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LANDSCAPE URBANISM AS AN ALTERNATIVE APPROACH TO REGIONAL PLANNING PRACTICES
Research-by-Design in the semi-arid region of Tete

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ABSTRACT
The semi-arid region of Tete undergoes a series of exogenous processes that makes the inhabitation of the savannah landscape difficult. Large-scale landscape alterations lead to disconnection from its resources and the increase in vulnerability, especially for the local population that do not benefit directly from the exogenous processes. In addition, they aggravate the harsh endogenous processes that the region suffers from, namely long periods of drought alternated with severe flash floods.
This paper presents the application of Research-by-Design as a method of Landscape Urbanism on a specific case in the semi-arid region of Teteto aim towards a more sustainable territory. Landscape Urbanism is tested as alternative approach to classic regional planning practices. The paper bases itself on research-by-design executed over a period of three years and is organized through James Corner's four provisional themes of Landscape Urbanism. The research shows that Research-by-Design within the principles of Landscape Urbanism can be a valuable addition to ongoing planning practices, especially emphasizing its capacity to empower local population.

Keywords: Landscape Urbanism, Landscape Urbanism Strategies, Research-by-design, Urban Design, Resilient Landscape, Regional Planning.
Thematic clusters: 2. City and Environment **Topic:** Environment, landscape and climate change

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Introduction

As Africa's fourth largest water basin and with an abundance of natural resources, the Zambeze is Mozambique's river basin with the largest development potential (SADC-WD Zambezi River Authority & SIDA DANIDA Norwegian Embassy Lusaka, 2008). As Mozambique evolves as a nation, the promises hung onto the Zambezi river for the growth and development of the country continue. Natural resource extraction lies at the base of large-scale development projects. Despite the potential, the Zambezi river basin's population is poor, often lacking basic amenities as electrification and do not always manage to secure food (Mulder & Tembe, 2008). National interests take complete claim over the Zambeze's resources compromising its inhabitants' resilience to survive, as pointed out by Isaacman and Isaacman in the case of the Cahora Bassa dam construction (Isaacman & Isaacman, 2013).

The national government claims that the development of the Zambezi river basin will strongly impact the country's growth which in turn should benefit its population (Zambeze, 2020). From a selective case study research conducted along the Zambezi river basin(Wambecq, forthcoming), it became clear that the local population's resilience is under pressure and that the people in these settlements – and surely many more – are not benefitting from the Zambezi river basin development as envisioned by the national government. The regional planning devices under the*Lei do Ordenamento do Território* (LOT) [Land Use Planning Law], generally aim towards: "*the rational and sustainable use of natural resources, the preservation of environmental balance, the promotion of national cohesion, the valuation of each region's potential, the promotion of the citizen's life quality, the balance between life quality standards between rural and urban areas, housing, infrastructures and urban systems conditions improvement, the safety of vulnerable populations facing calamities*" (RM, 2007). Yet, as Beja da Costa points out these traditional comprehensive planning structure tools inherited from the 20th century colonial and socialist planninginfluences (Mendes, 1980), are no longer up to date with the current socio-economic situation of Mozambique(Beja da Costa, 2019). The top down, subsidiary planning tools – a national territorial plan, a regional territorial plan… - might work in urban context where PPU (Partial Urbanization Plans) organize the urban context. This intensive land-use planning practice is impossible to uphold in extensive rural regions as the Zambezi river basin.

Landscape Urbanism is a recent concept. Rather than defining it by one clear description, it has been the subject of various interpretations as first bundled in the Landscape Urbanism Reader, edited by Charles Waldheim (Waldheim, 2006). It introduces Landscape Urbanism as follows: "*Landscape Urbanism describes a disciplinary realignment currently underway in which landscape replaces architecture as the basic building block of contemporary urbanism. For many, across a range of disciplines, landscape has become both the lens through which the city is represented and the medium through which it is constructed*." (Waldheim, 2006, p. 11)Since the landscape is a fundamental aspect in the Mozambican culture of inhabitation (Carrilho et al., 2004), using the landscape as a way to practice regional planning might prove valuable. Corner's four provisional themes as presented in Waldheim's first attempt to ignite a discussion on Landscape Urbanism– processes over time, staging the surface, the working method and the imaginary – are used to structure the Research-by-Design(Corner, 2006). Corner's approach to Landscape Urbanism is fundamentally project-based, informed by the projects his office worked on. The methodological framework that he extracts from his practiceformed the base for design.

1.Objectives, body of knowledge and methodology

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1.1. Objectives

Corner's contribution was used exactly because of its practice-based origin. The application of his concepts on the context of the Zambezi aimed to investigate theirpotential as an alternative to classic regional planning practices, especially in these remote places where urbanism and regional planning, unlike in cities, fails to provide a sustainable frame for the local population. In extension the Research-by-Design then evaluates the meaning of Landscape Urbanism in the semi-arid are of Tete, Mozambique.

1.2. Body of knowledge and methodology

Research-by-design within the discipline of Landscape urbanism was applied as methodology. Landscape urbanism is understood according to James Corner's contribution "Terra Fluxus" in the Landscape Urbanism Reader edited by Charles Waldheim(Waldheim, 2006). He refers to four provisional themes: "Processes over time, staging of surface, the operational or working method and the imaginary" (Corner, 2006, 28). The processes over time indicate mental shift from the object-driven orientation of the Zambezi river as a resource, towards the processes that generate the resources. The theme introduces the possibility for a shift from resource consumption, to resource production. It implies that if we understand the processes that shape our environment, we can also intervene and improve it. Staging of surface relates to the actual occupation and negotiation of the Zambezi territory as an open-ended structure that can be endlessly adapted rather than disrupted to fit new logics and forms. Staging of surface suggests inclusion. Inclusion of local population and how they occupy and inhabit the territory, but also of other exogenous operations that alter the territory. The dialogical nature of internal versus external and the endless oppositions might be overcome by considering this theme.The operational or working method refers to the intermediate capacity of landscape urbanism to sit between actual design strategies and interventions, and large-scale systemic impact. The theme present a possibility of systemic intervention on the lowest scale, thus empowering the local population to build their own territory in a sustainable way, regardless of whether the regional planning practices function or not. Finally, the imaginary introduces the necessity for a different vision for the Zambezi river valley.

