the New (In)Formal

Leveraging Formal and Informal practices towards the just, resilient and sustainable urban development of Kampala

COLOFON

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P5 - Graduation Thesis Report

June 2022

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ACKNOWLEDGEMENTS

This thesis is submitted in partial fulfilment of the requirements for the Masters of Architecture, Urbanism and the Building Sciences program at the Faculty of Architecture, Delft University of Technology. The research was supported by a range of people over its year-long development, to whom I wish to extend my gratitude.

Firstly, I wish to show my appreciation to my mentors, Dr. Roberto Rocco and Dr. Victor Munoz Sanz, whose guidance instilled a confidence in me that allowed me to fully explore my research interests, and to the Planning Complex Cities graduation studio for their support and encouragement.

I would like to thank the communities of Kansavu - Namuwongo and Kitintale – Bugolobi in my hometown Kampala, which were the case studies for the research. Special recognition to the Local Chairperson (LC.1) of Kasanvu, Mr. Byebisho Richard, whose assistance with the workshop made it a success, and to Arch. Bwambale Mark and Dr. Omolo Fredrick for their insights into Kampala's planning process. I am also greatly indebted to my colleagues Ernest Mukwaya and Annet Twinokwesiga for their support and participation during the community workshop.

I am especially grateful to my parents, siblings and friends, for their continuous encouragement over the course of the entire programme, and to Allan, for his unwavering support.

Lastly, I wish to extend my sincere gratitude to the Delft Global Initiative, for granting me the opportunity to pursue my Master's degree at TU Delft.

DEDICATION

To my Parents.

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Acronyms

KCC – Kampala City Council

KCCA – Kampala City Council Authority

KPDP- Kampala Physical Development Plan

GKMA – Greater Kampala Metropolitan Area

MoLHUD – Ministry of Lands, Housing and Urban Development

NEMA – National Environmental Management Authority

CP – Communicative Planning

IP – Insurgent Planning

PL - Pattern Language

Notes

Formal practices
Formal practices are actions taken by the state or private entities that are accommodated for within the existing legal and policy frameworks governing the nation or city. These practices are usually the main driving force behind urban development plans and largely contribute to the spatial planning outcomes and the distributive impacts that different spatial forms may imply. They are measurable and can be considered as the 'written rules'.

Informal practices
Informal practices are actions undertaken by civil society that are considered conventions, traditions or norms that are not necessarily accommodated within the law. They are usually embedded in the way of living and are difficult to measure, hence their exclusion from formal planning processes. These are the 'unwritten rules'.

ABSTRACT

Uganda's capital Kampala, is grappling with the effects of rapid urbanisation fueled by the population explosion that has transpired over the recent years. Due to the continued futility of urban planning efforts, the city's growth has proceeded with minimal planning intervention, resulting in multiple urban development challenges.

Kampala's urbanisation is therefore largely informal, a trend that manifests most prominently in the housing sector. The perennial housing shortage has left most urbanites fighting for space within the city's ever-growing informal settlements, which are typically situated in wetlands and are characterized by a lack of basic services and an absence of social and economic infrastructure. In addition to wetland encroachment, poor waste management and unsustainable settlement patterns, the increased downpour due to climate change has further exacerbated the flooding risk faced by the city.
This research posits that urban flooding, along with other challenges is merely a consequence of unsustainable spatial planning practices. A critical review of Kampala's planning history traces the underlying issue as that of spatial segregation; a problem with the outcomes of planning, and non-implementation; a problem with the planning processes. Although inherited from colonial times, these issues create and further propel the conflict between formal and informal practices which, more often than not, run parallel to each other.

Thus, the research explores how a new strategic framework that combines both the formal and informal practices can guide towards the successful implementation of future spatial plans. The proposal set forth is to test the Pattern Language (PL) methodology as a tool that can be used to combine the practices. In line with the PL methodology, the research documents, communicates and translates the practices. The outcome is a pattern language of flood resilience practices in the Nakivubo Wetland area, which patterns are then communicated to the relevant stakeholders through a workshop held between the local residents of the wetland communities and representatives from the formal institutions. This results into the pattern field, which is also the framework that combines the formal and informal practices. Lastly, the patterns are translated into design principles that are used to develop a spatial vision for the Nakivubo Wetland area and, through the framework, guide towards its successful implementation.

Key Words

Kampala-Uganda, Formal practices, Informal practices,
Informal settlements, Pattern Language, Wetland Management.

Introduction

Problem field

Trends driving development in Kampala
Spatial Outcome

History of Planning in Kampala

Problem Statement

Research Questions

Aim and Outcome

Kampala is the capital city of Uganda, a landlocked country in East Africa.

Trends driving development in Kampala.

On Location and Urban growth.

Kampala is the capital city of Uganda, a land-locked country located in East Africa. East Africa is the world's least urbanized region although at 5% it has the fastest urbanizing rate (UN-Habitat, 2014). At 3.3% (World Bank, 2020), Uganda has one of the highest population growth rates, with a total population of approximately 45million (UN-DESA, 2019).
Kampala, which borders Lake Victoria, measures 189 sqkms in area, 19sqkms of which are water (KCCA, 2019). The city hosts 30% of the country's total urban population and is substantially larger than any other city in the country (KCCA, 2012). It is considered among Africa's fastest growing cities with an annual growth rate of 3.9% and an estimated daily workforce of 4.5million people (Ngoga, 2018), although only 1.8million people actually reside in the city (KCCA, 2019). Kampala has a distinctive topography of hills and water logged valleys which dictated initial settlement patterns. However, the sustained rapid growth rate has overwhelmed the city leading to unplanned settlements and a fragmented urban structure (KCCA, 2012).

Fig 1 Location of Kampala
Source ; (Author, 2022).

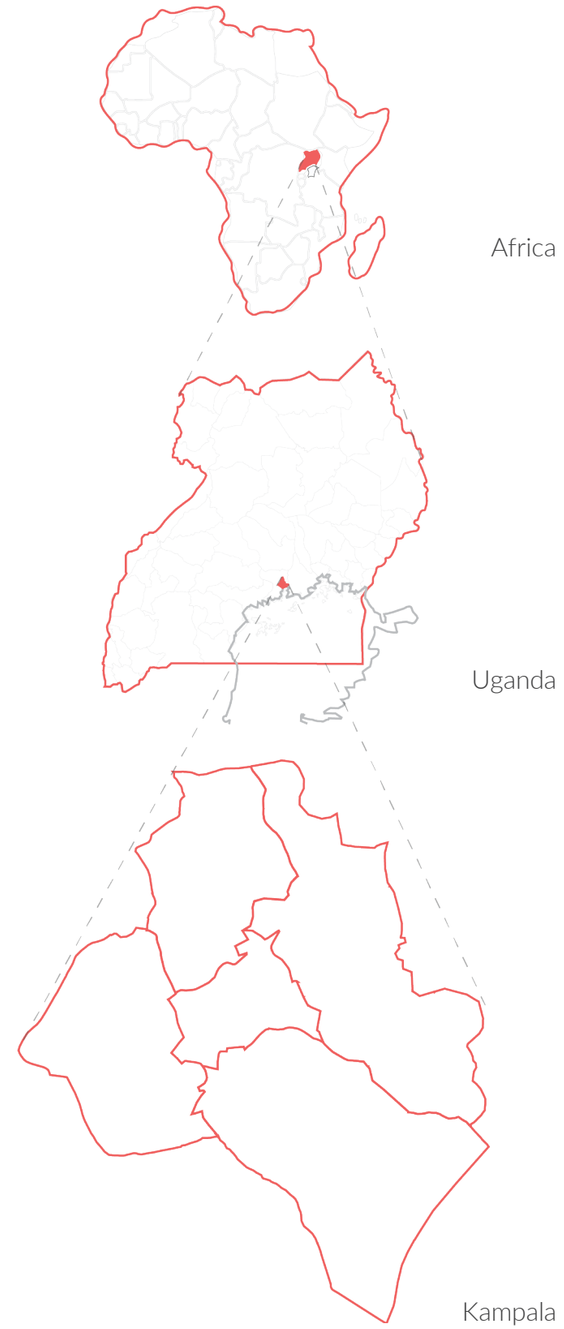


Fig 2 Statistics on Kampala
Source ; (Author, 2022).

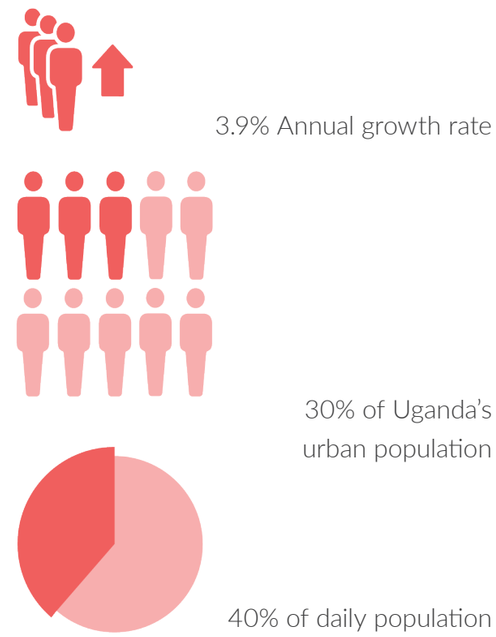


Fig 3 A view of Kampala's CBD
Source ; (shorturl.at/hDIU5).

As a primate city, Kampala is the economic and industrial heart of Uganda.

On primacy and in-migration.

Kampala is the economic heart of the country. At just 1.2% of the country's total area, it contributes 65% to the national GDP and accounts for 80% of the country's industrial and commercial activities (KCCA, 2019). This primacy of Kampala fuels rural-urban migration, as Ugandans travel from other parts of the country in search of better opportunities. Currently, in-migration is the leading cause of population growth in Kampala, driven by both rural-push and urban-pull factors (KCCA, 2012). This trend is expected to accelerate over the coming years, possibly propelling the population of the Greater Kamapala Metropolitan Area (GKMA) to over 15million by 2040 (KCCA, 2012).

Fig 4 Kampala's central role in Uganda's economy
Source ; (Author, 2022).

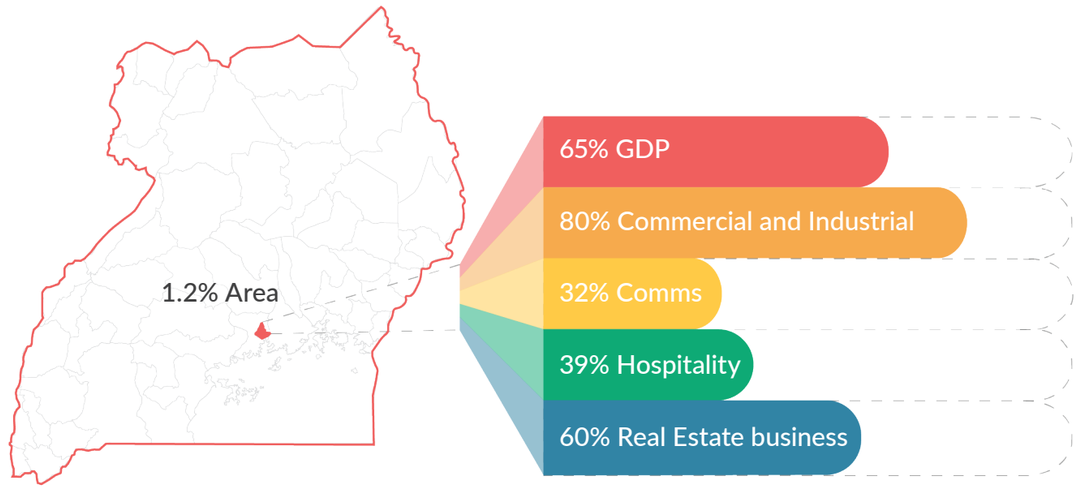
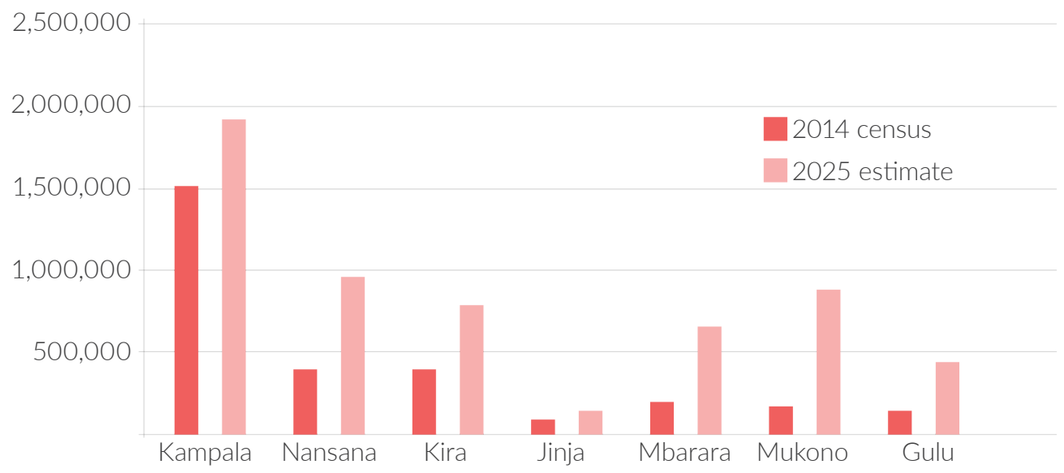
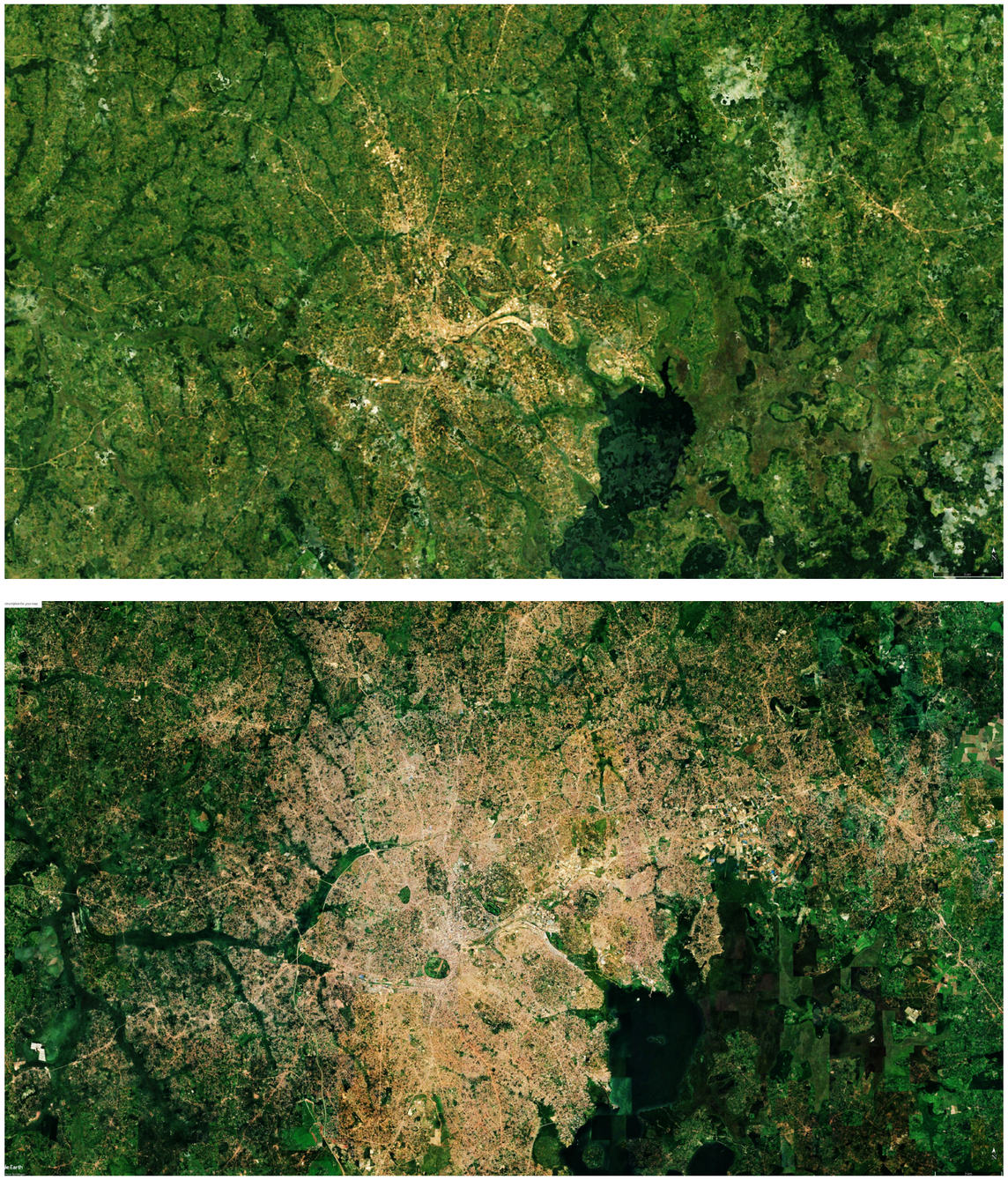


Fig 5 Population of major towns in Uganda
Source ; (Author, re-adapted from KPDP, 2012).



Problem field

Fig 6 Kampala's population growth 1985 and 2015
Source ; (Google earth, 2022).



Kampala's urbanisation can be described as highly informalized

Informality

Kampala's urbanisation can be described as highly informalized. Kampala, being overwhelmed by its population, fails to provide adequate services such as housing, utilities and employment (KCCA, 2012) and therefore cannot absorb the in-migration rates. Consequently, most citizens resort to the informal sector for survival.
Informality in Kampala manifests most evidently in the housing sector. Informal settlements cover almost 25% of the city's area (KCCA, 2016) and host over 60% of the city's residents (UN-Habitat, 2007). Kampala's informal settlements are widely dispersed throughout the city (Richmond et al., 2018) and are majorly located in flood prone - lower valley areas and wetlands (KCCA, 2012).

Informality is also predominant in other sectors, whereby grassroots social movements, NGO's and local entrepreneurs tend to fill the gap of service provision within the city (Les Ateliers, 2019). In the financial sector for example, 60% of loans are provided by informal sources (KCCA, 2019).
Most activity in Kampala's economic hubs is also dominated by the informal sector (KCCA, 2016) especially in wholesale and retail, which also accounts for over 50% of the city's labour force (Les Ateliers, 2019) and about 1.5 million jobs (KCCA, 2019). The lack of mass transit- public transport systems gave rise to the informal modes of motorcycles (boda-bodas) and 14 seater mini-vans (taxis) that currently dominate the transport sector in the city (KCCA, 2019).

Fig 7 Informality in various sectors in Kampala
Source ; (Author, 2022).

80%

60%

50%

Kampala heavily relies on wetlands for their ecological functions, however, majority of them have been partially or completely modified to accommodate the growing urbanization demands.

Modified Wetlands

Kampala city heavily relies on wetlands for their ecological functions of cleansing and filtration of waste water as well as absorbing of storm water (World Bank Group, 2015). However, majority of the city's wetlands have been partially or completely modified (fig 9), and currently constitute only 9% of the city's total area (KCCA, 2012), down from 17%. The conversion of wetlands for other uses can directly be attributed to the lack of affordable and developable land in the city, to accommodate the growing urbanization demands. This has led to an overall decline of wetland systems in Kampala (World Bank Group, 2015).

On Climate Change

Kampala, which typically has a tropical rain forest climate with two annual rainy seasons, has experienced changing weather patterns in recent years, due to climate change (KCCA, 2019). The increase in temperatures has brought about dry spells and sporadic rainfall patterns (KCCA, 2016), leaving the city exposed to multiple risks such as floods and droughts.

Fig 8 Kasanvu informal settlement encroaching on Nakivubo Wetland
Source ; (Author, 2018)

Fig 9 General condition of Kampala's drainage systems
Source ; (World Bank Group, 2015).

Number Corresponds to Drainage Area Map	Name of Major Wetland and Drainage System	Wetlands within the Drainage System	General Condition
1	Nakivubo	Nakivubo	50% modified; Significant loss of surface area due to encroachment in upper sections by industry and housing; downstream areas retain functionality; heavy effluent loading; water purification uses
2	Lubigi	Lubigi; Jugula; Nabisasiro; Nsooba; Bulyera; Kyabatola	Heavily degraded and modified along eastern sections by settlement and drainage works; good condition along western-most sections; Nabisasiro is considered 100% modified
3	Nalukolongo	Nalukolongo; Mayanja;	Heavily encroached by industry and settlement along upper reaches; most vegetation has been modified through agriculture and settlement, threats from drainage; lower reaches in good condition;
4	Kansanga	Kansanga	60% modified from road construction, settlement, nursery production; water purification uses
4a	Gaba	Kansanga	60% modified from road construction, settlement, nursery production;
5	Mayanja/ Kaliddubi	Mayangj; Kaladdubi; Kawaga;	At least 50% modified with significant loss of surface area for drainage and subsistence agriculture; conversion to settlement; Mayanja shows considerable encroachment from agriculture
6	Kinawataka	Kinawataka; Bukasa	Significant loss of surface area in upper section due to industrial and housing encroachment; heavy effluent loads also present and contributing to invasive species growth; water purification dependence; significant effluent loading and degradation from upstream industry
7	Nolubaga	Nalubaga; Nyanjarede	Good condition with limited modification; subsistence agriculture along edges;
7a	Nokelere/ Nolubaga		Good condition with limited modification; subsistence agriculture along edges;
8	Walufumbe	Walufumbe	20% modified; some subsistence cultivation; impacts from upstream agriculture; threatened by development and cultivation
8a	Mayanja North	Mayanja North	100% modified;

Fig 10 Major drainage and wetland systems of Kampala.
Source ; (World Bank Group, 2015).

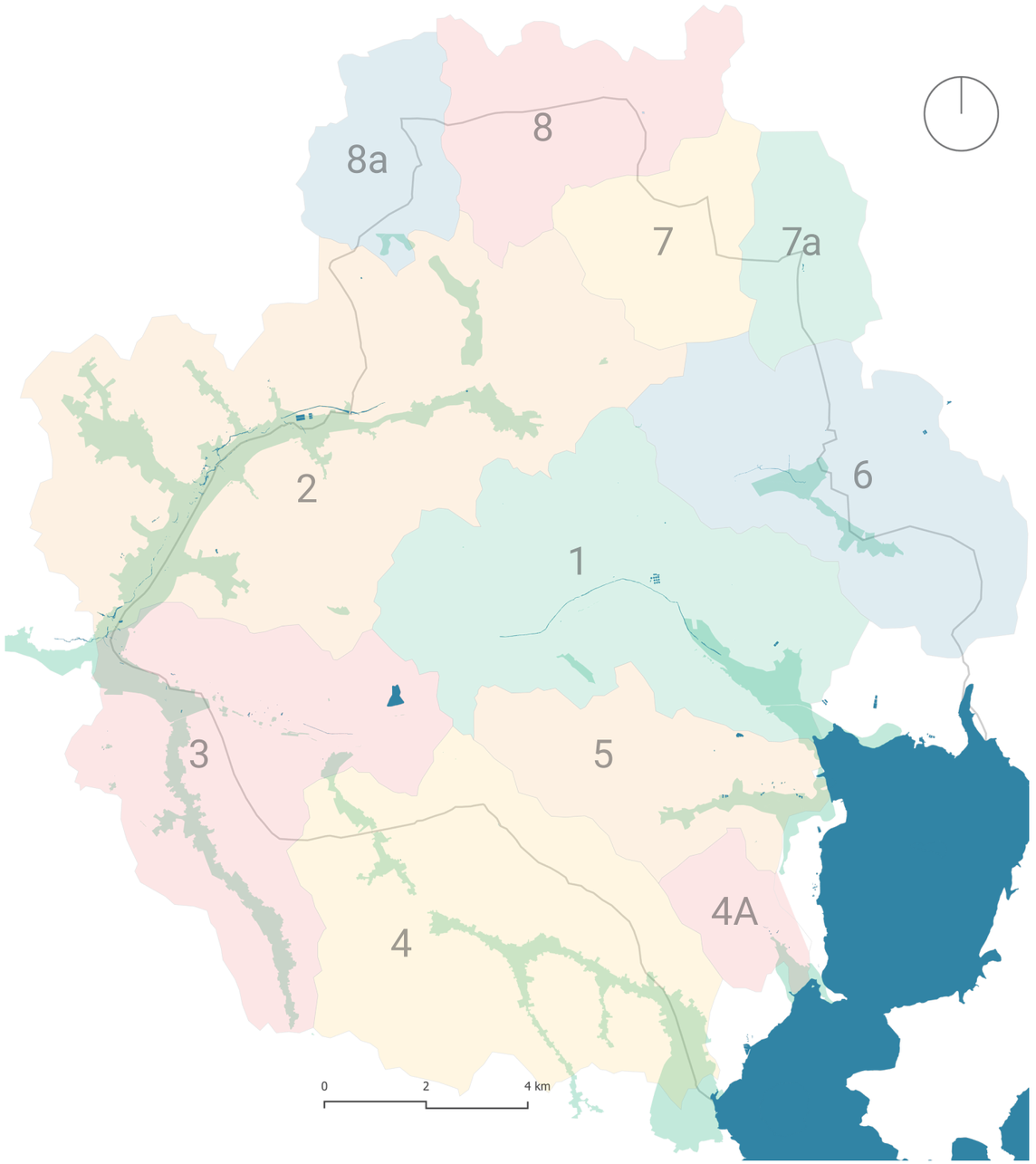


Fig 11 Informal settlements and wetlands in Kampala.
Source ; (Author, 2022).

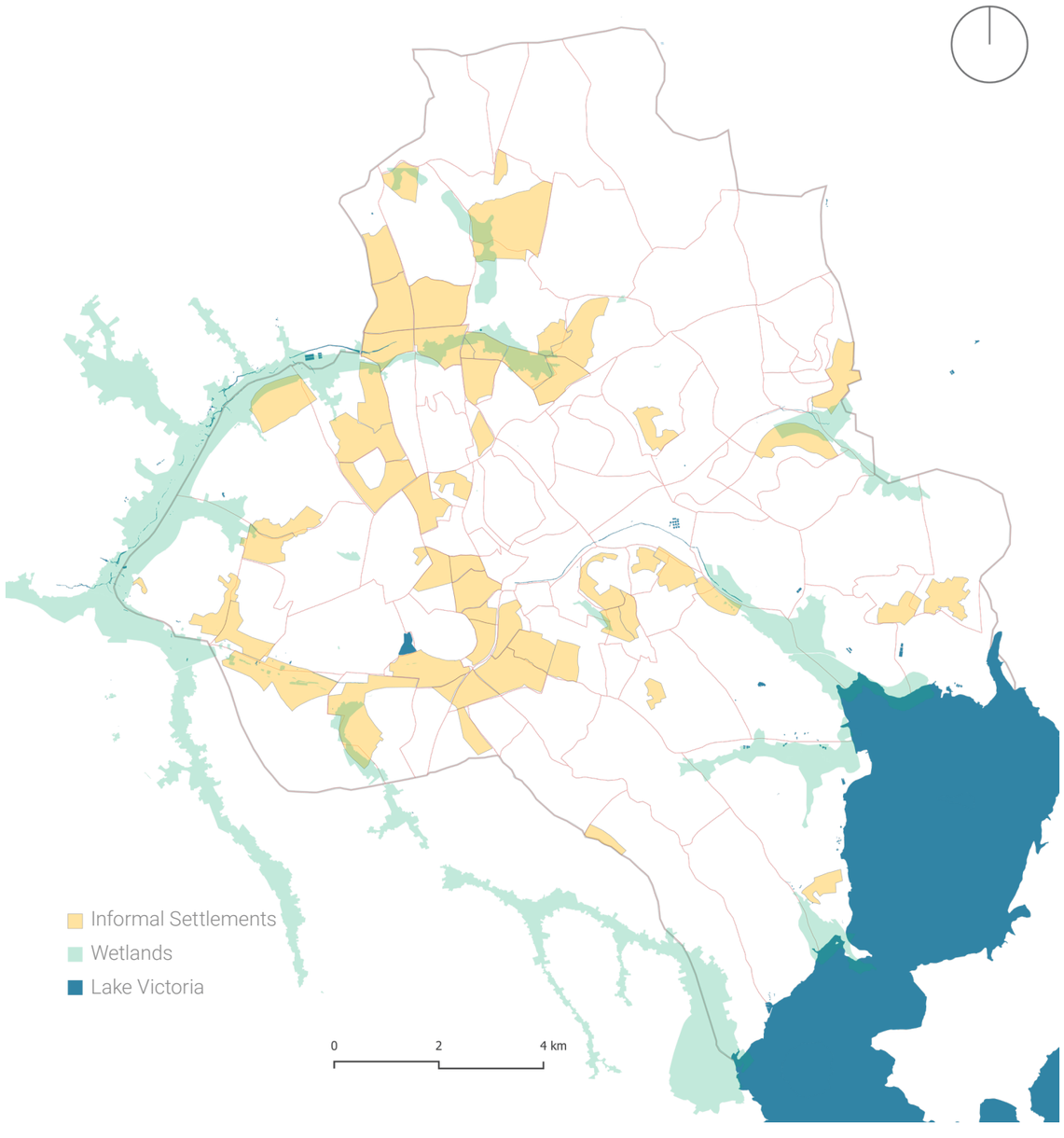
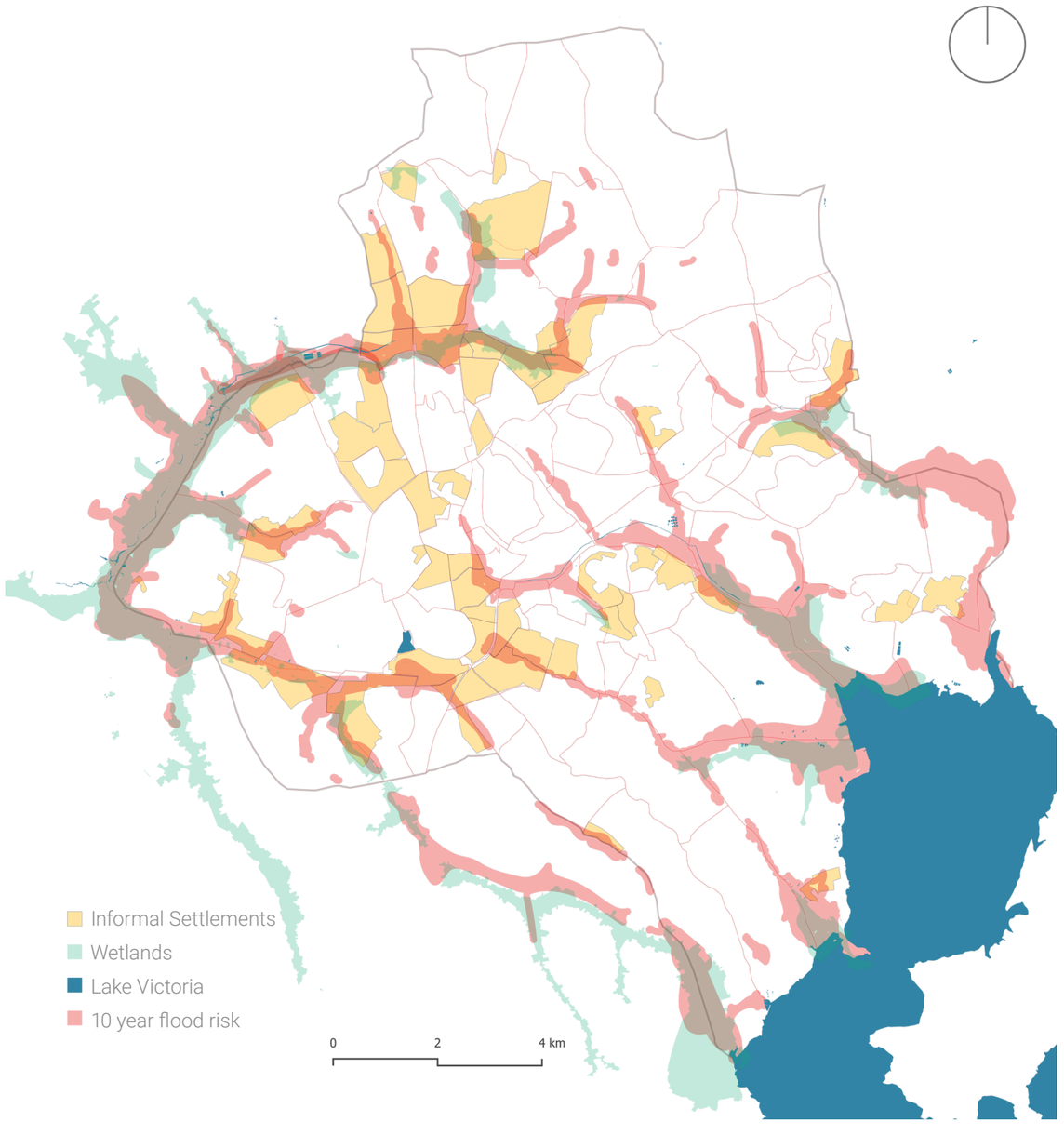


Fig 12 Ten year flood risk and the location of informal settlements in Kampala.
Source ; (Author,2022).



