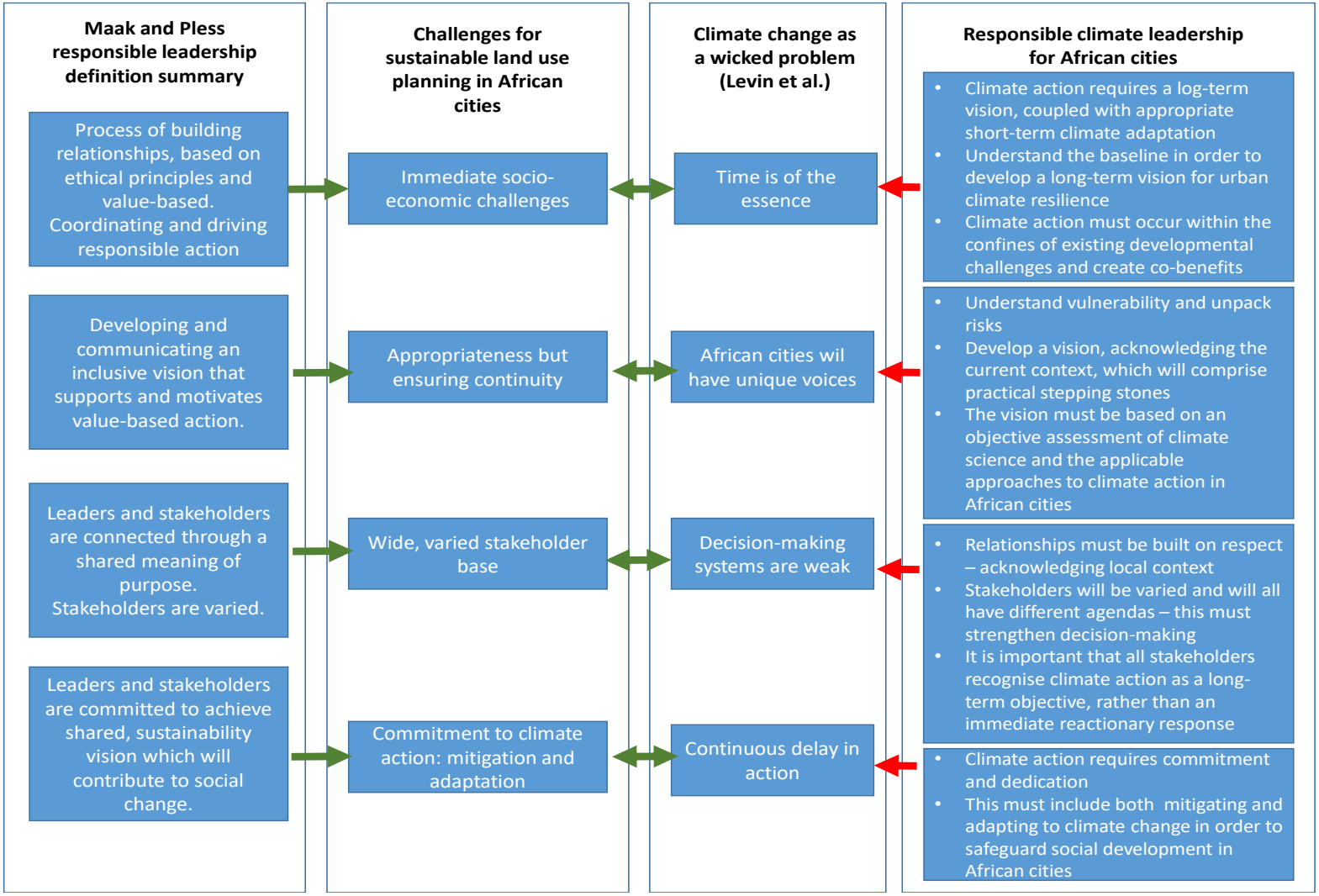
The co-author of this proposed paper developed a conceptual framework for responsible climate leadership in developing countries as part of her Master's Degree in Development Practice during 2019.

Figure 1 provides an overview of a proposed conceptual framework for responsible climate leadership in the context of developing countries. The framework starts with the components of leadership as defined by Maak and Pless' definition of responsible leadership and links this to land use planning related challenges in African cities, within the context of climate change. Climate change, in terms of its definition as a wicked problem, affects both responsible leadership and land use planning. Responsible climate leadership for developing countries could potentially address the challenges of climate change as a wicked problem.

The principles of responsible climate leadership in developing countries can potentially guide and inform new thinking related to sustainable land use planning in African cities. These principles are:

(1) Longevity and continuity: Applying systems planning for the complexity of land use and climate change impacts;
(2) Vision: Engaging with various stakeholders and developing a coherent and context-specific vision for spatial development within the context of climatic parameter shifts;
(3) Engagement and decision-making: building the necessary relationships with various departments and sectors to achieve a unified objective for city growth and land use, recognising the risks of climate change; and
(4) Commitment: Ensuring dedication to social well-being and upliftment through improved land use which builds community and city resilience.

Figure 1: Proposed framework to integrate responsible climate leadership with sustainable land use planning



CONCLUSION

Climate change is one of the major challenges associated with the 21st century that impacts greatly on the mandates of African cities in terms of long-term development planning and management. Climate change results in varying environmental and social impacts within cities. These impacts include increased temperatures, extreme weather events (e.g. flooding and drought), and sea level rise and climate variability. This will bring both risks and opportunities for the African cities to build resilience in the face of immediate and dire socio-economic circumstances.

The Paris Agreement commits signatories to holding the increase in the global average temperature to well below 2°C above pre-industrial levels, and to pursue efforts to limit temperature increase to 1.5°C above pre-industrial levels. Cities have an important role to play to set ambitious goals to reduce GHG emissions aligned to remaining within a 1.5°C temperature rise and adapt to forecasted climate risks and hazards.

The key challenge to responsible leadership in terms of climate change relates to balancing long-term gain over short-term and immediate needs. Key aspects that could contribute in overcoming this challenge include building and maintaining relationships of trust, unpacking the complexity of climate change and highlighting the interrelated nature of climate change to various sectors and being able to find a common middle ground. Another critical tool to address this challenge is communicating the vision by ensuring it is relevant and appropriate. The vision must take cognisance of the position of the company in its current state and map a route to the desired end state, which is achievable and contextualised.

In this regard the authors attempted to provide a conceptual framework for climate action in the African city context as it pertains to responsible leadership, sustainable land use planning and climate action. Responsible leadership is the right lens through which to address both climate change and sustainable land use planning in African cities. However, there is room for expansion related to the definition and elements of the theory in order to develop a robust definition of responsible climate leadership that could inform these key areas, climate change and land use planning, in Africa.

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