Through a design studio organized at KULeuven in the spring semester of 2018, landscape urbanism strategies were developed over a transect running perpendicularly over the Zambezi river. Landscape urbanism strategies were developed on three different scales, developed as models: a 1/20.000 model of a 125x10km transect made by all students as a general strategy; four 1/5.000 models of the 5x5km cases per river (Luenha, Nhartanda, Revubue and Moatize rivers) made in groups of four students showing how general strategies become concrete per case; fifteen individual 1/500 models of 750x150m cases that show systemic interventions(Ye et al., 2018). In addition, two post-graduate master theses were developed on two of the cases (Xiao, 2018; Ye, 2018a; Ye & Xiao, 2018), and an undergraduate master thesis on the Moatize river, part of the same transect (Van Praet, 2018).

2. Landscape Urbanism in the semi-arid region of Tete

2.1. Introduction: three dualities

The 125km long transect formed the base for the design investigation. Itcrosses the Zambezi river perpendicularly following its tributaries Luenha and Revubue rivers and covers an extensive area of the semi-

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arid region of Tete. Three main dualities have shaped the urbanization and settling patterns in this region. Firstly, the region is gravely impacted by the contrast between wet and dry season, an inherent characteristic of the region. Long dry periods are alternated with extreme rainfall which creates difficulties in accessing the water and its resources on a constant and permanent basis. It is expectedthat climate change will accentuate this duality(SADC-WD / Zambezi River Authority & SIDA / DANIDA / Norwegian Embassy Lusaka, 2007). To access water people naturally inhabit the spaces close to accessible river beddings. As figure 01 shows, urbanization thus strongly follows the logics of the water.

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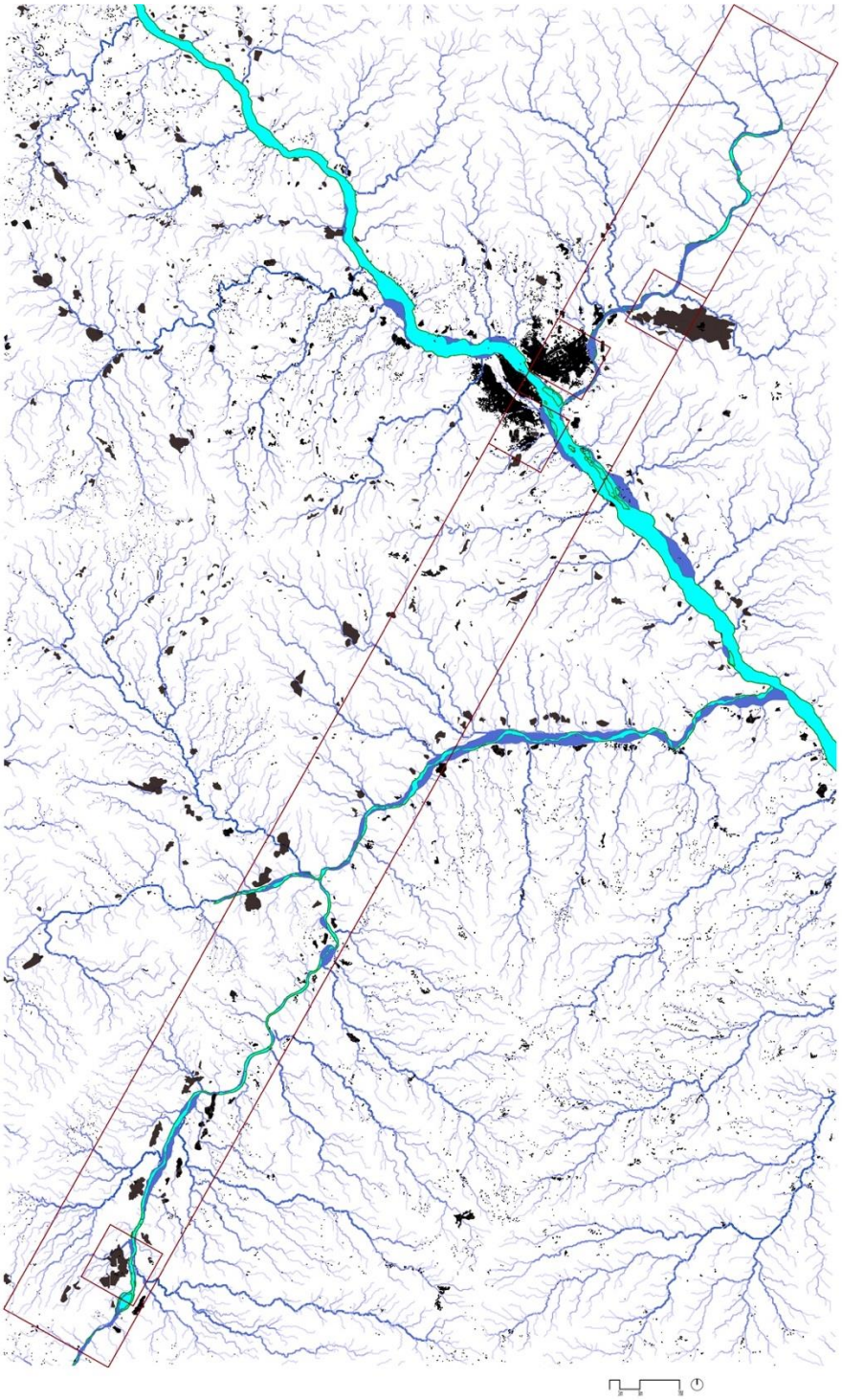

Fig. 01 River system and urbanization. Light blue is permanent water, dark blue temporary during rainy season, in black the settlements.In red the indication of the 125x10km transect and the four 5x5km cases from bottom to top: Luenha, Nhartanda, Revubue and Moatize cases, all tributary rivers of the Zambezi. Source:(Ye & Xiao, 2018, pp. 62,63)

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Nevertheless, the duality between wet and dry season is endogenous to the region. People have adapted their lifestyle to deal with the different regimes. Exogenous processes – the mining activities, large-scale deforestation and other – disturb the balance of inhabitation. The harsh disruptions of the landscape caused by the search for resources and capital accumulation, creates pressure on the endogenous lifestyle. This second duality is induced by globalization forces that have found a beneficial regime of neoliberal policy in what can be considered the deep interior of Mozambique.

Thirdly, there is a shift from a traditional – more rural – to a modern lifestyle(Melo, 2014). The modern lifestyle that the local population seems to aspire for, celebrates the independence of the landscape's natural processes and the ability of humankind to control its environment. The modern aspiration is most readable in peri-urban expansion areas where the artificial grid with cement houses on individual, walled plots demonstrate the strive for a modern organization of space. Typically, traditional and vernacular urbanization appear on the slopes around rivers since they are the source for the most basic resources. Modern urbanization on the other side is seemingly independent from the resources of the landscape and often appear further away from the rivers on higher plateaus, compensated by an artificial infrastructure.Yet, when the artificial constructs of their imagined reality break down, the urbanization becomes critically affected since it cannot easily fall back to the landscape and its resources.