Wetland encroachment by informal settlements and other uses has greatly impacted the functionality of the wetlands

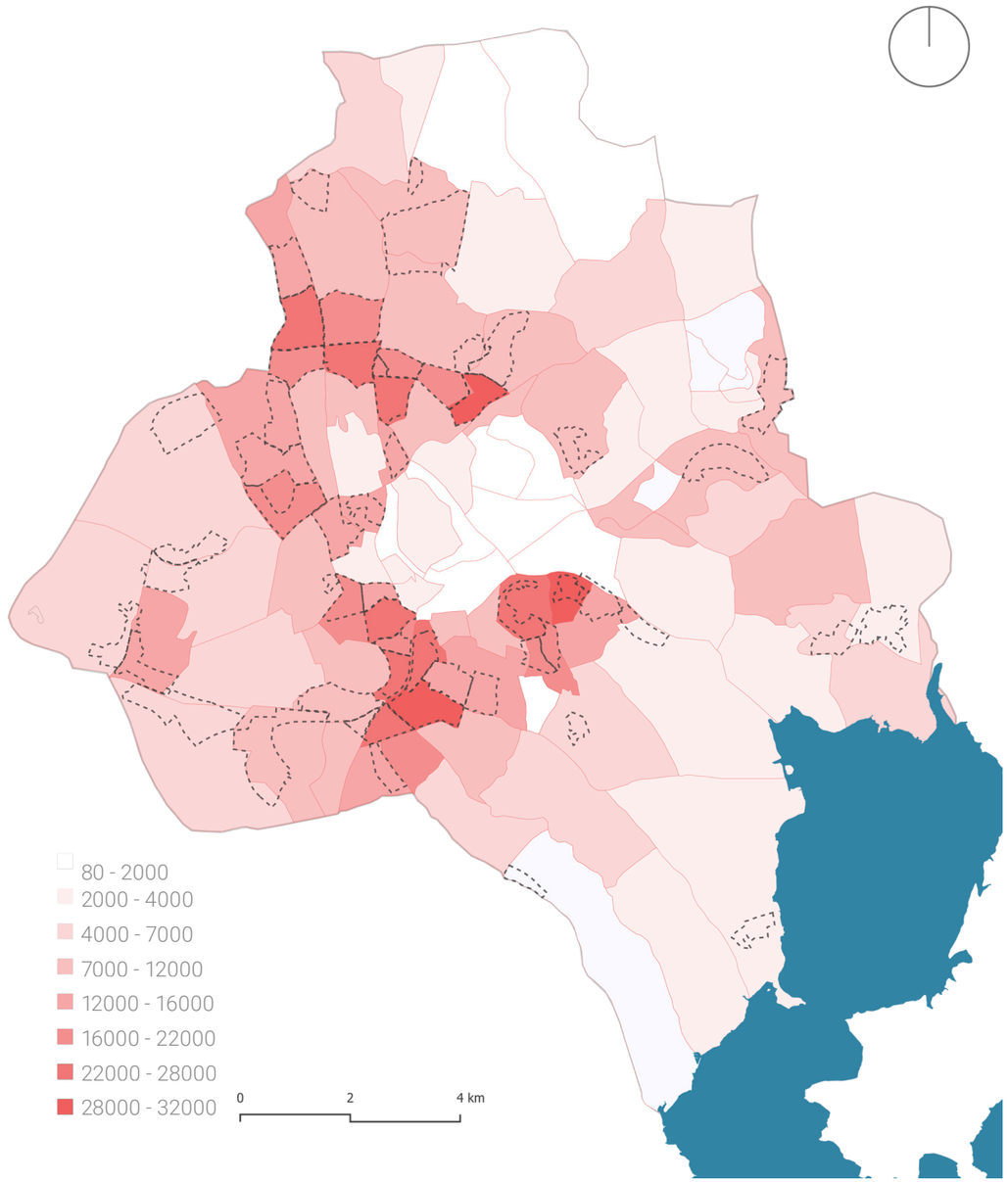
Informal Settlements and wetlands

As earlier mentioned, the uncontrolled urban growth has occurred at the expense of the city's wetlands which have been encroached upon by residential and industrial activities. As a result, almost all wetlands have been degraded to a certain extent (KCCA, 2012).
Kampala's natural drainage system consists of two major wetlands; Nsooba-Lubigi and Nakivubo, which play a major role in flood risk management (Les Ateliers, 2019). However, wetland encroachment by informal settlements (fig 8) and other uses has greatly impacted the functionality of the wetlands, damaging the city's ecological systems and further exacerbating flooding risks.

Population density

Informal settlements make up about 25% of Kampala's total area but house approximately 60% of the total population (Richmond, Myers, & Namuli, 2018) making them the most densely populated parts of the city (fig 13).

Fig 13 Population density and informal settlements in Kampala
Source; (Author,2022).



Kampala has one of the most complex land tenure systems in the world, which makes urban development difficult.

Informal housing

Over 60% of the housing type in Kampala is characterized as informal (muzigo) (fig14), which is typically a one or two roomed house built of low quality materials (Bird & Venables, 2020). The informal housing is predominantly located in informal settlements (fig 15) although it also exists in other more formal parts of the city.

Land tenure

Kampala has one of the most complex land tenure systems in the world (Ngoga, 2018), which significantly limits the amount of land available for development and further worsens the lack of affordable housing. Among the current tenure systems, the mailo land system which has its origin in the 1900 Buganda agreement is the most complicated because it permits duo ownership (both owner and tenant have claims to the land) which makes urban development difficult (Bird & Venables, 2020). Informal settlements are predominantly hosted on Mailo land (fig 16).

Problem field

Fig 14 Informal housing (muzigo) in Kitintale -Bugolobi
Source; (Author,2022).

Fig 15 Informal housing and informal settlements in Kampala
Source; (Author 2022)

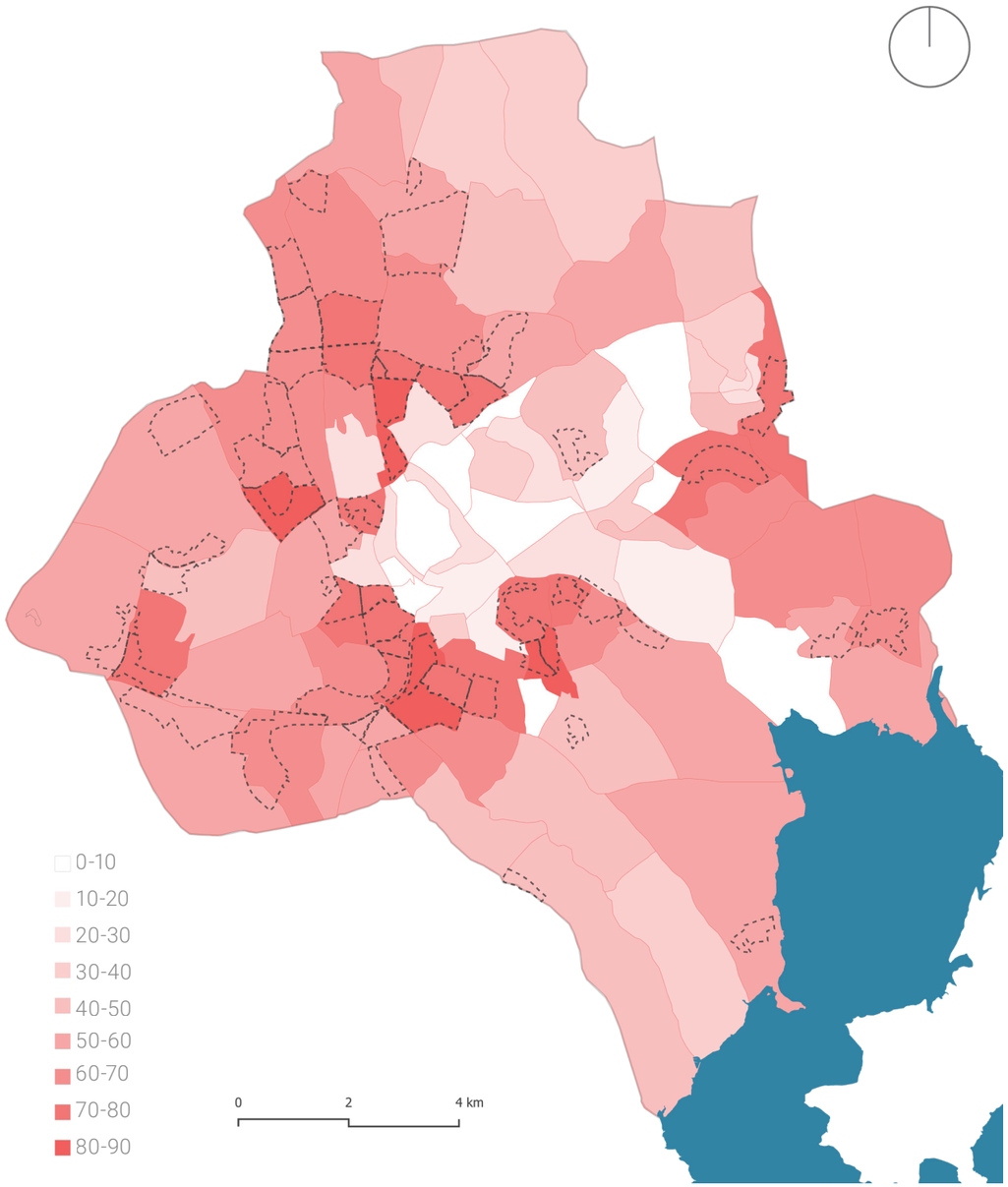
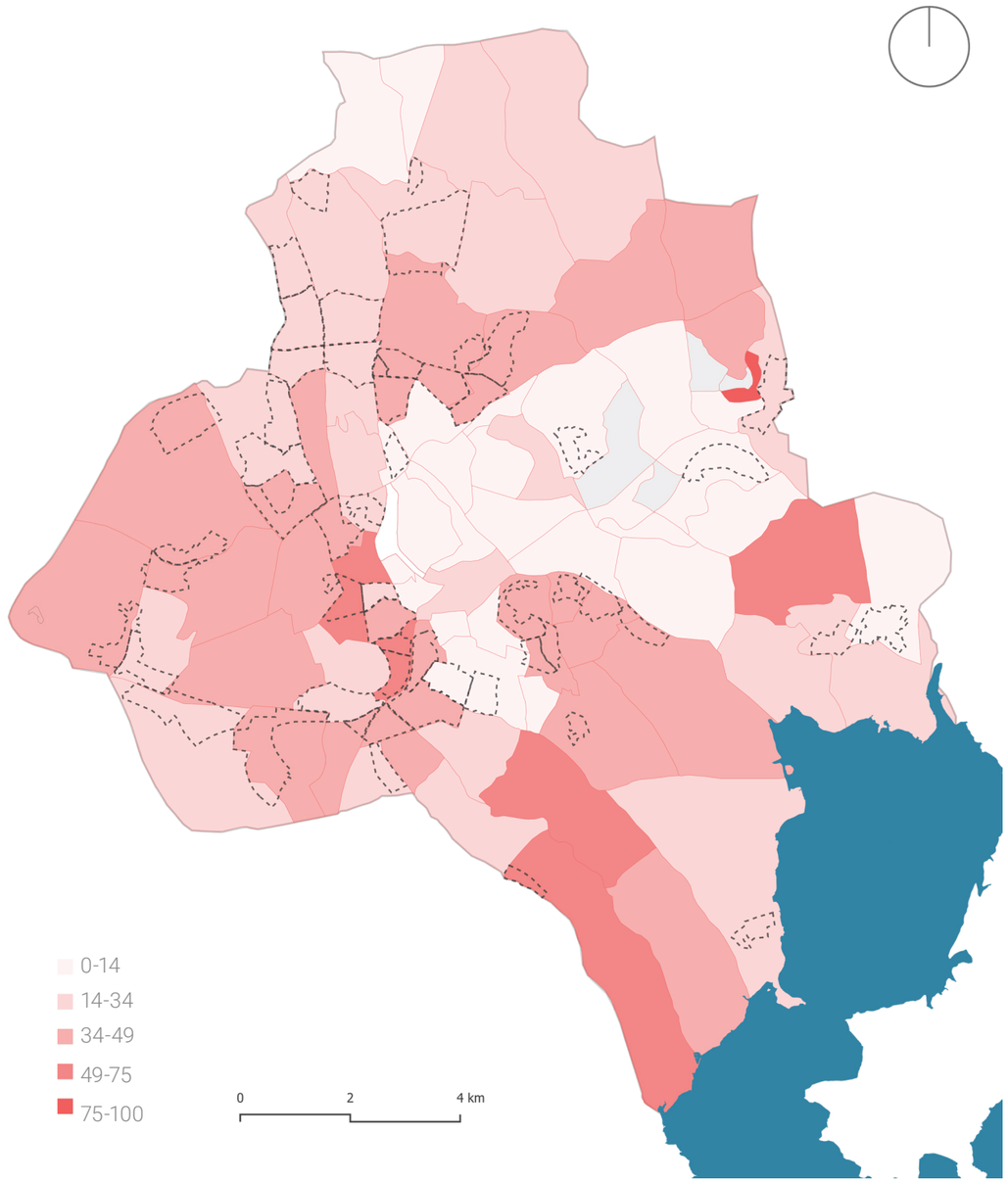


Fig 16 Mailo land tenure and informal settlements in Kampala
Source; (Author 2022)



Where Spatial planning failure meets climate change

Spatial Outcome

Where Spatial planning failure meets climate change

Unsustainable settlement patterns such as encroachment on wetlands and built up hill tops coupled with insufficient drainage channels and poor waste disposal (KCCA, 2012) in addition to increased rainfall due to climate change, are the leading causes of flooding within the city. Worsened by the city's unique topography of multiple hills and valleys, the flooding challenge affects the city in its entirety. Both the formal and informal parts are affected on a regular basis by flooding of major roads causing congestion, and flooding of houses in low lying areas (Les Ateliers, 2019).

However, flooding is not the problem, it is a consequence of the problem. In order to trace the root of the issue, it is pertinent to critically review the history of planning in Kampala.

Problem field

Fig 17 Floods in Kampala
Source; (Nicholas Bamulanzeki, 2020)

Fig 18 Floods in Kampala
Source; (Nicholas Bamulanzeki, 2020)

History of Planning in Kampala

Pre-Independence

Kampala city has a long and complex history with formal planning, starting with the advent of British colonisation of East Africa in 1890. Perhaps the most impactful event was the signing of the 1900 Buganda agreement between the Ganda tribe (the native inhabitants of the area) and the British administration which saw the division of the area/land between 'mailo land' and 'crown land' and laid the ground for the dual urban form that has persisted to date. Since then, the city has undergone multiple planning episodes, between 1912 to date (Omolo-Okalebo, 2011), which are briefly described below.

Pre 1890

The Native city (Kibuga) was the headquarters of the Buganda government and functioned as both the political and economic centre of the Buganda Kingdom. Settlement was primarily on the hills and so when the various missionary groups arrived, the King of Buganda allocated each a hill to establish their headquarters.

Governance structures – Under one authority, the Buganda Kingdom (Mengo).

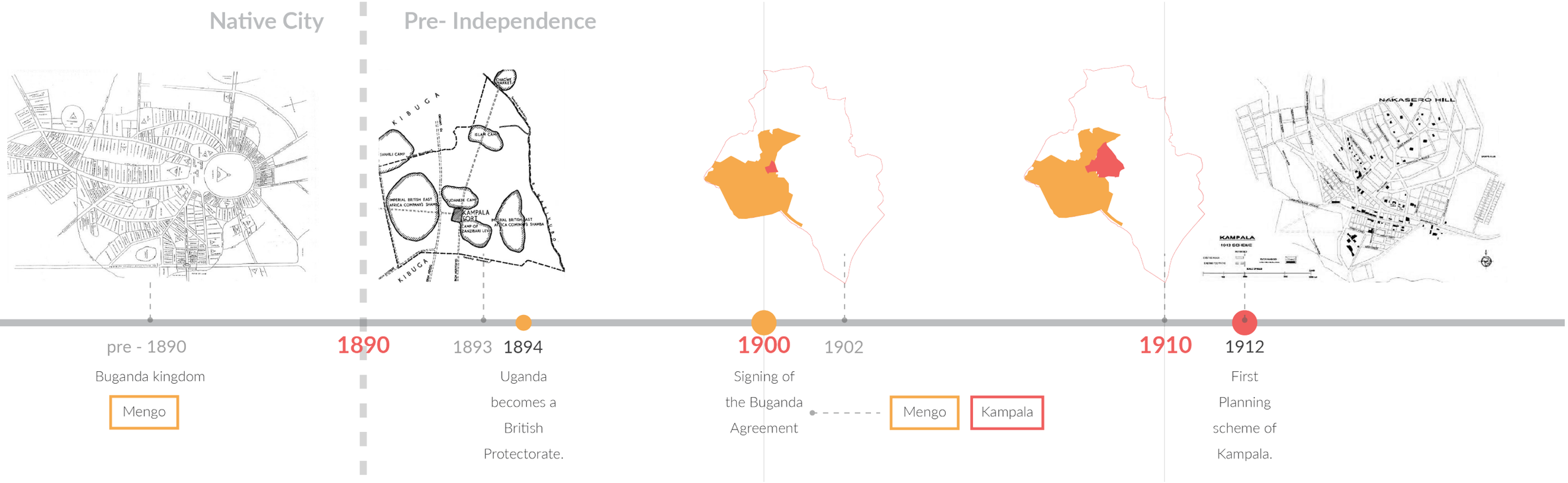
History of Planning in Kampala

1900 Buganda Agreement

The signing of the 1900 Buganda agreement between Buganda Kingdom and the British Crown paved way for the colonisation of the country, and set the stage for the emergence of the 'dual city'. The British allocated 10,000 sq miles to the Buganda Chiefs and took possession of all the uncultivated and forestlands for the British Crown. The colonial headquarters were established on Nakasero Hill, adjacent to Mengo Hill which was the seat of the Buganda kingdom (Omolo-Okalebo, 2011). The area that was formerly the Buganda Kingdom was now divided into two distinctive parts; the African dominated 'Kibuga' with Mengo hill as the focal point, and the European/Asian dominated 'Kampala' centring on Nakasero Hill (Omolo-Okalebo, 2011). This division lasted for almost 70 years, but the effects persist to date.

Kampala started out on 170 acres and was exclusive for only the Europeans, no native settlements were allowed. It subsequently expanded (encroaching on Mengo and crown land) to 3000 acres by 1929 and to over 4600 acres by 1944 (Omolo-Okalebo, 2011). Kampala started to develop in much faster and more structured way than Mengo and as such they had very differentiated urban forms.

Fig 19 Planning episodes 1890 -1912
Source; (Gutkind,1963)



History of Planning in Kampala

Governance structures – Two separate authorities; the Mengo administration and Kampala administration, natives were excluded from Kampala.

1912 Planning scheme

The first planning scheme for Kampala was drawn up in 1912 by the Government Town planning committee covering the central part of Kampala (Nakasero) (Omolo-Okalebo, 2011). The spatial structure of this area of the city still stands today and is a direct result of this planning scheme.

1919 Planning scheme

A central planning board was established and tasked to develop a plan for Kampala, with the major concerns being prevention of outbreak and spread of diseases . Multiple deliberations were held in preparation of the plan, from which the native African was excluded. The 1919 scheme did not contain residential zones for the Africans and also proposed drainage of marshes and swamps to prevent mosquitoes (Omolo-Okalebo, 2011). In addition, the current golf course (the largest open green space in the city) of about 400 yards was set in place as a 'green belt' to separate the races from each other.

History of Planning in Kampala

1930 Planning scheme

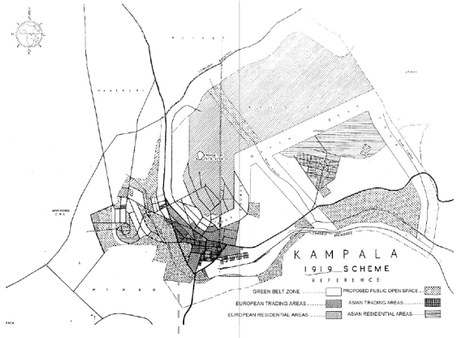
General public health and sewerage management were the major concerns for this planning scheme, which was prepared by consultants from the UK (Gutkind, 1963). The green belts from 1919 were maintained , with additional residential zones for the European and Asian races, and still no residential zones for the Africans. The existing spatial layout of present day Kampala in regards to residential zones, industrial zones and commercial zones directly results from the planning recommendations from this planning episode (Omolo-Okalebo, 2011).

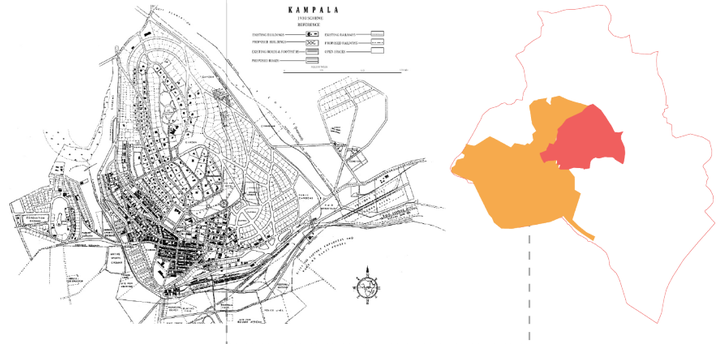
1950-1951

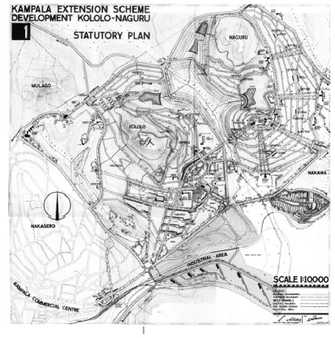
This scheme was prepared by a consultant from the UK, and for the first time included African residential areas within Kampala. In fact, residential zones for the Africans had not been considered until the 1947 extension of Kampala plan prepared by German architect and planner Ernst May (Omolo-Okalebo, 2011). This was the last colonial planning scheme, it stayed in force until it was revoked in 1968, and replaced by the 1972 structure plan (KPDP, 2012).

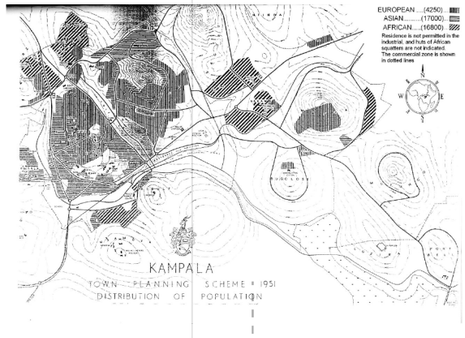
Fig 20 Planning episodes 1919 -1951
Source; (Gutkind,1963)

Pre- Independence









1919 **1920**

Planning scheme promoted racial segregation.

1930

Planning scheme centred on health concerns

1940

1947

Ernst May extension scheme of Kampala

1950 1951

First planning scheme with housing for natives.

History of Planning in Kampala

Post-Independence

Uganda gained its independence in 1962, but the duality of Mengo – Kampala continued to exist up to 1966. Mengo hosted the bulk of the African urban population since it was convenient for the urban poor who were barred from activity in the city, pre independence.
Consequently, there was a tremendous need for housing and services which led to unplanned high density quarters in the swamps and low lying areas between the hills occupied by the unskilled and uneducated urban poor.
There were different governing authorities for the different parts of the urban area with varying development standards and regulations. It was against this backdrop that the UN urban planning mission was requested by the central government; particularly to solve what had become the 'Mengo urban planning challenge' (Omolo-Okalebo, 2011).

1963-1969 UN planning missions
The first UN planning mission was tasked with producing a master plan for Mengo and advising on the overall development of the municipality which concluded in a report (recommendations for urban development in Kampala and Mengo).

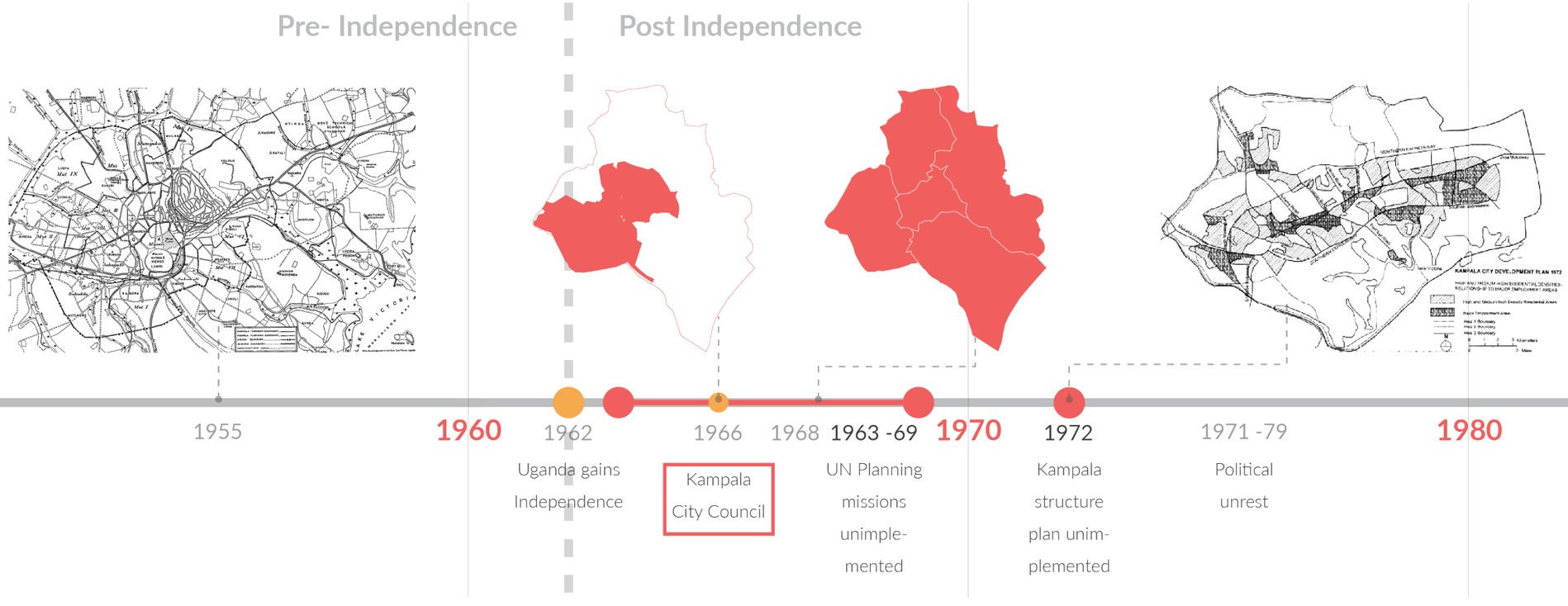
History of Planning in Kampala

The second mission was headed by a team of junior planning professionals from Sweden tasked with urban planning of the Kampala 'Metropolitan Region'. Amongst their conclusions presented in the report to the Uganda Ministry of Administrations, the Metropolitan area of Kampala had four separate local governments; Kampala city (under Uganda government), Mengo, Kawempe and Nakawa (under Buganda government). The lack of cooperation between these key authorities was the greatest challenge.

The outcome of the third mission was the production of a detailed survey report that provided a background to the master planning process to begin in 1970-1972.
Governance structures- In 1966, Cultural kingdoms were abolished and the Kampala City Council (KCC) was formed. For the first time Kampala, now a district, was under one authority.

1972 Kampala Development Plan
With the abolition of kingdoms in 1966 by then Prime Minister Milton Obote, Mengo officially became part of Kampala City and as a result, the city literally multiplied overnight from 28sq kms to 195 sq kms (Omolo-Okalebo, 2011). Hence, there was a need for comprehensive planning of

Fig 21 Planning episodes 1960 -1980
Source; (Omolo-Okalebo, 2011)



History of Planning in Kampala

the new amalgamated city. This is the only planning episode in Kampala's history initiated by the locals and only a select few projects were built. Unfortunately, the planning coincided with the instability of the succeeding military regime which did not recognise the importance of planning, therefore hindering its implementation. There was also a weakening of land tenure security as well as unregulated urban development , coupled by increased rural urban migration which led to development of informal settlements (KPDP, 2012).

1994 Kampala Structure plan

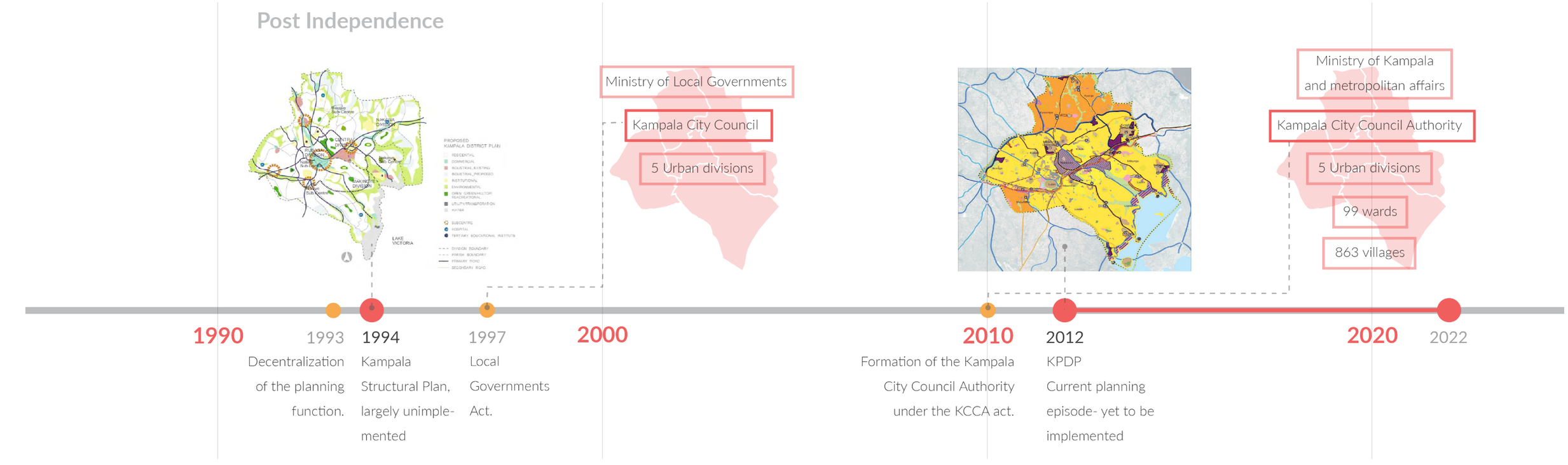
By the 1990's, the city was a complex mix of former colonial developments (the formal), and the largely informal urban neighbourhoods. The city had evolved on it's own, with minimal planning intervention into one of highly mixed land uses, due to a rise in predominantly informal economic activities. This planning phase embraced this trend and allowed for mixed uses to be accommodated in the new zones, along with the primary zonal function. Due to continued urban growth spilling into the city's wetlands which were prone to flooding, the plan also outlined environmental protection for ecological areas e.g. wetlands and shoreline (Omolo-Okalebo, 2011). However, despite the comprehensiveness of the plan, it was largely unimplemented; The environmental zones were not protected, most industry was not developed and only two proposed infrastructures were built.

2012 Kampala Physical Development Plan

Kampala City Council Authority (KCCA), Ministry of Lands, Housing and Urban Development (MoLHUD) and the Ministry of Local Governments called for the updating of the Kampala Structural Plan. The Kampala Physical Development Plan (KPDP) was prepared by a consortium of engineers, architects and planners from Israel and South Africa, funded by the World Bank (KCCA, Kampala Physical Development Plan, 2012). The main objectives of the KPDP were; to guide the orderly and sustainable development of Kampala, and to Update the 1994 structure plan, providing long and short term development goals for KCCA (Ngoga, 2018). However, the KPDP has faced multiple implementation challenges and has therefore seen minimal success to date (Ngoga, 2018). In 2010, the Central Government took over the management of Kampala; the Kampala City Council (local government) was replaced by the Kampala City Council Authority .

History of Planning in Kampala

Fig 22 Planning episodes 1900 -Present
Source; (Omolo-Okalebo, 2011)



History of Planning in Kampala

A critical review of Kampala's planning history reveals the key problems underlying Kampala's spatial planning challenges as; non-implementation and spatial segregation.

Conclusion

A critical review of Kampala's planning history revealed the key problems underlying Kampala's spatial planning challenges as; un implementation and spatial segregation.

Non-implementation – Reflected in the Planning Process

Although almost all planning schemes pre independence were implemented, there has been very minimal implementation of planning ideas post-independence. For various reasons such as political instability, financial constraints, complicated land tenure etc., most planning proposals remain on paper. The current planning document, the KPDP has been active for 10 years, but with minimal success. It is crucial that radical measures are taken to ensure that the KPDP doesn't follow the same fate of its predecessors.

Spatial segregation – Reflected in the Planning Outcome

Historically, a section of society has always been excluded from the formal spaces of the city by way of planning. So it is unsurprising that despite Kampala being joined under one authority, the duality of the formal and informal city remains; there's essentially two cities in one. The segregated spatial structures inherited from colonial times still persist today; albeit now on a basis of socio-economic class as opposed to race.

These two fundamental issues relate to each other; Un implementation of spatial plans results into the continued spatial segregation.

Spatial segragation, the reality on ground which is the outcome of failed spatial planning, manifests mostly as informality. This informality is not considered or reflected in what is proposed in the formal planning process, hence resulting in the non-implementation of spatial plans. This creates a loop where the two issues constantly feed into each other (fig 23).

For the purpose of this research, the problem of non-implementation of spatial plans which is nested within the planning process is summed up as the ***Formal practices*** while spatial segregation which characterizes the planning outcome is summed up as ***Informal practices*** (fig24).

Fig 23 A loop of the underlying problems.
Source; (Author,2022)

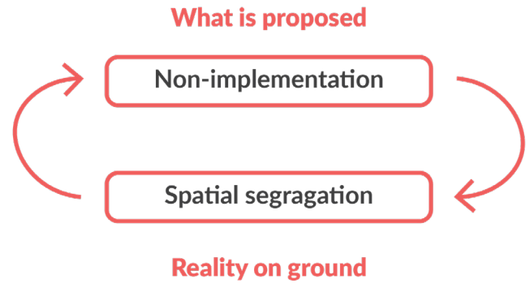
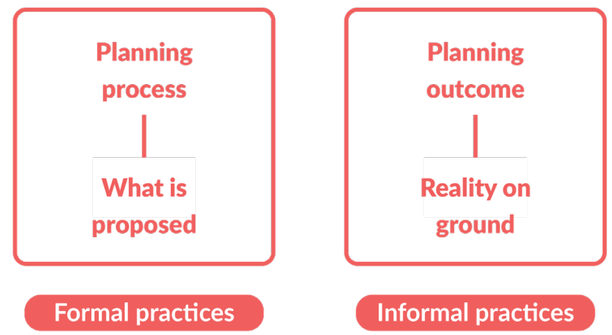


Fig 24 Formal and Informal practices
Source; (Author,2022)



Problem Statement

It is thus prudent for planning to engage with both the formal and informal practices, to ensure successful implementation of spatial plans.

Kampala, the capital city of Uganda, boasts of a diverse landscape, endowed with natural assets such as the shores of Lake Victoria and multiple hills bounded by wetlands. As the economic heart of the country, the city has a high level of in-migration fuelled by the search of job opportunities. This ultimately contributes to its rapid urbanisation rate (UN-Habitat, 2014), with the population expected to grow to over 15million by 2040 (KCCA, 2012).

However, the city lacks the capacity to accommodate this unprecedented growth, resulting in its continued expansion on a primarily informal basis with limited input from formal planning. This further exacerbates the long-standing problem of spatial segregation and its associated threats to the citizens' livelihoods and environment. Resultantly, informal and formal practices work parallel to each other, leading to conflicting and uncoordinated efforts towards tackling the city's urbanisation challenges. It is thus prudent for planning to engage with both formal and informal practices, to ensure successful planning implementation for a more sustainable urban development of Kampala.

Fig 25 Spatial segregation in Kitintale - Mutungo, Kampala. Source; (Google earth ,2022)

Research Questions

How can a strategic framework combining both the formal and informal practices lead to the effective planning implementation for a sustainable and flood resilient Kampala?

Main Research Question

How can a strategic framework combining both the formal and informal practices lead to the effective planning implementation for a sustainable and flood resilient Kampala?

Sub Research Questions

Formal practices

1. What formal planning practices on flood resilience in wetlands exist in Kampala?

Informal practices

2. What informal practices on flood resilience in wetlands exist in informal settlements in Kampala?

Combined

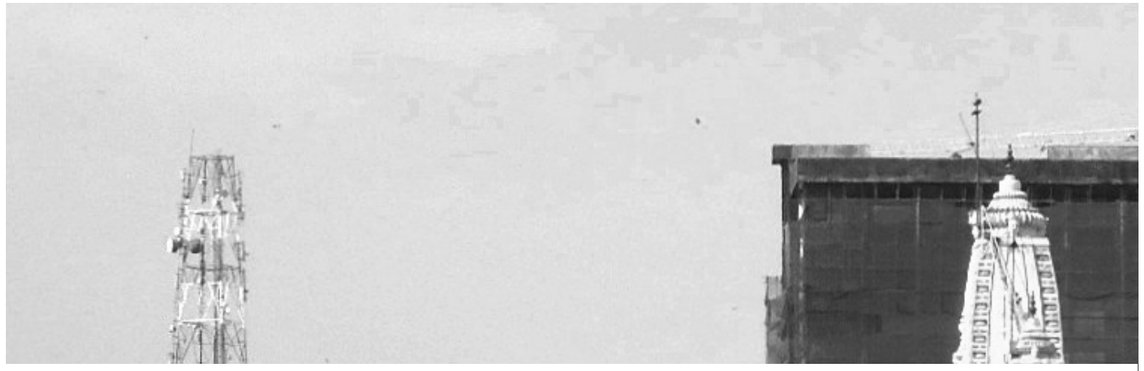
3. How can the informal practices be combined with formal practices?

Aim and Outcome

To test the pattern language methodology as a tool for combining formal and informal practices.

Aim and Outcome

This research aimed to develop a framework that incorporates both the formal and informal practices on flood resilience in wetlands, into a concerted planning effort towards successful planning implementation. Accordingly, the intent was to test the pattern language methodology as a tool for combining formal and informal practices as elaborated in the next chapter. The research outcomes were a pattern language on flood resilience practices and a strategic framework for the Nakivubo Wetland Area.



Methodology

Literature review

A Critical review on Planning practice and theory
The leading discourses in planning theory
The emerging theories from the Global South
The relationship between Process and Outcome
The Pattern Language Methodology

Theoretical Framework

Conceptual Framework

Methodology

Methods

Societal and Sceintific Relevance

A Critical review on Planning practice and theory.

The profession of urban planning is currently faced with unprecedented challenges occurring particularly in the Global South, where much of the anticipated urban growth is to happen. Yet still, there is a mismatch between the norms informing urban planning and the realities of Southern cities (Watson, 2009).
Taking the origins of the publication of planning journals as an indication, production of planning knowledge is seemingly situated in the Global North (Yiftachel, 2006). It is therefore unsurprising that dominant planning theory is dominated by process-centred theories which are a reflection of the Global North societies on which they are premised; with stable and organised systems (Yiftachel, 2006). This is not the case for the diverse contexts of the Global South where systems are less organised, and therefore it becomes difficult to reconcile planning theory with the physical results of planning (Yiftachel, 2006). Henceforth, the need to create theories that fit the realities of the Global South becomes apparent. The idea is not to develop two parallel theories; one for the North and the other for the South, but rather to expand the pool of planning theory knowledge (Watson, 2009).
As highlighted in the previous chapter, the key issues at the root of Kampala's spatial planning challenges are non implementation and spatial segregation. In other words, there is a problem with the process of planning and the proceeding spatial outcome . Therefore, this section will outline the leading discourses in planning theory, beginning with the process-centred planning theories primarily from the global North which are; Communicative Planning (CP) and Just City Theory. Thereafter will follow a discussion on emerging Global South planning theories that are centred on the outcomes of planning; Urban Informality and Insurgent Planning (IP). The section will conclude with finding the relationship between process and outcome through notion of spatial justice, and how the pattern language methodology can be used as a tool to bridge between the two.

The leading discourses in planning theory

Communicative planning

Communicative Planning (CP) can be defined as an open process of seeking consensus through participation and dialogue involving a wide range of actors. It is premised on exploring cooperative ways to settle planning disputes in a transparent and undistorted manner with mutual understanding (Sager, 2018). CP aims to make deliberation of planning maters inclusive- through giving a voice to those affected by policy with the hopes that this will encourage community cohesion and build social capital (Sager, 2018). Advocates for CP insist on discursive interaction as the means to rightly serve public interests (Fainstein S. S., 2009), with emphasis on the way planning is performed and a focus on moral judgement (Healey, 2012).

Difference between Communicative planning and citizen participation

It is important to note that CP isn't merely about expanding the citizen participation process but rather, by allowing for open and honest dialogue, it is possible to unlock solutions to problems that couldn't be done in the previous atmosphere (Sager, 2018). In highlighting a key difference between citizen participation and communicative planning, Sager mentions the concepts of invited spaces and invented spaces (Sager, 2018). He asserts that whereas citizen participation is hosted in invited spaces; as in inviting civil society into arenas of the official planning authority for information exchange, communicative planning recognises the need for some groups to meet on 'neutral ground' so to speak, hence communicative planners meet these groups in invented spaces (Sager, 2018). Sager insists, 'the desired shift is from a planner–citizen information exchange under citizen participation, to a wider dialogue, solution-seeking, and decision-oriented deliberation in CP' (Sager, 2018). CP also differs from advocacy planning in that whereas advocacy planners aim to speak on behalf of the marginalised groups, communicative planners

Literature Review

Communicative planning aims to make the planning process more inclusive.

Fig 26 Citizen participation.
Source; (Author , 2019)

allow the groups to speak for themselves but aid in the process to ensure that their message gets through (Sager, 2018).

The role of the Planner.

In communicative planning, the planner becomes a facilitator as opposed to a technocratic expert (Gunder, Madanipour , & Watson, 2017). Here, even though their power might be limited, the planner plays a critical role of influencing communication between the parties involved through directing focus to specific issues thereby revealing underlying mistruths (Sager, 2018). It is the role of the communicative planner therefore to facilitate collaboration between concerned groups in a creative way, offering more to each participant than they would have otherwise achieved in alternative ways. (Sager, 2018)
Planning professionals that are proponents of CP advance communication as the key element of the practice (Watson, 2002). Planners are primarily involved with communicating with various stake holders and interest groups, facilitating debate and negotiations until a consensus is reached (Watson, 2002). CP assumes the planner to be of moral conscience and not biased. However, this is not the case in majority of the cities in the global South where it is likely that if a planner is hired by the state, then they will work to the benefit of the state's interest.

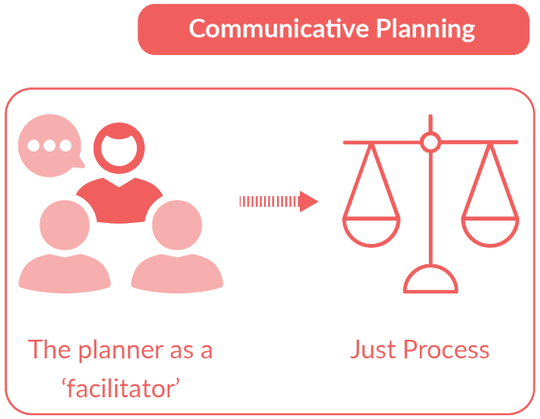
On Civil Society.

CP's general assumptions of background conditions of equality, and that civil society can be defined and organised, grossly underestimate the complexities in societies of the global south (Fainstein S., 2009; Watson, 2012; Miraftab, 2017). In the case of CP, civil society is considered as a holder of democracy, with the belief that effective communication processes can result in agreement. However, this assumes that the only difference between actors exists at this level of dialogue which is erroneous. Watson affirms that, the most pressing critique of CP is the unresolved question of power, as it doesn't make provision for societal inequalities and complex power structures that define the urbanisms of the Global South (Watson, 2002).

Process over Outcome.

CP places emphasis on democratic decision making with the aim of producing spatial justice from a just planning process (Fainstein S. , 2014; 2017 ; Sager, 2018), but that is not always the case. Critics argue that the initial state of inequalities will reflect in the outcomes being more favourable to more powerful groups (Fainstein S. , 2014) . As Watson submits, 'just processes don't necessarily result in just outcomes' and therefore the outcomes of the discursive planning processes must be judged on their impact (Watson, 2002). While it is important to consider both process and the outcome, indeed an over emphasis on process disregards the substance yet in actuality, the outcome of planning has longer lasting effects. (Yiftachel, 2006).

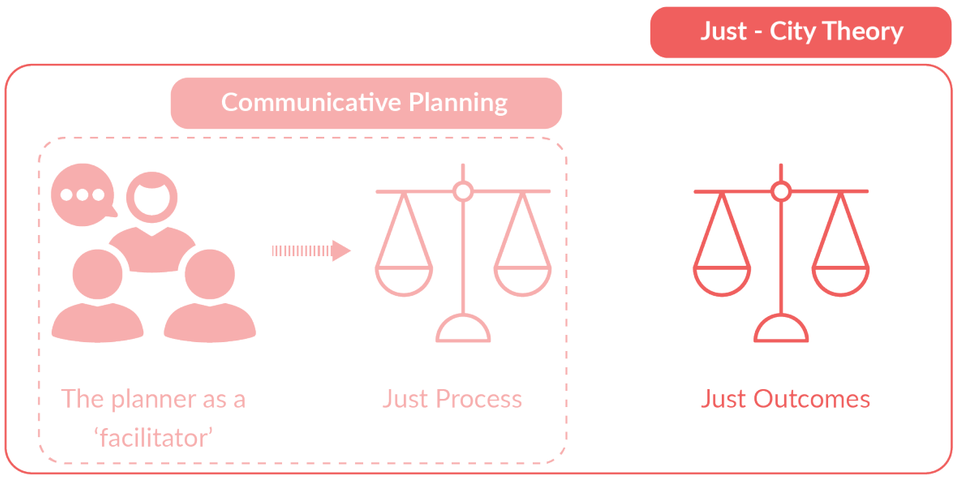
Fig 27 Scheme of Communicative Planning
Source; (Author , 2022)



Just-City theory

The concept of the Just city builds on Lefebvre's thoughts about everyone having a 'right to the city' and the right to change it according to their needs (Fainstein S. , 2017). In response to unjust urban planning that had a skewed distribution of benefits towards the rich and disadvantaged the vulnerable, proponents of the Just city insist on having justice as the primary goal for urban policy (Fainstein S. , 2017).
Fainstein make a clear distinction between CP theory and the Just city; CP seeks to advice or aid the planner in their planning duty, whereas the just city seeks to 'mobilise the public' (Fainstein S. , 2000). Therefore, the audience of Just city theory is more the 'leadership of urban social movements' while that of CP is the professional (Watson, 2002). A salient feature of the Just City position is it's concern with the outcomes of spatial planning as well as processes and their distributive impacts (Watson, 2002). Like this, the Just city subsumes communicative planning within its inclusive processes but goes an extra mile to focus on just outcomes (Fainstein S. S., 2009).

Fig 28 Scheme of Just city Theory
Source; (Author , 2022)



The Just City theory insists on having justice as the primary goal for urban planning

Critiques of CP and the Just-city

Both CP and Just city are bound to scale which presents problems. In CP it is essential that all stakeholders and actors are included in planning deliberations yet the practicality of including everyone that needs to be included is close to impossible. Then, in terms of just outcomes, what might be considered as just in one place, e.g. at a neighbourhood level might have unjust ramifications at the city scale (Fainstein S. S., 2009). Fainstein states that both the communicative and just city models attempt to reframe spatial planning so that it benefits marginalised groups. She maintains however, that both CP and the Just city approach are utopian primarily because the assumptions on which they stand, do not hold in present capitalist economies characterized by unequal distribution of power and resources. (Fainstein S. S., 2009).

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The emerging theories from the Global South.

Much of the Global South, and in particular African societies underwent a period of colonization during which Northern planning forms were imposed and used as a tool of control (Gunder, Madanipour , & Watson, 2017). The effects of this period are still visible in most urban forms of African cities, evidenced by fragmented and unequal societies, and intensified by the recent trends of globalisation and capitalism (Yiftachel, 2006).
Global ideas of an ideal city modelled after Northern contexts are based on assumptions that do not apply anywhere else in the world (Watson, 2012) and essentially, are countered by the persisting urban forms in the Southern context. However, in a bid to aspire to world-class levels, some cities push for urban forms that appeal to this ideal city model and further lead to social and spatial exclusion (Watson, 2012). It is therefore crucial that planning theories are contextualized, as they are developed in response to particular circumstances and concerns (Gunder, Madanipour , & Watson, 2017). The following section examines emerging planning theories rooted in Southern contexts.

It is therefore crucial that planning theories are contextualized, as they are developed in response to particular circumstances and concerns

Fig 29 Precolonial Kampala influnced by Western planning ideals. Source; (shorturl.at/cvMX8)

In the global south, societies have lost confidence in the state and have resorted to intervening in their living environments through actions outside of the state laws.

Insurgent planning

Insurgent planning (IP) calls for a radical shift in planning ideology in that it aims at 'decolonizing the planning imagination by taking a fresh look at subaltern cities to understand them by their own rules of the game and values rather than by the planning prescriptions and fantasies of the North' (Miraftab, 2009). IP builds on an earlier radical planning approach that recognised the actions and practices of local communities and citizens as forms of planning (Miraftab, 2017). In the global south, societies have lost confidence in the state and have resorted to intervening in their living environments through actions outside of the state laws. These actions or practices which are a form of defiance are called insurgent practices (Miraftab, 2017), evidenced physically by informal settlements for instance. Miraftab however highlights one of the key concerns of critics of IP which is that not every act of defiance is necessarily progressive (Miraftab, 2017) and so sets forth a set of principles that describe insurgent practices. So by definition, insurgent practices are a range of innovative practices guided by principles of transgression, counter-hegemony and decolonised imagination (Miraftab, 2017).

The difference between IP and other forms of inclusive planning; a set of practices

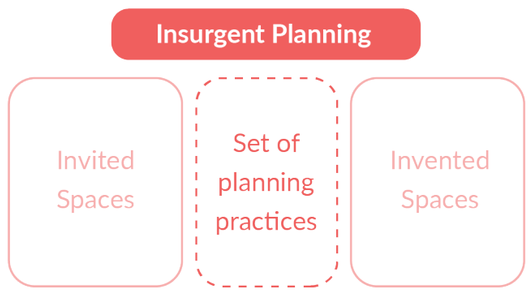
IP differs from the other variations of inclusive planning because it 'breaks' away from epistemology of planning theory in a way that; while previous forms focussed on the planner, IP focusses on planning (Miraftab, 2017). Meaning that the focus is on a 'set of practices' rather than a specific actor or movement, and that planners are just another actor within the contested field of planning.

Another ontological break is that other variations of inclusive planning that precede IP were guided by representative democracy principles, where citizens entrust their rights to the technocrats. In contrast, IP is guided by principles of a participatory democracy, where citizens recognise the faults in the formal systems and take matters into their own hands so to speak; they directly get involved with making the decisions that affect their livelihood (Miraftab, 2017). The ontological difference between insurgent and inclusive planning does not make them binaries however.

Invited and Invented spaces.

Invited spaces are those defined by activities of community based organisations (CBO'S) and non-governmental organisations (NGO'S) that are recognised by the state as legitimate. Invented spaces however, are unified actions by the poor that defy the state laws /norms (Miraftab, 2017). These two spaces can simultaneously exist in an interacting way and insurgent practices can move across both these spaces of participation, engaging both the formal and informal institutions (Miraftab, 2017). This is a strength of insurgent practices that can be honed in the crafting of a new approach to planning.

Fig 30 Scheme of Insurgent Planning
Source; (Author , 2022)



Informality has become the norm and not the exception, and therefore planning has to engage with informality if it is to remain relevant to new urban conditions

Urban Informality

Watson rightly notes that the most prominent feature of urbanisation in Sub-Saharan Africa is the expanding informalization which is fuelled by a decline in state capacity to provide public services to urban dwellers (Watson, 2002). Growing informality is captured in the city's land, economy and housing markets to such an extent that a large proportion of the urban regime can be classified as informal (Yiftachel, 2009). Informalisation, especially in terms of the economy, has developed mainly as a survival strategy, with informal activities having a 'survivalist nature' requiring low investment, minimal profit and providing low and irregular incomes in poor working conditions (Watson, 2002). Like this, informality has become the norm and not the exception, and therefore planning has to engage with informality if it is to remain relevant to new urban conditions (Watson, 2012).

However, informality is not relegated to just a section of society, as some activities performed by the state can also be seen as informal (Watson, 2012). In addition, informality does not actually lie beyond the reach of planning, but rather, it is planning that delineates what is informal by conferring legality upon some activities over others (Ananya, 2009); case in point, informal settlements having their planning rights or permissions withheld intentionally (Watson, 2012). As such, Ananya asserts that the difference is not one between formal and informal but rather between informality itself, as the state power determines which forms of informality will remain and which ones will be removed (Ananya, 2005). Meaning, definitions of what is legal and illegal, actually shift depending on who is in control at the time. (Watson, 2012)

From a more theoretical stand point, Ananya seeks to redefine the understanding of the notion of 'informal' and argues that informality be understood as an expression of urbanisation, 'a logic through which differential spatial value is produced and managed' (Ananya, 2011). She further contends that urban informality isn't confined in the 'slum' but rather is a 'mode of the production of space' (Ananya, 2011). By stating this, she expands the view of informality beyond the physical geographies where it manifests, to include the processes that produce them. She further describes informality as a state of ambiguity, lying between the constantly shifting limits of what is legal and illegal (Ananya, 2009), which Watson collates to 'gray spaces' (Watson, 2012).

Informality goes beyond the physical geographies where it manifests, to include the processes that produce them.

Fig 31 Namuwongo Informal settlement
Source; (Author , 2018)

On gray spaces

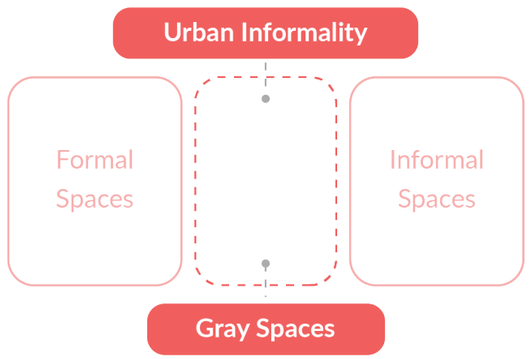
The notion of gray spaces is especially important for this research because it pins down the concept of informality into spatial terms. Yiftachel pioneers the use of the term 'gray spaces' in his work and describes gray spaces as the 'political geography of urban informalities' (Yiftachel, 2009). In other words, if indeed urban informality were to be assigned to a space, it would be the 'gray space'.

Gray spaces constitute a large spectrum of inhabitants, economies and lands that lay in the shadows of the formal and planned city (Yiftachel, 2009). In urban planning, gray spaces tend to be 'ignored' or quietly tolerated , and even encouraged in some instances. Planning rules can be waved to favour certain groups or kinds of developments which accords some legality to these 'gray spaces' (Yiftachel, 2009).

Gray spaces are thus usually maintained by 'a politics of un-recognition' whereby the state authorities know that they exist but are not considered in any planning considerations and as such are denied legitimacy and service provision (Yiftachel, 2009). In actuality, urban planning is usually behind the creation and criminalization of gray spaces through designing the city's formal spaces that serve to exclude certain areas, and then goes further to label them as chaotic and un-wanted (Yiftachel, 2009). Consequently, they are left in a state that Yiftachel perfectly labels 'permanent temporariness' in that, they are condoned and denounced simultaneously, while eternally awaiting rectification (Yiftachel, 2009).

Gray spaces have increasingly become characteristic to urban regions of the global South (Yiftachel, 2009) inhabited by 'marginalised social groups' and manifesting physically as the informal settlements (Watson, 2012). However, gray spaces have the potential to become areas of societal transformation (Yiftachel, 2009) through avenues such as insurgence, which often times evolves from informalization (Ananya, 2009).

Fig 32a Scheme of Gray spaces
Source; (Author , 2018)



Literature Review

The relationship between Process and Outcome

The term 'spatial justice'

Soja draws emphasis on the need to explicitly define a critical spatial dimension of justice, stating that other concepts of justice such as territorial, environmental, or indeed Just city are necessary but can be distractive (Soja E. , 2009). Although spatial justice can be interchangeably used with other concepts such as territorial justice, urbanisation of justice, right to the city and others, Soja insists on the importance of the terminology of 'spatial justice' which specifically focuses on the social outcomes of spatial processes (Soja E. , 2010).

What is Spatial Justice?

Soja defines spatial justice as, 'the focussed emphasis on the geographical aspects of justice and injustice, in otherwards, it involves the fair and equitable distribution in space of socially valued resources and the opportunities to use them' (Soja E. , 2009). Spatial justice encompasses both the just/unjust geographies and the processes that produce them; it is therefore both outcome and process (Soja E. , 2009).

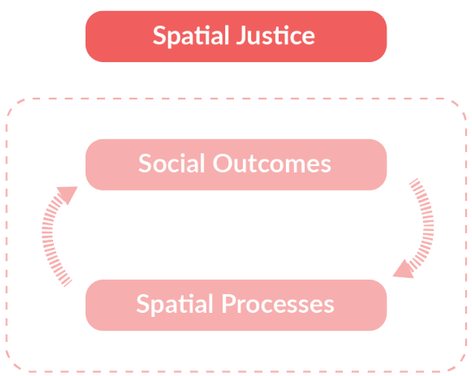
Soja also asserts the importance of understanding that the 'spatial shapes the social just as much as the social shapes the spatial' (Soja E. , 2009). Unjust outcomes therefore, derive from innately unjust processes working in an urban environment with pre-existing distributional injustices (Soja E. , 2010) A cycle is then set in motion, because an initially established advantage or

Producing new spaces requires adopting new actions.

If citizens actions can be changed or rallied, then that impacts on social processes, which will in turn impact the spatial outcomes.

disadvantage tends to 'build on itself' (Soja E. , 2010). In this way, spatial injustice is propagated by the everyday processes of an urban system. It is critical to develop this awareness of the fact that; the geographies we occupy are consequential, in other words result from our social and spatial processes, that they have both negative and positive effects, and that since they are created by human action, can also be changed by human agency. (Soja E. , 2010)
Soja rightly concedes that 'there will always be some unevenness in the geographies we produce' because social processes do not occur evenly over space (Soja E. , 2010). Although every geography is embedded with some level of injustice by our mere occupation of it, when its solidifies as lasting structures of advantage that benefit inhabitants of some areas over others, then it is at this point when intervention becomes necessary (Soja E. , 2009).

Fig 32b Scheme of Spatial Justice
Source; (Author , 2018)



Conclusion

Reflecting on the theories discussed above, there are similar strands of thought that form a basis for this research.

The Just city theory, which subsumes CP, shifts the audience of planning from the planner to the public /community. Here, there's a sort of recognition of society as contributors and indeed determinants of outcome. In order to have an effect on the outcome of planning, then citizens must be involved. Their involvement can be through consolidated actions or practices as highlighted in IP. Spatial justice introduces a new awareness to this discussion; that process and outcome are not independent of each other but are rather connected in a kind of loop. The recognition of this loop (process and outcome) as mentioned in the previous chapter, is a central theme in this research (see figures 32, 23&24).

The research outlined the key problems facing Kampala's urban planning as; non-implementation and spatial segregation. In otherwards, a problem with the process and outcomes of planning. Evidently, for planning to be successful at achieving its goals, the process cannot be separated from the outcome. If the outcome of planning, is the reality on ground, and that reality is informality, then for the process to engage with outcome, means that formal planning has to engage with the informality on ground.

In otherwards, the spatial planning process must incorporate the actions of citizens. If citizens actions/practices can be rallied, then that impacts on the planning processes, which will in turn impact the spatial outcomes.

The Pattern Language methodology was proposed as a means and a tool through which this engagement could happen.

The Pattern Language Methodology

A tool to combine formal and informal practices – creating the loop .

Why the Pattern Language?

The Pattern Language methodology has the innate ability to simplify the research/design process by organising a large quantity of information into a coherent whole (The Pattern Book, 2013) such that it doesn't overwhelm the researcher and the audience for the research.
The Pattern Language has two key elements; The patterns, and the pattern field. Patterns are concise and only record the relevant information (The Pattern Book, 2013) By using patterns, the information collected on the practices could be stored in a similar format and concise manner, and could therefore be easily organised. Patterns not only contain written information but are also visual, which makes the information understandable for a range of people.
The pattern field provides an overview of the patterns (The Pattern Book, 2013) and allows for connections to be made between the patterns in a dynamic way. This could therefore simplify the process of finding the connections between the formal and informal practices, and creation of synergies between them.

The origin of the Pattern Language

The term 'pattern language' was first coined by Christopher Alexandar in his seminal book, 'A Pattern Language' (Alexander, et al., 1977). In defining patterns, Alexander et al. states that

'each pattern describes a problem which occurs over and over again in our environment, and then describes the core of the solution to that problem, in such a way that you can use this solution a million times over, without ever doing it the same way twice' (Alexander, et al., 1977). Another definition of patterns is offered by Salingaros whose describes patterns as 'discovered solutions that have been tested for some time and under varying conditions' (Salingaros, 2000). In other words, patterns can be defined as repeated practices that over time become apart of the way of life in a certain society. Meaning that every society indeed has its own unique pattern language (Alexander, et al., 1977). It is important to note however, that patterns are not invented, but are rather observed (Salingaros, 2000) discovered or mined (Eglin, 2020).

Individual patterns (or a collection of them) are different from a pattern language. A pattern language (PL) describes the way in which patterns connect to other patterns, forming a language with an infinite number of combinations (Alexander, et al., 1977).Patterns are not individual entities but are part of other patterns in a way that; they are embedded within large scale patterns, connect with patterns at the same scale and have small scale patterns embedded within them (Alexander, et al., 1977). This dynamism inherent in the pattern language methodology makes it highly sensitive to context.

On Global South

Since its inception, the pattern methodology has not been widely appreciated, largely due to misconceptions of its application (Salingaros, 2000), with many arguing that it's impractical in the current context of capitalist societies because it proposes an owner- built environment (Dovey, 1990). But Dovey argues, correctly in the author's view, that this might be the only practical process for a context of poor housing and massive unemployment (Dovey, 1990), as in the global South. The fact that the PL method is able to evolve (Eglin, 2020) along with the fast changing communities makes it suitable for application in the Global South.

Additionally, the methods and tools to study self-built environments such as those in the Global South are inadequate (Chagas Cavalcanti, 2019). Yet, there's a pressing need to study and research African settlements that are embedded with local solutions to urban challenges caused by rapid urbanisation (Steyn, 2006). This begs the question of what the most appropriate tool is for studying (recording, analyzing and interpreting) African urbanisms is (Steyn, 2006). Cai argues for the need of an approach that is flexible and can accommodate new emerging elements (Cai, 2018), Steyn argues that the methodology that is needed has to be 'quick but comprehensive', allowing for comparison of urban entities and interdisciplinary cooperation' (Steyn, 2006).

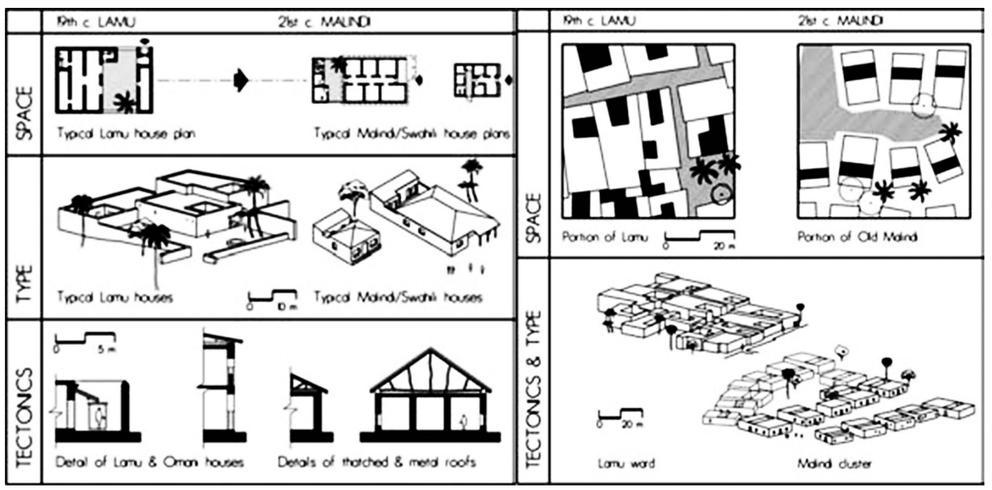
The pattern language methodology can be used as a tool for analysis on African settlements (Steyn, 2006) in that it can aid in the understanding of the complexity (Cai, 2018) of African cities, and also identify their resilient and robust characteristics (Steyn, 2006).

Application in literature on Africa so far.

Steyn uses the pattern language methodology to describe the African coastal town of Malindi using the Alexanderine patterns, highlighting the presence (and absence) of the patterns at the different scales (Steyn, 2006).Eglin uses the methodology to better capture and communicate the vision for Mooiplaas, a community in the Eastern Cape province of South Africa. He argues that pattern language offers a better way to 'articulate the community's vison during the municipal spatial development framework planning process' (Eglin, 2020) . He however suggests that more research is done on how the pattern language can be incorporated within spatial development frameworks of municipalities. The aim of this research is an attempt at how this can be done, for the case of Kampala-Uganda.

The pattern language methodology can aid in the understanding of the complexity of African cities, and also identify their resilient and robust characteristics

Fig 33 Patterns used to document the architecture of Malindi
Source; (Steyn, 2006)



Theoretical Framework

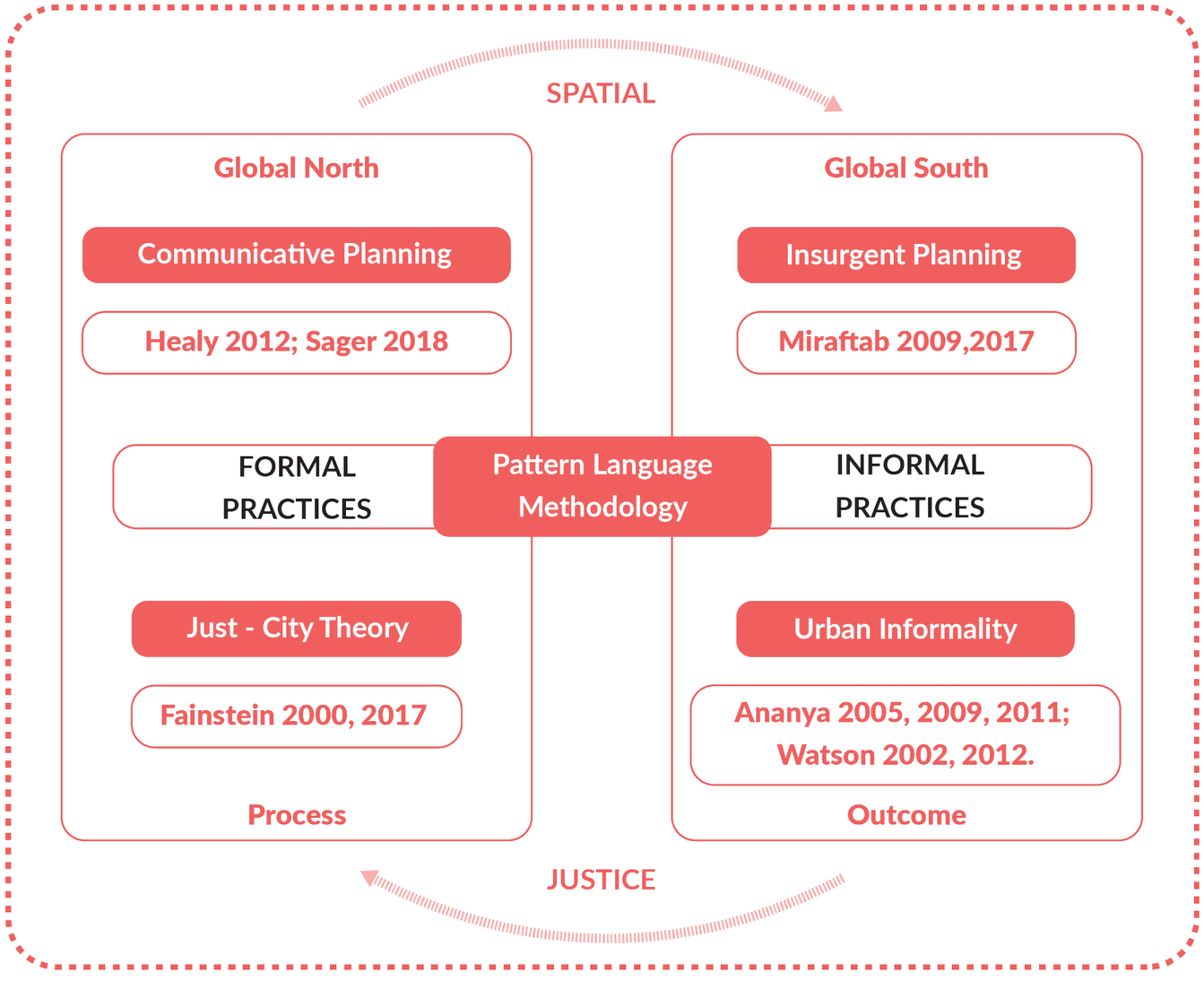
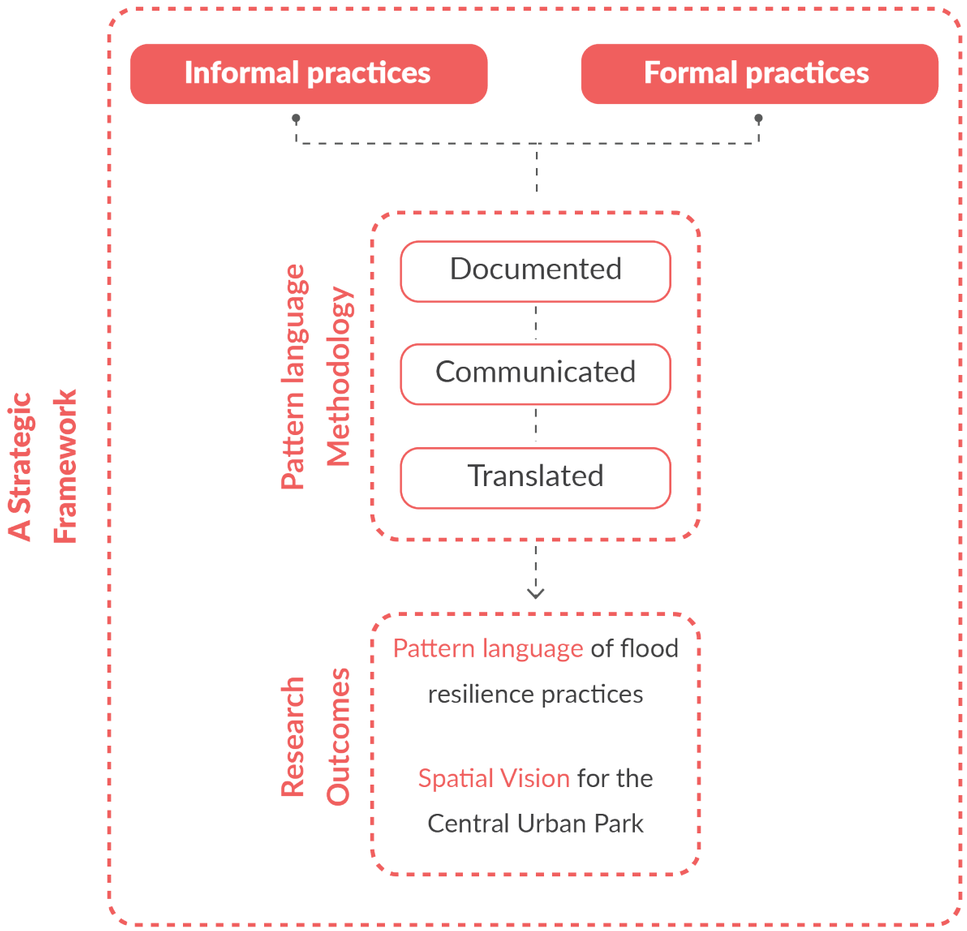


Fig 34a Theoretical Framework
Source; (Author, 2022)

The underlying question of the research is the binary of the Formal and Informal practices, and how to bridge the two. From the theoretical notions discussed in this chapter, it can be stated that formal practices are primarily derived from the workings of Global North systems, while Informal practices are rooted in the workings of societies primarily of the global south. Therefore, in referring to formal practices, the researcher also implicitly refers to the more process centred theories from the Global North, and in referring to the informal practices, the researcher implies the more outcome centred theories from the Global South. Thus, the research proposes to explore the pattern language methodology as a tool of not just bridging the formal and informal practices, but also the two systems they represent.