The landscape urbanism design studio "Resilient Zambeze" organized by the author at KU Leuven was set up to make the local population more resilient in dealing with the three dualities (wet-dry; exogenous-endogenous; traditional-modern). Landscape Urbanism design interventions were tested that rethink the systemic inhabitation in this region, falling back to the traditional qualities of the landscape, while maintaining modern aspirations and advantages; that integrate exogenous processes into beneficial contributions to a new inhabited territory; that deal with the accentuated natural processes of dry and wet season as an opportunity by understanding its hidden potential.In this paper, the results of this design work are systematized through the four provisional themes of Landscape Urbanism as presented by James Corner.

2.2. Processes of time: water, soil and vegetation

The understanding of inhabitation in relation to the natural and cultural processes is critical in imagining a new territory. It appeals to the systemic nature of inhabitation within the theme that Corner would call the "processes over time"(Corner, 2006).The systemic way of inhabitation is best illustrated by a cross section in Luenha, the southernmost case along the transect and shown in figure 02.

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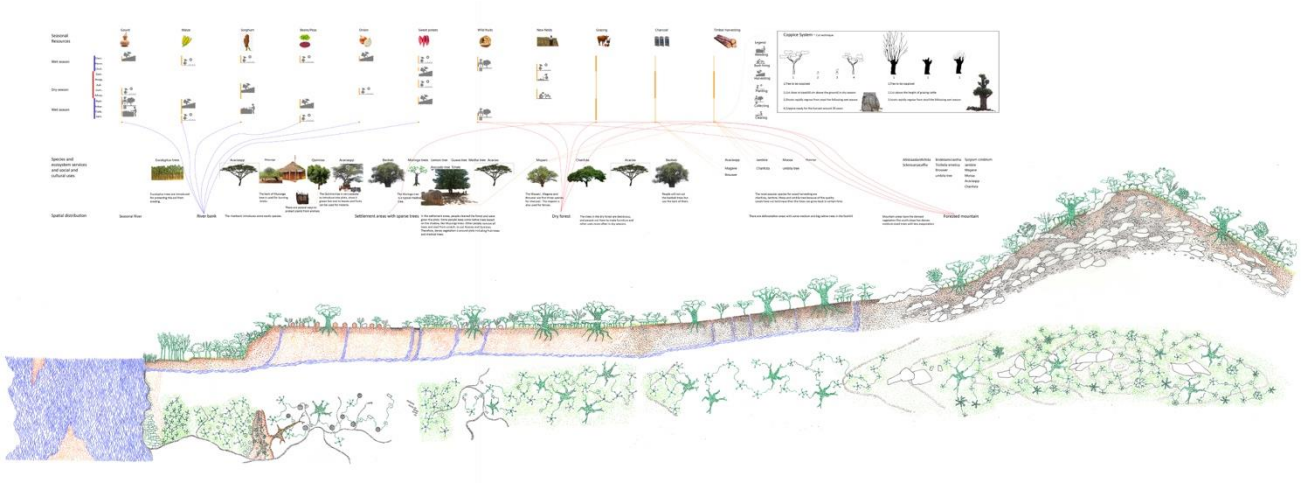

Fig. 02 A systemic section through Luenha shows the four main geographic entities: the river, the slope, the plateau and the mountain outcrops. Along the section a range of resources can be found or produced, based on landscape processes. The three main resources are readable: water (blueish), soil (brownish) and vegetation (greenish). Urbanization weaves through the processes creating either a balance or disbalance. Source:(Xiao, 2018, pp. 31, 32)

From low to high: the river is the main lifeline. It expands into and retreats from its flood plains according to wet and dry season, allowing fertile sedimentation along the river shores. Naturally, these places of access to water and fertile soil – for subsistence agricultural activities - are what attracts human occupation on the slopes nearby. Higher up, on the plateau, the formal occupation occurred in grid-based urbanizations on safer, yet also less fertile lands.The edges of the water shed are often mountainous outcrops called “islandberg”. Occupation occurs surprisingly consistently along this systemic section and was confirmed in all four cases, as in the case of Revubue in figure 3.

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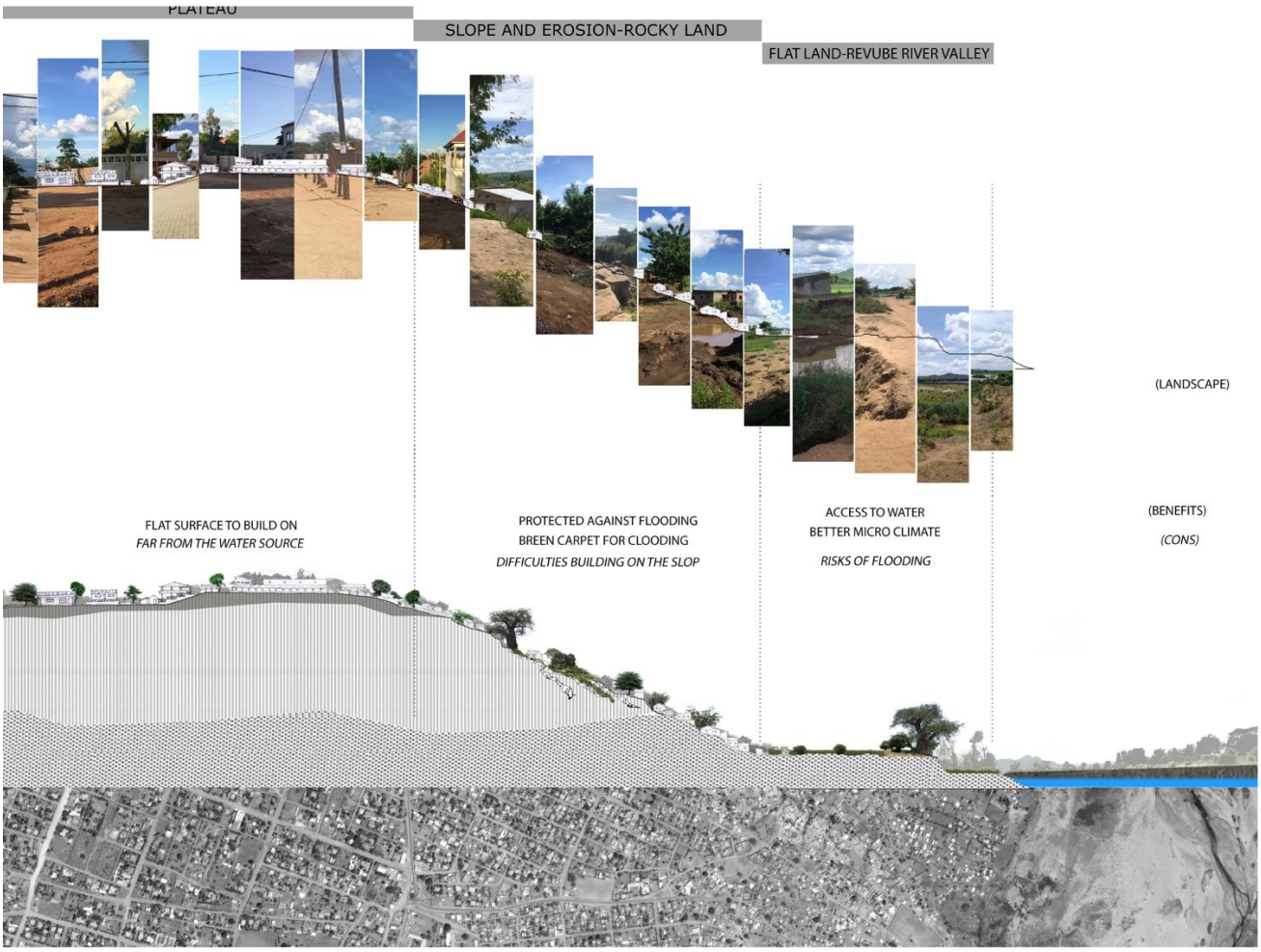