Fig 34b Conceptual Framework
Source; (Author, 2022)



The pattern language approach for this research project

The use of the pattern language in this research followed the Delft school approach which positits that patterns can be used to bridge between research and design, and for communication between professionals and laymen (Cai, 2018). Therefore, the PL approach in this research followed three key steps; Documentation, Communication and translation.

A tool for Documentation – Input for workshop

Patterns were formulated from the documented practices as a way to record and store the collected research data (van Dorst & Rooij, 2020), and present it in the same structure for easy understanding (Cai, 2018). The documentation of formal and informal practices was done through observations of the existing environment (Eglin, 2020) during site analysis; and review of literature (van Dorst & Rooij, 2020), particularly policy documents. This collected data was then documented in the format of a pattern.

A tool for Communication – During the workshop

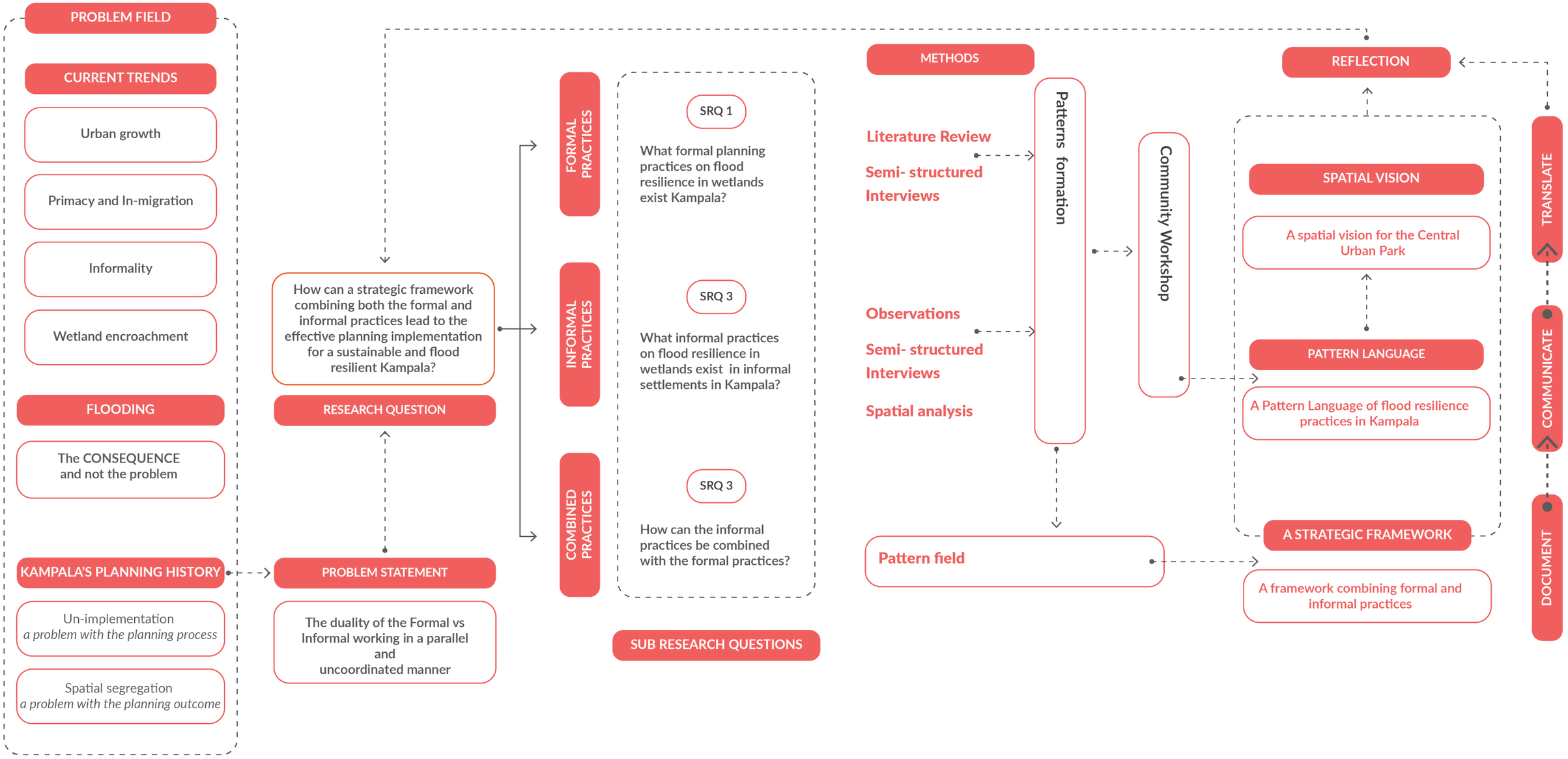
The formulated patterns were then used as input for a workshop organized between professionals and community members, where they fostered interaction by connecting different stakeholders (van Dorst & Rooij, 2020) (Cai, 2018), and helping the different sides understand each other better (Eglin, 2020). The revised patterns from the workshop process were then composed into a pattern field, in order to build connections between them.

A tool for Translation – After the workshop

The patterns were used as a way of bridging the research and design aspects of this research (Cai, 2018). The translation was done in two phases; first, by translating spatial and non-spatial data, (information from other fields) into design knowledge (Cai, 2018) and secondly, as a tool to support design by to translating scientific knowledge into design principles (van Dorst & Rooij, 2020) . These design principles where then applied in the formulation of a spatial vision.

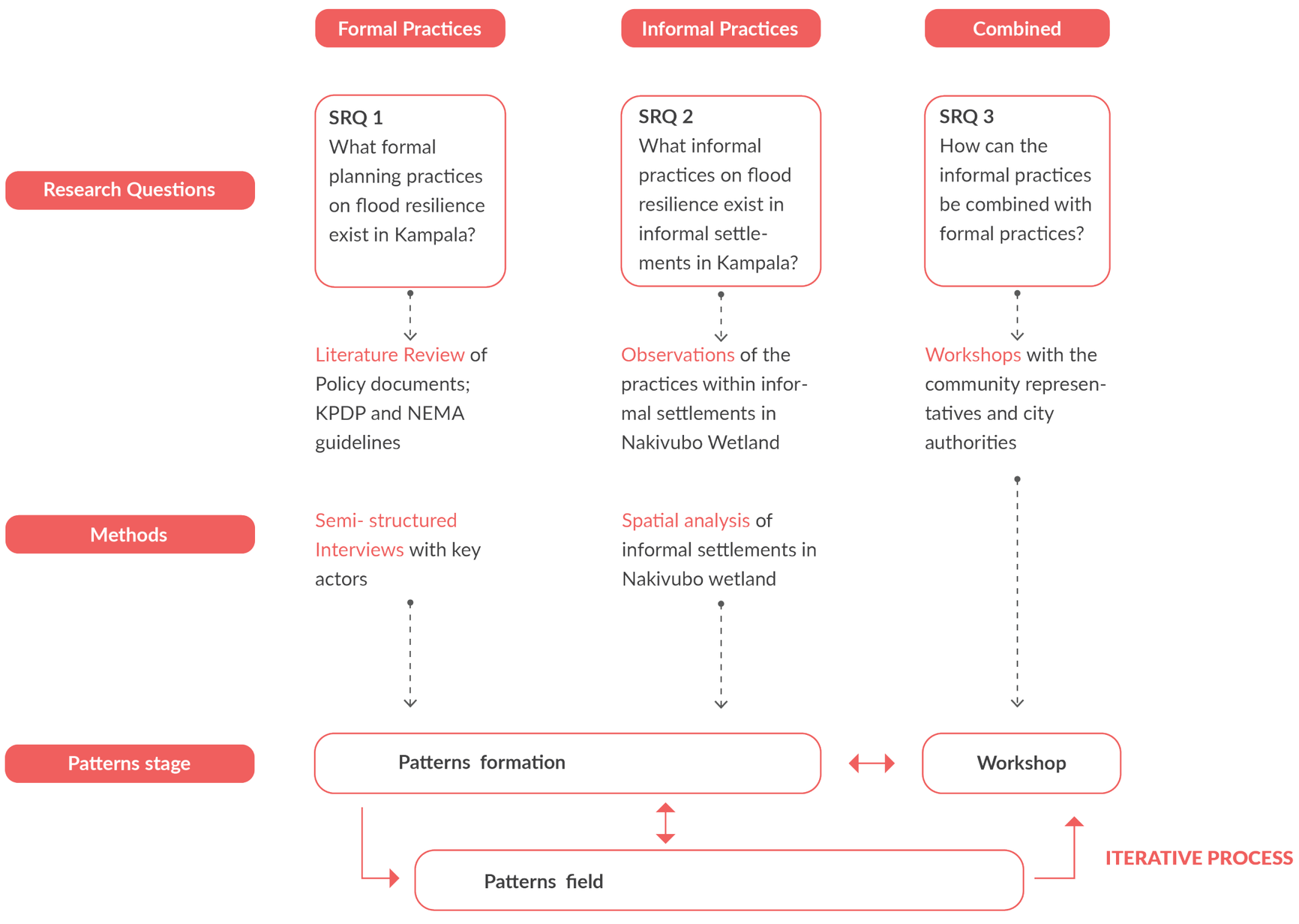
Methodology

Fig 35 Methodology
Source; (Author, 2022)



Methods

Fig 36 Methods
Source; (Author, 2022)



Definition of methods

Literature Review

This method was used to better understand the contribution of contemporary planning theories to this research, as well as guide on the application of the pattern language methodology.
This method also included a review of the historical planning documents and current policy documents of Kamapala i.e.; Kampala Physical Development Plan (KPDP) and the National Environmental Management Authority (NEMA) guidelines on wetlands.

Interviews

The use of semi- structured interviews helped to in ascertain the rationale behind the observed formal and informal practices.

Observations

Observations of the informal communities present in the Nakivubo wetland aided in the documentation of informal practices. This was done through field visits to the site.

Spatial analysis

Included the analyis of the spatial structure of Kitintale and Namuwongo informal settlements.

Workshops

Involved an iterative process of developing the pattern language, through a workshop attended by both the local community representatives and the city authorities.

Societal and Scientific Relevance

There exists a gap in knowledg on how formal practices of planning can effectively be combined with informal practices.

Societal Relevance

A significant proportion of the urban populations in Sub Saharan Africa lives in informal settlements, where they have resorted to taking planning matters into their own hands. As such, they have developed resilient practices in a bid to cope with day-to-day life. Devising a means to not only document these practices but to also incorporate them within formal planning is of great relevance to these communities. The research seeks to develop a platform that allows both the formal and informal parts of society to engage with each other and provide tools to facilitate this engagement.

Scientific Relevance

This research aims to fill an existing gap in knowledge on how formal practices of planning can effectively be combined with informal practices, through the use of the pattern language methodology. There is quite an array of research output that explores the pattern language methodology, however, only a few of these are based on contexts on in the Global South, and even fewer based on Sub-Saharan Africa. This research will therefore contribute to this body of work and pioneer these topics in Ugandan Urban planning literature.

Fig 37 Kasanvu Informal Settlement
Source ; (Author , 2022).

Document

Research Focus

Research theme
Area of Intervention

Formal Practices

KCCA
NEMA
Framework
Vision

Informal Practices

Obervations
Dimension, Scale, Sector
Framework
Vision

Combined Framework

The focus of discussion lay at the intersection of informal settlements, wetland encroachment and flooding.
These issues were grouped under the theme of wetland management, and in Kampala, they clearly manifest in the Nakivubo wetland area.

Research Theme

Wetland Management

As described in the introduction chapter, the focus of discussion in this research lay at the intersection of informal settlements, wetland encroachment and flooding. Informal settlements which host majority of the city's population are primarily located within wetland areas. This affects the ability of wetlands to perform their natural ecological functions, leading to overall environmental degradation and flooding. These issues were grouped under the theme of wetland management, and in Kampala, they clearly manifest in the Nakivubo wetland area (fig 38).

Area of intervention

Nakivubo Wetland

Location

Nakivubo, the largest wetland within Kampala, lies between Luzira, Bugolobi and Muyenga hills (fig 39). It is a permanent wetland that is fed by the Nakivubo channel. Nakivubo wetland drains into the Inner Murchison Bay area of Lake Victoria and therefore plays the vital role of filtering out waste water before it's discharged into the lake. The Inner Murchison Bay area is also the main source of drinking water supply for Kampala City and its neighbouring municipalities of Wakiso and Mukono (World Bank Group, 2015).

Fig 38 Intersection of issues
Source ; (Author , 2022).

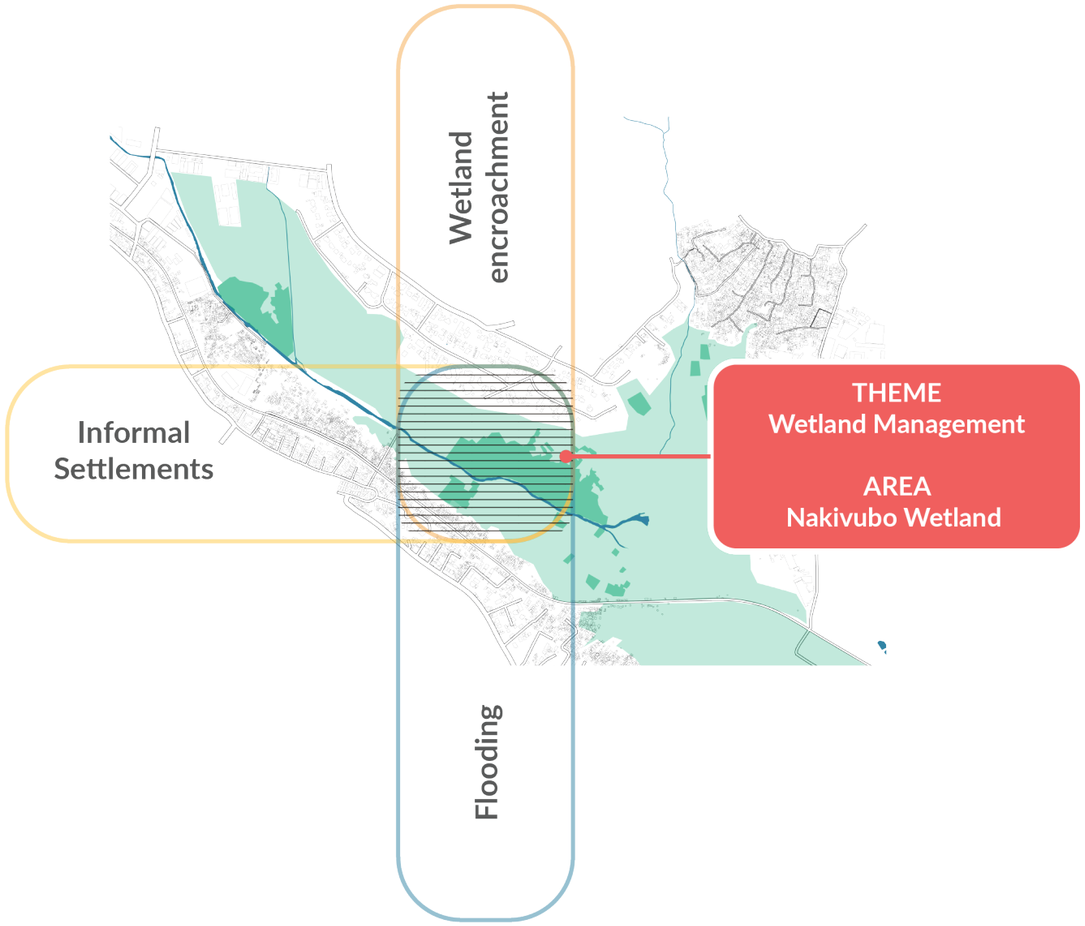


Fig 39 The Nakivubo wetland
Source ; (KCCA Satellite image, 2010)

Function

The Nakivubo wetland catchment area consists of the CBD and other central parts of Kampala City. Surface runoff and waste water from the city are transported via the Nakivubo channel into the wetland and Murchison bay. The industrial area and the Bugolobi Sewerage treatment plants also discharge waste water in the channel (World Bank Group, 2015).
More than half of the wetland has been modified by channelisation, and encroachment by informal settlements and the industrial area. As a result, Nakivubo has lost most of its natural filtering capacity because of the high levels of degradation. The uncontrolled use of the wetland by local communities for small scale economic activities like brick making and agriculture further contribute to the degradation of the wetland.
Its proximity to Ggaba, which is the location of the water inlet facility, has led to the increase in water treatment costs (fig 40) owing to the heightened levels of pollution.

Fig 40 Increased costs of water treatment
Source ; (World Bank Group, 2015).

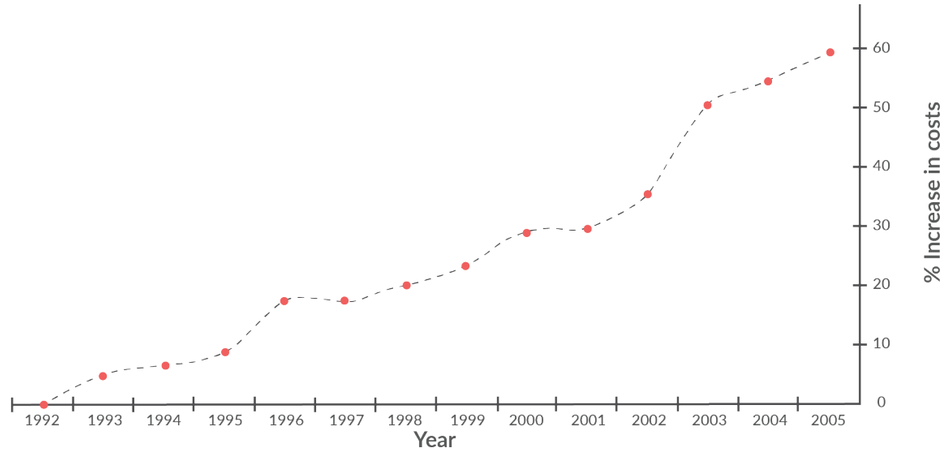


Fig 41 Nakivubo Channel
Source ; (Author, 2022).

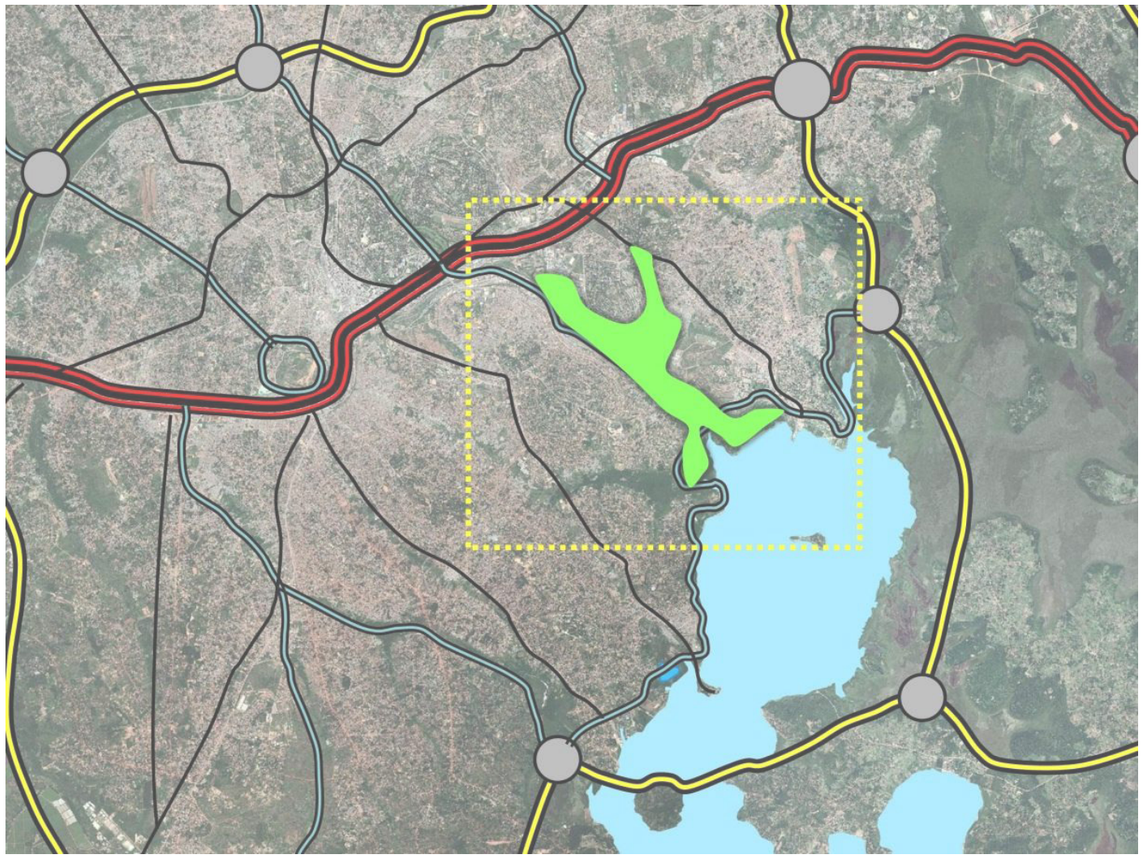
Proposed plans

The current urban planning scheme of the KCCA is the Kampala Physical Development Plan (KPDP). The KPDP highlights the need for more green open spaces within the city, and proposes that the wetlands present the best opportunity to be transformed into urban parks. They are to serve as the city's green structure, restoring their ecological functions and ensuring their protection against further encroachment (KCCA, 2012). The Nakivubo Wetland has been designated for use as the Central Urban Park (fig 42) and its spatial development plan is marked as a high priority project under the environmental projects of the KPDP (KCCA, 2012). The target was to begin in 2013/14 but it is yet to start.
It is also important to note that the Central Urban Park proposal does not include the informal wetland communities existing in Nakivubo wetland.

Extract from the KPDP.

'The Central Urban Park will have an important role in the wellbeing of the city's inhabitants by offering them a green open space and recreational area as well as encourage tourism. The park will offer a green open space for public use within the KCCA including facilities for recreation, sport and culture. The park development will be consistent with environmental regulations and include comprehensive drainage planning to ensure the protection of the ecologic system. The consultant recommends developing a plan for the Central Urban Park as an important part of the city's open spaces system' (KCCA, 2012).

Fig 42 Central Urban Park proposal.
Source ; (KPDP, 2012).



The Ideal Case

The Nakivubo Wetland area thus presents an ideal opportunity for this research project because it illustrates the issue ; Formal planning's proposal of the Central Urban park has gone unimplemented, yet continued encroachment on the wetland by industrial and commercial uses is tolerated. On the other hand, wetland communities are sustained by their informal practices, but their uncontrolled use of wetland resources and further encroachment have severely affected the wetlands functionality. The continued deterioration of Nakivubo Wetland exacerbates Kampala's flooding problem.

Fig 43 Nakivubo Wetland
Source ; (Author, 2022).

Research Focus

Sub research question 1;

What formal planning practices on flood resilience in wetlands exist in Kampala?

Sub research question1;

What formal planning practices on flood resilience in wetlands exist in Kampala?

To answer this question, an institutional analysis was conducted in the following order;

1. What are the Key institutions concerned with Wetland Management in Kampala?
2. What are the Key Policy documents governing wetland management in these institutions?
3. Which are the repeated/common actions or recommendations put forth in the documents?

There are primarily two institutions that have the mandate of planning and management of the Nakivubo wetland area, namely; The Kampala City Council Authority (KCCA) and the National Environmental Management Authority (NEMA). To ascertain their planning practices, an analytical review of specific policy documents from both institutions was done.

Kampala City Council Authority (KCCA)

Institutional governance structures.

The KCCA is the governing Authority for Kampala City under the Ministry of Kampala and Metropolitan Affairs. The Authority is divided into two wings namely; the Political wing under the leadership of the Lord Mayor, and the Technical wing under the leadership of the Executive Director. The Technical wing is composed of 10 Directorates, two of which have sections that are directly involved with Wetland management, planning and design. These are; The environmental management unit under the Directorate of Public Health Services and Environment and the Landscape section under the Directorate of Physical Planning.

The Political wing is composed of 5 Division Mayors, each governing over one of Kampala's divisions. Under each division Mayor is a division urban council (LC3) with a Department of Public health services and environment, concerned with environmental management. The division is then divided into Wards/Parishes, each with a ward urban council (LC2) that includes a secretary for production and environmental protection. The wards are then divided into zones/villages, the smallest unit of formal administration, each with a zone urban council (LC1) that also includes a secretary for production and environmental protection.

Policy documents

The main policy documents reviewed from the KCCA, highlighting wetland management practices were; the Kampala Physical Development Plan (KCCA, 2012) and the Kampala Strategic Plan (KCCA, 2014).

Kampala Physical Development Plan (KPDP)

The Kampala Physical development plan (KPDP) was prepared in 2012 to replace the Kampala Structure Plan of 1994 and is the current planning document, pending an update in 2022. On the matter of wetland management and planning, the KPDP outlines particular strategies to ensure sustainable 'green' urban development.

Turning wetlands into urban parks – In order to meet the city's needs of more green open spaces and parks, the plan proposes that the wetlands within the city are transformed into a green system of urban parks. This will prevent the wetlands from further encroachment and allow the restoration of their ecological functions.

Lake front system – Connecting the wetlands to the Lake Victoria shore line to form a continuous natural green system. This will strengthen the overall urban parks and lake front green system.

Central Urban Park – To compliment the Lake The plan proposes that the Nakivubo wetland area is turned into a Central Urban Park because of its substantial size, central location and connection to the Lake Victoria shoreline.

Kampala Strategic Plan 2014-2019 (KSP)

The Kampala Strategic Plan (KSP) is a 5-year plan addressing challenges posed by the city's rapid urbanisation growth. In regards to wetland management, flood resilience and environmental planning, the KSP outlines these strategies.

Slum upgrading projects- Creation of land banks to allow for land titling, and encouraging incremental housing projects to improve on the livelihood of slum residents and their overall environment.

Detailed Neighbourhood plans – Develop Master Plans for projects such as the lake front and central urban park in order to operationalize the KPDP. They guide socio-economic investment and infrastructure development within the city.

Connected green spaces - Creating a green chain of green spaces using public parks and the reclaimed city wetlands catchment areas in order to increase the available public space and ensure continuity of ecosystems across the urban landscape

Fig 44 Wetland management Institutions and their policies
Source ; (Author, 2022).

INSTITUTIONS

SCALE

NATIONAL

Ministry of Kampala and Metropolitan affairs

Ministry of Water and Environment

NEMA
National Environment Management Authority
ENSURING SUSTAINABLE DEVELOPMENT

National Environment Act 2019

National Environment Regulations 2000

CITY

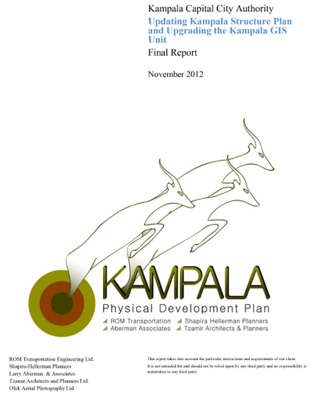
KCCA
KAMPALA CAPITAL CITY AUTHORITY
For a better City

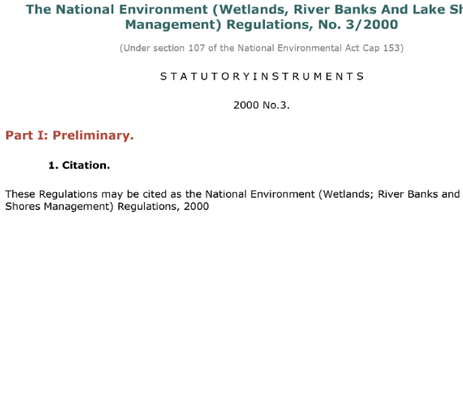
Political Wing

Technical Wing

Kampala Strategic Plan 2014-19

Kampala Physical Development Plan 2012





ACTS
SUPPLEMENT No. 2 7th March, 2019

ACTS SUPPLEMENT

to The Uganda Gazette No. 10, Volume CXII, dated 7th March, 2019

Printed by UPPC, Entebbe, by Order of the Government.

Act 5 *The National Environment Act* **2019**

THE NATIONAL ENVIRONMENT ACT, 2019

Section

ARRANGEMENT OF SECTIONS

PART I—PRELIMINARY.

The National Environment (Wetlands, River Banks And Lake Shores Management) Regulations, No. 3/2000

(Under section 107 of the National Environmental Act Cap 153)

STATUTORY INSTRUMENTS

2000 No.3.

Part I: Preliminary.

1. Citation.

These Regulations may be cited as the National Environment (Wetlands; River Banks and Lake Shores Management) Regulations, 2000

POLICIES

The New(In)Formal

Formal Practices

Public Urban Parks - Turning the wetlands which exist as the main open green spaces within the city into Urban parks that function as the city's green system, and connecting these parks to the Lake front.

Upgrade of Drainage Channels - Widening, reconstruction and greening of the primary and secondary drainage channels greatly improves the city's water retention and drainage capacity.

Wetland conservation and management strategies - Employing a multiplicity of strategies such as environmental policies and eco-efficient projects ensures the protection and restoration of critical wetlands that support the city's drainage system.

Agriculture Resource Centre - Agricultural activities hosted at the Kyanja Resource Centre allow for training and demonstration of sustainable urban agricultural practices.

Waste management initiatives- Initiatives that increase awareness on waste management for example converting waste to energy.

Sanitation projects - Improving the sanitation conditions directly impacts people's health and increases productivity

Build environmental sustainability - Maintaining the ecological functions of the city's natural resources facilitates human and economic development.

Natural systems for flood mitigation - as part of the Urban climate change strategy, KCCA undertakes to develop new natural systems that minimise urban flooding as a way to mitigate the flooding risk posed by climate change,

Coordinated community Initiatives – Developing a comprehensive community service masterplan to ensure collaboration between social groups

and community initiatives to guide investment and implementation of projects

National Environment Management Authority (NEMA).

Institutional governance structures.

The National Environment Management Authority (NEMA) is an agency under the Ministry of Water and Environment with mandate of regulating and coordinating environmental management in the country. NEMA appoints a lead agency to prepare the National environmental action plan for the wetlands sector.
At the district level, the district councils are responsible for the management of the environment under their jurisdiction. These councils establish the district environment committees which prepare the district environment action plan. Below the district level, the role of environmental management is taken up by the local government structures in place.

Policy documents

The NEMA policy documents reviewed for this research concerning the management of wetlands were the National Environment Act 2019 (MWE, 2019) and the National Environment (Wetlands, Riverbanks and Lake Shores Management) Regulations (NEMA, 2000).

The National Environment Act 2019

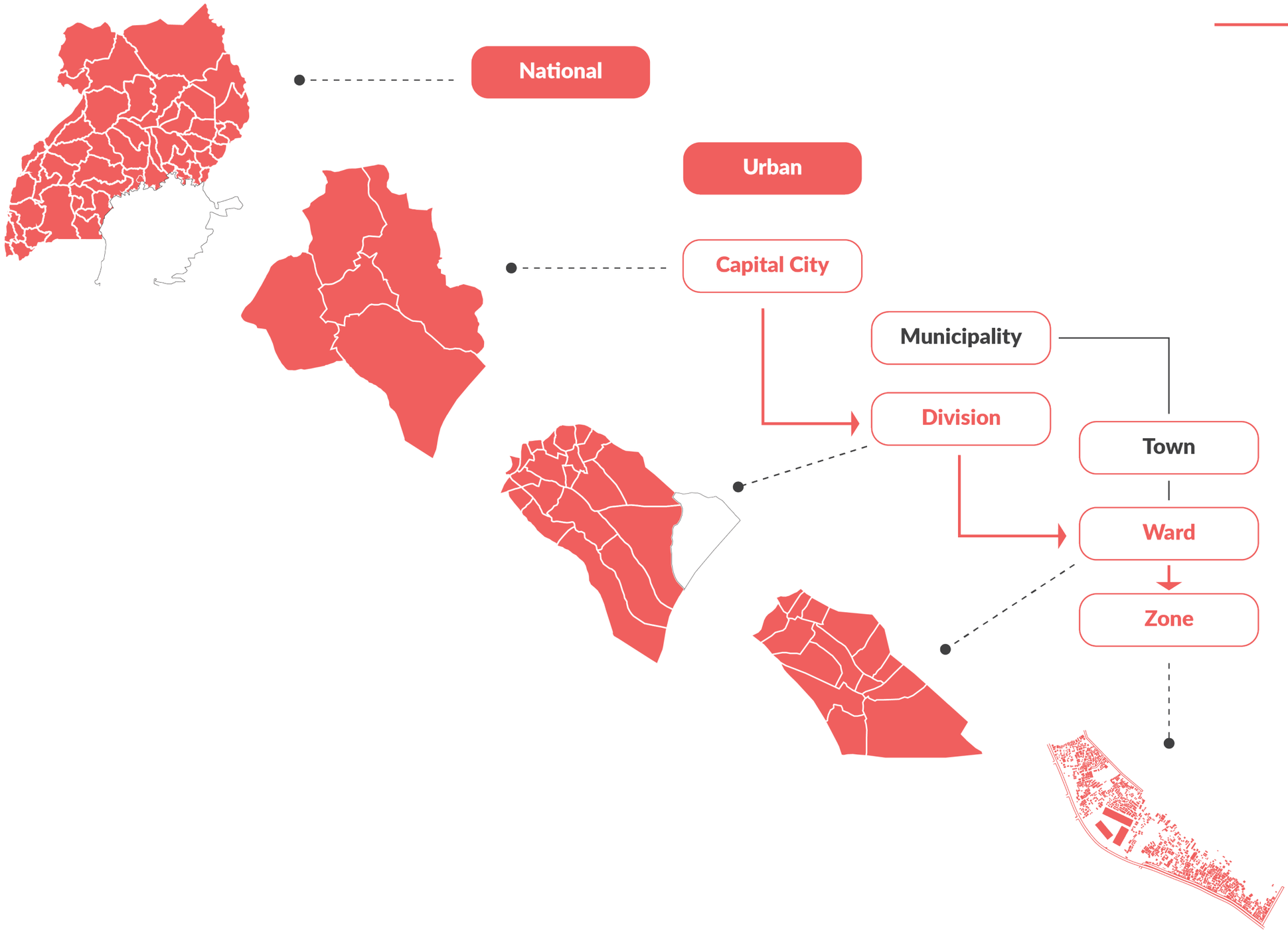
The National Environment Act provides for the management of the environment for sustainable development, Guides the activities of NEMA and provides for emerging environment issues such as climate change, amongst other purposes. The Act delineates the necessary governance structures for the sustainable management of wetlands.
Lead agencies – Prepares the environment action plan for the wetlands sector, in conformity with the national environment action plan. A lead agency also has the mandate to declare a wetland either fully or partially protected, or subject to conservation by the local community
Environmental Officer - appointed by the lead agency to aid in the preparation of the National Environment action plan, and also assist a local government with the preparation and approval of the district environment action plan.
Urban/district councils – Prepare the district environment action plan, in conformity with the National environment action plan and take into account the village, ward/parish, division/ sub-county environment action plan
Environment action plans – Environment action plans are prepared at all levels of government; national and local government. They are prepared every 5 years and are disseminated to the public.
Local Community Conservation – Wetlands can be subject to conservation by local communities and traditional use of wetland resources can be permitted.
Research and Tourism Activities – A wetland designated as protected because of its biological diversity and ecological importance, can host research and eco - tourism activities.