Fig. 03 A fieldtrip drawing produced by understanding the way of inhabitation based on the geographic condition. Source:(Ye et al., 2018, pp. 268-269)

The approach was to build on the natural processes between three main resources that exist in different intensities along the section: water, soil and vegetation. Generally, the closer to the river, the more resources are available and the easier the natural processes will reproduce these resources. The inhabitation has both an aggravating as potentially remediating impact on the processes. The landscape urbanism strategies developed over the different cases deal with solutions that work on the interplay between water, soil and vegetation in order to strive towards landscape production, rather than consumption. The main strategy started from keeping water on the territory as high up the section as possible, allowing it to infiltrate and irrigate the territory and reducing its soil eroding impact and increasing fertile soil sedimentation. This stimulates the vegetation to regrow, fix more soil, allow infiltration and reduce evaporation of the water, strengthening the systemic cycle. The savannah forest with the baobab as its most iconic and versatile tree, provides a wide range of resources. When the interdependency of these resources is understood, design interventions can be developed that stimulate their production along the section. One of the interventions in Luenha was a system of cut and fill operations as illustrated in figure 04.

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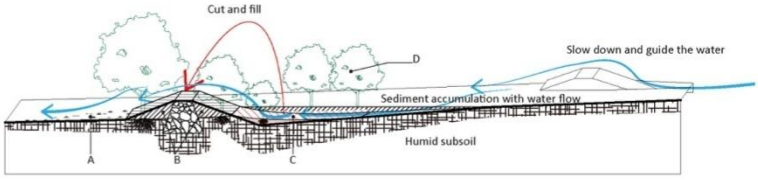

▲Diagram of single infiltration system unit including 4 elements: A,canopy and grazing land;B,vegetation mound;C,-farming land;D,tree strip;

▼Project A: Building infiltration
The top view of the model shows series of infiltration systems slow down, guide, spread and thereafter use water. This allows for a new natural environment to emerge and allows human occupation within it.

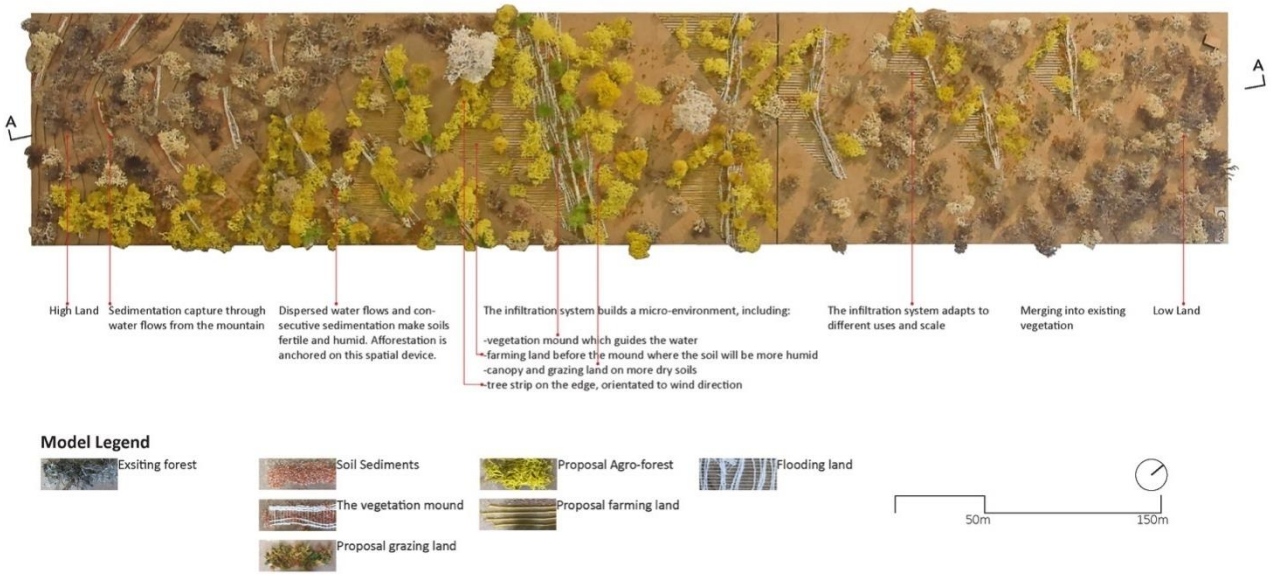

Fig. 04 The principle of cut and fill creating infiltration dams. They allow the water to infiltrate and slow down, divert and spread out over the territory as shown in the 1/500 model on the bottom. By irrigating the territory, deforested lands regain their vegetation and some agricultural practices can exist. Source:Project by Xiao Xinyu. (Xiao, 2018, p. 60)

Yet, also interventions in the urban landscape – e.g. the urban grid - also contribute to these processes. By recreating the logical path of the water through the urban landscape, the water cycle becomes more systemic, and the urban system can be reinvented by the superposition of this new layer of meaning, as shown in figure 5 and figure 6. River, slopes, plateau and mountains no longer form separately functioning entities, but habitats within a system of ecological processes. It is not necessary to identify land-uses or areas for urban expansion. When we consider the systemic nature of the territory – here represented through the deep-section, a representational tool becoming increasingly popular in urbanism (Viganò et al., 2018, p. 216), we can understand the qualities of a place in relation to its position along the section and the natural processes

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that apply there. From there, a coherent culturalization of the landscape can be imagined, but as productive and as inhabitable. What is striking in relation to classic planning practices is that the interventions needed to create a productive, inhabitable territory are often low-tech, easy to realize with a reduced necessity for maintenance, while maintaining a systemic impact on a larger scale. It is, of course, necessary to understand which intervention are needed where, but the approach nevertheless maintains a high level of implementability for the local population.