The National Environment (Wetlands, Riverbanks and Lake Shores Management) Regulations

The regulations provide for the conservation and wise use of wetland resources in Uganda and outline principles to be followed to achieve this.
Habitat for flora and fauna – Measures ought to be taken to protect wetlands with national and local importance as ecological systems and habitat for flora and fauna species.
District environment committees – They coordinate, monitor and advise District councils on all aspects of wetland resource management. They coordinate with the local environment committee which is the implementing organ in conserving and managing wetland resources in its area of jurisdiction through; ensuring that activities undertaken in the wetland do not affect its water level, regulating wetland activities, authorising research activities in a protected wetland, issuing guidelines to ensure wise use of wetlands, formulating bylaws on proper management of wetlands
Strategic environmental assessment – A more holistic approach to environmental planning that considers how a group of activities (under a policy or program) will affect the wetland systems on a regional scale.
Environmental impact assessment – A requirement for any project that might have a significant impact on the wetland.
Technical Committee on Biodiversity conservation - The technical committee advises the NEMA board on the best use, management and conservation of wetland resources. The committee recommends which activities might best be suited for wetlands and advises on mechanisms for ensuring public awareness and participation in the protection of wetlands, advise on how to reconcile wetland use rights by local communities with the impact such activities have on the wetland.

Formal Practices

Fig 45 Local governance structure in Uganda
Source ; (Jones et al., 2016 , Re adapted by Author, 2022).



Formal Practices

This section highlights the current institutional gaps, and suggests ways in which they could be closed, concluding in a proposed institutional framework that would support the formal practices on wetland management

Developing a Framework

Reconciling Institutional gaps

Ideally, since both NEMA and KCCA have the mandate of managing wetlands within Kampala, the different departments within the institutions should be collaborating on joint efforts to achieve their goals. However, this is not the case. There is minimal collaboration within the departments in each institution, and between the two institutions as well. This section highlights these institutional gaps, and suggests ways in which they could be closed, concluding in a proposed institutional framework that would support the formal practices on wetland management.

City scale

According to the NEMA regulations (NEMA, 2000), the district environmental committees are appointed by the district councils to produce the District environment action plan. However in the case of Kampala, the system of governance differs from the typical local governments structure (fig 45), and yet no provision for Kampala is made in the policy. Therefore in this case, it would be the Directorate of public health and services under the technical wing of the KCCA to appoint the district environmental committee. However, there already exists the Environmental management unit of the directorate charged with a similar mandate of wetlands management as that of the committee. Hence the work of both should be streamlined and merged into one unit for Kampala, with the task of producing the City environmental Action plan (fig 46).

Within the KCCA structure, there is no evidence of collaboration between the Landscape section in the Directorate of Physical Planning and the environmental management unit under the Directorate of Public Health Services and Environment on the city Environment action plan. This collaboration would be ideal to ensure that the City environment action plan is in line with the overall Physical development plan.

Division scale

According to the KCCA Act (MKMA, 2010), there is a Department of Public health and environment as part of the division urban council, which is responsible for environmental care and protection. The National Environment Act (MWE, 2019) also stipulates that there is an environment action plan prepared at the division scale but falls short of assigning this responsibility to a particular office. The author suggests that the duty of preparing the Division environment plan should be assigned to the Department of public health at the division level (fig 46). In cases of specific environmental features that might cut across divisional boundaries, the author proposes that a site environment action plan is prepared in line with the spatial development plan of that specific area.

Ward/ Zone scale

The National Environment Act (MWE, 2019) also stipulates environment action plans at the ward and zone level but doesn't mention who is in charge of their preparation. In accordance with the KCCA Act (MKMA, 2010), there exists the office of the Secretary of Production and Environmental protection within both the ward and zone urban councils. The author proposes that these two offices are mandated with the preparation of the environmental protection plan at the zone level (fig 46). Additionally, since environmental features might not differ much at the ward and zone scales, the author proposes that the ward environment action plan should be optional and only be prepared in specific cases, while the Zone environmental plan is mandatory.

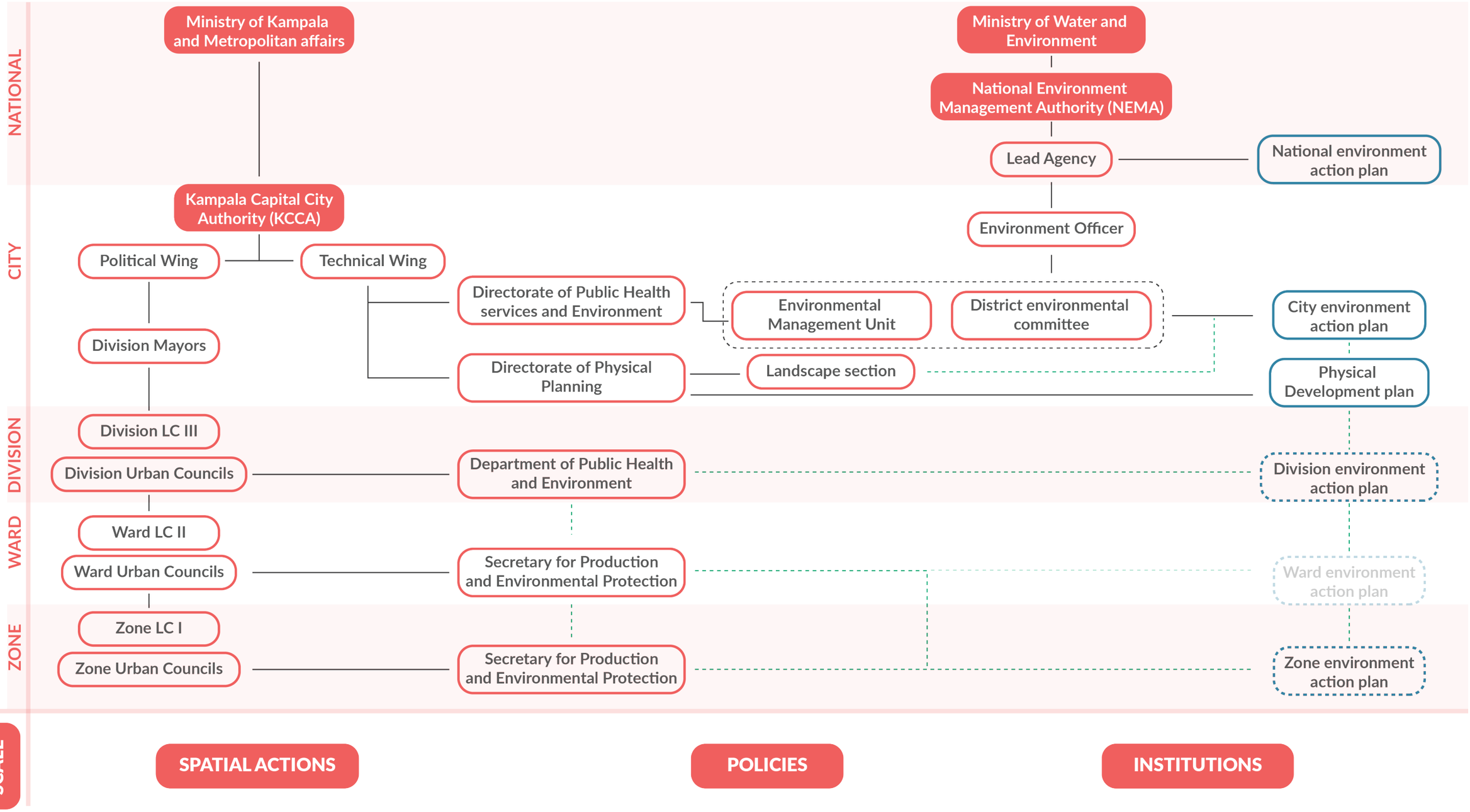
Framework

(see fig 47)

The framework for the formal practices describes the institutions mandated with wetland management and their stipulated policies towards achieving their goals. It also outlines the actions derived from the policies. As a result, the frame work consists of two aspects; the institutional structures, their policies and actions, and the scales of governance on which they operate (fig 47).

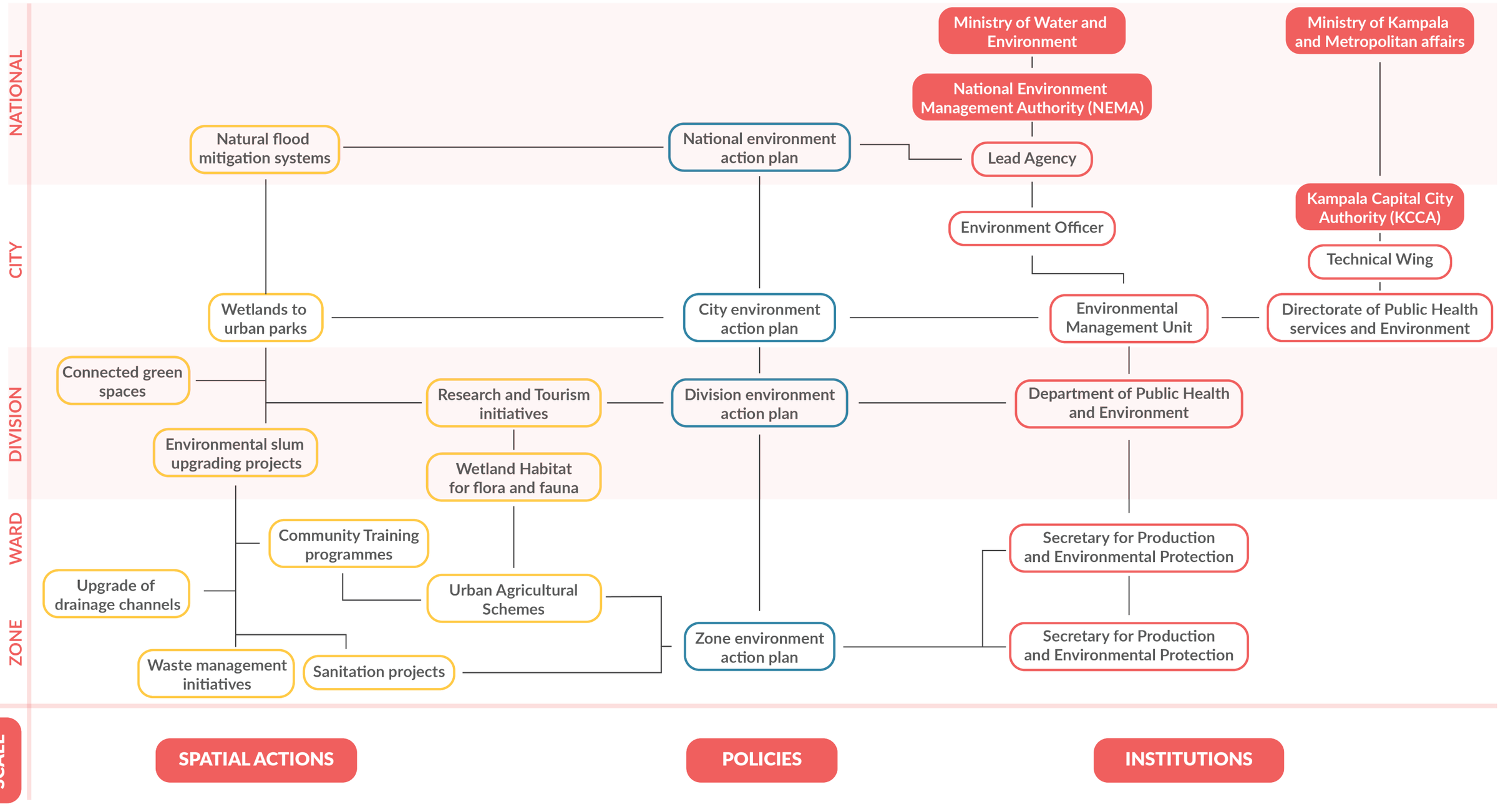
Formal Practices

Fig 46 Institutional mapping
Source ; (Author, 2022).



Formal Practices

Fig 47 Framework of Formal Practices
Source ; (Author, 2022).

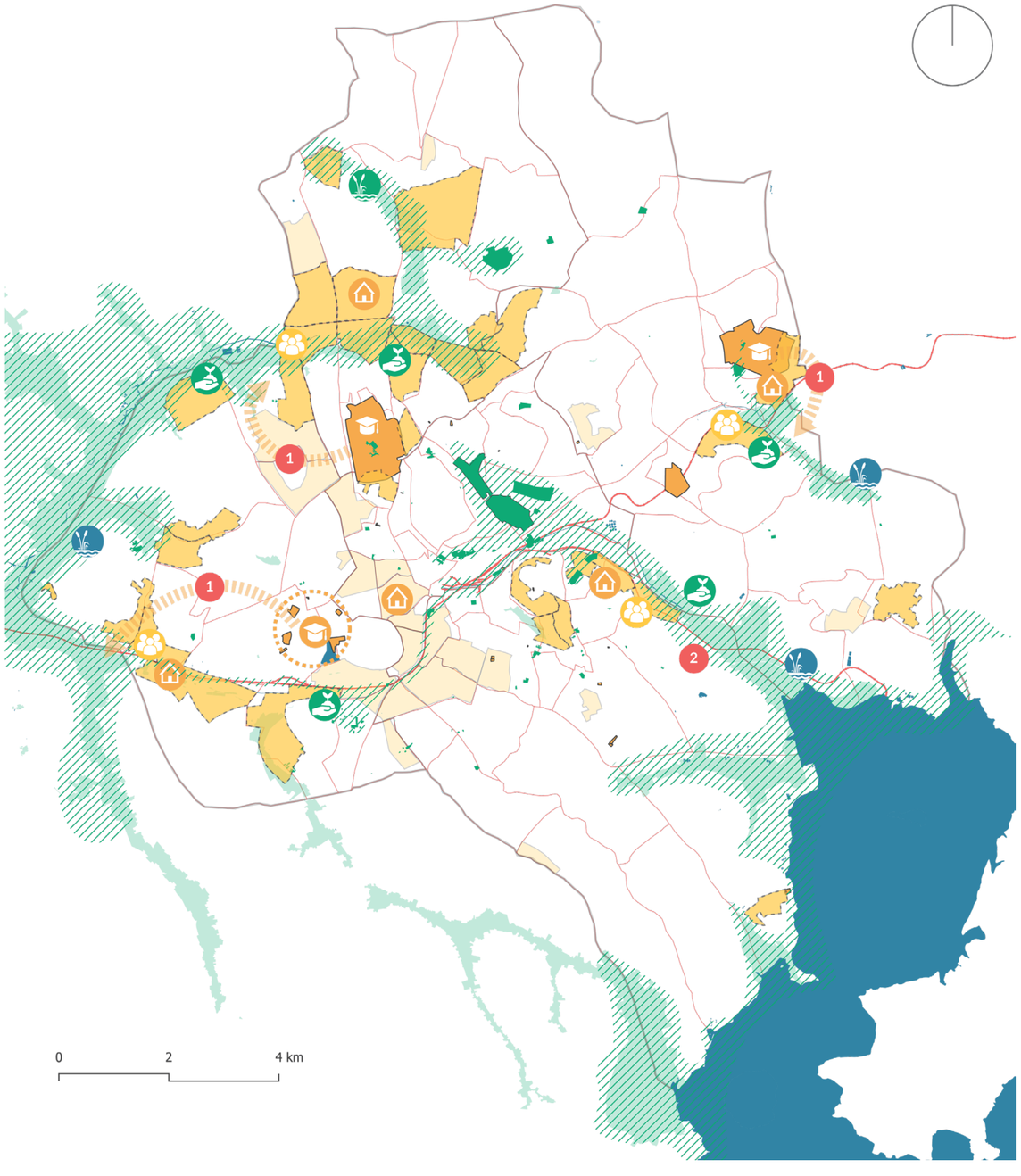


Formal Practices

Vision

Illustrating the actions in a spatial vision captures the desired future of sustainable wetland management based on the formal practices of the two institutions.

Fig 48 Spatial Vision of Formal practices
Source ; (Author, 2022).



Informal Practices

Sub research question 2;

What informal practices on flood resilience in wetlands exist in informal settlements in Kampala?

Sub research question2;

What informal practices on flood resilience in wetlands exist in informal settlements in Kampala?

To answer this question, the following steps were followed;

1. What practices can be observed from Kitintale and Kasanvu informal settlements?
2. At what scales do these practices occur?
3. Aside from the spatial, in what other dimensions do these practices exist?

Observed Informal practices

Street along channel – There is a pedestrian path created along the Nakivubo Channel that acts as a boundary for the Kasanvu informal settlements and a buffer from the channel in case it over flows.

Access bridges over drains – Locally made bridges are placed over the large water drains to connect the streets and pathways to the shops and houses on the other side.

Streets as drains – Within the settlements, small drains are dug out, and in some parts of Kitintale, are filled with stones in order to allow for easy drainage especially when it rains.

Waste filters on drains – In some parts of the settlements, the drains are fitted with mesh, which acts as a sieve and traps solid wastes. This is done to avoid accumulation of waste in the channel and blockage of drains further down the settlement.

Communal open grounds – These are large empty fields of land that are primarily used as play grounds for children. During periods of heavy rainfall, they act as water squares that retain water for short periods, and gradually release it into the ground and/or drains .

Communal toilets – Sanitary facilities such as showers and toilets are shared within the settlements, and are also used to collect rainwater in some cases.

Waste recycling – A high volume of waste that is transported along with storm water in the drains ends up in the informal settlements. As a result, some residents engage in waste sorting and recycling activities to make a living.

Brick making – Due to the constant presence of water and clay soils in the wetland areas, residents also engage in brick making activities to supply the construction activities within the area.

Elevated floor level – New residents within the

Informal Practices

Kasanvu settlement, especially towards the channel have adopted a new construction method of elevating the floors of the houses, as a way of mitigating the flooding effects. Other residents with older homes construct barriers on their openings or the house perimeters to avoid water from entering their homes.

Centralised water points – Shared water sources such as boreholes, and metered water from NWSC are centralised within the informal settlements.

Garden/Agriculture lots – Due to the presence of water and fertile soils, some residents have engaged in urban farming and as such, have agriculture lots within the wetland area where they cultivate crops for sale and consumption such as sugarcane, yams and matooke.

Open spaces between houses – Within the settlements, open spaces of varying sizes and forms are left between the houses to allow for accessibility, drainage and social functions.

Informal Practices

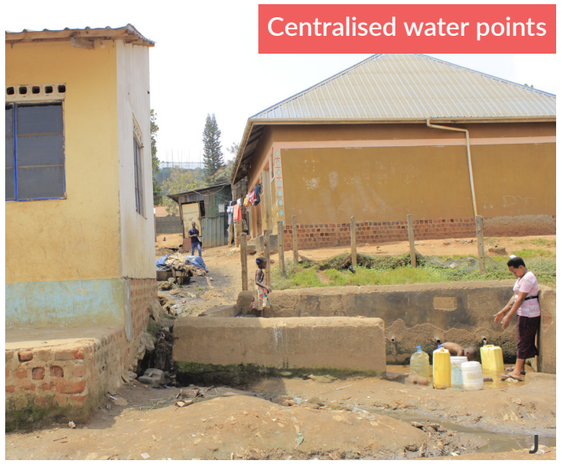


Fig 49A-L Observed informal practices
Source ; (Author, 2022).

Fig 50 Kasanvu Informal Settlement
Source ; (Google earth / Edited by author, 2022).

Network of Public Spaces

Almost all the observed flood resilience practices were occurring in public spaces of either a street or open grounds, which goes to show that the network of public spaces is vital to the flood resilience of the wetland communities (fig 50&51). However, further analysis showed that the function of these public spaces was not limited to flood resilience but to the overall social and economic resilience of the community.

Fig 51 Kitintale Informal Settlement
Source ; (Google earth / Edited by author, 2022).

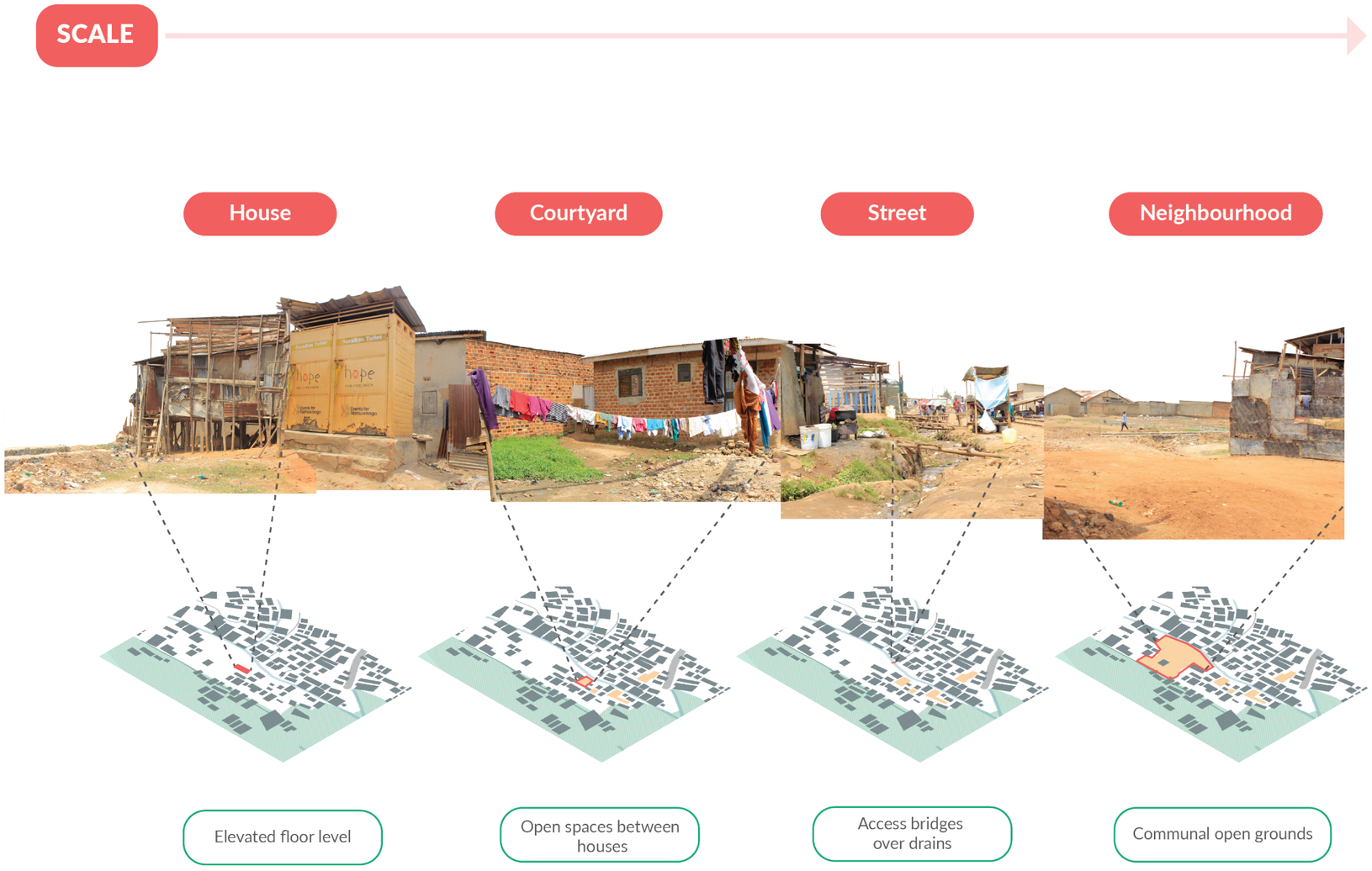
Informal Practices

Scaling the practices

The scales on which the observed practices exist, from lowest to highest are; the house, the courtyard, the street and the Neighbourhood (fig 52).

Informal Practices

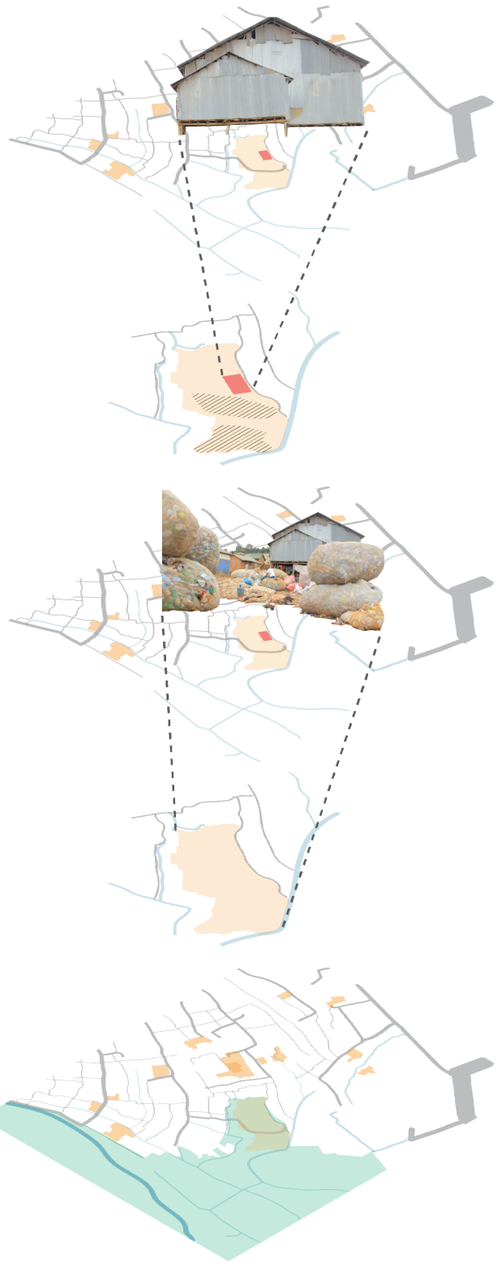
Fig 52 Scales of Informal practices
Source ; (Author, 2022).



Informal Practices

Dimensions of the practices

Although all the practices have a physical and spatial function, some practices also have economic, social and political functions. The political dimension is of particular importance because it provides a way through which informal practices can begin to link with the more formal institutions. Analysing these other dimensions introduces a new aspect on the framework and also adds new practices to the existing ones (fig 53).



DIMENSION

Political function

9-Youth groups

Social function

8 - Church
7 - Arts Centre
6 - Skate Park

Economic function

5 - Brick making
4 - Waste recycling
3 - Urban farming

Spatial function

2 - Streets
1 - Open grounds

Informal Practices

Fig 53 Dimensions of Informal practices
Source ; (Author, 2022).

8

7

6

5

4

3

2

1

9

BANAKIBUGA
Street Minds

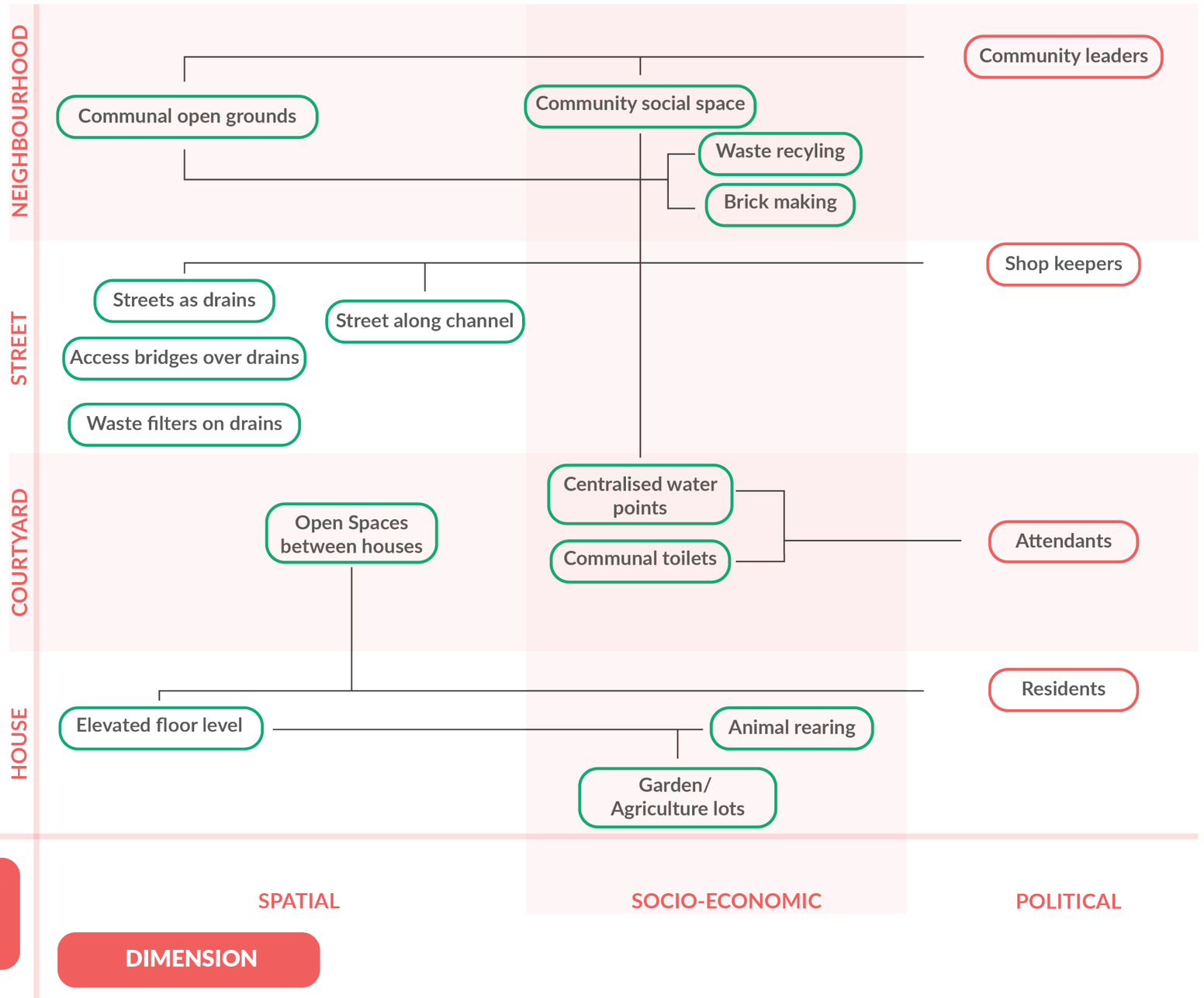
Informal Practices

Framework

The informal practices expand the framework developed with the formal practices to include four new levels of scale on which the informal practices operate, and the different dimensions on which they exist (fig 54).
The resulting combined framework consists of the different scales on which both the formal and informal practices operate, and the dimensions (spatial, socio-economic, political) in which they exist (fig 58).

Informal Practices

Fig 54 Framework of Informal Practices
Source ; (Author, 2022).



Informal Practices

Vision

The author uses the spatial vison to capture what the desired future of sustainable wetland management would look like with local communities at the fore front.

Fig 55 Vision of Informal Practices
Source ; (Author, 2022).