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Fig. 05 The 1/5.000 model of Luenha. On the bottom left the mountainous outcrops and the Luenha river with its permanent course and temporary flood plains indicated on the right. The cases A to D illustrate the places of intervention from upstream to downstream: case A shows a piece of the infiltration dams, case B and C (Figure 6) show the continuity of a more fertile green corridor through the urban tissue, interfering with the grid, case D shows interventions in the deep eroding valleys that are connections towards the fertile river plains.Project by David DjengaMuiruri, Elis LociaMatchowani Mavis, Xavier Ordoñez Carpio and Xiao Xinyu.Source:(Ye et al., 2018, p. 236)

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Fig. 06 The 1/500 model of case C. Top: the now bare urban grid. Although the plots are clearly readable as a grid, the layout is quite open. Nevertheless, the land is quite bare, lacking trees and places for production. Middle: the section shows intervention in the topography allowing to capture and keep water on the terrain, leading to infiltration. Bottom: the topography crosses the urban grid perpendicularly, leading to new intensities of productive landscape and the possible reorientation of the urban layout to support the landscape. A new collective scale is introduced.Project by Xavier Ordoñez Carpio. Source:(Ye et al., 2018, p. 243)

2.3. Staging the surface: shaping the territory

Corner's second provisional theme is "staging the surface". He discusses an urban infrastructure, such as the grid, as a potential open-ended urbanism able to allow flexibility of change, rather than a fixed, design object (Corner, 2006, p. 31). The theme works with the notion of the horizontal plain, the ground as the field of design. The semi-arid region around Tete is a savannah landscape where resources lie thinly spread in the landscape. When people concentrate in the landscape, the balance with its resources becomes fragile. The

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field condition- how resources are managed, consumed and produced again - is a critical issue in a region where a large portion of the population is dependent of the landscape for survival.

The previously discussed theme of processesintroduced a systemic, cross-scalar approach to the landscape. Interventions in the territory need to be understood through their impact on the processes that shape the landscape. Unlike Corner's description of "the grid (…)as an effective framework across a vast surface for flexible and changing development over time" (Corner, 2006, p. 31), here the landscape itself takes up the role of the urban infrastructure and becomes the flexible and open-ended framework for new opportunities. Two examples from the design work illustrate this hypothesis.

The first is the flood market in the Nhartanda case. The current food market is located in one of the tributaries of the Nhartanda. Rapid floods there have led to loss of life and destruction of the market. Kuachena market - previously also located in the flood plain - was moved towards higher and drier place for sanitation issues, only to suffer from them anyways due to the lack of water drainage and ventilation. The flood market was made exactly by staging the river flood plain of the Nhartanda tributary. A system of islands – an archipelago - slow down and keep the water that can then be used as a resource, rather than being a threat to the market as illustrated in figure 7.

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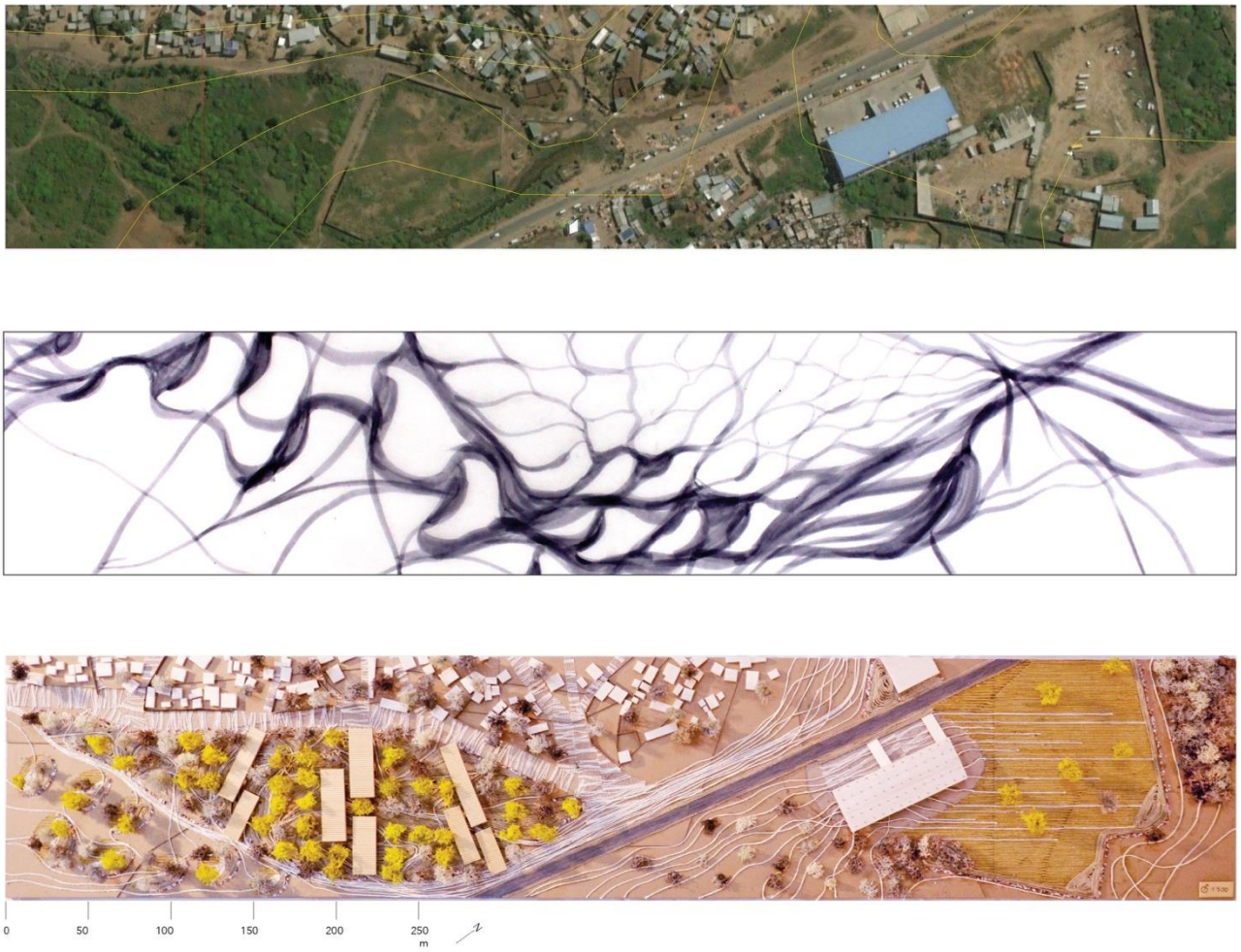

Fig. 07 The 1/500 model of the flood market archipelago. Top: the current Nhartanda tributary river, crossed by infrastructure with a large Chinese market. Middle: staging the river flood plain into an archipelago. Bottom: the staging of the ground leads to a flexible field condition that can be appropriated by marketeers.Trees and some canopies provide additional shade. Water and air can go through. Project by Valentina Tridello. Source:(Ye et al., 2018, p. 259)

The notion of landscape as an “urban infrastructure” becomes more explicit in the project around the edges of the Moatize river. Here, the clay extraction for brick making – a traditional building method – was used to build a unique living environment. The systematic extraction of clay as seen in the drone image in figure 8 can be activated in the production of a new type of landscape.

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Fig. 08 Drone image by Huazhou Ye. The brick landscape along the Moatize river is clearly readable as a system of pits, left behind by the clay extraction. Such pits are already used as a way to create small places for production since water accumulates there.Source:Huazhou Ye.

This project imagined the use of the extraction technique to create a lowered landscape following the main topography – a river so to speak. The orthogonal logics of extraction are inserted in the landscape's topography, creating an oasis of lower temperature, wetter environment where vegetation can thrive, and inhabitation can be strategically inserted, as shown in figure 9. The superposition of mechanical extraction logics – what stages the surface - with the landscape's processes is a sort of self-sufficient, self-reproducing landscape where the building, nature and the living environment are shaped as one consistent figure.

The second theme discusses what in the current regional planning practices would be considered the network, mostly imagined as the roads and other cultural infrastructures that shape our territories. Here, the notion of a continuous stage is subverted from an anthropological to a landscape viewpoint. What holds the territory together is the network of the landscape itself, rather than its artificial organization through infrastructure. Infrastructure itself is not incompatible with this view, on the contrary, yet only when its implementation supports the landscape, rather than attempting to uproot it.

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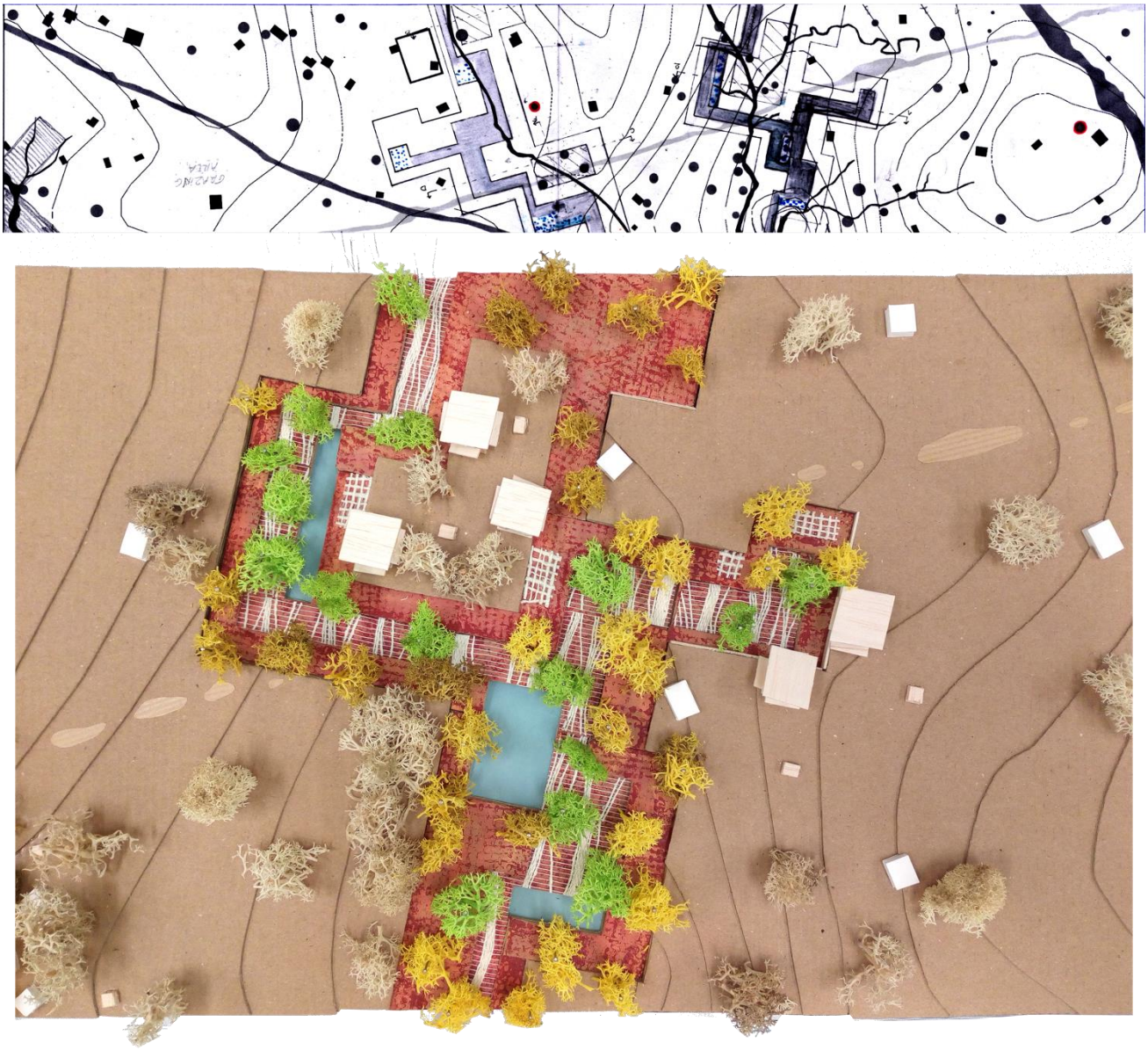

Fig. 09 On top the extraction design: the orthogonal logic is used for excavation, while following the lower part of the topography where water will accumulate. Below a zoom on the 1/500 model of brick oasis creek that is the result of a systemic extraction and inhabitation of the brick landscape. Project by Nathan De Feyter. Source:Nathan De Feyter.