P5 Report The New(In)Formal

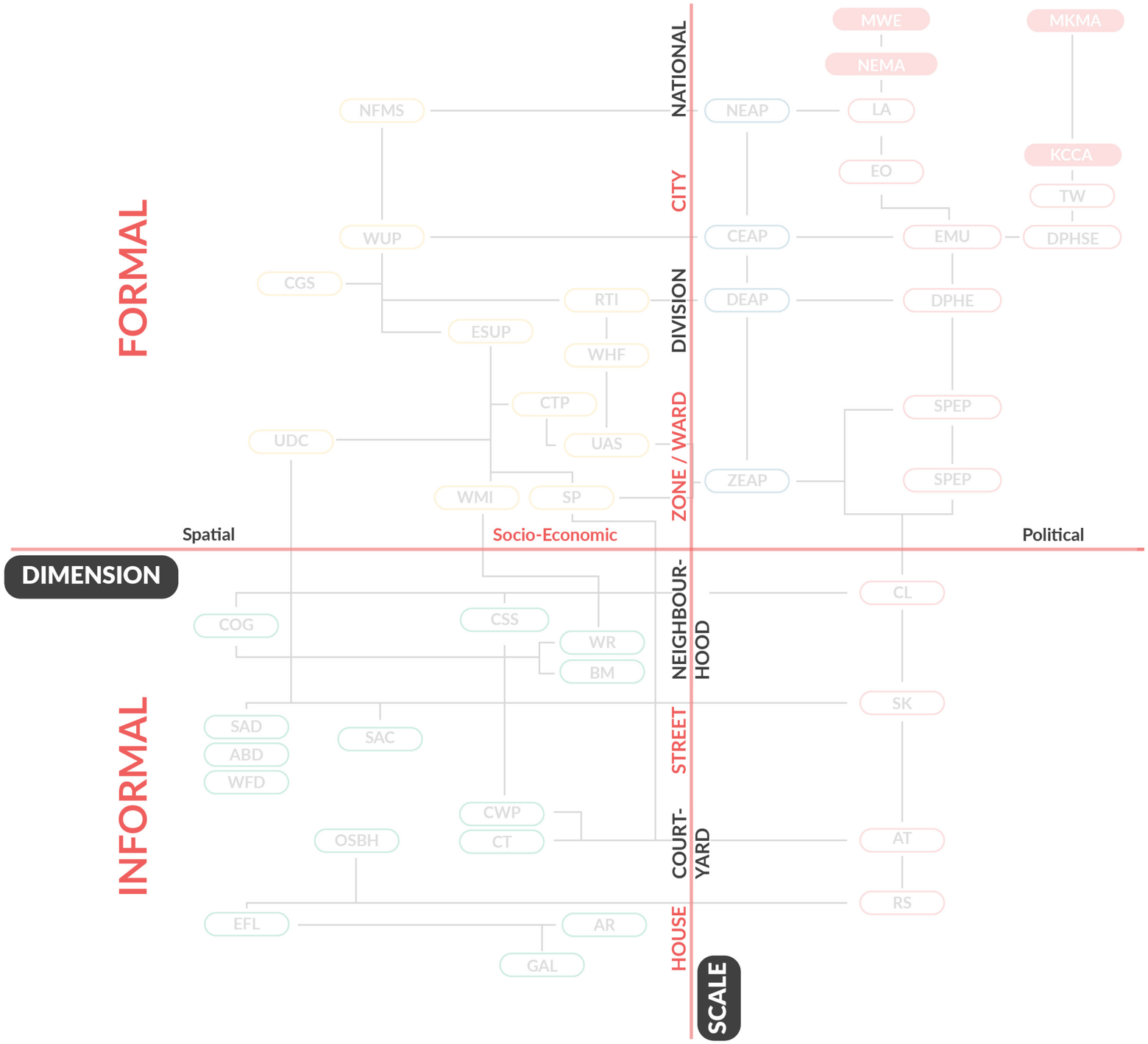


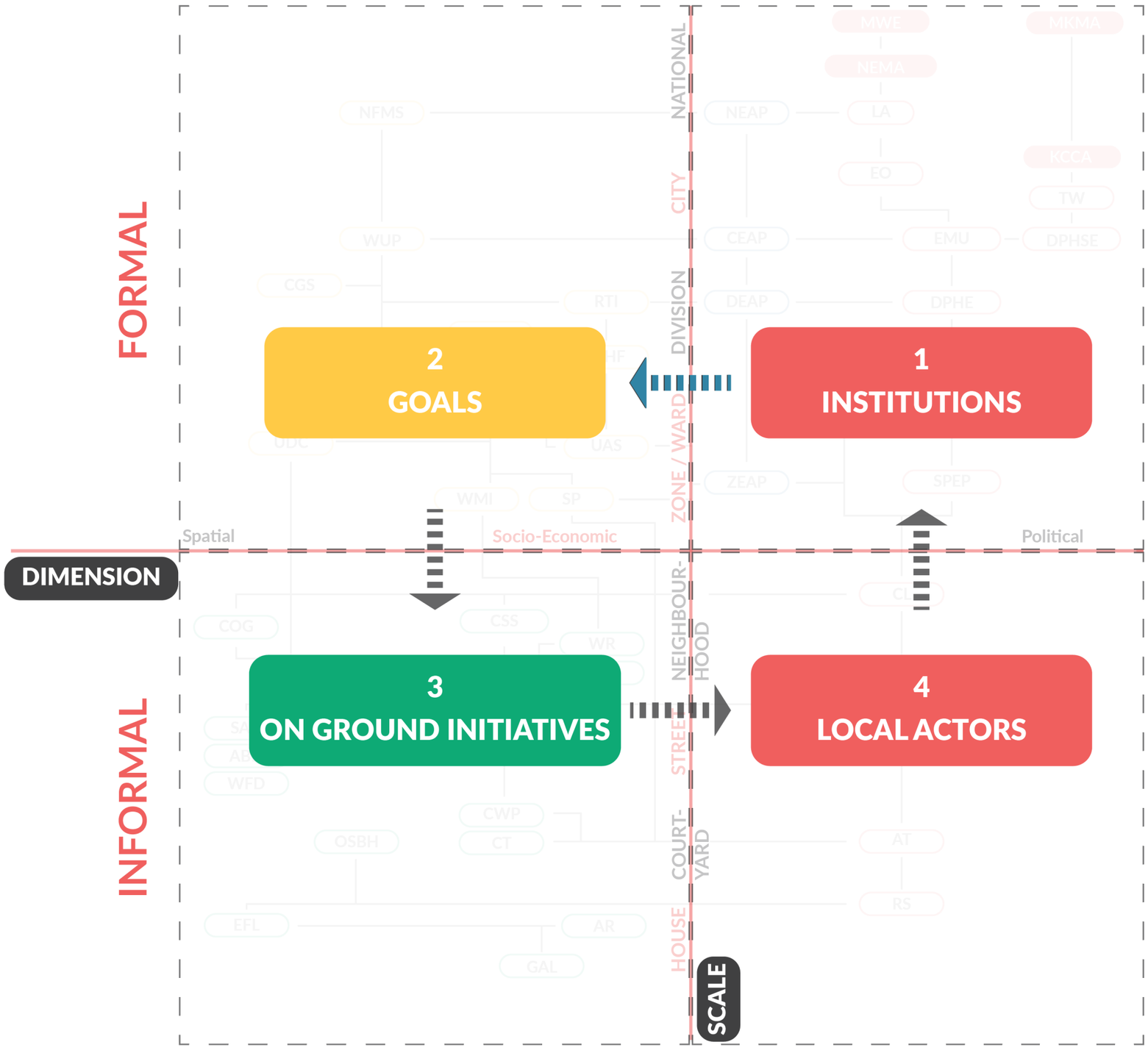
Fig 56 Scales and Dimensions of the Combined Framework
Source ; (Author, 2022).

Scales and Dimensions

As mentioned earlier, the informal practices exist on the House to Neighbourhood scales, while the formal practices exist on the administrative scales of Zone to National. Therefore, the resulting framework has the formal and informal scales combined, ranging from; House, Courtyard, Street, Neighbourhood, Zone/Ward, Division, City and National (fig 56).

The formal practices majorly consist of institutions and their policies and therefore primarily exist in the political dimension, while informal practices are mainly characterized by local activities and initiatives which are mainly within the spatial and socio-economic dimensions. As such, the combined framework includes the three dimensions; Spatial, Socio-economic and Political (fig 56).

Combined framework



The New(In)Formal

P5 Report 112

Combined framework

Fig 57 Quadrants of the Combined Framework
Source ; (Author, 2022).

Quadrants.

The framework can be understood as consisting of four quadrants; the Institutions in quadrant 1, their Goals in quadrant 2, the On ground initiatives in quadrant 3 and the Local actors in quadrant 4 (fig 57).
The most prominent and existing link is that between the Institutions and their goals.
Through the Framework, connections are made between the Goals of the institutions and the existing on ground initiatives, and between these initiatives and the local actors. The framework also suggests how the local actors can then be incorporated into the formal governance structures.

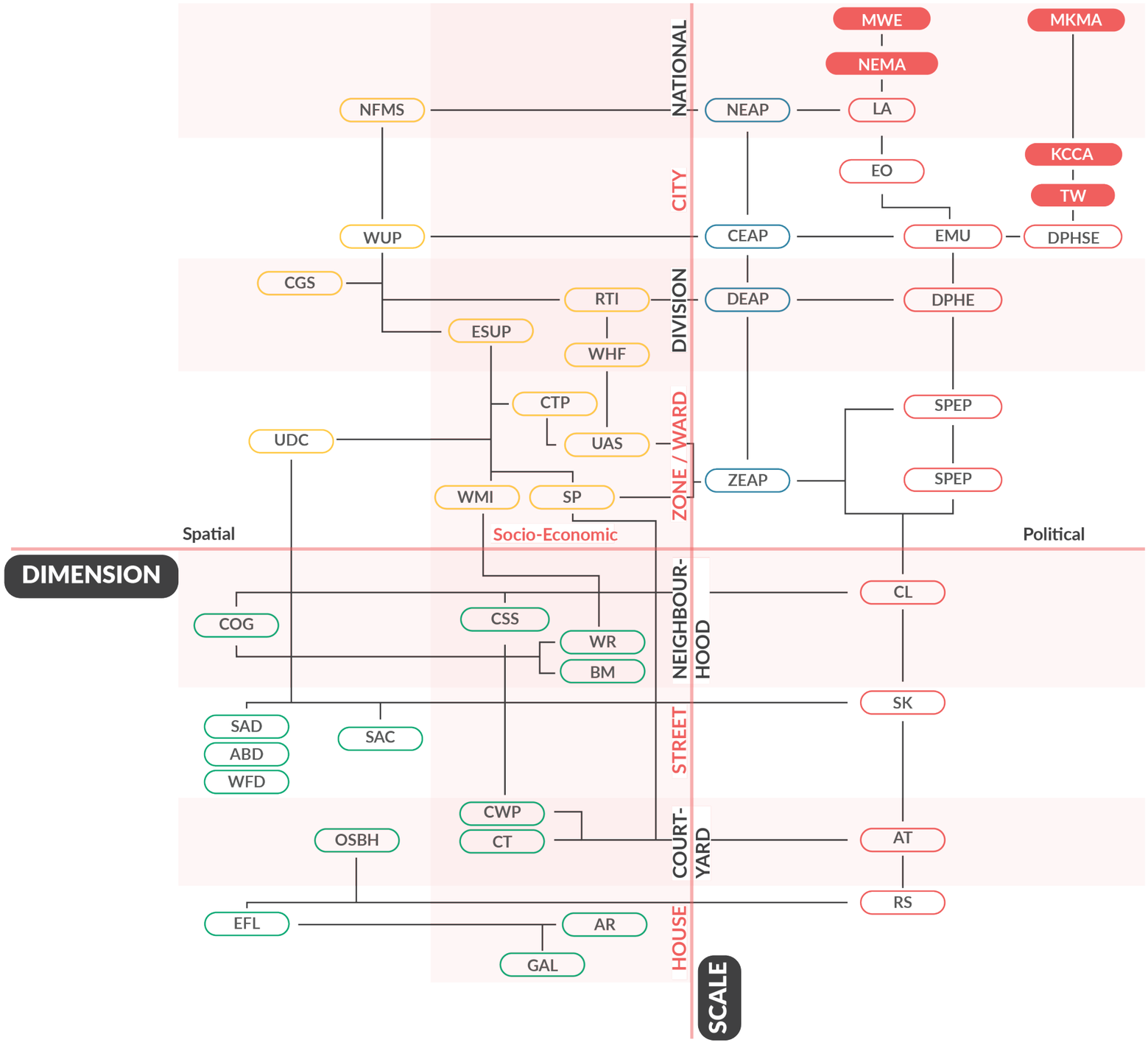


Fig 58 Combined Framework
Source ; (Author, 2022).

Combined framework

The Framework

The resulting framework of the combined formal and informal practices on flood resilience in wetlands consists of the following; the Institutions mandated with wetland management in Kampala, their formulated Policies and resulting goals and actions, the existing on ground initiatives of informal communities and the local actors (fig 58-59).

Combined framework

Fig 59 Legend for the Combined Framework
Source ; (Author, 2022).

INSTITUTIONS

- MWE — Ministry of Water and Environment
- MKMA — Ministry of Kampala and Metropolitan affairs
- NEMA — National Environment Management Authority
- KCCA — Kampala Capital City Authority (KCCA)
- TW — Technical Wing
- DPHSE — Directorate of Public Health services and Environment
- LA — Lead Agency
- EO — Environment Officer
- EMU — Environmental Management Unit
- DPHE — Department of Public Health and Environment
- SPEP — Secretary for Production and Environmental Protection

LOCAL ACTORS

- CL — Community leaders
- SK — Shop keepers
- AT — Attendants
- RS — Residents

POLICIES

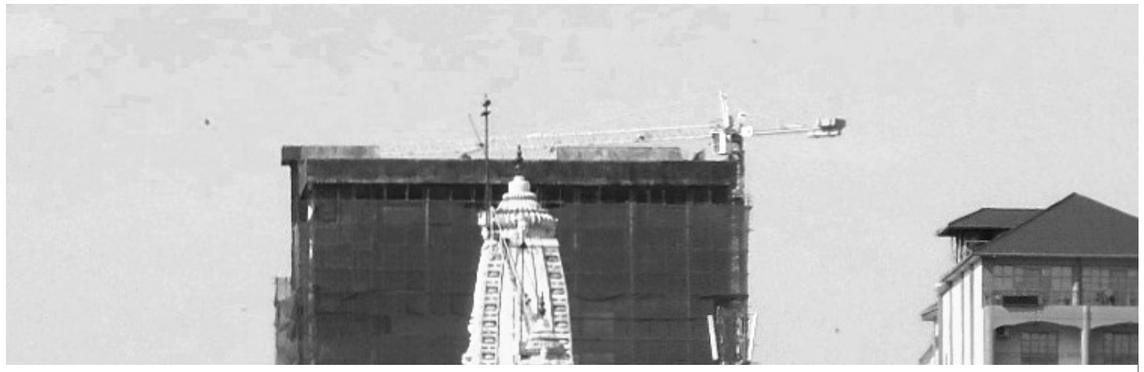
- NEAP — National environment action plan
- CEAP — City environment action plan
- DEAP — Division environment action plan
- ZEAP — Zone environment action plan

GOALS/ ACTIONS

- NFMS — Natural flood mitigation systems
- WUP — Wetlands to urban parks
- CGS — Connected green spaces
- ESUP — Environmental slum upgrading projects
- RTI — Research and Tourism initiatives
- WHF — Wetland Habitat for flora and fauna
- CTP — Community Training programmes
- UAS — Urban Agricultural Schemes
- UDC — Upgrade of drainage channels
- WMI — Waste management initiatives
- SP — Sanitation projects

INITIATIVES ON GROUND

- CSS — Community social space
- WR — Waste recyling
- BM — Brick making
- CWP — Centralised water points
- CT — Communal toilets
- COG — Communal open grounds
- SAD — Streets as drains
- ABD — Access bridges over drains
- WFD — Waste filters on drains
- SAC — Street along channel
- OSBH — Open Spaces between houses
- EFL — Elevated floor level
- AR — Animal rearing
- GAL — Garden/ Agriculture lots



Communicate

Practices to Patterns

Structure of Patterns
40 patterns on flood resilience

Workshop

Workshop Goals
Workshop Structure
Workshop Conclusion

Sub research question 3;

How can the formal practices be combined with the informal practices?

Sub research question 3; How can the formal practices be combined with the informal practices?

The premise of this research was to test the pattern language methodology as a tool for combining the formal and informal practices. This was to be done by forming patterns, and using these patterns in a workshop attended by representatives from the formal institutions and informal communities. The patterns were then used to create a pattern field (Framework) from which connections between the patterns were made, as detailed in the previous chapter.

This chapter outlines how the information collected from the analysis was condensed and simplified into patterns, that became the main input for the workshop.

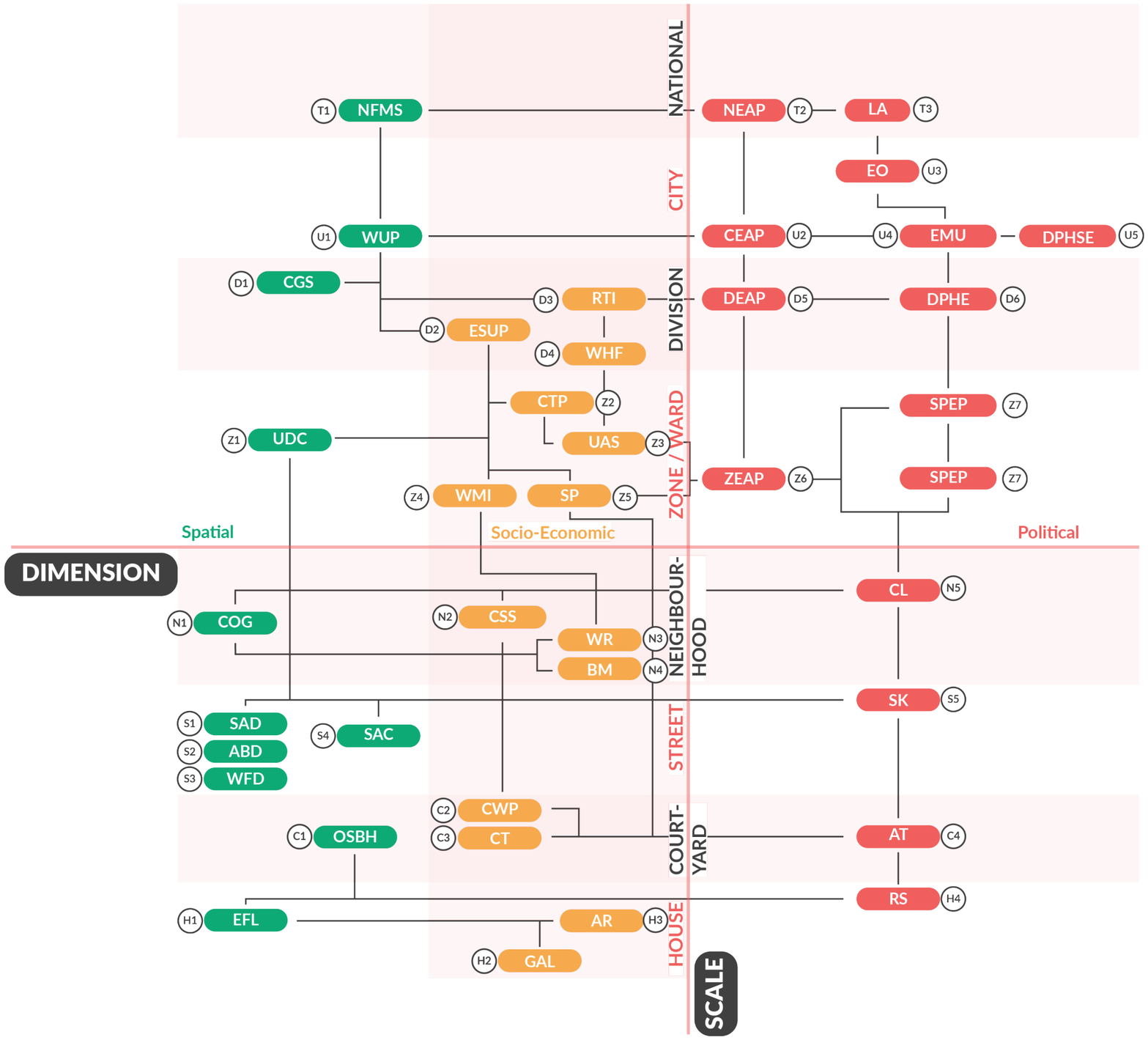
Structure of the Patterns

This process begun by turning the practices into the pattern format using a specifically designed template designed by the author, that showed; the title, image/icon and description of the pattern, similar to the format used in Reterritorializing Zuid Oost (Babu, 2021). The stakeholders involved in its implementation and connections to other patterns were also included.

.

Practices to Patterns

Fig 60 Pattern Card Layout
Source ; (Author, 2022).



Practices to Patterns

Fig 61 Pattern field
Source ; (Author, 2022).

40 Patterns on flood resilience in wetlands

In line with the combined framework developed for the formal and informal practices in the previous chapter (fig 58), the Patterns are categorised into three types; Political, Socio-economic and Spatial. The category of the pattern dictates it's colour; Spatial patterns are Green, Socio- economic patterns are Orange and Political patterns are Red.

The patterns are also labelled according to the scales on which they operate, similar to the format of the Cities of making project (Hill, 2020). The scales range from; House (H), Courtyard (C), Street (S), Neighbourhood (N), Zone/Ward (Z), Division (D), City (U) and National (T).

POLITICAL PATTERNS

- NEAP — National environment action plan
- CEAP — City environment action plan
- DEAP — Division environment action plan
- ZEAP — Zone environment action plan
- DPHSE — Directorate of Public Health services and Environment
- LA — Lead Agency
- EO — Environment Officer
- EMU — Environmental Management Unit
- DPHE — Department of Public Health and Environment
- SPEP — Secretary for Production and Environmental Protection
- CL — Community leaders
- SK — Shop keepers
- AT — Attendants
- RS — Residents

SOCIO-ECONOMIC PATTERNS

- CSS — Community social space
- WR — Waste recyling
- BM — Brick making
- ESUP — Environmental slum upgrading projects
- RTI — Research and Tourism initiatives
- WHF — Wetland Habitat for flora and fauna
- CTP — Community Training programmes
- UAS — Urban Agricultural Schemes
- GAL — Garden/ Agriculture lots
- WMI — Waste management initiatives
- SP — Sanitation projects
- CWP — Centralised water points
- CT — Communal toilets
- AR — Animal rearing

SPATIAL PATTERNS

- NFMS — Natural flood mitigation systems
- WUP — Wetlands to urban parks
- CGS — Connected green spaces
- COG — Communal open grounds
- SAD — Streets as drains
- ABD — Access bridges over drains
- WFD — Waste filters on drains
- SAC — Street along channel
- OSBH — Open Spaces between houses
- EFL — Elevated floor level
- UDC — Upgrade of drainage channels

Fig 62 Legend for Pattern field
Source ; (Author, 2022).

Using patterns to identify workshop participants.

The category of the Political patterns is key because it shows which institutions and actors are involved in the implementation of the other patterns at the various scales. These are also the patterns that show which participants were to be invited to the workshops, in the following stage of the process.

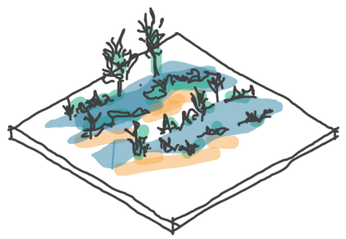
Image/Illustrations of the patterns

Following feedback from the workshop, the pattern illustrations were made such that; the patterns formulated from the formal practices which mainly apply at a larger scale were represented by more abstract images/sketches so as to avoid misunderstanding of their application. On the other hand, the patterns formulated from the informal practices were represented images of these practices because they were clear and easy to understand. The political patterns and other abstract patterns were also represented by use of icons for easy interpretation.

Natural flood mitigation sytems — T1

Making use of the city's swamps and wetlands as natural drainage systems mitigates the urban flooding risk casued by climate change.

National Environment Management Authority (NEMA) , Kampala City Council Authority (KCCA)

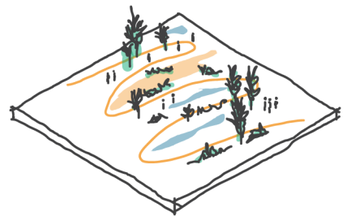


T2 T3 U3

Wetlands to Urban Parks — U1

Turning wetlands into a green system of urban parks provides more green spaces within the city and prevents further wetland encroachment.

Kampala City Council Authority (KCCA), NEMA, Privat sector (park proprietors)



U2 U4 U5

Communal open grounds — N1

Open grounds improve the drainage capabilities of the area by acting as water squares that retain water during periods of heavy rainfall.

Zone Urban councils, Local leaders, social groups, CBO's.

N2 N3 N4 N5

Streets as drains — S1

Streets can double as drains when they are filled with stones which allow for easy drainage especially when it rains.

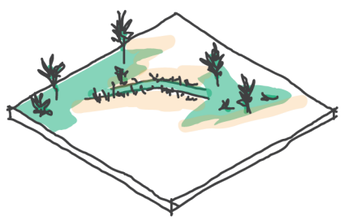
Zone Urban councils, CBO's, Local propreitors, home owners,

Z1 S5

Connected green spaces — D1

Creating a chain of green spaces increases the available public space and ensures continuity of ecosystems across the urban landscape.

KCCA, Division Urban council, Private sector (park proprietors)

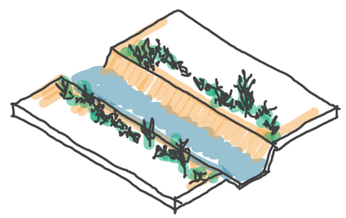


D2 D3 D5 D6

Upgrade of drainage channels — Z1

Widening and greening of the primary and secondary drainage channels greatly improves the city's water retention and drainage capacity

KCCA, Private sector (property owners), UNRA



D2 S1 S2 S3 S4

Access bridges over drains — S2

Bridges placed over large drains allow for accessibility within the settlement and improve the safety levels of residents mobility.

KCCA, Zone urban councils, Local leaders, Shop operators, buisness owners, home owners.

Z1 S5

Waste filters on drains — S3

Fitting drains with a mesh/sieve avoids accumulation of waste in the channel and blockage of drains further down the settlement

KCCA, Zone urban councils, Local leaders, Shop operators, buisness owners, home owners.

Z1 S5 H4

Street along channel — S4

A street along the channel demarcates the limits of the settlement and prevents further encroachement of the wetland

KCCA, Zone urban councils, CBO's, Local leaders, Shop operators, home owners.

Z1 S5 H4

Open Spaces between houses — C1

Open spaces of varying sizes and forms, left between the houses, allow for accessibility, drainage and social functions.

Community leaders, Shop operators, home owners.

H1 H4

Elevated floor level — H1

Raising the floor level of the houses mitigates the flooding effects on the livelihood of the residents.

Community leaders, social groups, home owners.

C1 H2 H3 H4

Research and tourism initiatives — D3

A wetland designated as protected because of its biological diversity and ecological importance, can host research and eco - tourism activities.

KCCA, Division Urban council, NEMA, Universities and Research institutions

D5 D6 U1

Environmental slum upgrading projects — D2

Creation of land banks and encouraging incremental housing projects improves on the livelihood of slum residents and the environment.

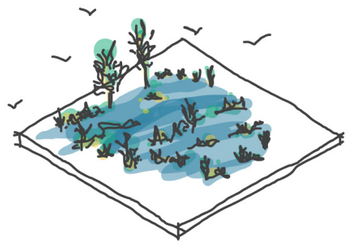
KCCA, Division Urban councils, MLHUD, NGO's, home owners.

Z2 Z3 Z4 Z5

Wetland habitat for flora and fauna — D4

Take measures to protect wetlands with national and local importance as ecological systems and habitat for flora and fauna species.

KCCA, NEMA, Universities and Research institutions



Z3 D3

Community training programmes — Z2

Provide training programmes on wetland conservation and ensure collaboration between community environment initiatives.

KCCA, Division Urban councils, Universities and Research institutions, NGO's, Community Leaders.

Z2 Z3

Waste recycling N3

Due to the high volume of waste accumulation, residents engage in waste sorting and recycling activities to make a living.

Zone Urban councils, CBO's, NGO's, Private sector (companies), Community Leaders, Home owners.

N1 Z4

Brick making N4

The constant presence of water and clay soils in the wetland areas facilitates brick making to supply the construction activities within the area.

CBO's, Community Leaders, Local propreitors, Local leaders, social groups.

N1

Urban Agricultural Schemes Z3

Urban Agricultural schemes that encourage utilisation of wetland resources in a sustainable manner, and also provide a source of income.

Zone Urban councils, Universities and Research institutions, NGO's, Community Leaders, Home owners.

Z2 Z6

Waste management initiatives Z4

Encourage initiatives that increase awareness on waste management such as converting waste to energy.

KCCA, Division Urban councils, NGO's, Community Leaders, Home owners.

D2 N3

Practices to Patterns

Centralised water points C2

Centralising shared water sources such as boreholes and metered water (NWSC) ensures accesibility of clean water to all residents.

KCCA, Division Urban councils, Zone Urban councils, NGO's, Community Leaders, Shop operators.

N2 C3 C4

Communal toilets C3

Sanitary facilities such as showers and toilets are shared within the settlements and are also used to collect rainwater.

KCCA, Division Urban councils, Zone Urban councils, NGO's, Community Leaders, social groups.

C2 C4

Sanitation projects Z5

Improving the sanitation conditions directly impacts people's health and increases productivity

KCCA, Division Urban councils, Zone Urban councils,CBO's, NGO's, Community Leaders, Home owners.

D2 Z6 C2 C3

Community social space N2

Shared social spaces improve community resilience and overall livability of informal settlements.

Zone Urban councils, CBO's, NGO's, Community Leaders.

N1 N5 C2 C3

Animal rearing H3

Residents engage in animal rearing as a source of income, using the spaces under their houses (elevated homes) or the courtyards.

Residents, Local leaders, social groups.

H1 C2 H4

Garden/Agriculture lots H2

The presence of water and fertile soils facilitates urban farming within the wetland area where residents cultivate crops for sale and consumption

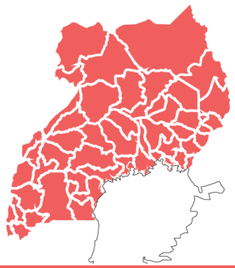
Residents, Local leaders, social groups.

H1 C2 H4

National Environment Action Plan T2

Guides environmental planning and decision making, and management of natural resources at all levels of government.

National Environment Management Authority (NEMA), Ministry of Lands, Housing and Urban Development (MLHUD).



T1 T3 U3

City Environment Action Plan U2

Guides environmental planning and decision making, and management of natural resources at the city/ district level of government.

Kampala City Council Authority (KCCA),National Environment Management Authority (NEMA).

U1 T2 U3 U4 U5

Division Environment Action Plan D2

Guides environmental planning and decision making, and management of natural resources at the division level.

KCCA, Division Urban Councils.

D3 D6

Ward/Zone Environment Action Plan Z6

Guides environmental planning and decision making, and management of natural resources at the ward/zone level.

KCCA, Division Urban Councils, Ward Urban Councils, Zone Urban Councils.

D2 Z7 Z8

Lead Agency T3

Prepares the environment action plan for the wetlands sector, in conformity with the national environment action plan.

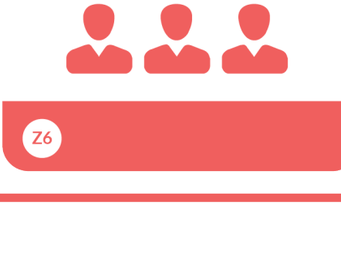
National Environment Management Authority (NEMA).

T2 U3

Environment Officer U3

Appointed by the lead agency to aid in the preparation of the National and District environment action plans.

National Environment Management Authority (NEMA).



T2 T3 U2 U4

Department of Public health and Environment D6

Prepares the Division environment action plan, in conformity with the City environment action plan

KCCA, Division Urban Councils

D5

Secretary for Production and Environmental protection Z7

Prepares the Zone environment action plan, in conformity with the Division environment action plan

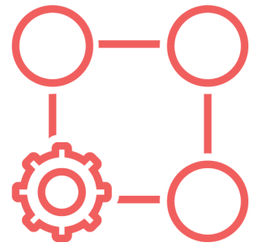
KCCA, Division Urban Councils, Ward Urban Councils, Zone Urban Councils.

Z6

Environmental Management unit U4

Coordinates, monitors and advises the Directorate of Public Health services on all aspects of wetland resource management.

Kampala City Council Authority (KCCA),National Environment Management Authority (NEMA).



U2 U3 U5

Directorate of Public Health services and Environment Z4

Prepares the city environment action plan, in conformity with the National environment action plan

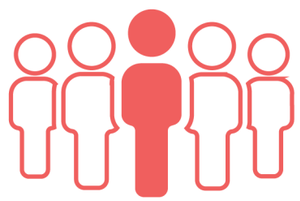
Kampala City Council Authority (KCCA).

U4

Community Leaders N5

Community leaders act as custodians for the shared community spaces .

CBO's, Local propreitors, Local leaders, social groups.



N1 N2

Shop keepers S5

Shop keepers act as custodians for the streets and are resposible for their maintanence.

CBO's, Local propreitors

S1 S2 S3 S4

Attendants C4

Attendants act as custodians for the shared facilities and communal spaces.

Local propreitors, Residents.

C1 C2 C3

Residents H4

Residents of the informal settlements can be engaged in flood reslient strategies at the house scale.

Home owners, residents.

H1 H2 H3

Practices to Patterns

Workshop

Purpose of the workshop was to test the applicability of the created patterns in the process of community participation and to explore the possibility of using patterns as building blocks for creating a shared vision.

Purpose of the workshop was to test the use/ applicability of the created patterns in community participation, and also to explore the possibility of using patterns as building blocks for creating a shared vision for the Nakivubo Wetland area. As such, the two main goals of the workshop were;

Workshop Goals

Goal 1 - Patterns on flood resilience in wetlands
The patterns were to be made from a selection of combined practices on flood resilience, that is, A set of practices chosen from a range of documented formal and informal practices.

Goal 2 - Create a shared vision of the Nakivubo wetland area
This involved using the selected practices to-brainstorm on a common/desired vision for the area.

Workshop Structure

The workshop was organised in three sessions.

Session 1 – Prioritising the patterns

This session begun with the explanation of the workshop process to the participants (fig 63). Thereafter the participants were divided into two teams (fig 64), and each team was given a set of patterns. The participants had to select their preferences for the patterns by use of a colour coding scheme (fig 65-66).
Blue - Priority A (Most Agreed with).
Green - Priority B
Yellow - Priority C.
Orange - Priority D (Least agreed with).

Fig 63 Explanation of the workshop process to participants
Source ; (Author, 2022).

Fig 64 Division of Participants into two groups
Source ; (Author, 2022).

Workshop

Outcome

A significant proportion of this session was dedicated to the explanation of the patterns to all the participants so that they were able to make an informed decision on the selection. The patterns that were made from the informal practices were much simpler to explain and understand because they were more representational. The patterns from the formal practices were much more abstract and had more technical terms which made them harder to explain and also to translate in the local dialect.

Conclusion

Explaining the patterns - Through the workshop, it become clear that the stage of translating and explaining the patterns to all participants prior to the pattern selection was vital and therefore would need to be done perhaps in a separate session. Alternatively, a detailed description of each pattern, translated into the local dialect could be made available to all participants in advance, so they are able to familiarize themselves with the terms and descriptions prior to the workshop.

Simplifying the patterns - It would be best to use simple schematic diagrams to represent the patterns derived from formal practices, as using imagery led to a lot of misunderstanding of the patterns. Use of simple and less technical terms to describe the patterns would simplify the explanation process as well. This feedback was incorporated in the final patterns shown in the previous section

Session 2 - Creation of the shared vision

In the second session of the workshop, the participants were able to show on a map, where the most preferred patterns would be best implemented (fig 68-70 &73).

Outcome

Majority of the participants were not able to understand or interpret the map. As a result, they were not able to make informed decisions about where the selected patterns could best be employed.

Conclusion

Use of guiding principles - The use of the patterns to create the design vision proved a challenge because the information was too broad and complicated to directly devise a vision from. Therefore, the patterns had to first be consolidated into guiding pranciples (which are also higher -level patterns), and these principles then used to build a spatial vison for the area. This process is outlined in the next chapter (Translate).

Session 3 - Discussion and reflection

In the last stage of the workshop, the participants had a chance to fill out a survey on the experience of the workshop (fig 71). The results are presented in figure 72.

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Fig 65 Participants voting on Patterns
Source ; (Author, 2022).

Fig 66 Participants voting on Patterns
Source ; (Author, 2022).

Workshop

Fig 67 Results from voting process
Source ; (Author, 2022).

Workshop

Fig 68 Building a shared vision
Source ; (Author, 2022).

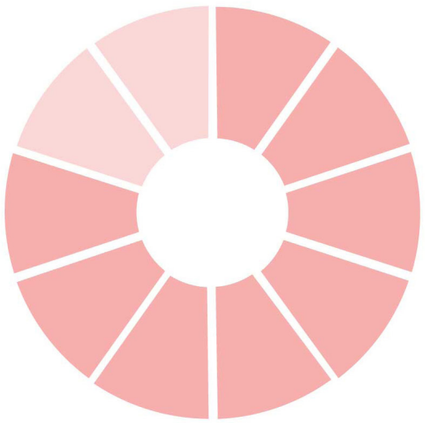
Fig 69 Building a shared vision
Source ; (Author, 2022).

Workshop

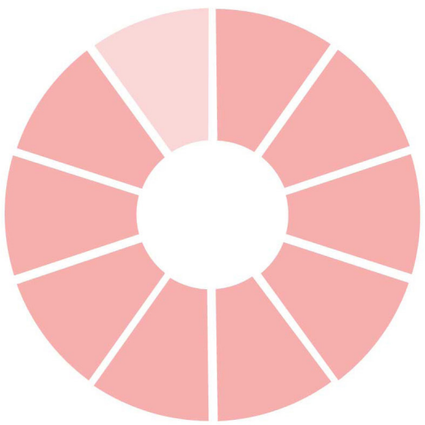
Fig 70 Building a shared vision
Source ; (Author, 2022).

Fig 71 Workshop feedback session
Source ; (Author, 2022).

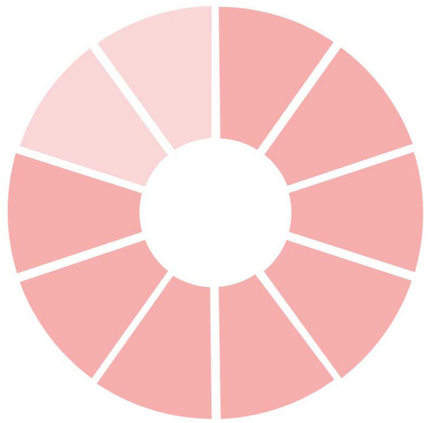
1. Were the workshop instructions clear and understandable?