2.4. The working method: leapfrogging to a collective scale

Corner's third provisional theme of the working method discusses the potential of Landscape Urbanism to integrate various aspects of the contemporary project, to work cross-scalar and cross-disciplinar by using and

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combining traditional and new techniques. Landscape Urbanism can therefore become an intermediate – to use De Sola Morales' terminology (de Sola-Morales & Ibelings, 2008) - extending it beyond the classic urban context towards the landscape. We could compare it to Desvignes' *Intermediate Natures*(Desvigne, 2009), or even BasSmets' Metropolitan Landscapes (Loeckx et al., 2015). The different design exercises applied exactly this ideology: the traditional modes of inhabitation that contain a vast knowledge on dealing with landscape, were used to rethink the settlement dynamics on a collective scale. Based on fieldwork combined with the computational capacity of today's geographic information systems, intelligent solutions on site could be leapfrogged into structural interventions on an intermediate scale between the individual family and ecological processes that function at the scale of the region. Interventions are then both precise as systemic.

The intensification of the landscape as proposed in many projects – think of the brick oasis – goes hand in hand with urban intensification. The collective landscape rises inhabitation to a strategic scale, individual families become part of an intensified social structure where resources and commodities are shared and managed.

In the case of the Nheutreze tributary of the Nhartanda river, the structure of individual housing compounds was reimagined by hierarchizing the water and walking network. Existing walls were used to store water and produce some products, while a new scale of compound is made that hooks into the water pond. Along the edge and still using the original layout of the inner courtyard, a second or even third building layer can be added to the existing one floor structures as shown in figure 10. This type of "landscape-based" densification – meaning that even the upper floor maintain a strong relation with the ground – has been successfully tested and implemented in the case of "Casas Melhoradas" in Maputo (Architects Without Borders Denmark et al., 2013).

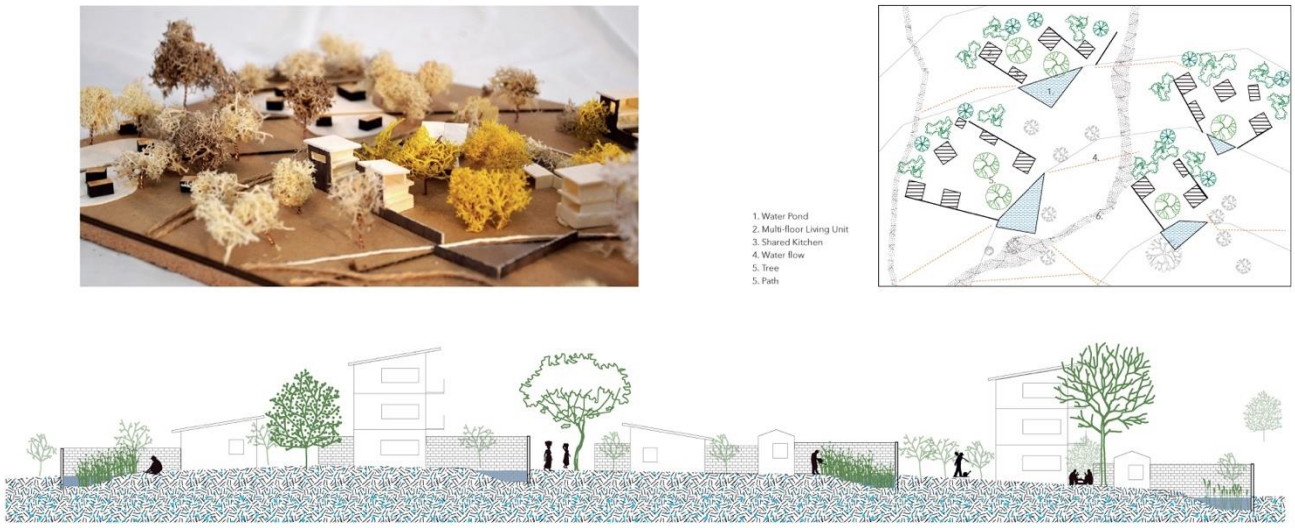

Fig. 10 Project by Huazhou Ye. The densification of a renewed landscape. The compound itself is used to store water and produce food. Source:(Ye, 2018b, pp. 70, 71).

In another case close to the Revubue river, the slope was equally transformed into a collective scale landscape that allowed for larger agricultural production. The open and productive space –fed by a system of walls that hold water in the grid-based urbanization– can be complemented with social infrastructure to

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strengthen the collective scale, in this case a small community center that sits in the new landscape next to the centuries-old baobab tree, shown in figure 11. The productive landscape becomes a space of mobility (walking paths following soft slopes) and a social space where people gather as a community for various reason. By activating the landscape in the urban tissue, a significant frog leap can be made to collective scale systems that are much more resilient as an ecological and social space and therefore more resistant against exogenous processes. The intermediate notion is the main working field of Landscape Urbanism and it might be its most strategic contribution to current regional planning practices that largely ignore the individual and community scale interests. Landscape Urbanism Strategies are devised to serve individualfamilies, yet at the same time safeguard their impact on the complex ecological systems of the Zambezi river valley. This means that an inversed path might also exist through Landscape Urbanism: one where large-scale intervention has a potentially beneficial impact on the local communities. To achieve this, the intermediate working field needs to exist, which is – at least for what the actual implementation on terrain concerns - not the case today. Some discussion forums existed around the PEOT (Plano Especial de Ordenamento Territorial)(Janssen & Dias, 2017), yet these have yet to lead to actual interventions on terrain.

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Fig. 11 Project by Thuy Nguyen Thi. Above: existing aerial image. Middle: section showing the topography of the site. Below: the existing open space is valorized by feeding water to it through a system of walled ponds in the urban plots. These plots can be densified. The open landscape becomes a place for gathering, with the baobab tree and a new community center as a focal point. Source:(Ye et al., 2018, p. 275)

2.5. The imaginary: empowering change

The fourth provisional theme is the imaginary. The imaginary in the Zambezi river basin in Mozambique is still dominated by the large-scale development. An imaginary is needed that includes the local populationin the future of the Zambezi. One that can be equally powerful and does not run the risk of being discarded easily. It must necessarilyappeal to the individual inhabitation, but also impact at the larger scale.

Two types of imaginary were produced in order to stimulate the notion of a new inhabited landscape as described in the previous themes. The first type was produced by Vincent Van Praet in his KU Leuven undergraduate thesis on the semi-arid region of Tete. Strongly impressed by the problematic living situation in their resettlement – the notorious Cateme – he developed a brighter image of their possible return to their

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original settlement along the Moatize river. A set of images presented a gradual transformation for a post-mining lifecycle. The landscape, its transformation and its inhabitation were reimagined together as shown in figures 12, 13 and 14. They combine two aspects: as an image, they show a – albeit romanticized – transformation of the landscape towards an appealing new living environment. At the same time the image transmits a certain feasibility. In fact, the interventions proposed to realize the new landscape seem low-tech and straightforward. The images intend to empower the local population and community to create such an environment by themselves. They thereforestimulate a self-reflection that is no longer based on passively undergoing the exogenous processes of the mining, but on taking matter into their own hands. This empowerment can lead to coproduced visions that are much more resilient on the long term.