2. Were you able to follow all the sessions of the workshop?



3. Did you understand the results /output of the workshop?



4. Were you able to freely express yourself in the workshop?

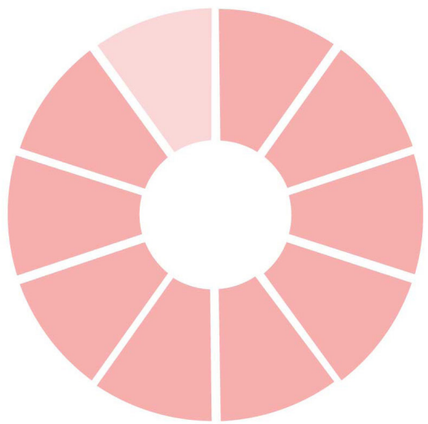
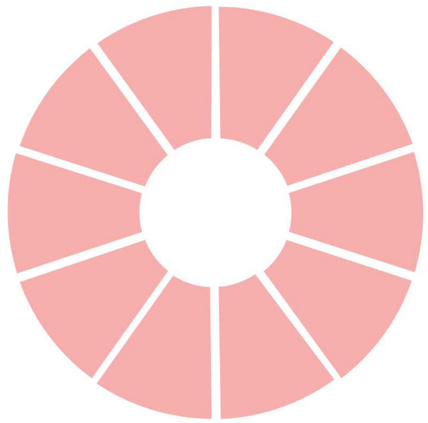
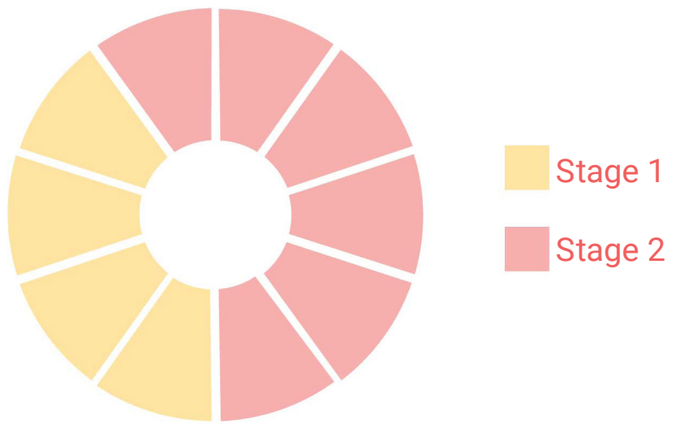


Fig 72 Results from workshop feedback
Source ; (Author, 2022).

5. Did you enjoy the workshop?



2. Which was your favourite stage of the workshop?

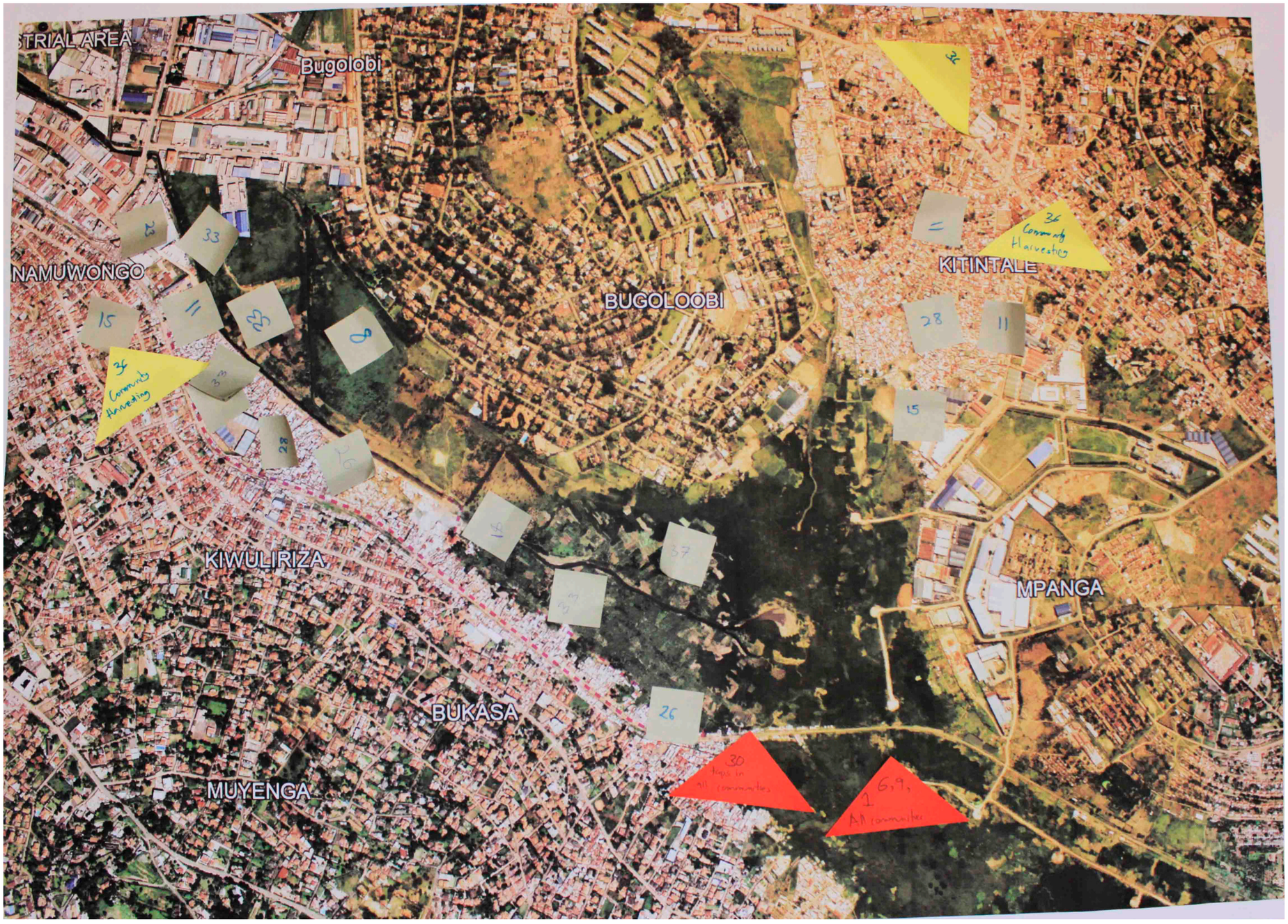


Workshop Conclusion

Participant turn up and make-up

Most of the participants that turned up were from the informal community. Only two representatives from the formal institutions were able to participate in the workshop. The two professionals had the task of explaining the patterns to the community members, which left a lot of room for misinterpretation. It also meant that the patterns that were more favourable to the community were voted most, although they might not necessarily have the best impact for the wetland. And the reverse was also true, some of the patterns that were least preferred were developed from formal practices and were harder to explain or understand, although they had a positive impact on the wetland.

Fig 73 Results from building a shared vision
Source ; (Author, 2022).



Translate

Guiding Principles

Grouping the patterns
12 guiding principles

Using the Principles

Spatial Vision for the Nakivubo Wetland area
Implemenation

The combination of patterns into more generalised actions that can guide design and be transferred to other contexts.

This final stage of the process explored the usability of the patterns as a tool to support design, and therefore their transferability across different sectors and contexts. This involved the combination of patterns into more generalised actions/ principles that can guide design and be transferred to other contexts. Thereafter, the resulting principles were used to develop a spatial vision for the Nakivubo Wetland Area, in line with KCCA's proposal of turning the area into a Central Urban Park.

Grouping the patterns

The patterns, derived from the observed formal and informal practices, were grouped based on their similarities to create new 'higher level patterns' (Salingaros, 2000). The resulting new patterns are guiding principles that can be used by KCCA and the different stakeholders in the implementation of the Central Urban Park in the Nakivubo wetland area; each principle (higher level pattern) contains smaller patterns that can kickstart the process.

The 12 principles are grouped into the three dimensions of Spatial, Socio-economic and Political in line with the framework (fig 74). The first principles (in terms of scale) in quadrant 1 are; Synergise environment institutions and Integrate environment action plans. Both of these exist in the political dimension. In the second quadrant are ; Wetlands with a function, Connect green spaces and Upgrade wetland communities, which are spatial and socio-economic principles . The principles in the first and second quadrants would be the mandate of the formal sector. The third quadrant has the principles ; Socio-economic activities in open space, Continuous mobility, Versatile drains, Demarcate settlement boundary, Leave room for water and Centralise sanitary facilities, which exist in the spatial and socio-economic dimensions. And in the fourth quadrant; Custodians over public space, which lies in the political dimension. The principles in the third and fourth quadrants would be the mandate of the informal sector.

Guiding Principles

Guiding Principles

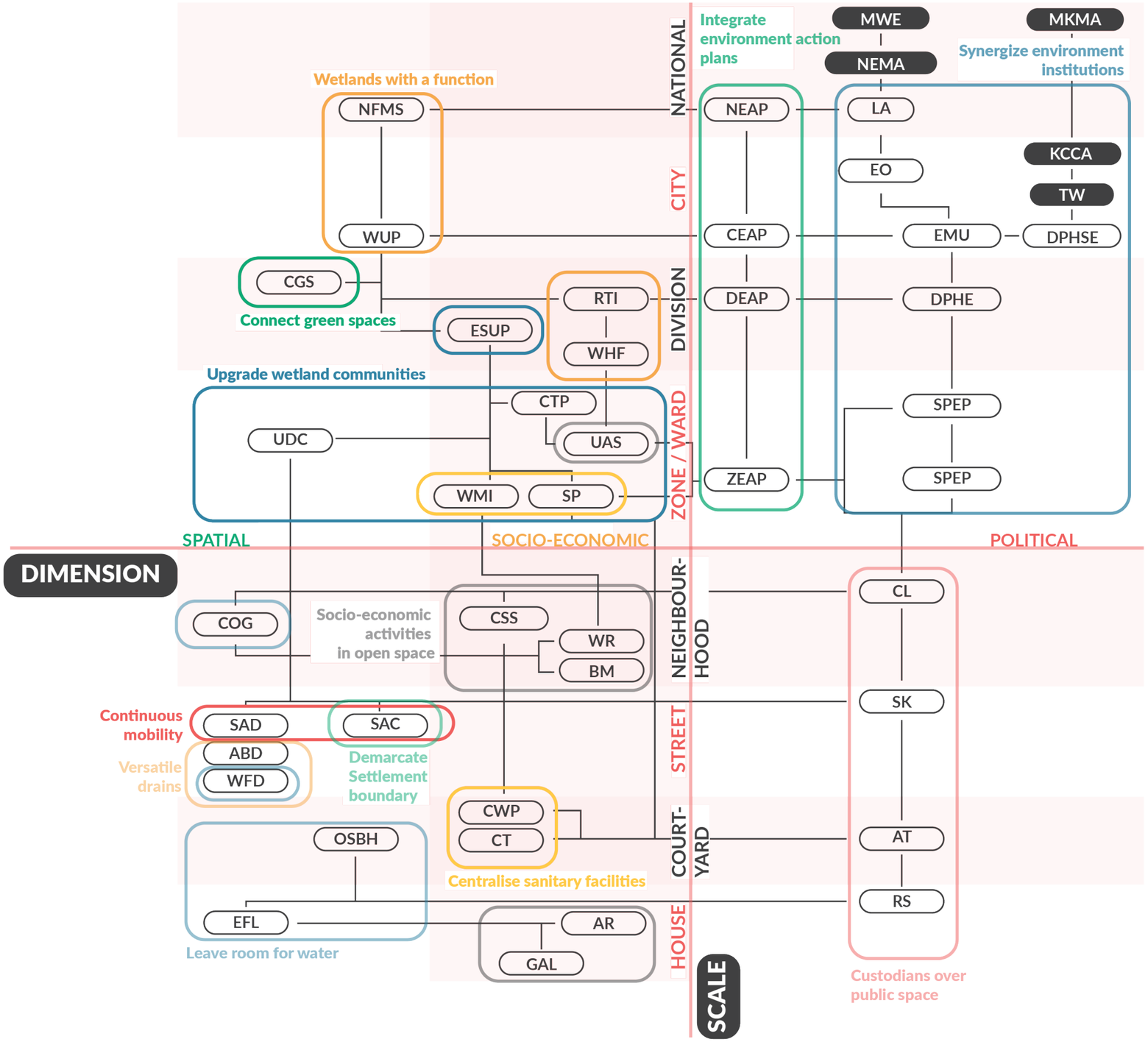


Fig 74 Grouping of Patterns into principles
Source ; (Author, 2022).

Guiding Principles

POLITICAL

Synergize Environment Institutions

- LA — Lead Agency
- EO — Environment Officer
- EMU — Environmental Management Unit
- DPHSE — Directorate of Public Health services and Environment
- DPHE — Department of Public Health and Environment
- SPEP — Secretary for Production and Environmental Protection

Integrate Environment Action Plans

- NEAP — National environment action plan
- CEAP — City environment action plan
- DEAP — Division environment action plan
- ZEAP — Zone environment action plan

Custodians over public space

- CL — Community leaders
- SK — Shop keepers
- AT — Attendants
- RS — Residents

SOCIO-ECONOMIC

Upgrade Wetland Communities

- ESUP — Environmental slum upgrading projects
- CTP — Community Training programmes
- UAS — Urban Agricultural Schemes
- WMI — Waste management initiatives
- SP — Sanitation projects
- UDC — Upgrade of drainage channels

Socio-economic activities in open space

- CSS — Community social space
- WR — Waste recyling
- BM — Brick making
- GAL — Garden/ Agriculture lots
- AR — Animal rearing

Centralise Sanitary facilities

- CWP — Centralised water points
- CT — Communal toilets

SPATIAL

Wetlands with a function

- NFMS — Natural flood mitigation systems
- WUP — Wetlands to urban parks
- RTI — Research and Tourism initiatives
- WHF — Wetland Habitat for flora and fauna

Leave room for water

- COG — Communal open grounds
- OSBH — Open Spaces between houses
- EFL — Elevated floor level
- WFD — Waste filters on drains

Continuous mobility

- SAD — Streets as drains

Connect green spaces

- CGS — Connected green spaces

Demarcate settlement boundary

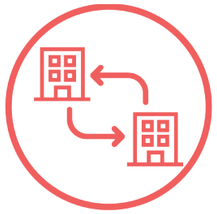
- SAC — Street along channel

Versatile drains

- ABD — Access bridges over drains

Guiding Principles

Fig 75 Legend for Principles
Source ; (Author, 2022).



Synergize environment institutions

Create synergies within the departments concerned with wetland management in the Environment institutions, as well as synergies within the institutions themselves.

Related pattern – Lead Agency (T3), Environment Officer (U3), Directorate of Public Health services and environment (U5), Environmental management unit (U4), City environment action plan (U2).

Integrate environment action plans

Integrated environment action plans ensure that the implementation strategies and projects at the local scales are consistent with the sustainability goals set at the larger national and sub-national scales.

Related pattern – National environment action plan (T2), City environment action plan (U2), Division environment action plan (D5), Zone environment action plan (Z6).

Wetlands with a function

Assigning functions to wetlands restores their natural ecological purpose and prevents further encroachment by residential and industrial uses.

Related patterns – Natural flood mitigation systems (T1), Wetlands to Urban Parks (U1), Research and Tourism Initiatives (D3), Wetland habitat for flora and fauna (D4).

Connect green spaces

Connecting green spaces increases the available public space and ensures continuity of ecosystems across the urban landscape.

Related patterns –Connected green spaces (D1).

Upgrade wetland communities

Slum upgrading projects and initiatives improve the overall environment of wetland areas and the livelihood of wetland community residents.

Related patterns – Environmental Slum upgrading projects (D2), Community training programmes (Z2), Urban Agricultural schemes (Z3), Upgrade of drainage channels (Z1), Sanitation Projects (Z5), Waste Management Initiatives (Z4).

Leave room for water

Allowing for uninterrupted and free movement of water in built/ settled areas within or adjacent to the wetland improves drainage and minimizes the risk of urban flooding.

Related Patterns- Open Spaces between houses (C1), elevated floor level (H1), communal open grounds (N1), Streets as drains (S1).

Social economic activities in open space

Open grounds that have a water retention function can host social and economic activities that build on the resilience of wetland communities.

Related patterns – Urban Agricultural schemes (Z3), Waste recycling (N3), Brick making (N4), Community social space (N2), Animal Rearing (H3), Garden/agriculture lots (H2).

Continuous mobility

Safety and accessibility within wetland communities promotes inclusion and improves livability.

Related patterns – Access bridges over drains (S2), Street along Chanel (S4).

Versatile drains

Versatile drains
It is sustainable for drains can have multiple functions, given the limited space in wetland areas.

Related patterns – Waste Filters on drains (S3), Streets as drains (S1).

Demarcate settlement boundary

Using public space such as a pedestrian street to demarcate the boundary between the built/ settled areas and the wetland prevents further encroachment.

Related patterns – Street along Chanel (S4).

Centralise Sanitary facilities

Shared sanitary facilities that are centralised within the settlement ensure that all residents have access to these services which reduces pollution of the wetland and improves the livability of the settlement.

Related patterns – Centralised water points (C2), Communal toilets (C3), Waste Management Initiatives (Z4), Sanitation Projects (Z5).

Custodians over public space

Custodianship over public space ensures a sense of ownership which is vital for the sustainability of a public good.

Related patterns – Community leaders (N5), Shop keepers (S5), Attendants (C4), Residents (H4).

Using the Principles

The Central urban park proposal can be achieved by using the principles as building blocks to develop a spatial vison for the Nakivubo wetland area.

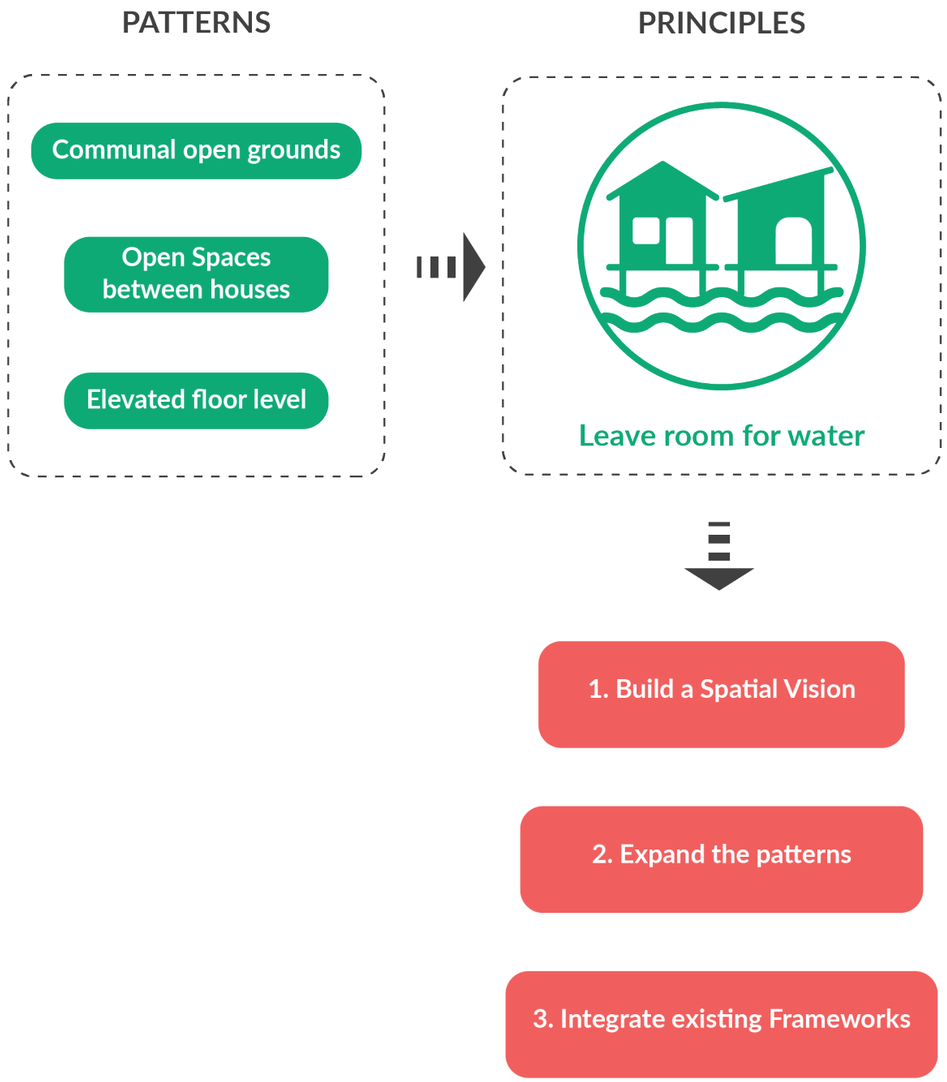
Spatial Vision for the Central Urban Park

According to the KPDP (KCCA, 2012) and the KCCA Strategic plan (KCCA, 2014), there are plans to transform the Nakivubo wetland area into a Central urban park. This research proposes a way in which this proposal can be achieved by using the principles as building blocks to develop a spatial vison for the Nakivubo wetland area, and then using the patterns under each principle to guide its implementation (fig76).

In addition to building the spatial vision, the principles can also be used in expanding the patterns. For example, the design principle 'Leave room for water' can also involve practices such as installing bioswales, turning streets to green corridors, having permeable pavements and water squares etc. These are practices that were not necessarily observed within the wetland communities of Nakivubo, but would none the less improve on flood resilience.

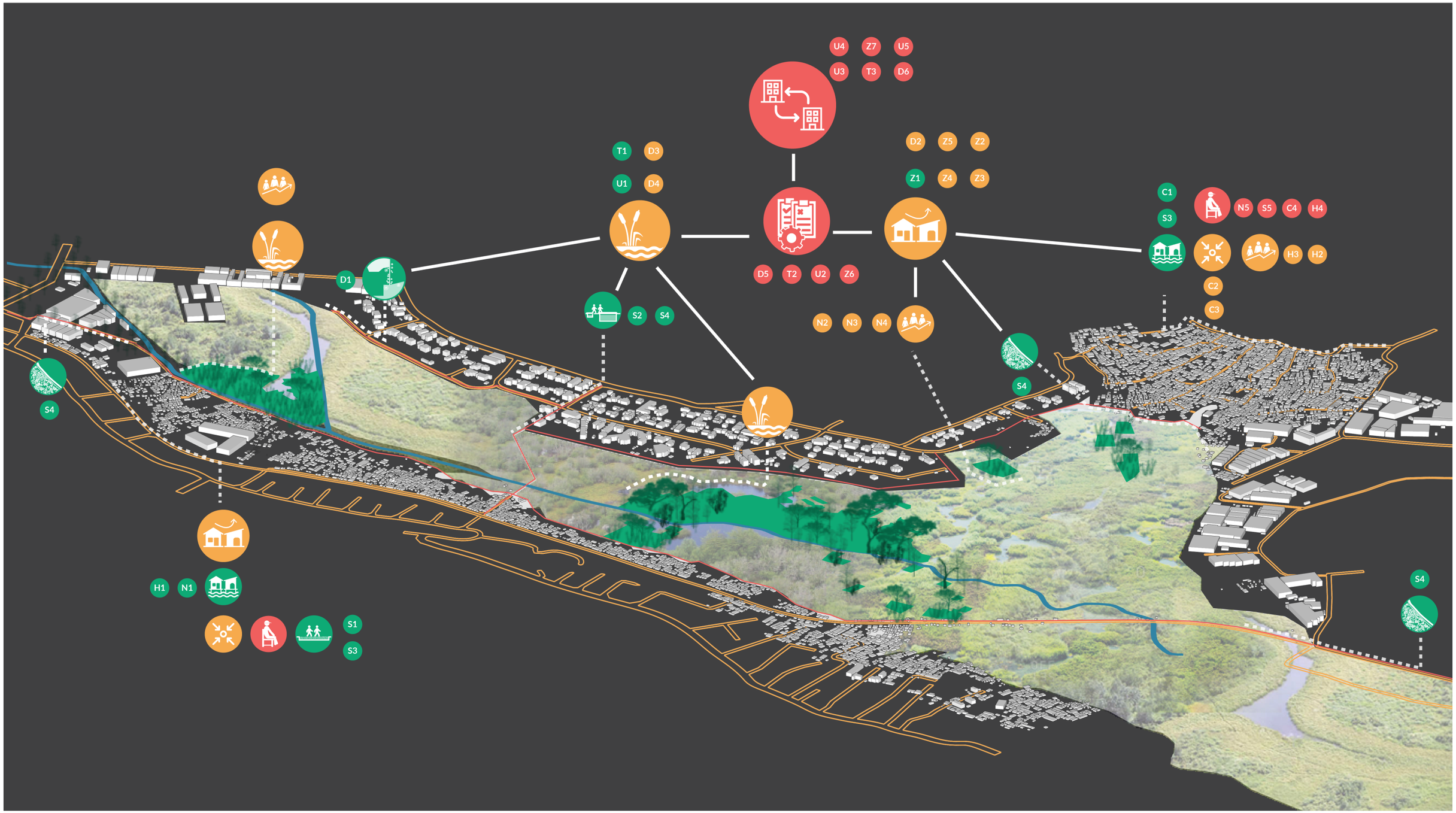
The principles also provide an avenue through which the patters can be connected to existing international frameworks such as the Sustainable development goals and the New Urban Agenda.

Fig 76 Purpose of the Principles
Source ; (Author, 2022).



Using the Principles

Fig 77 Spatial Vision for Nakivubo wetland area
Source ; (Author, 2022).



Implementation

This section illustrates how the principles can be used to guide implementation of the spatial vision by taking the example of two principles; Leave room for water and Wetlands with a function.

Leave room for water

The principle 'Leave room for water' requires that there's free movement of water in the settled areas within and adjacent to the wetland in order to improve on drainage and minimize urban flooding. It is applicable at the Local scale and would therefore be the responsibility of the informal actors to apply the patterns involved in this principle.

The patterns under the principle

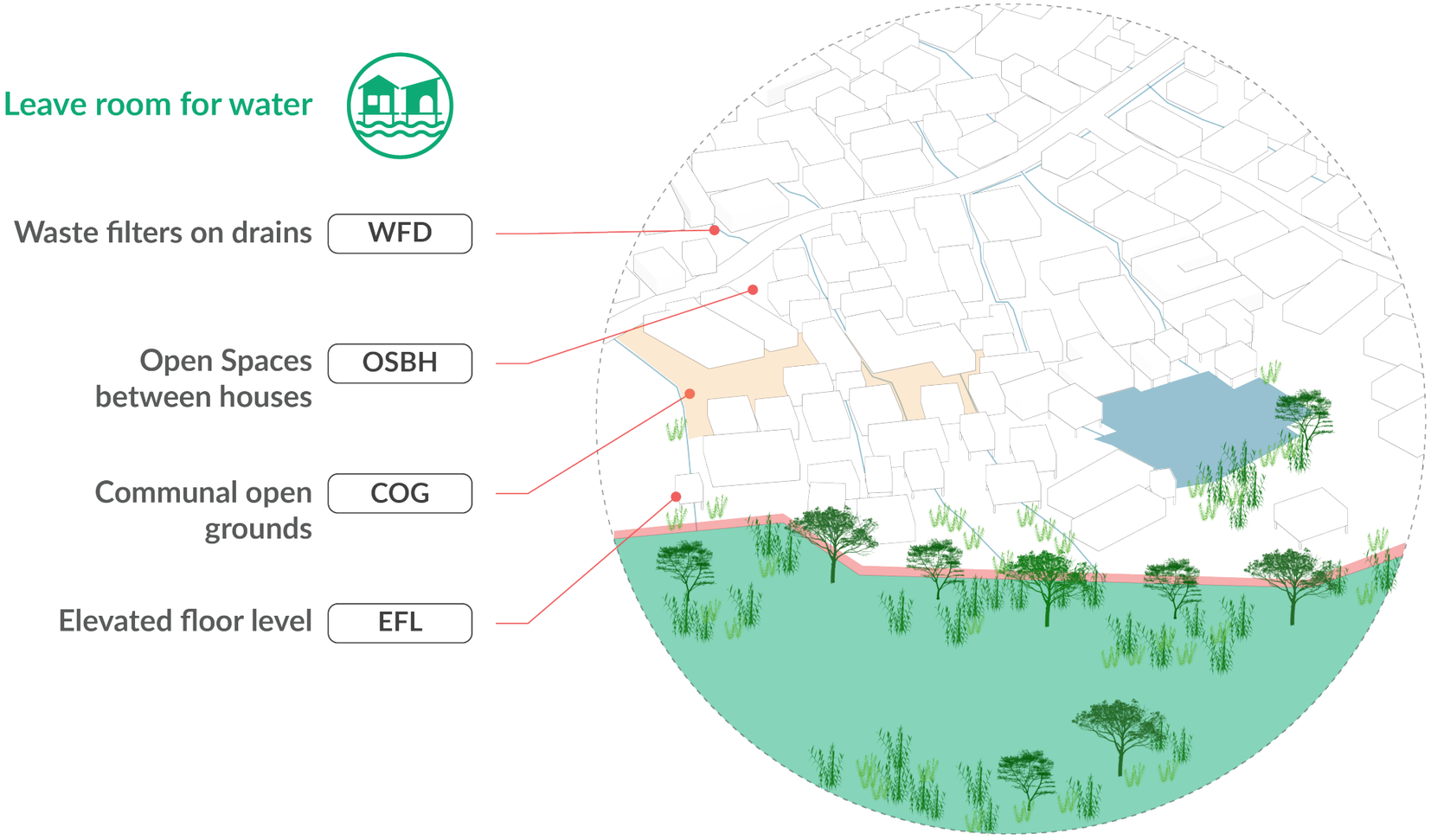
Community leaders (CL) are in charge of the *communal open grounds (COG)*, which grounds can also double as a *community social space (CSS)* such as a children's playground. The *shop keepers (SK)* are responsible for the maintenance of the drains along the streets adjacent to their shops for example by adding *waste filters on drains (WFD)*. It is the responsibility of the *residents (RS)* to construct their houses with an *elevated floor level (EFL)* and to leave *open spaces between the houses (OSBH)*. These open spaces under or between the houses can be used for economic activities such as *gardens/agriculture lots (GAL)*.

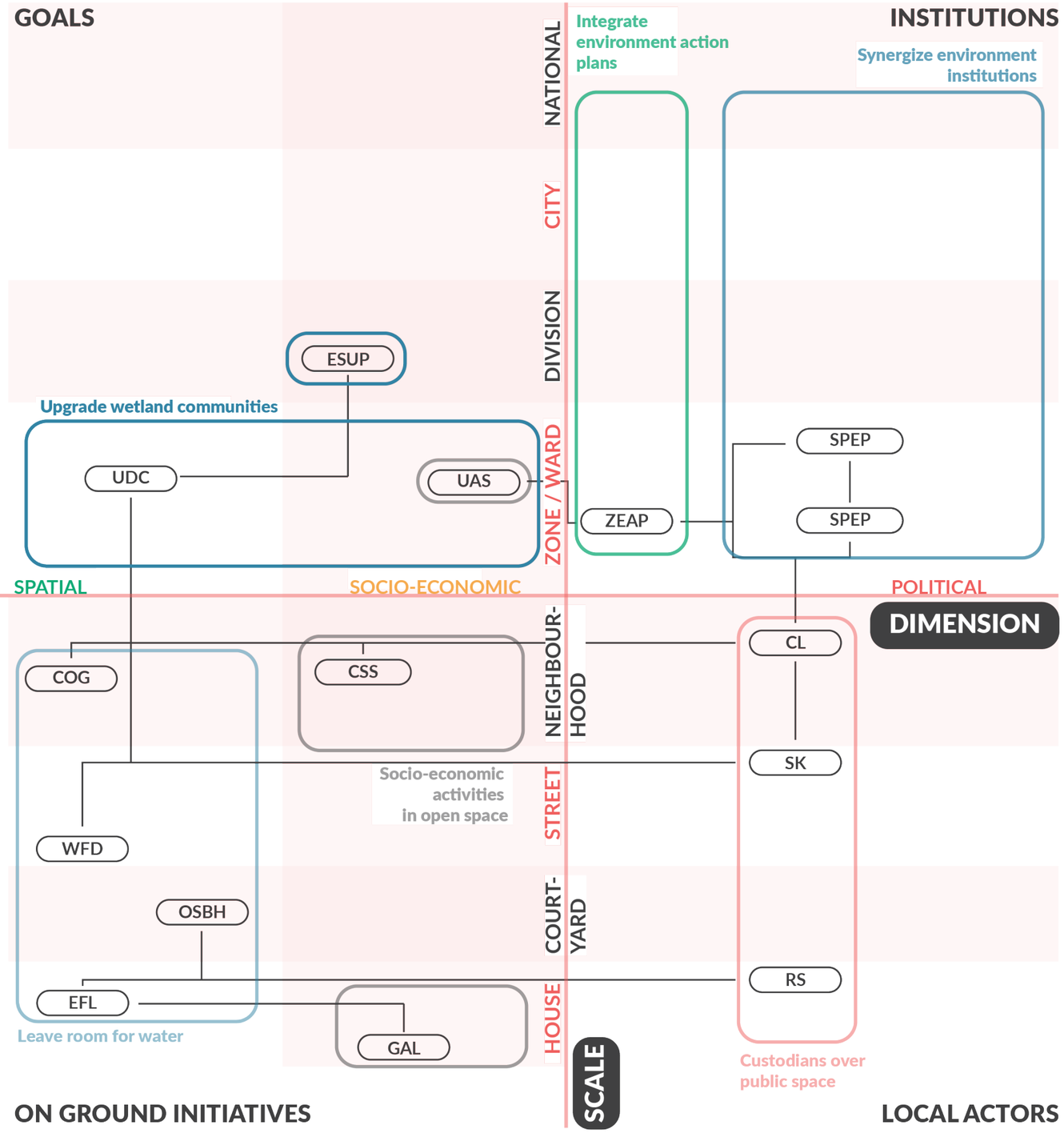
Related patterns and principles

The **custodians over public space** are incorporated into the formal governance structures by including *community leaders (CL)* in the environmental committee under the *secretary for production and environmental protection (SPEP)* at the Zone or Ward level. The committees produce the *Zone environment action plan (ZEAP)* that outlines strategies on how to **upgrade wetland communities** among which includes, **leave room for water**.

Using the Principles

Fig 78 Patterns contained in the principle "Leave room for water"
Source ; (Author, 2022).