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Fig. 12 The recuperation of the landscape starts with a wheelbarrow. The stones are cleaned up from the fields and stacked to form infiltration dams. Banana plants can already be planted since they consume little water. Source:(Van Praet, 2018, pp. 130,131)

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Fig. 13 Sunflowers can be planted everywhere since they are an excellent plant for soil remediation. Any leftover pollution can be remediated. They can also become an economy for all sorts of cultural events. Source:(Van Praet, 2018, pp. 132, 133)

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Fig. 14 In a more advance phase, the stone walls and infiltration dams have become inhabited compounds. New bricks are being produced for the housing construction and a productive landscape is being made. Source:(Van Praet, 2018, pp. 138, 139)

A second imaginary was developed in the Landscape Urbanism studio. The four different groups were asked to not only develop landscape urbanism strategies as described above, but to complement the interventions with a painting to illustrate the power of the interventions. Since some of Mozambique's most prestigious

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artists – Malangatana and others -, use the mural as a collective form of expression the mural was used as a technique. Each group produced two mirrored paintings: on one side a dry season, non-intervened landscape, on the other side a wet season, intervened landscape as can be seen in figures 15 and 16. Were the previous imaginary contributed to the individual empowerment, the second set envisions the new landscape that they can then collectively produce.

The imaginary works on the main paradox of the Zambezi river basin: the fact that the Zambezi has a huge potential on the scale of the country to provide for food, electrification, natural resource extraction and more contradicted with the poor living conditions in the Zambezi river itself. The imaginary adds a concrete future for the local population's where classic regional planning would probably focus only on the large-scale benefits on the level of the country.

Fig. 15 The dry season, non-intervened landscape around the Moatize river. Source: mural made by Nathan De Feyter, Clara Medina Garcia, Nadia Nusrat, Julia de Souza Campos Paiva during the Landscape Urbanism Studio, 2018 (Ye et al., 2018)

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Fig. 16 The wet season, intervened landscape around the Moatize river. The different tributaries of the Moatize are activated inside the urban tissue. Each has its specificity: the mining landscape, the brick oasis… Source: mural made by Nathan De Feyter, Clara Medina Garcia, Nadia Nusrat, Julia de Souza Campos Paiva during the Landscape Urbanism Studio, 2018 (Ye et al., 2018)

3. Results

A Research-by-Design was elaborated for the semi-arid region of Tete, Mozambique with the aim to test the capacity of Landscape Urbanism as an alternative to classic region planning processes. The Research-by-Design was systematized through Corner's four provisional themes.

The four provisional themes introduce a potential operational framework for the local population that classic regional planning is not providing. Each of the themes illustrate a way to empower local population to act upon their environment in a sustainable way that is collective, systemic and with an immediate impact on their life quality. Landscape Urbanism might not be immediately considered an alternative, but at least a necessary complement. It can give support to aspects that are not considered important in the typical top-down, subsidiary approach of regional planning. In addition, it has the potential to not only support the local population but serve as a base reference of sustainable development for other planning processes. Since Landscape Urbanism approaches the landscape in its systemic nature on all scales, the knowledge produced through its practice can help to steer regional planning towards a more sustainable decision-making process.

4. Discussion

The different provisional themes as defined by James Corner were tested on the landscape of the semi-arid region of Tete, in the Zambezi river basin. Although the themes are sometimes interpreted differently than

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Corner might have intended – e.g. staging the surface – the themes form a reliable base for Landscape Urbanism strategies in this context.

Alan Berger argued in his book *Drosscape*that Landscape Urbanism as a term was unnecessary since it is not needed in order to rethink the relation between the landscape and urbanization (Berger, 2006, p. 236). Three arguments are made why the usage of the term Landscape Urbanism might be considered relevant in the context of Mozambique, based on the work presented here.

Firstly, the four provisional themes of Corner seem to cover an urgency present in the Mozambican context and in the Zambezi river valley. There is a desperate need for systemic understanding of the natural processes. Planning practice continue to ignore the processes as an inevitable aspect of the planning decisions. The work on the terrain and activation of the landscape by staging the surface was also a valuable addition since it appeals to the direct living environment of the local population. The working method proved fundamental for its intermediate meaning: as a spatial figure that goes across scales, as a method to go between the individual aspirations and large-scale ambitions, and also in practice as an intermediate platform through which ideas can be tested and negotiated. Changing the imaginary of the Zambezi river basin is obviously also an urgent matter for the local population.

Secondly, also the closing notes of Corner in his terra Fluxus come to mind. Landscape and urbanism remain, even in their marriage, distinct fields of operation through their dialectical nature. Their physicality, although connected in territories of vast scale and scope, is distinct. Here, we tend to think Corner might not have been sufficiently ambitious, if we may say so. If elements of landscape and urbanism only superpose and integrate on the vast territory, then it would seem some opportunities are lost on the scale of intervention. Shouldn't we rather seek the richness of their intense intertwining? An urban planner typically puts a tube under the asphalt road to allow water to pass while the landscape architect might consider not putting the road there at all. What if the road can become a flood plain? What if the road remained a dam and the river a lake? Where are the borders between landscape and the urban then as distinct physicality? When hybrid solutions are presented that enrich both realities, Landscape Urbanism might be the term that contains all of this potential.

Thirdly, on a more profound level, Landscape Urbanism emphasizes the role of the landscape in becoming urban. The tendency today is to strive towards the urban (or the modern), yet the imaginary of the urban is monotonous and amorphous, even dialectical in relation to landscape. Becoming urban has the connotation of no longer being rural. Landscape urbanism could therefore also be described as the act of becoming urban through the landscape. Obviously, the notion of being urban is then no longer the imaginary of today, but one that builds on the landscape as a base for an urban existencewhere the urban dweller is an integral part of the ecological processes instead of being excluded from them. In this intermediate, collective existence intensification goes hand in hand with the landscape. The self-esteem and empowerment of this new urban dweller draw exactly from the fact that he can manipulate and mold the landscape accordingly in order to provide a sustainable living environment for himself. All in all, Landscape Urbanism might achieve its most pertinent validity when it is considered as an act of emancipation where the Mozambican – unlike through classic planning processes - has the right to both appropriate his landscape ánd become urban.

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