POLITICAL

Synergize Environment Institutions

- SPEP — Secretary for Production and Environmental Protection

Integrate Environment Action Plans

- ZEAP — Zone environment action plan

Custodians over public space

- CL — Community leaders
- SK — Shop keepers
- RS — Residents

SOCIO-ECONOMIC

Upgrade Wetland Communities

- ESUP — Environmental slum upgrading projects
- UAS — Urban Agricultural Schemes
- UDC — Upgrade of drainage channels

Socio-economic activities in open space

- CSS — Community social space
- GAL — Garden/ Agriculture lots

SPATIAL

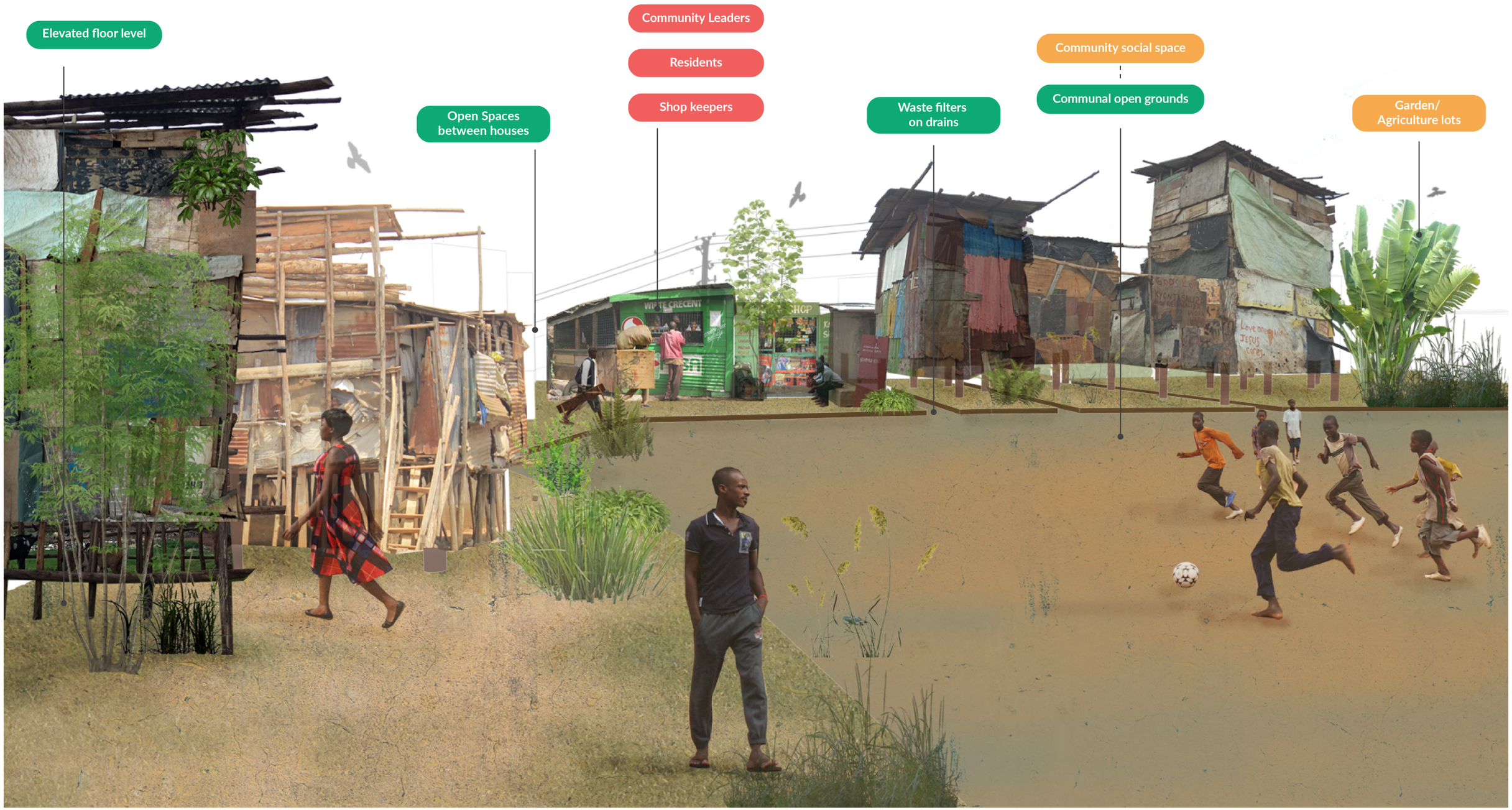
Leave room for water

- COG — Communal open grounds
- OSBH — Open Spaces between houses
- EFL — Elevated floor level
- WFD — Waste filters on drains

Fig 79 Connecting the principle to other principles using the framework
Source ; (Author, 2022).

Using the Principles

Fig 80 Illustration of the implemented principle
Source ; (Author, 2022).



Using the Principles

Wetlands with a function

The principle 'Wetlands with a function' requires the assigning of particular uses to wetlands, which restore their natural ecological purpose and prevent further encroachment by residential and industrial uses. This principle is applicable at the city scale and would be the mandate of the KCCA and NEMA to execute the patterns involved.

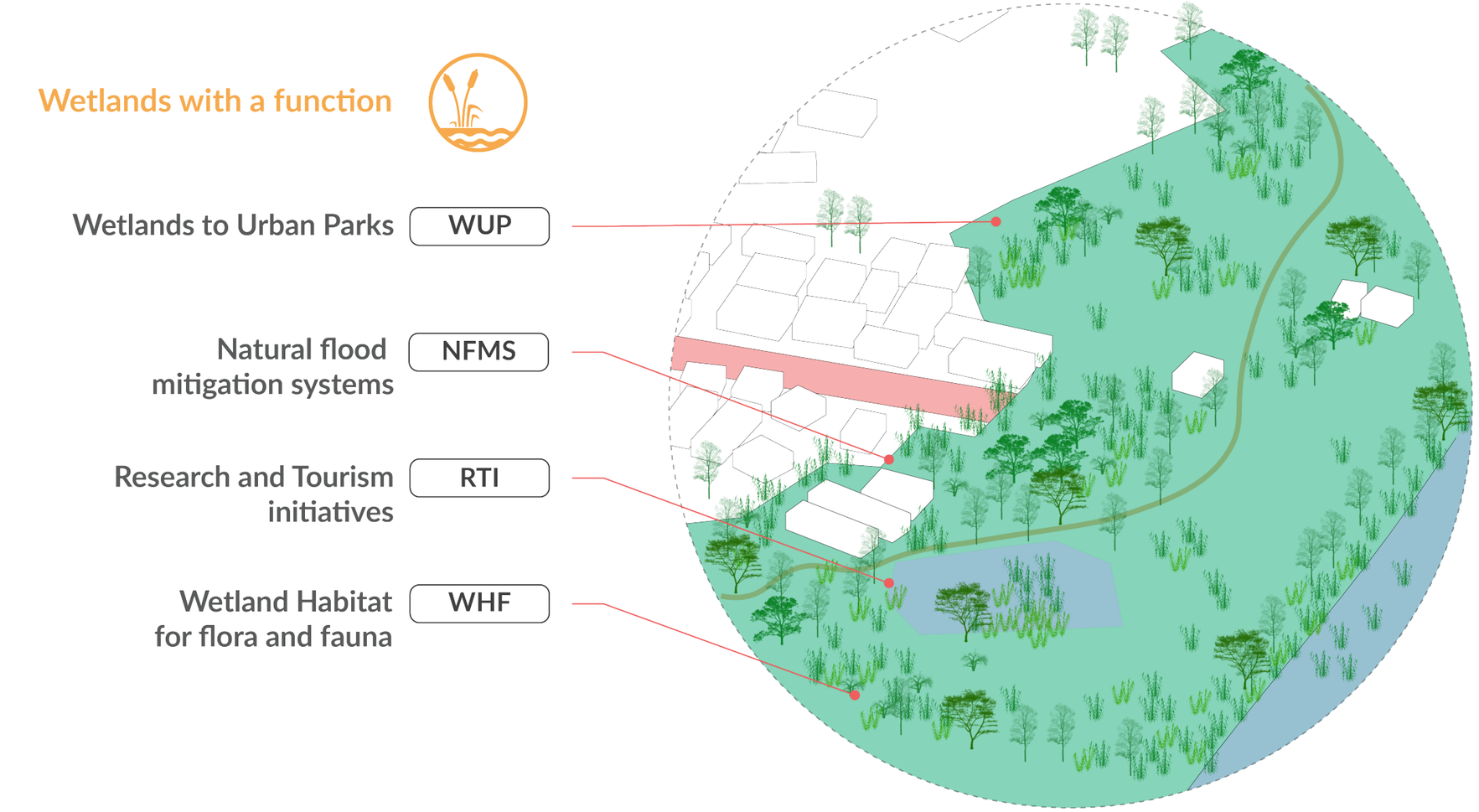
The patterns under the principle

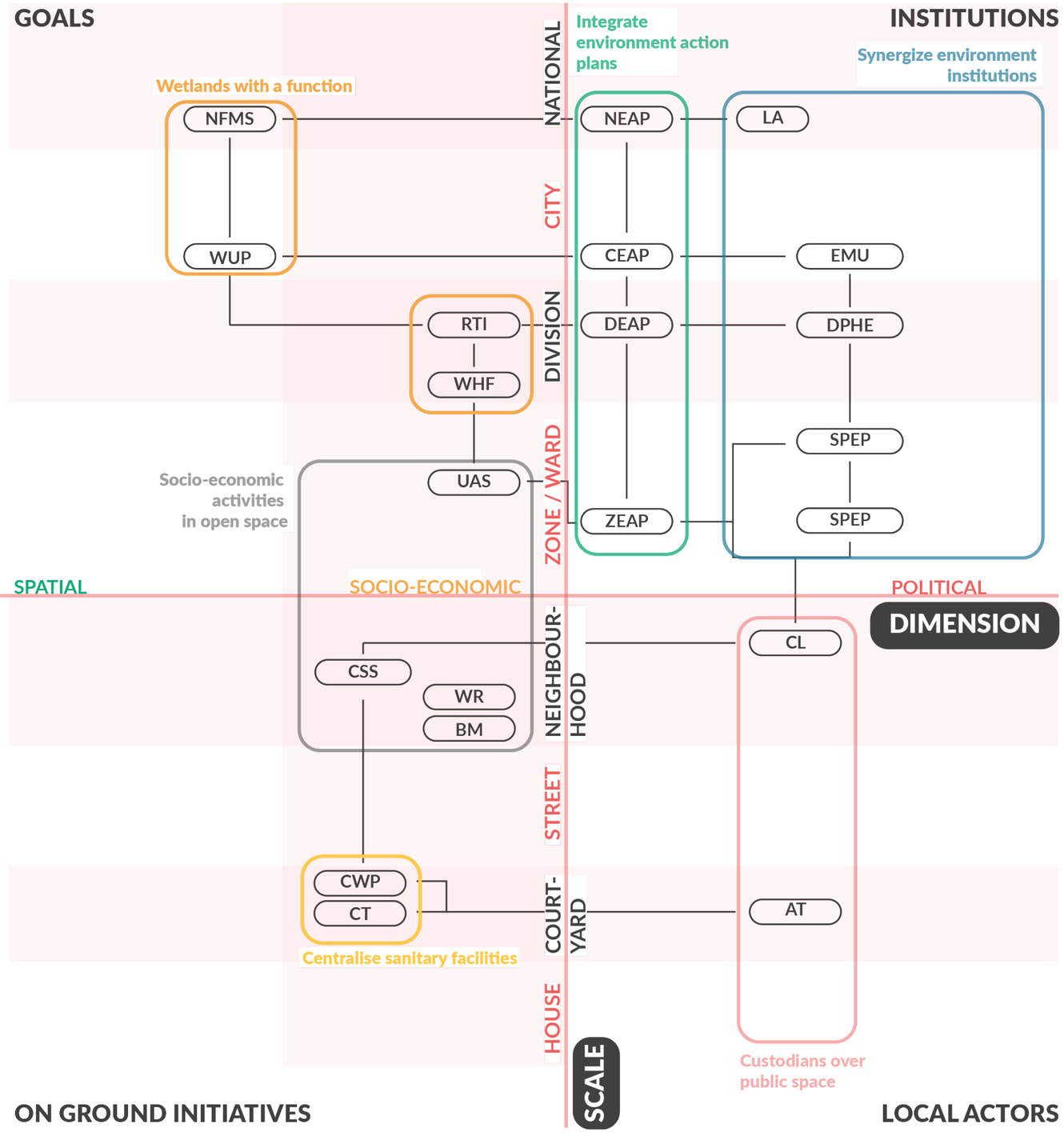
The *National environment action plan (NEAP)* mandates that all wetlands in the country should act as *natural flood mitigation systems (NFMS)*. In Kampala, the *City environment action plan (CEAP)* proposes that wetlands are turned into *urban parks (WUP)*. By restoring their ecological functions, wetlands, become *habitats for flora and fauna (WHF)* and hence host multiple *research and tourism initiatives (RTI)*. This activities are moderated according to the guidelines set out in the *Division environment action plan (DEAP)*.

Related patterns and principles

In the case of wetland communities, **socio-economic activities** can be permitted in moderation so as to make use of wetland resources, as outlined in the *Zone environmental action plan (ZEAP)*. The committee under the *Secretary for production and environmental protection (SPEP)* which includes the *Community leaders (CL)* is responsible for regulating these activities. This is done in collaboration with **custodians of public spaces** within the settlements to ensure the sustainable use of wetland resources.

Fig 81 Patterns contained in the principle "Wetlands with a function"
Source ; (Author, 2022).





POLITICAL

Synergize Environment Institutions

- LA — Lead Agency
- EMU — Environmental Management Unit
- DPHE — Department of Public Health and Environment
- SPEP — Secretary for Production and Environmental Protection

Integrate Environment Action Plans

- NEAP — National environment action plan
- CEAP — City environment action plan
- DEAP — Division environment action plan
- ZEAP — Zone environment action plan

Custodians over public space

- CL — Community leaders
- AT — Attendants

SOCIO-ECONOMIC

Socio-economic activities in open space

- CSS — Community social space
- WR — Waste recyling
- BM — Brick making
- UAS — Urban Agricultural Schemes

Centralise Sanitary facilities

- CWP — Centralised water points
- CT — Communal toilets

SPATIAL

Wetlands with a function

- NFMS — Natural flood mitigation systems
- WUP — Wetlands to urban parks
- RTI — Research and Tourism initiatives
- WHF — Wetland Habitat for flora and fauna

Fig 82 Connecting the principle to other principles using the framework
Source ; (Author, 2022).

Using the Principles

Fig 83 Illustration of the implemented principle
Source ; (Author, 2022).

Conclusion

Conclusion

Answering the research question

Reflection

On the role of the urbanist
On the Pattern Language Methodology
Research re-structure
Towards Spatial Justice

Conclusion

How can a strategic framework combining both the formal and informal practices lead to the effective planning implementation for a sustainable and flood resilient Kampala?

Answering the Research Question

How can a strategic framework combining both the formal and informal practices lead to the effective planning implementation for a sustainable and flood resilient Kampala?

As highlighted in the first chapter, the overarching challenge hindering the implementation of spatial plans is the discrepancy between what is proposed, and the reality on ground. What is proposed constitutes the planning process and the reality on ground constitutes the planning outcome. In this research, the latter is encapsulated as informal practices and the former as formal practices (see fig 24). Therefore, the lack of collaboration between formal and informal practices is the underlying problem that the research sought to solve.

As also identified in the first Chapters of the report, there exists a relationship between the two where one problem feeds into the other to create a loop (fig84).

The framework, through it's four quarters clearly illustrates how the loop between the formal and informal practices can be leveraged to bring about project implementation (fig 85). Essentially, the framework shows how the loop created by one problem feeding into another, can be transformed into a loop of one solution driving another; by leveraging existing connections within formal practices and creating synergies with informal practices.

Fig 84 The loop between formal and informal practices
Source ; (Author, 2022).

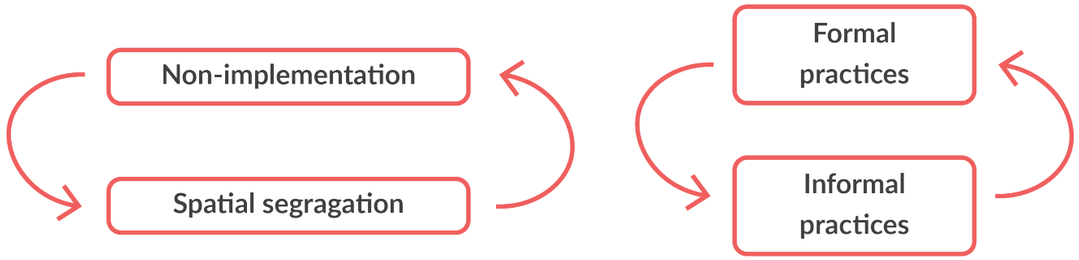
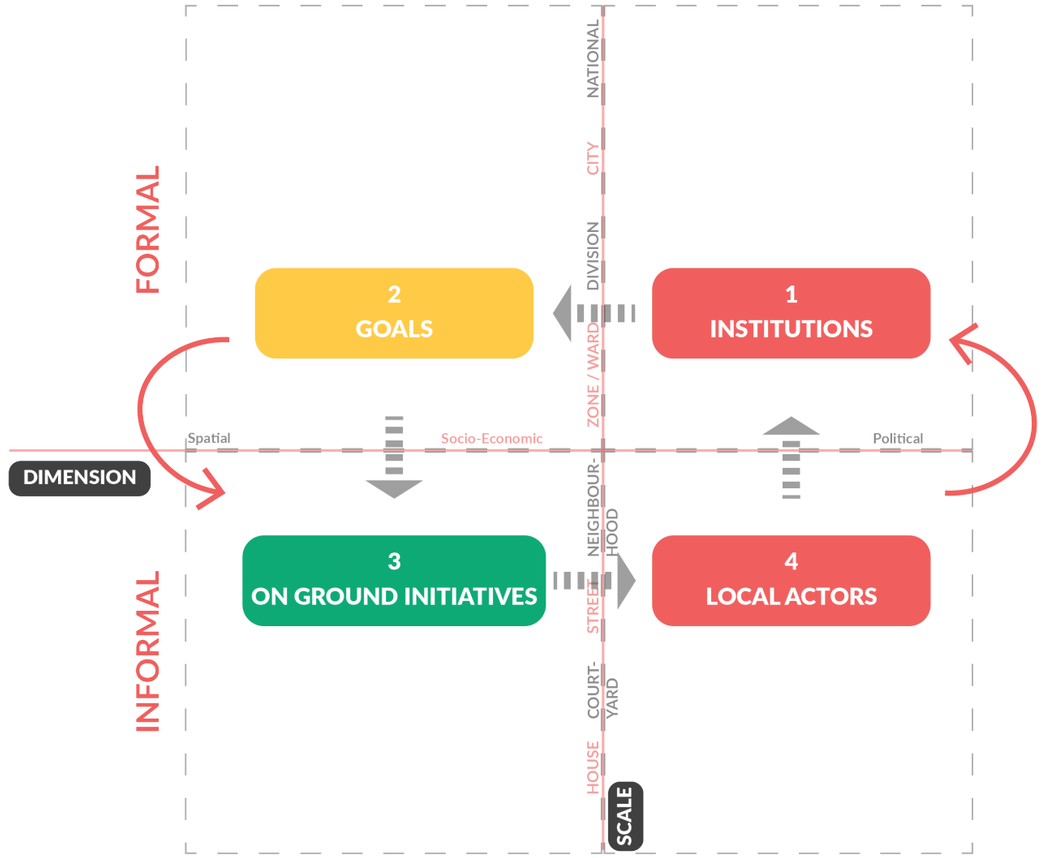


Fig 85 How the framework creates the loop
Source ; (Author, 2022).



Conclusion

Towards Implementation

Spatial planning proposals put forth by the formal institutions have the strenuous task of tackling the question of how to begin. By considering both the formal and informal practices, the framework suggests that project implementation does not have to start from scratch, but rather focus on creating synergies with already existing initiatives on ground.

The Framework provides a road map to implementation by accommodating the key information necessary for the project execution in one overall scheme. This allows for all the actors and stakeholders involved in the project to identify what their role and key output is, and how it connects to other actors involved in the project, which sets off the synergy building process.

The framework uses already existing formal and informal regulatory/governance structures. In essence, there is nothing new, but only suggestions on institutional mergers in some cases, and building collaborations and synergies between what already exists, in order to by-pass the rigid regulatory landscape. Since everything is already outlined in the law, there's a better likelihood of implementation.

Uniqueness of the approach

There are various approaches that consider community participation and engagement necessary in the spatial planning process. However, by considering not only the formal but also the informal practices, this approach puts emphasis on the involvement of existing community initiatives as an equal contributor to the spatial planning process and the informal sector as an equal stakeholder in the urban development of the area.

Potential obstacles and points of further research

This framework assumes the existence of formal structures of governance as they are allowed for in the law. But this is not always the case. In fact, it is more likely that there will be institutional gaps that need to be filled or reconciled before steps can be taken to connect to initiatives on ground.

There's also an assumption that the 'social rules' that organise informal communities are the same, and that existing informal power structures can be leveraged towards planning for sustainable community development. However the dynamics of informal communities differ from one place to another and tend to be more complex than illustrated in the framework. There is a need for a more thorough analysis into the workings of a specific society before the framework can be used.

Then, the question of how to begin is still unresolved by this approach since the framework doesn't clarify which stakeholder or actor kick starts the process. For example, who starts to document the practices? Whether it is the communities, the formal institution or the urbanist, and under whose instruction, remains unanswered.

Lastly, the framework focusses on the dynamic between the formal institutions and the grassroots initiatives of informal communities but doesn't consider other intermediary actors such as NGO's and the Private sector who also play a key role in a projects' execution. This calls for more research into how the dimensions of the framework can be expanded to include other relevant actors engaged with project implementation.

Conclusion

The research project sought to test the Pattern Language methodology, as a bridging tool between the formal and informal practices.

On the role of the urbanist

Urban planning discourse has the perpetual task of defining the role of the urban planner at every given time period. Historically, the urban planner was the possessor of the planning discipline. In otherwards, urban planning existed only when there were urban planners, and they dictated how cities would be planned. However, the role of the urban planner has been brought into question on the advent of new planning theory particularly from the Global South, where cities exist and continue to grow with minimal input and control from the Urban Planning profession. As an aspiring Urbanist, working with cities of the global South, this research project helped me explore what the role of the urbanist in the 21st century African City would entail. And more importantly, what tools I have at my disposal, as a urban planner, to tackle the planning challenges present in these cities.

On the Pattern Language Methodology

My motivation for the research was to explore how informal practices can begin to be formalised; in other words, how formal planning can start to engage with the informal side. As such, the research project sought to test the Pattern Language methodology, as a bridging tool between the formal and informal practices.
The Pattern Language (PL) was helpful for me, as a researcher, because it simplified what would otherwise be a complex process. Additionally, by simplifying the complexity of urban development, the PL made the workshop more engaging and less overwhelming for the stakeholders involved.

The Pattern Language - As a capacity building instrument and tool of empowerment.

The community residents were able to appreciate how their practices can be documented, making it possible to share them and leverage them towards improving their communities. They also were made aware of the plans the KCCA and NEMA have for their environment and were able to ask questions and give feedback on said plans. Through this process, the Patterns Language allowed for the empowerment of the residents because they had the information in an understandable format and could therefore actively engage in the planning process for their communities.
In addition to community empowerment, the resulting patterns, which will be shared with the community, are also design actions and hence provide a way to mobilize the community around a common goal making them a capacity building instrument as well.

Community Workshop vs KPDP

The patterns, illustrating both the formal and informal practices, were the main input for the workshop and made the participation process a dynamic, lively and engaging one. This research took a different approach to the participation process because the information gathered and presented to the participants was done from both the formal and informal sides. This allowed the participants to actively take part in the discussion because it ensured that there was a flow of information from both ways. The first part of the workshop was dedicated to explaining the technical terms to the residents of the informal settlement and also having the urban professionals understand the informal practices. The second part involved using the patterns to build a common vision for the area, which positioned the residents as active participants and co-creators of their own environment.
In contrast, the thematic workshops (fig 86&87) held during the preparation of the KPDP rendered the citizens as passive participants of the planning process. In these workshops, the participants were divided into focus groups where the planning professionals led and organised the meetings , and also had the role of translating the professional terms into Luganda (KCCA, 2012). It is evident that the flow of information during these workshops was one way; from the formal

Fig 86 Thematic Workshops organised during the KPDP process. Source ; (KPDP, 2012).

Forum	Date	Location
Students and Graduates	19.2.11	Consultant's facilities
Teacher's Union	10.6.11	KCCA
Head Teachers	16.6.11	KCCA
Parents	13.6.11	KCCA
School Management Committees	15.6.11	KCCA
School Pupils	20.6.11	KCCA
Urban Agriculturists	5.5.11	KCCA
Market Traders	5.5.11	KCCA
Young Professionals	7.5.11	Consultants' facilities
Kisenye Parish	9.5.11	In the parish
Makarere III Parish	9.5.11	In the parish
Property and Real Estate	19.7.11	KCCA
Tourism	20.7.11	KCCA
Environmental Workshop	25.8.11	KCCA

Fig 87 Thematic Workshops organised during the KPDP process. Source ; (KPDP, 2012).

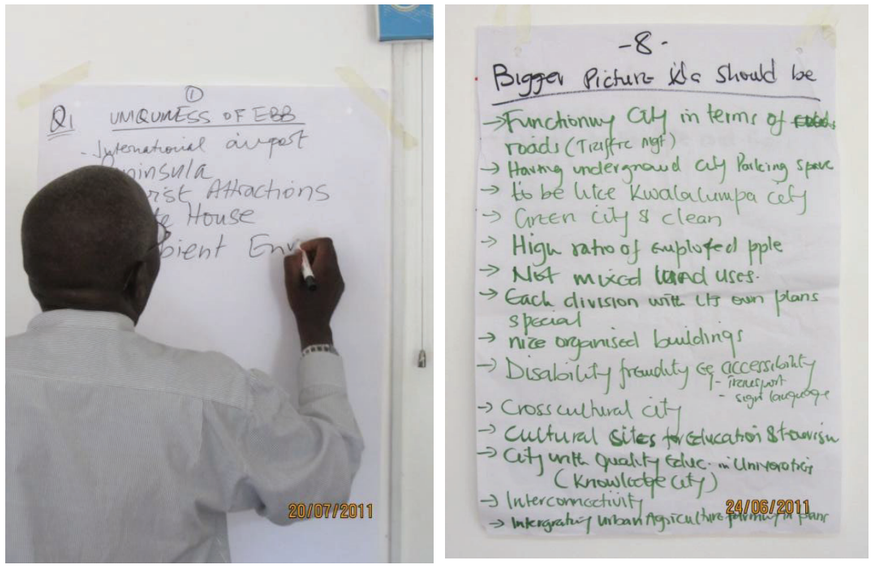
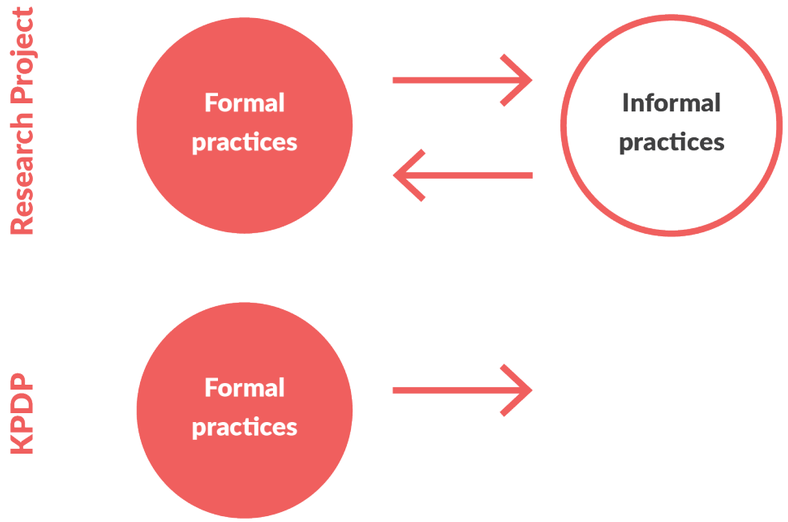


Fig 88 Difference between the KPDP workshops and the research workshop. Source ; (Author, 2022).



side to the informal side. The professionals explained to the citizens what the plans for the city were, and received feedback from the citizens on those plans. Participation was tokenistic because the citizens were mere spectators at worst, and passive participants at best, in the planning process. (fig 86-88)

This aspect of shifting the workshop from a 'planner-citizen information exchange' to having a dialogue between all participants follows with Sager's view of the importance of Communicative planning (Sager, 2018), discussed in the literature review chapter. Another aspect explored in the workshop from Sager's notions on CP is that on 'invited and invented spaces' (Sager, 2018), as explained below.

Location

Another notable difference between the two workshops was the location in which they were held. The research workshop was held at the LC 1 Kasanvu Community Hall, which is located within the informal settlement (an invented space), while the Environmental workshop was held at the KCCA offices (an invited space). This could possibly explain the participant makeup which in the case of this workshop; was mainly constituted of the residents of Kasanvu informal settlement. The members of the community were more willing to participate in the research and showed up in large numbers, perhaps due to the location of the workshop. On the other hand, the formal institution representatives that were approached for the research didn't show interest.

Research re-structure

Due to time constraints, the project managed only one workshop at the beginning of the patterns formulation process. Ideally, another workshop should have taken place after the documentation stage of the patterns, mainly to deliberate on the pattern field; the connections between the patterns and the new/revised patterns. Although the workshop happened before the document stage, the structure of the report has included the workshop after the document stage, and combined the record and document stage, to give the research project a more cohesive structure (fig 90). As a result, the project report is structured in three stages; Document, Communicate, Translate.
(fig 90)

Towards Spatial Justice

The resulting framework from the research project was the pattern field, which illustrates the patterns and how they are connected to each other. In otherwards, beyond just being a catalogue of practices, the framework showed how the formal and informal practices can be combined; which links could be made, where the gaps are and how they could be filled. The framework shows how informal actors can be incorporated in the formal governance structures, as well as become custodians for socio-economic activities and spaces. The framework also shows how activities and community initiatives are a way through which the goals laid out in formal planning policies can be executed. By doing so, the framework directly addresses the processes that

are behind the outcomes, and at that same time connects the processes to the outcomes.
In the literature review chapter, the notion of spatial justice was mentioned as one of the theories that recognise this relationship between process and outcome. Soja, in defining the term spatial justice, argues that it encompasses both the unjust geographies and the processes that produce them (Soja E. , 2009). Soja also makes the argument that unjust outcomes derive from innately unjust processes (Soja E. , 2010) which creates this loop of one problem feeding into the other as highlighted above (see fig 84). Therefore, the framework introduces a new avenue for discussion on how project implementation can strive towards spatial justice.

Fig 89 Pattern Language combining formal and informal practices. Source ; (Author, 2022).

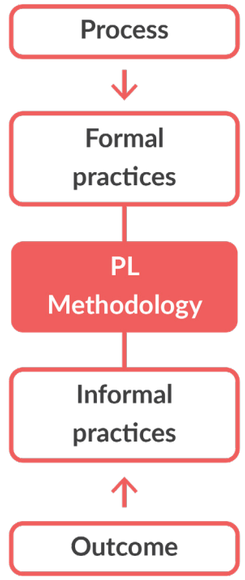
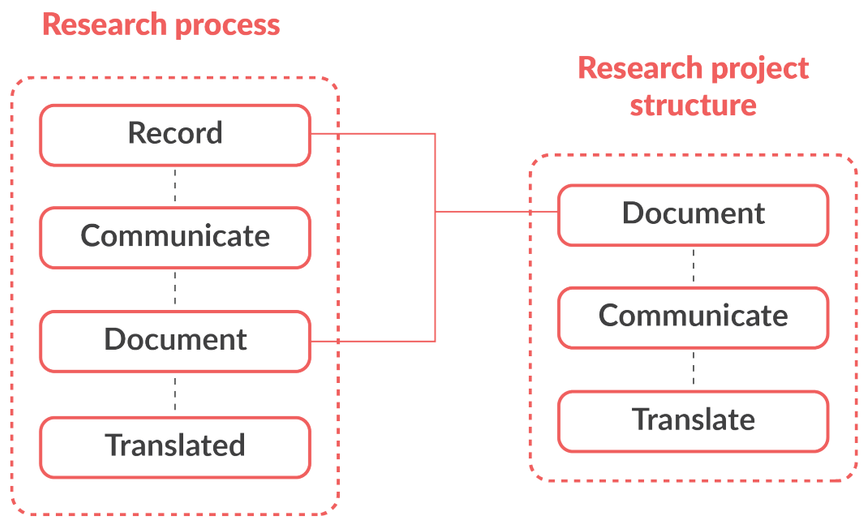


Fig 90 Research re-structure. Source ; (Author, 2022).



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References

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P.O Box 5,
2600 AA Delft,
The Netherlands.

Workshop Schedule

February 25th, 2022.

Overview

The purpose of this workshop is to test a research method that combines both formal and informal practices of flood resilience and wetland management in an attempt to create a new vision for the Nakivubo wetland area.

Goals

1. **A selection of combined practices on flood resilience:** A set of practices, chosen from a range of documented formal and informal practices.
2. **Create a shared vision of the Nakivubo wetland area:** Using the selected practices, brainstorm on a common/desired vision for the area.

Schedule

The workshop will be held in three sessions.

1. Selection of Practices.

   In this session, practices will be selected based on the preference of participants. The participants will be able to illustrate which practices they agree or disagree with. This will be done by the use of a color coding scheme;

Appendix

Blue - Priority A (Most Agreed with).

Green - Priority B

Yellow - Priority C.

Orange - Priority D (Least agreed with).

2. Creation of the shared vision

   In the second session of the workshop, the participants will be able to show on a map, where the chosen practices should be best implemented.

3. Discussion and reflection

   In the last stage of the workshop, the participants shall have a discussion on what structures need to be in place in order to implement the desired vision. There will also be a chance to fill out a survey on the experience of the workshop.

PROGRAMME

VENUE : Kasanvu Community Center

DURATION : 10:00am - 02:00pm

09:45 am - Arrival of Participants

10:00 am - Workshop starts: Brief introduction of the workshop and creation of teams

10:30am - Session 1

11:30 am - Plenary

12:00pm - Session 2

01:00pm - Session 3

01:30pm - Refreshments.

02.00pm - Close of workshop

TU Delft Delft University of Technology

P.O Box 5,
2600 AA Delft,
The Netherlands.

Workshop Evaluation Form

February 25th, 2022.

Please circle the appropriate value

1. Were the workshop instructions clear and understandable?

1 2 3 4 5 6 7 8 9 10

2. Were you able to follow all the sessions of the workshop?

1 2 3 4 5 6 7 8 9 10

3. Did you understand the results/output of the workshop?

1 2 3 4 5 6 7 8 9 10

4. Were you able to freely express yourself in the workshop?

1 2 3 4 5 6 7 8 9 10

2

5. Did you enjoy the workshop?

1 2 3 4 5 6 7 8 9 10

6. How would you define your role in this project?

7. What did you find most interesting in the workshop?

8. What would you improve on the pattern cards?

Name of Participant:

Signature:

Date:

P.O Box 5,
2600 AA Delft,
The Netherlands.

Workshop Registration

February 25th, 2022.

Name	Workplace	Residence
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		

P.O Box 5,
2600 AA Delft,
The Netherlands.

Workshop Consent Form.

February 25th, 2022.

Please tick the appropriate boxes

Taking part in the study

Information concerning the study has been read to me and I have understood it. I have been able to ask questions about the study and my questions have been answered to my satisfaction.

YES ☐ NO ☐

I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions and I can withdraw from the study at any time, without having to give a reason.

YES ☐ NO ☐

Name of Participant:

Signature:

Date: