

UCL

MSc Building and Urban Design
in Development
Student Report

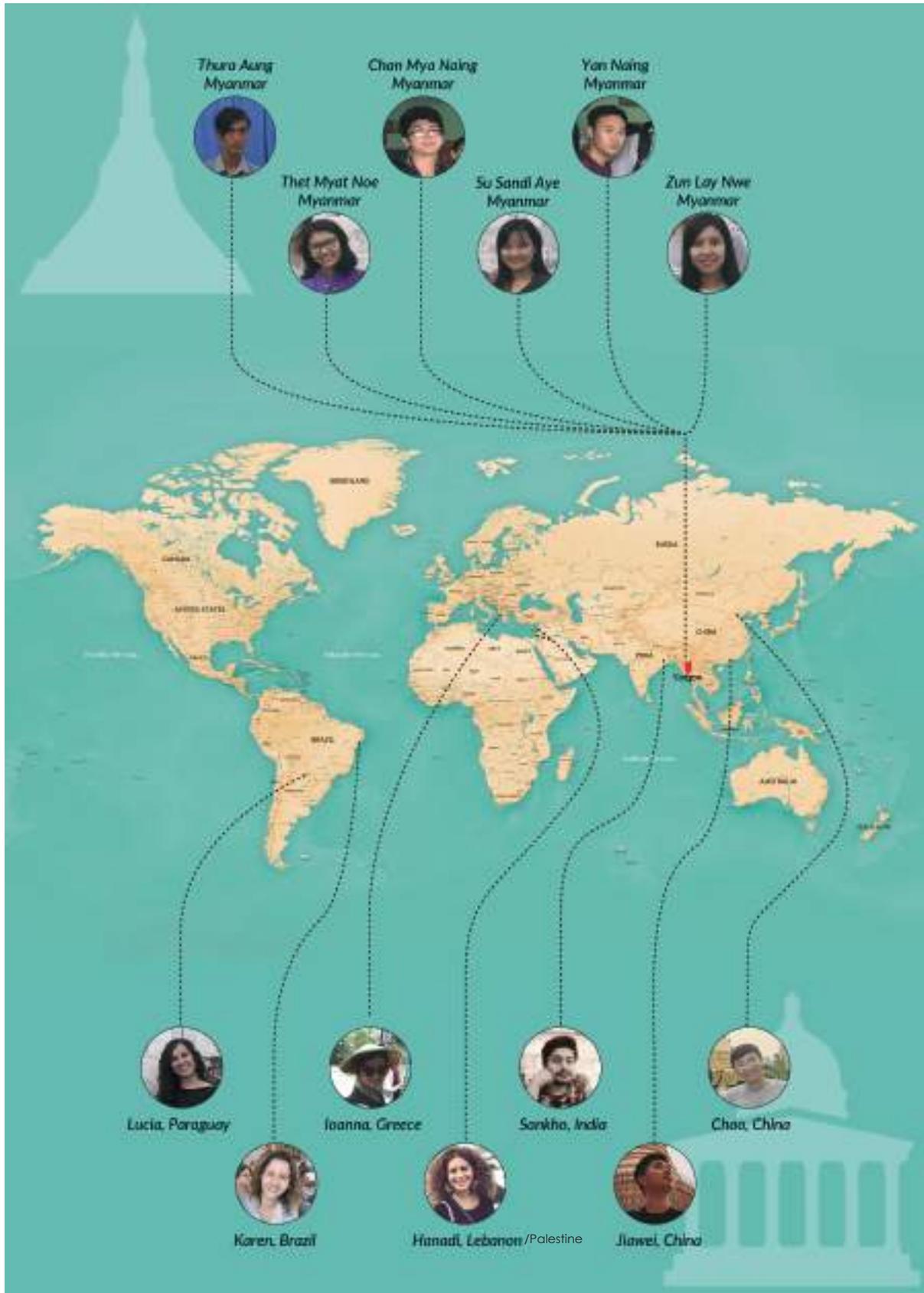
Canalising Waste For Just Development

In partnership with WFW, ACHR, CAN,
YTU and AMA



dpu
Development
Planning Unit

Who we are



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Executive summary

This report is the result of a three-month research project, which included a two-week field study in Yangon, Myanmar. It was conducted by students from the MSc. Building and Urban Design in Development at University College London (UCL), in collaboration with students from Yangon Technological University (YTU). The research process was undertaken in partnership with Women for the World (WFW), local residents of Ward 20, the Asian Coalition for Housing Rights (ACHR), the Community Architects Network (CAN), the Bithukar Community Platform (CBP), and the Association of Myanmar Architects (AMA), amongst others.

The project aims to understand how urban design and city wide upgrading strategies can be harnessed to support socially just development in the context of a transitioning Yangon. It specifically analyses how residents from Ward 20 in the Hlaing Thar Ya Township can capitalise upon waste and their waste management activities to secure their livelihoods, social networks, and infrastructural upgrading, in turn supporting their recognition, redistribution, and participation in the city making process.

Thus, this report presents principles, guidelines, and strategies that recognise and repair the existing waste management processes in informal settlements, consolidating them with wider city scale networks. In the words of Simone and Pieterse in Bhan (2019), the proposed trajectories aim to build on “grounded and speculative alternatives that can animate and stitch together a plethora of diverse and molecular experiments”, including historically marginalised populations in processes of city making, and therefore shaping a truly transformational Yangon (p. 15).

The research for this project was conducted in three phases: pre fieldwork, fieldwork and post fieldwork. The pre fieldwork phase consisted mainly of analysing primary and secondary data, as well as attending lectures, to establish a theoretical and analytical framework building on finance and waste management. The fieldwork phase consisted of project visits, participation in the “Housing for and by the People” National Workshop, and data collection and processing in conjunction with the aforementioned partners. Finally, the third phase undertaken in London processed and synthesised the findings and strategies in this report.

The report consists of five chapters. Part I introduces the project and presents the overarching concepts of transition and transformation. Part II provides the Context for the report, highlighting the relevance of finance and waste management in urban production, and the challenges faced by Ward 20 in Hlang Thar Ya Township. Part III presents the Framework, Methodology, and Methods. Waste is recognised as a value-in-potential which can support livelihoods, social mobilisation, and productive physical transformation. Part IV, in turn, presents the findings from the fieldwork, describing the every day practices of waste management and their impact on economic, social, and spatial outcomes. Part V delineates a vision, principles, guidelines, and strategies to repair and consolidate the existing systems, supporting their functioning and scaling them up to the city wide scale. Part VI finally provides Concluding Remarks outlining the implications of reframing waste management as a positive force for socially just development, as it decolonises urban practice and calls for more flexible and inclusive forms of city planning.

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Acronyms

ACCA: Asian Coalition for Community Action
ACHR: Asian Coalition for Housing Rights
AMA: Association of Myanmar Architects
CAN: Community Architect Network
USDP: Union Solidarity and Development Party
WFW: Women for the World
UN: United Nation
YCDC: Yangon City Development Committee
YCZC: Yangon City Zoning Committee
YHT: Yangon Heritage Trust
YTU :Yangon Technological University

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Introduction

Myanmar is undergoing a dual moment of transition: politically, metamorphosing from military rule to semi-democracy; and economically, opening up from socialist isolationism to a globalised market economy (Jones, 2014). While true and real to some extent, the transition in Myanmar is faced with fundamental questions about “how [it] has been brought about, by whom, and what work it is [being] made to do” (Kirke & Beyer, 2018). In such an uncertain context, it begs the questions: is this transition enabling any genuine form of political, economic, and social transformation or does it constitute a facade that sustains former geopolitical patterns? Moreover, to what extent is this historical moment supporting inclusive and just development, particularly for marginalised urban populations?

Aware of the negligence towards marginalised peri-urban populations and concerned with social justice, this research project strives to take advantage of Myanmar’s moment of transition to foster equitable transformation. Acknowledging waste as a potential asset that increases with the augmenting industrialisation and population growth, it explores: how can waste management activities support community mobilisation and livelihoods? How can they be capitalised upon to promote an inclusive development in the context of Yangon in the current transformative era?

Building on almost three months of work—and two weeks developed on the field—this report argues that waste, commonly misconceptualised as useless material residues, is indeed a resource-in-potential that can canalise positive economic, social, and physical or spatial outcomes through collective waste management. In other words, as waste is processed, it has the potential to support economic development and livelihoods, social mobilisation and cohesion, and the equitable production of space.

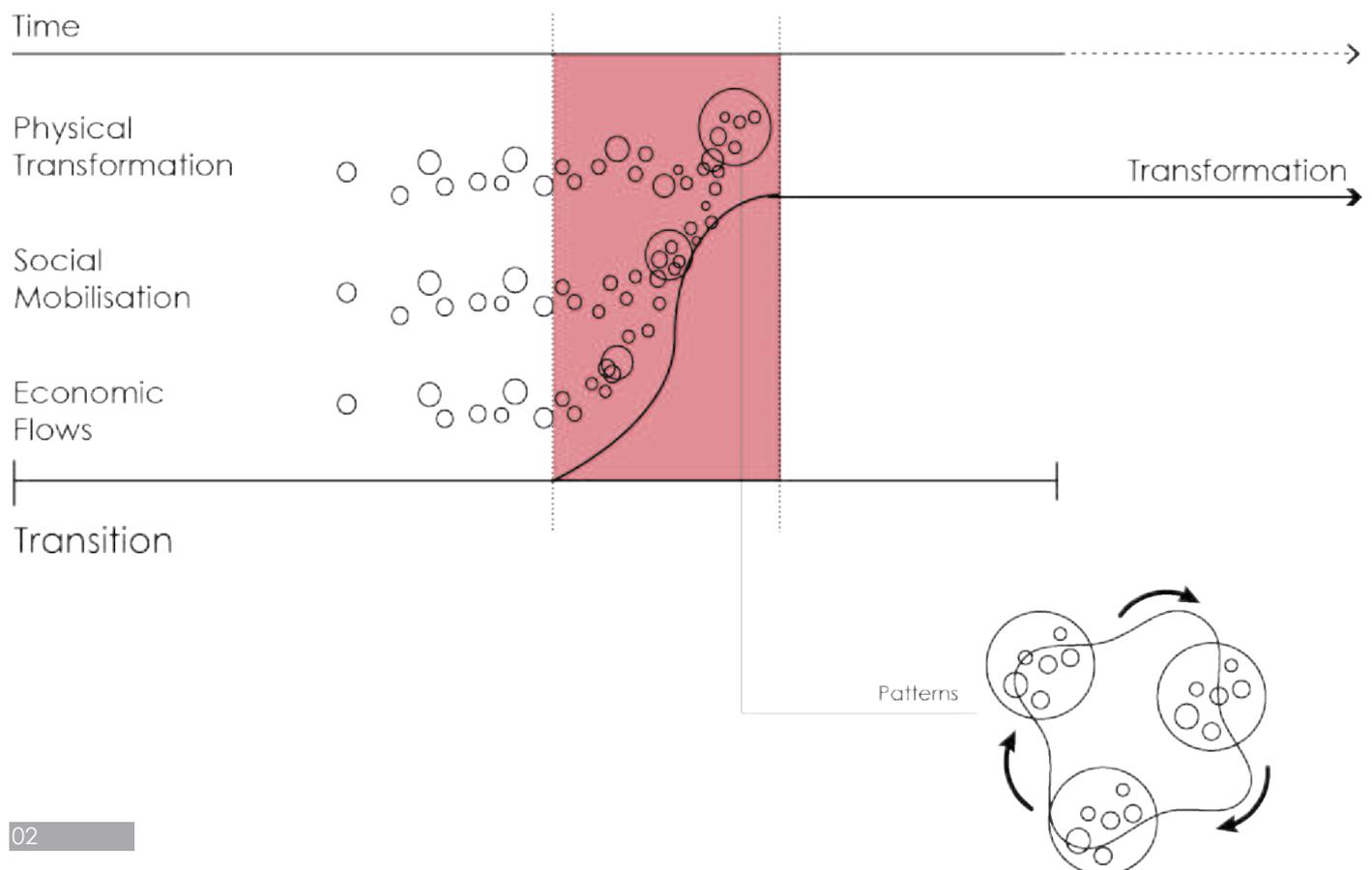
Thus, this report presents principles, guidelines, and strategies that support the recognition and functioning of the existing waste management processes in informal settlements as a mechanism to promote equitable redistribution, parity participation, and just city upgrading. In the words of Simone and Pieterse in Bhan (2019, p. 15), the aim is to build on “grounded and speculative alternatives that can animate and stitch together a plethora of diverse and molecular experiments”, including historically marginalised populations in processes of city making, and therefore shaping a truly transformational Yangon.

Transition and Transformation

The conceptualisation of transition and transformation that informs this report arose following a personal analysis of our positionality as students from different cities and countries in the globe.

Specifically building on a team member's personal experiences engrained in the process of transition in Albania, this report conceptualises transition as a sustained space between two milestones. Identifiable by what it is not—neither one nor the other of the two milestones—transition pervades the past, present, and future, making it difficult to discern when the new milestone, if ever, is reached.

Like the other face of the coin, transformation is thus the moment of genesis once the transition expires and reaches the expected milestone. It is identified as the moment when change is finalised, and a new being is completely born. The tone or nature of the transformation shares sufficient DNA with its former replica as to be considered a continuation of the former, yet is also sufficiently different as to be classified as a separate being.



The act of naming a political moment as one of transition or transformation is highly political, and cannot thus go unquestioned. In the words of Kirke & Beyer (2018), "rather than taking [Myanmar's moment of transition] for granted by accepting that it refers to a specific historical process, [one must] look at how it was brought there, by whom, and what work it is made to do" (p. 219).

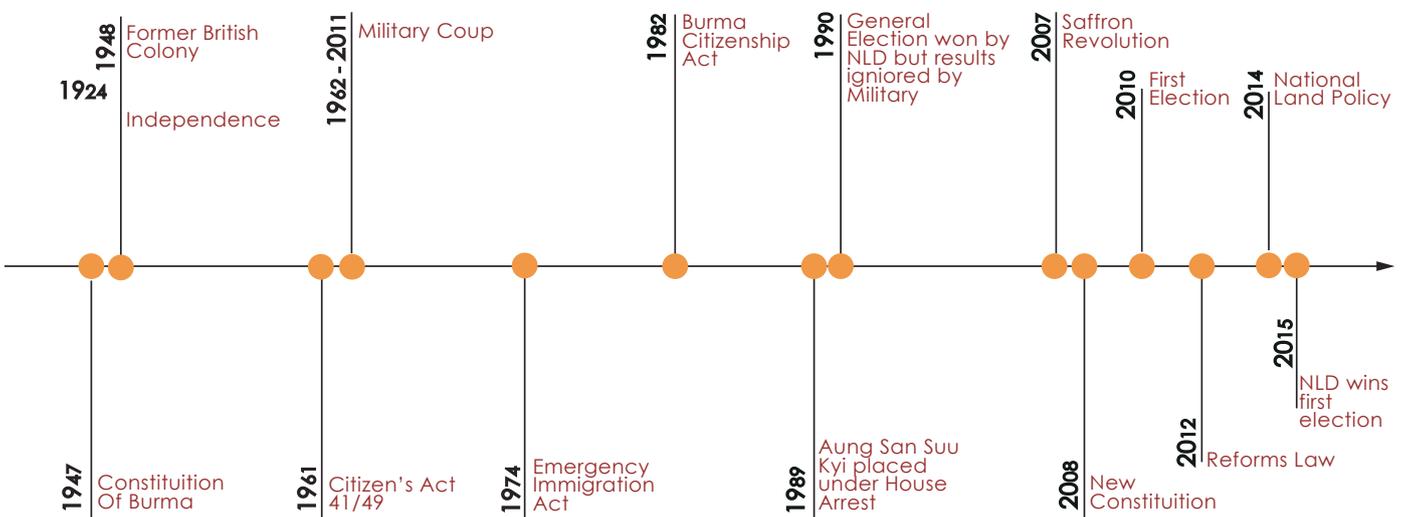
Context

Myanmar in Transition and Transformation

Within the aforementioned framing of transition and transformation, the question of whether Myanmar is genuinely shifting trajectories is highly political. Evidently present to at least some extent, a moment of transition can be delineated at least along two axes.

Politically, Myanmar is shifting from almost 50 years of an oppressive military rule from 1962 to 2011 towards an institutional semi-democracy. In this sense, the 2015 elections won by the National League for Democracy (NLD) mark an important milestone suggestive of such transition. Nonetheless, such claims simultaneously remain challenged by Aung San Suu Kyi's barring from presidency by the 2008 Constitution and the considerable amount of power retained by the military following the 2015 elections.

Gradual Liberalisation Process



Military Coup



Aung San Suu Kyi placed under House Arrest



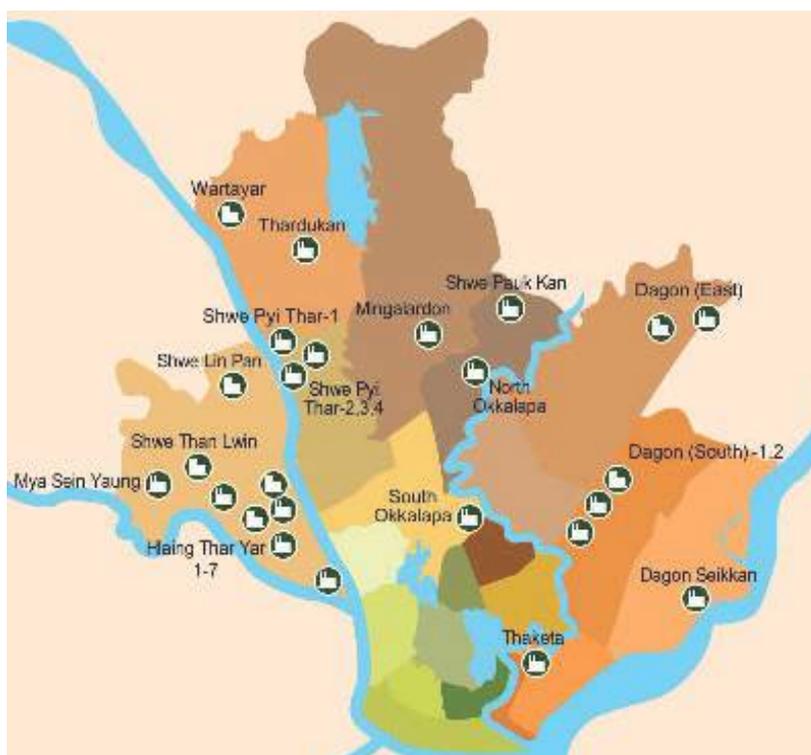
Saffron Revolution

Financial Transition

Myanmar's moment of transition is equally prevalent in the economic realm, as it shifts from the socialist isolationism imposed by its former military junta to a globalised market economy (DPU, 2018). A jump in international investments in the country since 2012 (Boutry et al., 2013), USD \$22 billion in Foreign Direct Investment (FDI) over the last six years (Oo, 2019) and its astounding Gross Domestic Product (GDP) growth of 8.5% (Asean Up, 2018), for example, evidence this transition—with changes most evident in Yangon as “around 50 percent of investment in the country” goes to this Region (ibid).

Similarly, Yangon's increasingly active Industrial Zones constitute a sign of flourishing economic activity employing between 85,000 to 100,000 people and exhibiting with a 34% increase in production from 2010 to 2011 (USD \$554 million to USD \$846 million) (Oo, 2019). According to the World Bank (2017), accompanying this growth, poverty rates fell from 32.1% in 2005 to 19.4% in 2015 (Boutry et al., 2013).

While beneficial for profitable business and potentially some Township residents, the experience of financial transition is not including everybody however. Yangon's Industrial Zones lack infrastructural facilities, such as decent roads, and consistent water and power supply, restricting its low-income populations to insufficient life conditions only to live near necessary employment (Oo, 2019). Even worse, as discussed in the next section, the financial competition for land fosters the displacement of inhabitants of peri-urban Yangon from their homes.



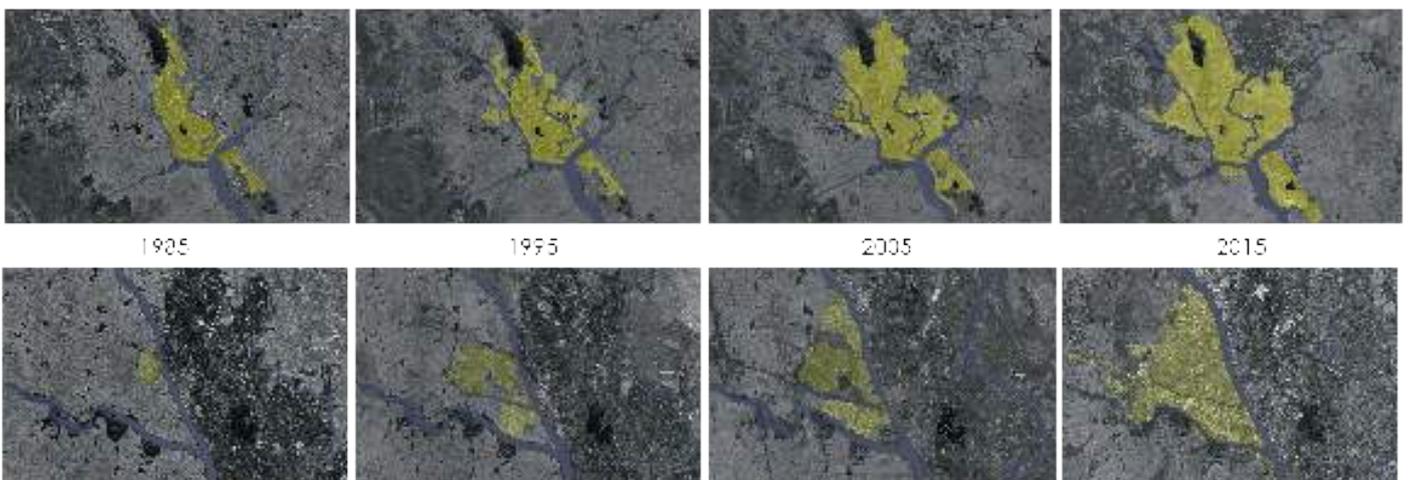
Displacement as a Mode of Urban Production

Yangon's strive to become a smart-city and an international port and logistics hub, is inciting investment and rural to urban migration in search of employment; in turn, fostering increased competition for land acquisition, rising land prices, and hence the displacement of populations in peri-urban territories (DPU, 2018).

Forced relocation is not only a response to Yangon's integration with the global economy, however; but rather constitutes a historical mode of urban production, responding to British colonialism, the socialist regime, civil war, and state-society conflict (DPU, 2018). Yangon's Townships, for instance, were born through this mechanism of displacement, with squatters occupying any vacant or available land through informal settlements (DPU, 2018; Boutry et al., 2013).

Similarly, relocation has also been employed as an arbitrary tool for population management under the oppressive military junta (Boutry et al., 2013). It was not by chance that marginalised low-income communities were evicted without compensation and facing the demolition of their homes, following their participation in the 1988 'democracy uprising'. Between 1988 and 1989, in fact, "260,000 squatter residents (16% of the city's population) were evicted from around Yangon" (DPU, 2018, p. 8).

City level



Town level

Waste management in Yangon

In a city undergoing such rapid growth, other challenges—such as the effective provision of infrastructure and services—arise. In the context of waste management, for instance, Yangon is facing unforeseen difficulties, with the generation of solid waste in Myanmar expected to increase from 5,616 tonnes/day (or 0.44 kg/capita/day) to about 21,012 tonnes/day (or 0.85 kg/capita/day) by 2025 (Premakumara, 2016). With the majority of this waste being produced by households, JICA reports cite that even the allocation of more dumping sites will not be enough to hold the waste produced in the coming years (Premakumara, 2016).

Increase of waste generation in Yangon. Source: (YCDC, 2016)

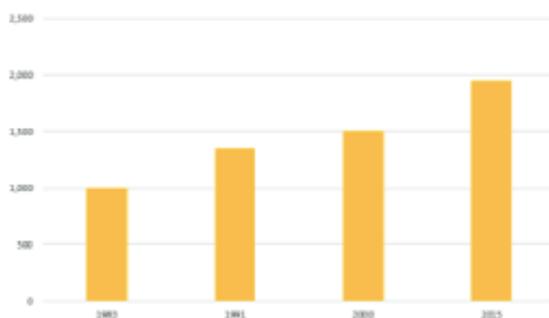


Table 1: Generation of Municipal Solid Waste in Myanmar.
Source: (YCDC, 2016)

Households	60%
Markets	15%
Commercial	10%
Hotels	2%
Garden	5%
Others	8%

Table 2: Composition of Municipal Solid Wastes in Myanmar.
Source: (YCDC, 2016)

Organic	77%
Plastic	13%
Paper	7%
Others	3%

Waste management is a responsibility of the Pollution Control & Cleansing Department (PCCD) of the Yangon City Development Committee (YCDC). YCDC, in turn, is an independent public institution, created in 1989, sustained through public taxation and enterprises. As illustrated in its governance structure, the Departments of YCDC act independently, with PCCD, for example, managing waste with out regard for its relation to public spaces, drainage infrastructure, and disaster risk—shortcomings evidenced during the fieldwork research (CCAC, 2016).

According to YCDC (2014), “in Yangon, 97% of the waste is formally collected and only 3% of it is illegally disposed” (CCAC, 2016). However, these numbers seem highly unreliable, especially considering that, “while the government estimates informal settlements to make up 10% of the city of Yangon, NGOs have set the number much higher, namely at 40%” (WFW, 2019, p. 2). Acknowledging that waste collection systems overlook informal settlements to avoid recognising them as parts of the city, it is logical to deduce that the numbers provided ignore the waste disposed in these areas. Part IV (Findings) presents the complex social and economic mobilisation that occurs to support waste management operations in the informal settlements, particularly that of Ward 20.

Governance Structure of Yangon City Development Committee (YCDC). Source: (YCDC, 2016)

Facilities of Pollution Control and Cleansing Department				
<i>Number of vehicles</i>		294		
<i>Number of Dozers</i>		3		
<i>Number of Dust Bins</i>		3472		
<i>Number of Brick Tanks</i>		617		
Final Dumping Sites	Construct ed Year	Total Area/ Used in Acre	Ton of Waste/D ay	Remark
1. <i>Htein Bin</i>	2002	150/70	847 tonnes per day	Open dumping
2. <i>Htawe Chaung</i>	2001	55.77/47.4	612 tonnes per day	Open dumping
3. <i>Shwe Pyi Thar</i>	2005	1	50 tonnes per day	Low landfill, temporary site

4. <i>Mingalardon</i>	2003	0.91	25 tonnes per day	Low landfill, temporary site
5. <i>Dala</i>	2003	1.3	10 tonnes per day	Low landfill, temporary site
6. <i>Seikkyi Khanaungto</i>	2003	0.25	5 tonnes per day	Low landfill, temporary site

Ward 20

Hlaing Thar Yar is one of the townships situated towards the western end of the city of Yangon. Created in the 1990s, “it is considered as one of the manifestations of Myanmar’s transformation process from a socialist to a market-oriented economy” (DPU, 2018). It was built as part of the military government’s plan to foster industrial zones to support the country’s economy; and currently constitutes one of the most populated townships in Yangon (ibid).

Hlaing Thar Yar counts 3,832 households and a population of 22,832 people (WFW, 2019). Its population includes a combination of politically marginalised groups (labeled as “potentially explosive crowds of Central Rangoon” or “small private industries causing a nuisance in residential quarters”) and government employees who own lands but do not reside in the township due to poor infrastructure, thus renting their land to newcomers (Boutry et al., 2013). Furthermore, Ward 20 contains both formal and informal settlements (WFW, 2019). Based on findings on the ground, these differences in ownership potentially represent a challenge to social cohesion in Ward 20, which must be acknowledged.

In a city undergoing such rapid growth, yet with limited institutional and administrative tools to provide for the needs of their inhabitants, many— especially those in context of informality and displacement such as the inhabitants of Ward 20—“must resorted to self-practices in order to live” (Women for the World, 2019, p. 2).

Framework

Transect Walk



Findings-Waste



Recycling stores



Interview



Scavengers



Family business



Findings-Drainage



Block drainage



Volunteer clean the drainage



Organic waste



Recycable materials



Findings-Public space



Underused space



Unattended spaces

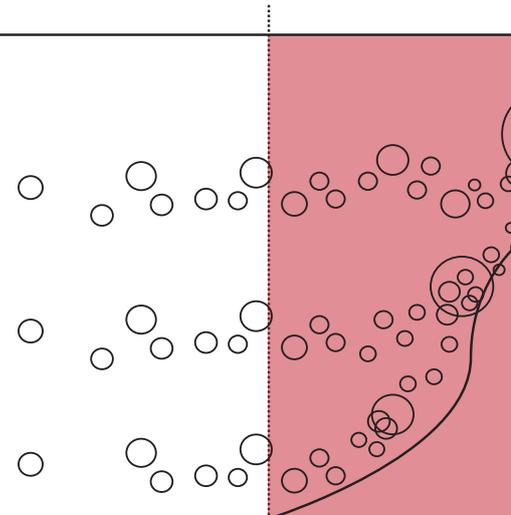
During our transect walk, there were several moments/experiences that defined the process of our research and our focus points. The process of cleaning the drainage was one of the most important and strongly effected our narrative.

Time

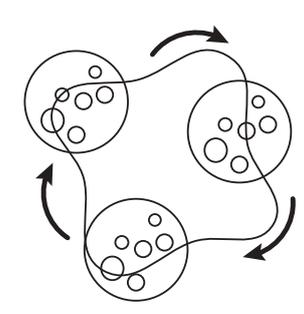
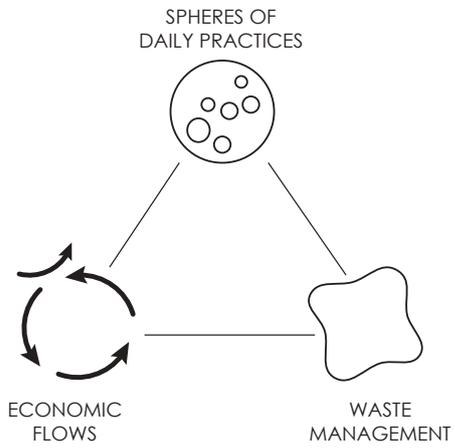
Physical Transformation

Social Mobilisation

Economic Flows

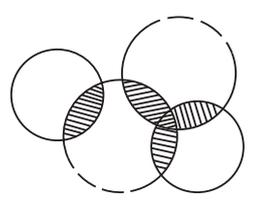


Transition

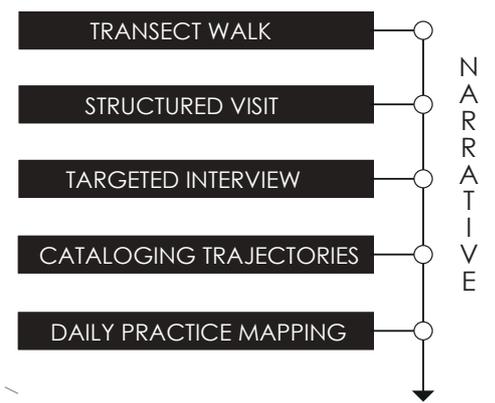
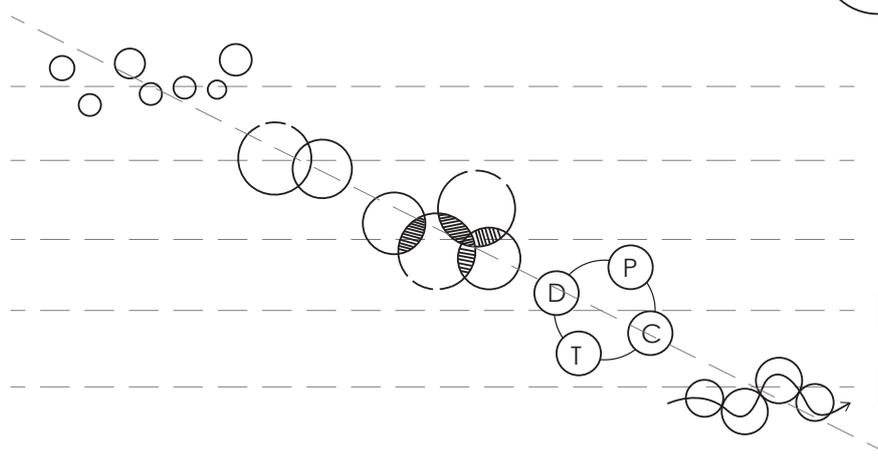
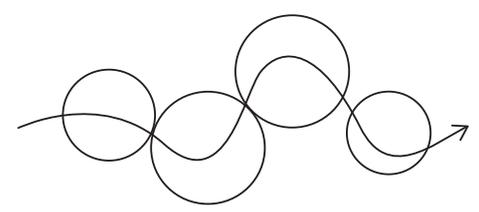


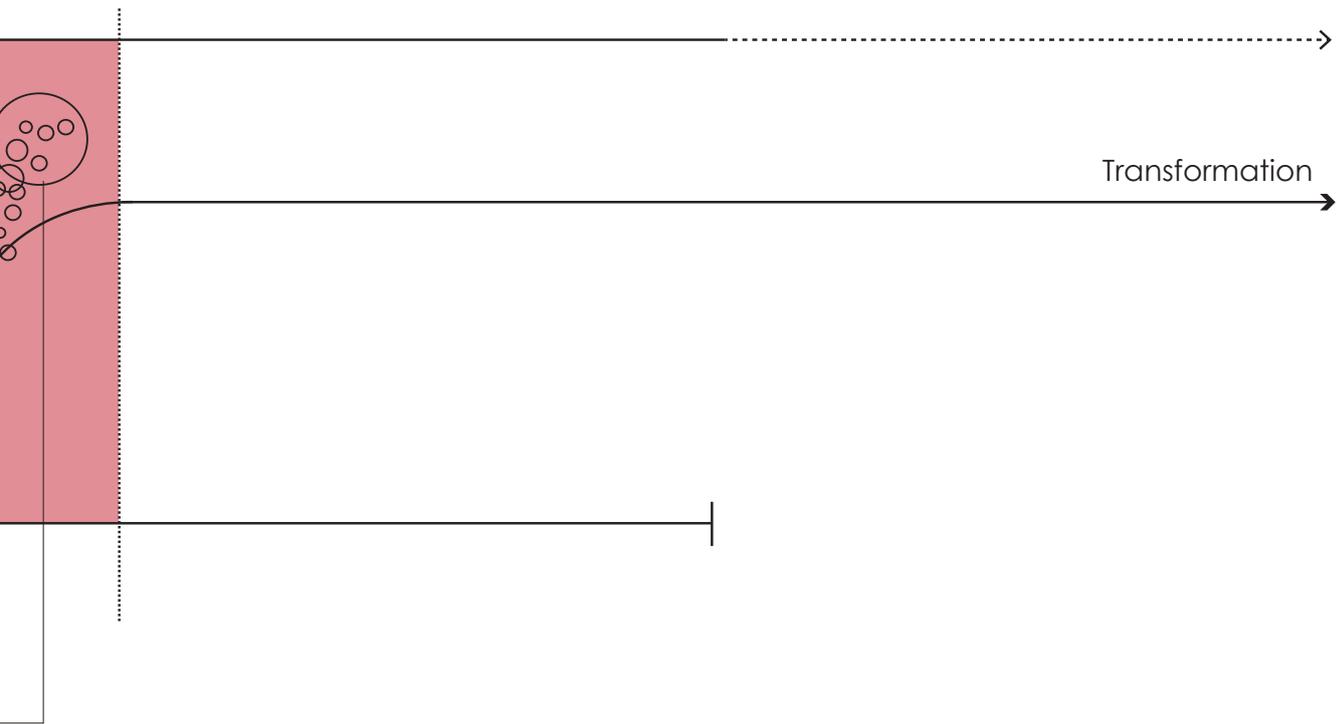
Patterns

Uncovering everyday life practices (P.C.T.D)
Spaces of emergence and economic flows



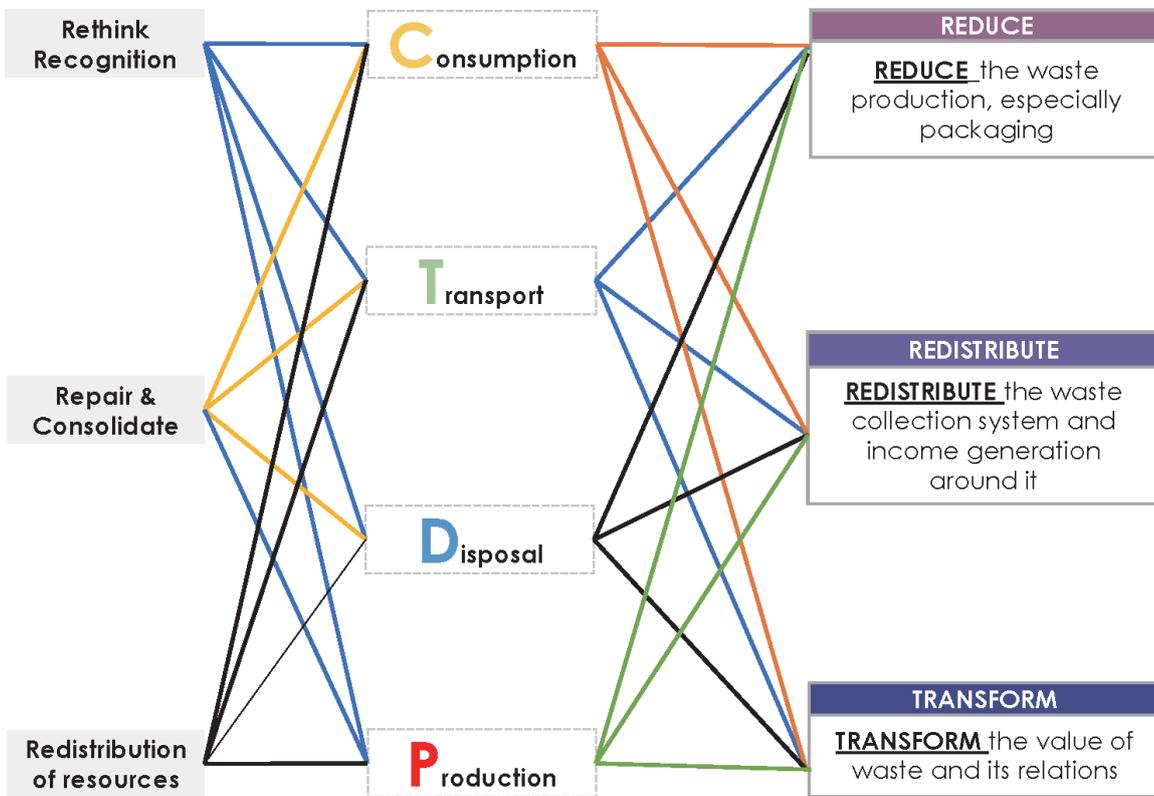
-Different levels of broken circuits
-Spatial emergence when spheres overlap





Principles

Strategic Responses



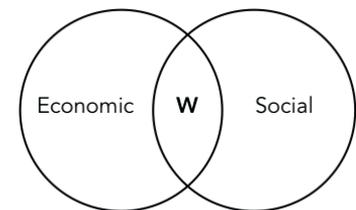
This project results from an iterative research strategy that was constantly re-evaluated and fine tuned as findings arose regarding Ward 20. Thus, Part II of this report presents a three-part framework, hoping to faithfully portray its dialectical evolution in relation to the methodology and methods.

Initial Framework

This research project departed from an initial exploration of the financial and economic context of Myanmar in its current moment of transition. Finance and access to financial capital were conceptualised as forces of mobilisation, impacting social structures and community cohesion on one hand, as well as the flow of material goods such as income, housing, and infrastructure on the other. Within this conception of finance, two contrasting examples clearly stood out, elucidating the productive and destructive effects of finance as a mobiliser. The first example—the case of Women for the World’s savings group—illustrated the power of finance to bring people together and support community development programmes. Example two—or the fact of increased investment and business presence in Yangon—has clearly heightened the rate of displacement of communities.

In this context, when tasked to incorporate a second more grounded lens to the research, the group undertook the subject of waste management, conceiving waste as an asset—a residual material with remaining potential value. Through this productive understanding of waste, our first research question shined through: how can waste serve as an asset that supports community mobilisation and livelihoods? How can it be capitalised upon to promote an inclusive development in the context of Yangon in the current transformative era?

While the answers and precise research methodology were still uncertain, one thing was clear: waste was both of economic and social significance.

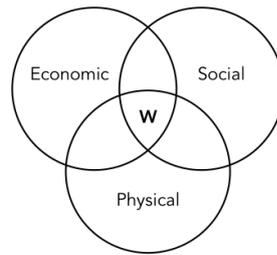


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Analytical Framework / Methodology

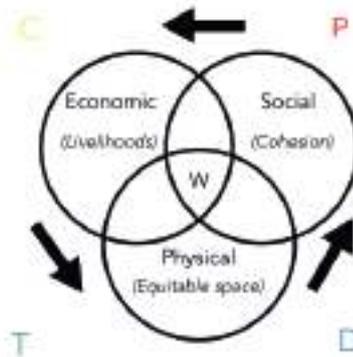
Once on the field, an eye-opening moment transformed our initial conceptualisation of waste and thus pushed our initial framework further: Tired of frantically gesturing the answer to our question of “what is the greatest problem in Ward 20 for you?”, an interviewee residing in Ward 20 rolled up his pants and jumped into the waste-filled drainage canal. With great effort, he arduously worked to unclog the canal, pointing still frantically at what he was doing. He pulled remnants of unidentifiable dirty meshes, and used a long bamboo stick as a tool, until finally water started to flow again in the canal. Gesticulating to us that this work was done by unpaid volunteers in Ward 20 on a weekly basis, and evidencing that only non-sellable goods were deposited there, he made two key points clear.

First, not only is waste embedded in economic and social practices, but also in the physical production of space, and these processes are highly interconnected. Building on Lefebvrian thought, these three dimensions “exist in interaction, in conflict or in alliance with each other[; assuming] equal importance and [taking] up a similar position in relation to [each other]” (Schmid, 2008, p. 33). Moreover, the three identified dimensions (economic, social, and physical) redefine space and hence waste management not as an “independent material reality”, but rather “as fundamentally bound up with social reality” (Schmid, 2008, p. 28). This reconceptualisation of waste thus challenges the neutral assumptions of waste management planning and redefines waste management as a socially produced process, a cause and consequence of peoples’ every day life.



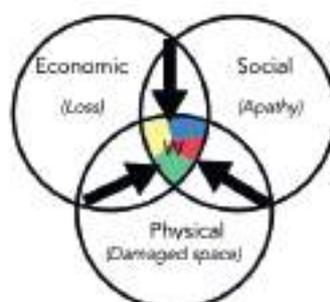
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Second, these daily, intricate activities of waste management manifest themselves through practices of production, consumption, transport, and disposal (PCTD) (Stanek, Schmid, & Moravánszky, 2014). Following this understanding we developed the methodology of mapping the PCTD processes and evaluating their nexus to the economic, social, and physical dimensions of waste management. This exercise uncovered that when these spheres align and do not overlap—such as in the case of the recycled plastic bottles—they support the positive mobilisation or flow of economic, social, and physical dimensions of waste management: generating livelihoods, social cohesion, and encouraging the equitable production of space such as through the functioning of drainage. When the distinct spheres of PCTD overlap, however, the cycle is interrupted or breaks—as happened for all other types of non sellable waste. In this case, the economic, social, and physical flows are damaged: with economic loss, social relations unharnessed, and non sellable waste no longer flowing beyond Ward 20 and to the distant landfill. Instead, waste sediments and “spaces of emergence” (clogged drains, landfilled public spaces, amongst others) manifest as a symptom.



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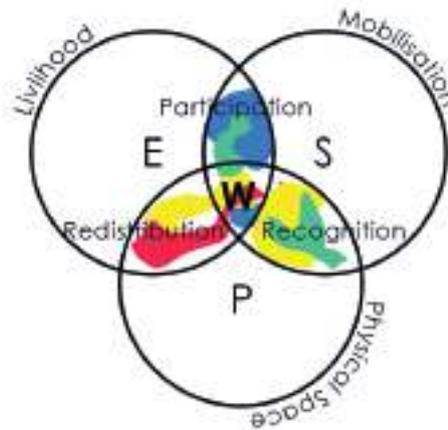
Embedded in every day life, the transformation of clogged to flowing systems is enabled by what Gautam Bahn (2019) calls acts of repair—such as the one exhibited by the volunteer interviewee—and acts of consolidation. “In contradistinction to construct, build and even upgrade” (Bahn, 2019, p. 07), repair is the act of restoring function iteratively with the materials available at hand—“brick by brick, one layer at a time” (Bahn, 2019, p. 01). Consolidation, in turn, refers to acts that bring together different “delivery configurations” or “the ‘totality of actors and institutions, and of equipment and resources, which contribute to the delivery of its various components, under some form or other of co-production’” (Bahn, 2019, p. 11). It consists of a mechanism of scaling up, not by building one single, universal network, but by working with and acknowledging the distinctively functioning parts (ibid).



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Completing the Framework

As these impacts scale up and interact with each other, the processing of waste management supports the formation of a just city through three intersecting principles: equitable redistribution, reciprocal recognition, and parity participation (Levy, 2015).



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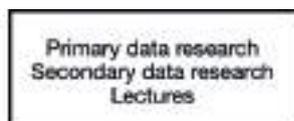
The concept of equitable redistribution acknowledges that social identities—which in the case of Myanmar overlap with citizenship, ownership, ethnicity, gender and others—result in “differential access to and control over resources, which find their spatial expression in the structure of cities” (Levy, 2015, p. 136). Thus, it is achieved when livelihoods effectively transform space, exhibiting themselves materially. The domain of reciprocal recognition, in turn, “is as much about the recognition of difference in the conceptual frames of institutional practices, as about the changed consciousness of oppressed women and men and their recognition of their right to demand more socially just treatment” (Levy, 2015, p. 137). In other words, when social mobilisation transforms and results in inclusion within city-wide institutions as well as between people, reciprocal recognition happens. Lastly, parity political participation refers to “the right to participate in [...] planning decisions, which by their very nature have medium- and long- term impacts on the [...] experiences of urban citizens” or the goods they access—their livelihoods (Levy, 2015, p. 138).

In this way, the conceptual framework evolves from the notions of finance as a mobiliser and waste as an asset, to incorporate space, and thus potentially scale up to promote social justice through recognition, redistribution, and participation. Our strategies thus aim to build on acts of repair and consolidation to realign the spheres of PCTD and thus support the flows of the economic, social, and physical dimensions of space that ultimately promote justice.

Methods

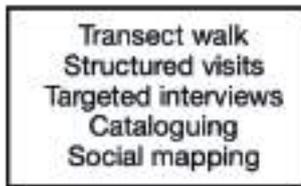
Concretely, all of this exploration was made possible through different methods employed at distinct moments through out the research.

Pre Field-work



During the fieldwork, we researched primary and secondary data, guided mainly by the recommended readings made accessible by DPU staff and news. We also participated in 07 lectures in London and 02 in Yangon (one of them consisting more of an interactive Q&A).

Field-work



On days 01 and 02 of the fieldwork, we visited the different housing projects undertaken with the support of Women for the World and the savings groups, and attended the First National Workshop on community housing “Housing for and by People Workshop”.

The next following days (03, 04, 05) were dedicated to fieldwork. While on the ground, the methods undertaken evolved with the findings, targeting, in turn, more in depth and precise explorations. Thus, we initiated Day 03 with a group ice breaker activity followed by a transect walk of Section 10 of Ward 20. Through this exercise we started taking in the relationship between waste management and economic, social, and physical flows, as the community members in our research team explained where and how was waste disposed and by who. This transect walk led to the experience of the unclogging of the drainage canal presented in the framework.

On Day 04, we devised specific questions and shared them with the community members who elaborated a targeted structured visits to Section 06 of Ward 20. Through these strategic visits around the site we encountered collection shops, waste pickers, waste separators, successful cases of drainage infrastructures and other actors relevant to the recycling of waste. We conducted targeted interviews, seeking to understand how exactly the economic, social, and physical dimensions of waste management deployed in Ward 20.

On Day 05, we worked simultaneously on cataloguing the different items we have encountered in waste bins and drawing out the economic, social, and physical process for each. We mapped out the specific ways in which production, consumption, transport, and disposal occurred for different materials, as well as their economic value and who was involved in the process. During the social mapping, we sought to understand how waste was perceived in relation to every day life activities and space.

All of the activities were undertaken with the entire research team, including community leaders and residents in Ward 20, local Myanmar students, volunteers from supporting organisations such as CAN and CBP, and UCL DPU students. Most often these tasks were undertaken by splitting into two groups and working simultaneously.

The final days on site were dedicated to processing the data gathered and devising the scaling up strategies.

Post Field-work

Upon return to London, we processed the findings and data to shape the existing report.

Synthesis

Drainage



Waste found in the drainage



Following the drainage flow



Following the drainage flow



Volunteer jumping into the drainage



Volunteer digging out the trash



Volunteer digging out the trash



Volunteer digging out the trash



Crowd gathering to see the event



Volunteer unlogging the drainage



The crowd cheering



We step to study the waste taken out



We step to study the waste taken out



Segregation of the waste

On the following section, we present our findings in a chronological order following the transect walk presented in figure 7. Figure 13 isolates the moment where we encountered with the process of unlogging the drainage, and how we dug into the trash to classify the materials.

Economic infrastructures

Sellable products:

Since the very beginning of our visit in the community, we noticed that accumulated trash bags were found outside some of the community households. It was evident that the materials that we would find on trash bags all around the community were "sellable", meaning that they were collected in order to be sold to factories.

Recyclable materials

Organic waste

Family business in section 6

Family business in section 10



Household



Recycling stores



Scavengers



Recyclable glass bottles



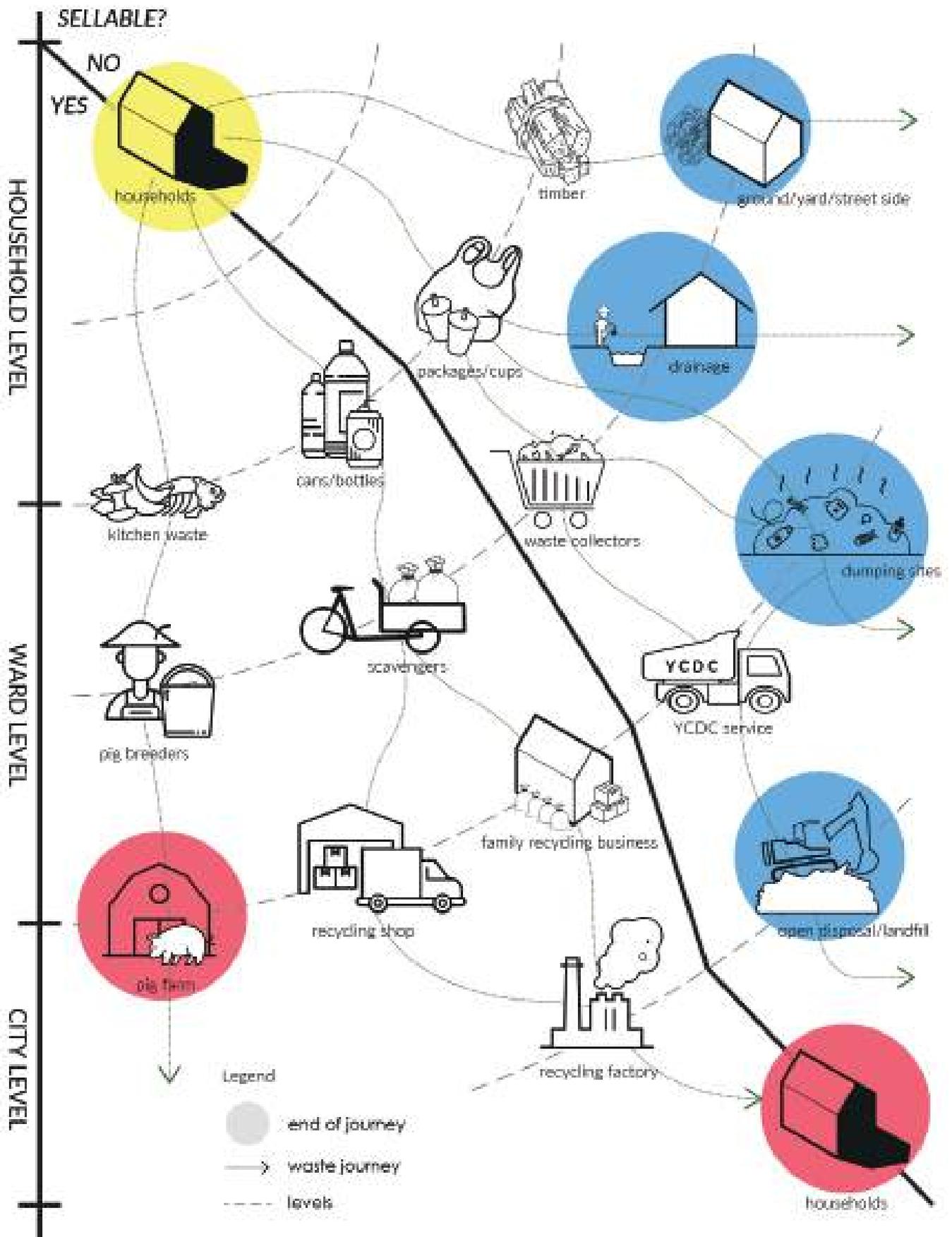
Recyclable plastic bottles

Non-sellable:

The most striking thing though that we noticed was the amount of trash found in the drainage. We were taken by the community leaders in one of the clogged drainage spots, where community volunteers and paid workers were trying to unclog it.

A behaviour that made us question the perception of waste, was when the volunteer would dig out single products such as a flip flop, show it to the crowd and ask "is it worth it? no. ok so we throw it away", and he would simply add it to the mountain of trash behind his back. We personally did dig in the clogged drainage to find out the type of remaining waste. It turned out that, according to the community, they were items that had no value, meaning they couldn't get sold. Thus, reaching to the conclusion that the materials mainly found in the drainage were "non-sellable".







We did try to catalog these products through community exercises, focused on the weekly typical household (HH) production of waste, in order to crosscheck the findings on the ground. The “catalog exercise” revealed to us the way they Produce, Consume and how they Dispose.

It seems that the sellable materials are segregated from the HH level in order to be sold. The choice of what is sellable/more valuable, thus kept and collected, is based upon :

- quantity - easiness of gathering as much as possible in less time, and easiness of carrying, as some materials are sold in volume, viss (=1,633 kg) or pieces, rather than weight. Products such as plastic bags, although recycable, are not collected because it is harder to collect volume of plastic bags in a short time.
- quality - eg. even within the plastic products, some are made out of cheaper or more expensive plastic, PVC. The individual packaging is not collected because it is very low quality of plastic LDPE and low selling price

Both criteria are linked to maximising the profit. The prices are more or less set, mainly due to competition.

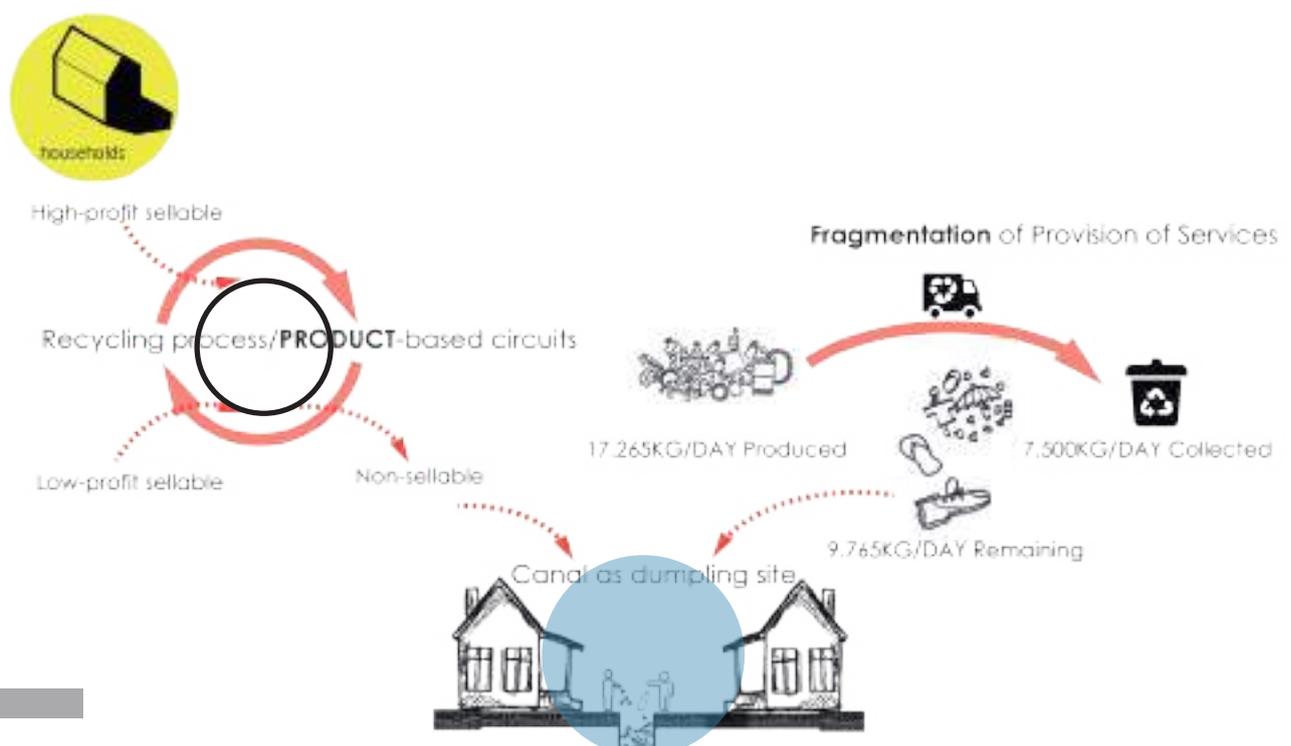
Reused materials:

Everything that could be reused, would be kept in the HH. Innovative micropractices or recycling/repurposing of used objects on household level would reduce economic loss and waste production. However, when the material is not in any way needed anymore (it has no value), needs to get disposed.

Circuits:

We understood that waste travels in circuits, tied also to circuits of value. Sellable ones tend to go through the whole cycle, ending up being recycled. The circuit breaks, however, when the products that have no economic value cannot be sold and end up in various spaces such as illegal dumpsites or the canal. We further analysed these spaces into spaces of emergence.

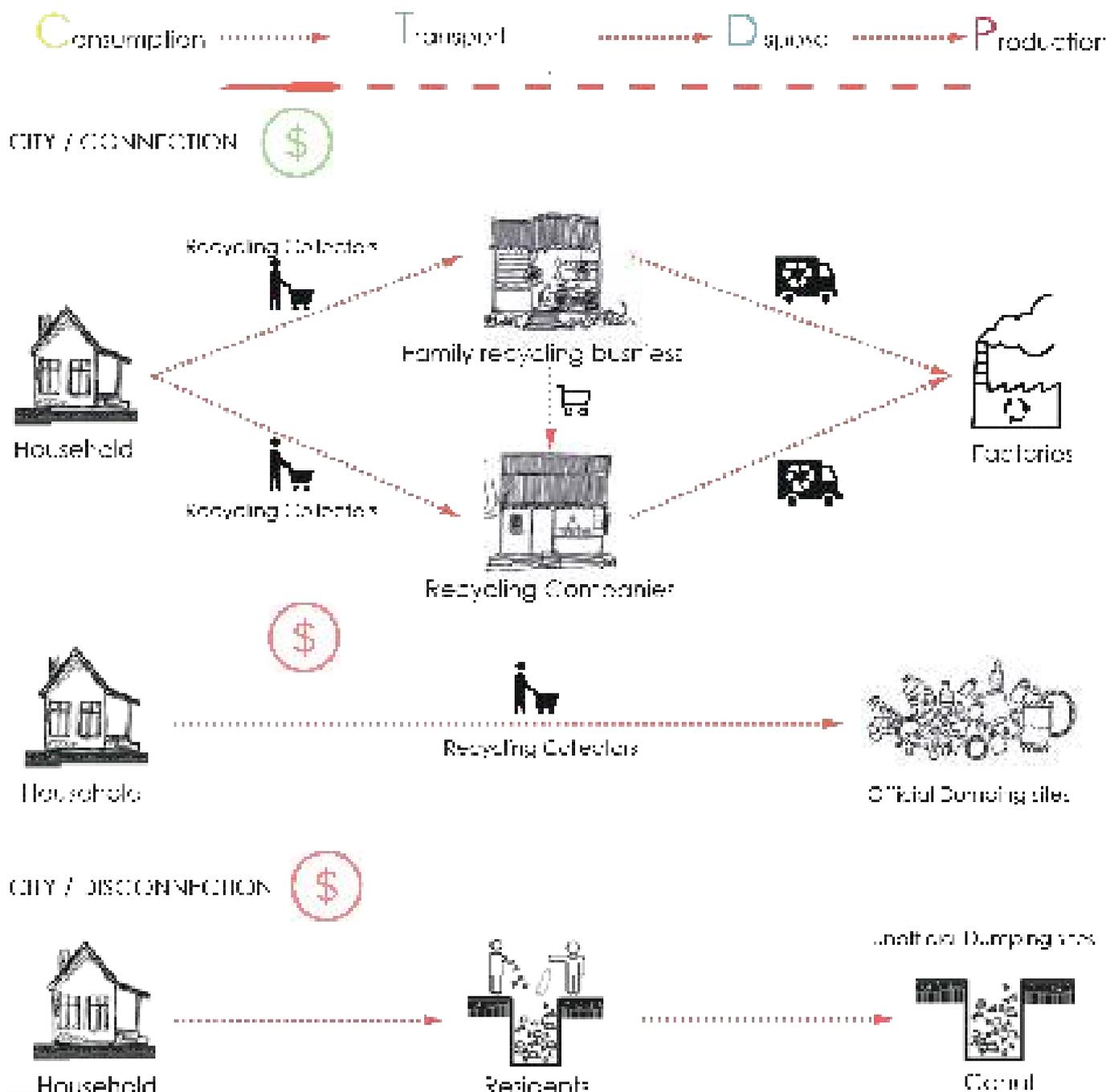
Having understood that waste travels through circuits, intricately connected to circuits of value, our methodology on site consisted of mapping those circuits and researching how the broken circuits could be reconnected into a flow.



Journey:

For a better understanding, we translated the circuits into four spheres: Consumption, Transportation, Disposal and Production (C,D,T,P) and pointed out the economic loss or gain generated each time, and city connections. We presented the journeys to the community with a model where different characters and products of everyday life would move into space. The most generic cases are as such:

- The HH produces the waste. The HH pays someone (economic loss) to take the garbage to the official dumping site (ODS). From there YCDC transports them to the City DS. Completed cycle: the waste gets disposed properly.
- The HH produces the waste. The HH sells the products to a RC that sells them to a RS. The RS transports them, usually with a truck, to the Factory. Materials can be sold to factories on all levels eg. the condensed milk tin is recycled on the township level (Jeske, 2014, pg. 14). Completed cycle: the waste gets recycled. Economic revenue for the people involved.
- The HH produces the waste. The HH throws the waste to the drainage. Uncompleted cycle: overlappings between P,C,T,D.





A

We mapped the circuits with the community and created the waste journey.



B



C



D



F



E

Social infrastructures

Community Organisation:

“We hold meetings regarding the repeated clogged drainage and regular flooding in the canal due to movement of excessive solid waste from the houses and surrounding settlements”...as expressed by one of the community leaders and residents. Investigating the same question we attempted to triangulate the reality of facts across wards to validate the process of collective decision making and participation.

We realised that the overall mechanism of consensus within the Ward is limited and consists of personal initiatives that are benefit driven. However, the waste management actions are decided and executed as per collective decisions through community meetings chaired by the community leaders. Yet, they are limited to certain streets and localities based on collective interests.

Considering the bigger scale of Ward 20, community cohesion as a result of common interests vary within larger sections and locations. The location and concerns of these actions are not regulated or modelled for a larger stretch / areas but are rather dependent on the individual interests and their association with these areas as well (for example : association with temple, community centres, shops, open spaces and individual wellbeing). Nevertheless, there are attempts for bigger interventions, such as covering the drainage with bricks, but the lack of resources, infrastructure and institutional support is an issue.

Community Mobilisation:

“We have volunteers from our community who sometimes tend to assist in waste collection and management...The waste to be disposed is also collected by flying scavengers who are paid by us...” Following this statement from one of the community members, we started to question other factors that make and unmake the existing dynamics of waste management. We wanted to investigate the reasons that define the collective attempts and initiatives adopted by the community itself. We looked further into why the community sometimes organised themselves to unclog the drainage in the crossroads. It seems that it is perceived as a common need and therefore some are volunteering for solving the situation.

The unity among different streets, groups and areas with better understanding produce responsible volunteers likely to create voice and initiatives to solve their own community problems. Again, the phenomenon is natural and not a responsibility through compulsion. The initiative of volunteering in the community is an effective and responsive act of resilience created due to the presence of common problems and absence of required assistance from the government.

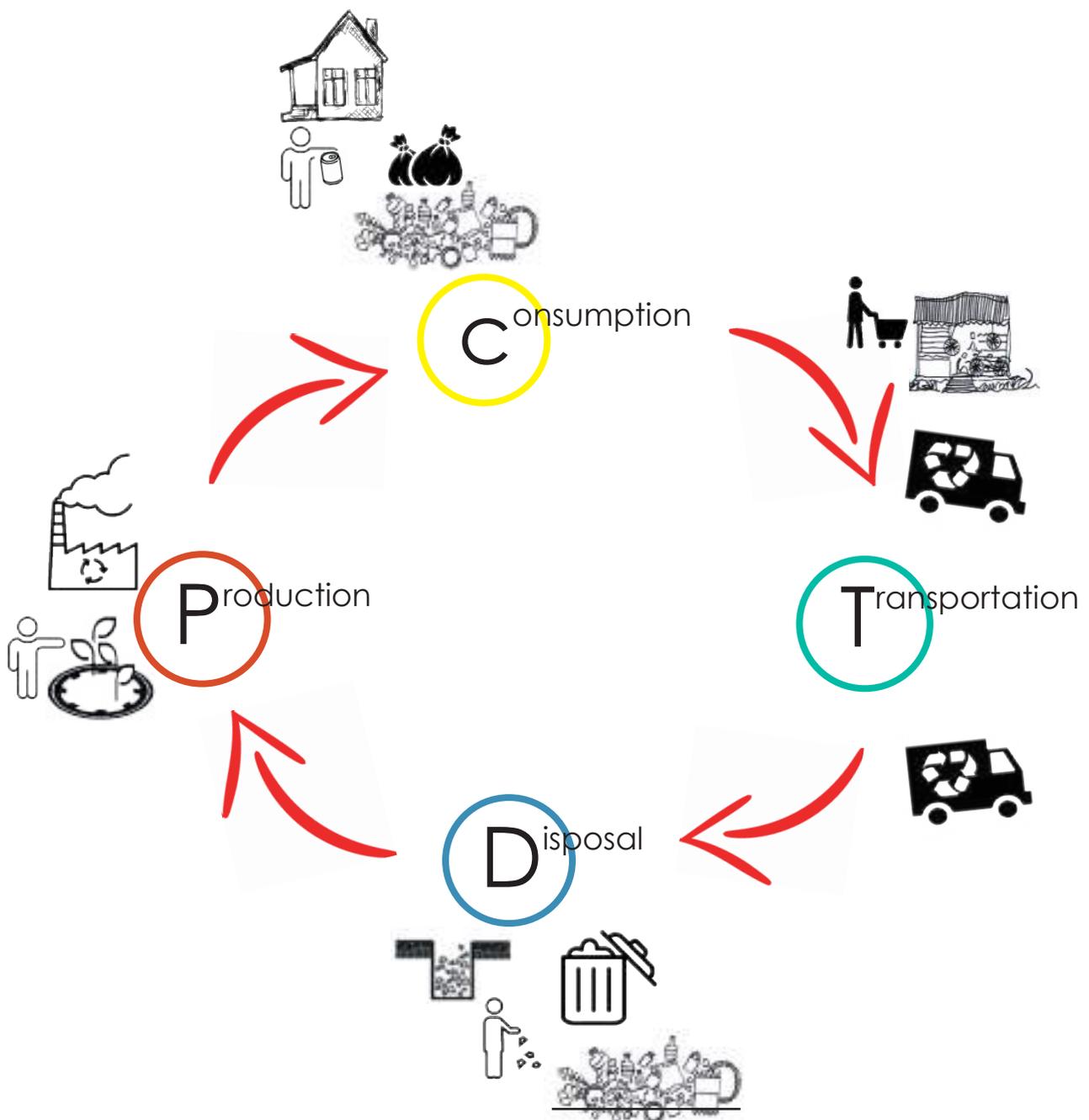
Social Fragmentation/Ownership Issues

“We just want to get rid of the tenants and squatters...they have turned the place so dirty and unclean dumping everything around..wherever they can..clogging the drainage as well...” a thought expressed by one of the community leaders who startled one day. As drainage is a major issue some households use fences and protectors to cover the part in front of their house so waste doesn't fall in, they care. However others don't care ...

The nature of ownership in ward 20 is highly complicated. The ownership and tenancy issues, the aspects of maintenance and caring of property, limits their responsibility and cooperation towards waste management in the community. The layer of locations identified through ownership patterns overlapped with the existing informal dump sites could confirm the assumptions on spatial issues that probably fragments social relations.

Physical infrastructures

Production refers to intertwined activities involving acquiring resources, using them but not fully, and hence generating some form of residue. Transport refers to the mechanism through which that residue or waste travels through space and ownership, moving from one location to another, and being discarded by one person to become owned by somebody else. Disposal, when the waste reaches a dumping site where it undertakes its natural process of decay. Production refers to the receive-recycle-produce process of the factories, on one hand, and on another, the waste is given another value through reuse. In both cases a new life is cycle assigned to that waste.



Spaces of emergence:

Going into the field we learned that waste cycle that starts and ends by the production sphere and flows through consumption, transportation and disposal spheres is completed for the bottle business (sellable). Bottles are produced at factories (Metal, plastic, glass), consumed by ward 20 dwellers, transported by scavengers and trash pickers to be disposed at recycling units and finally to the recycling factories on the city of Yangon where bottles migrating from different parts of the city meet.

The cycle is interrupted or breaks for all other types of waste and the seemingly distinct spheres of production, consumption, transportation and disposal emerge in one space. non sellable waste no longer flows beyond ward 20 and further to the city dumping site far to the final destination to be buried in distant landfill. Instead it sediments and spaces of emergence manifest when one or multiple spheres of waste cycle meet. Using the lens of everyday life to examine the spaces of emergence in ward 20, we were able to identify spaces of emergence.

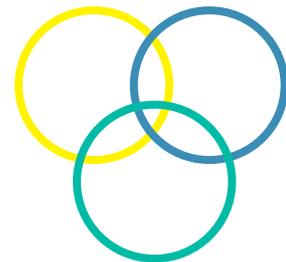
- The canal: is where **Consumption**, **Disposal** and **Transportation** spheres meet in one space. Houses are encroached on the canal consuming waste that is being dumped (disposed) into the channel and transported via the drainage gravity where it is finally clogged at intersection points. In this, the canal is transformed from a drainage network into dysfunctional transportation sphere.



A



B



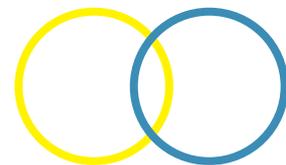
- Leftover spaces between the houses is where **Consumption** and **Disposal** meet: many spaces between the houses are transformed into disposal sites filled with waste consumed by surrounding houses.



C



D



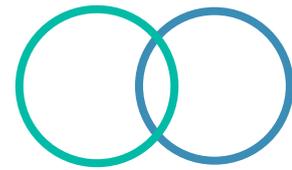
- Conflictual dumping sites: is where **Disposal** and **Transportation** spheres meet. There are several spaces in Ward 20 where dwellers dispose their waste and do not transport them into the official dumping sites agreed upon by the community. Once such spaces are being closed and relocated they become restricted. Restrictions is manifested in different forms and ways. Fences, warning signs and recyclables (i.e. bicycles, metal bars) restrict the use of space as disposal site.



E



F



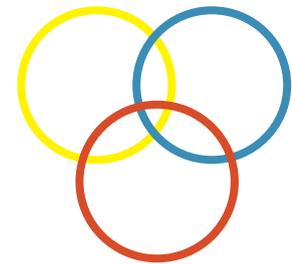
- Storage spaces is where **Consumption**, **Transportation** and **Production** meet. Some encountered spaces are used for construction material leftovers storage such as wood, corrugated sheets, etc disposal transported by dwellers to be saved and used when needed for house construction (production). These spaces can be easily confused with dumping sites. Nonetheless, they are created by the dwellers to serve their everyday life needs.



G



H



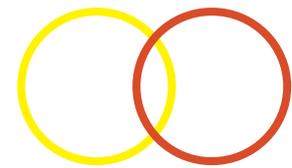
- Organic food collection spaces: is where **Consumption** and **Production** meet. Many households have a bucket of organic waste in front of their houses. Although it is recognised that the organic waste is being recycled, the buckets are a source of smell and diseases.



I



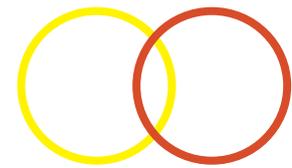
J



- Public spaces: **Consumption** and **Production** meet.

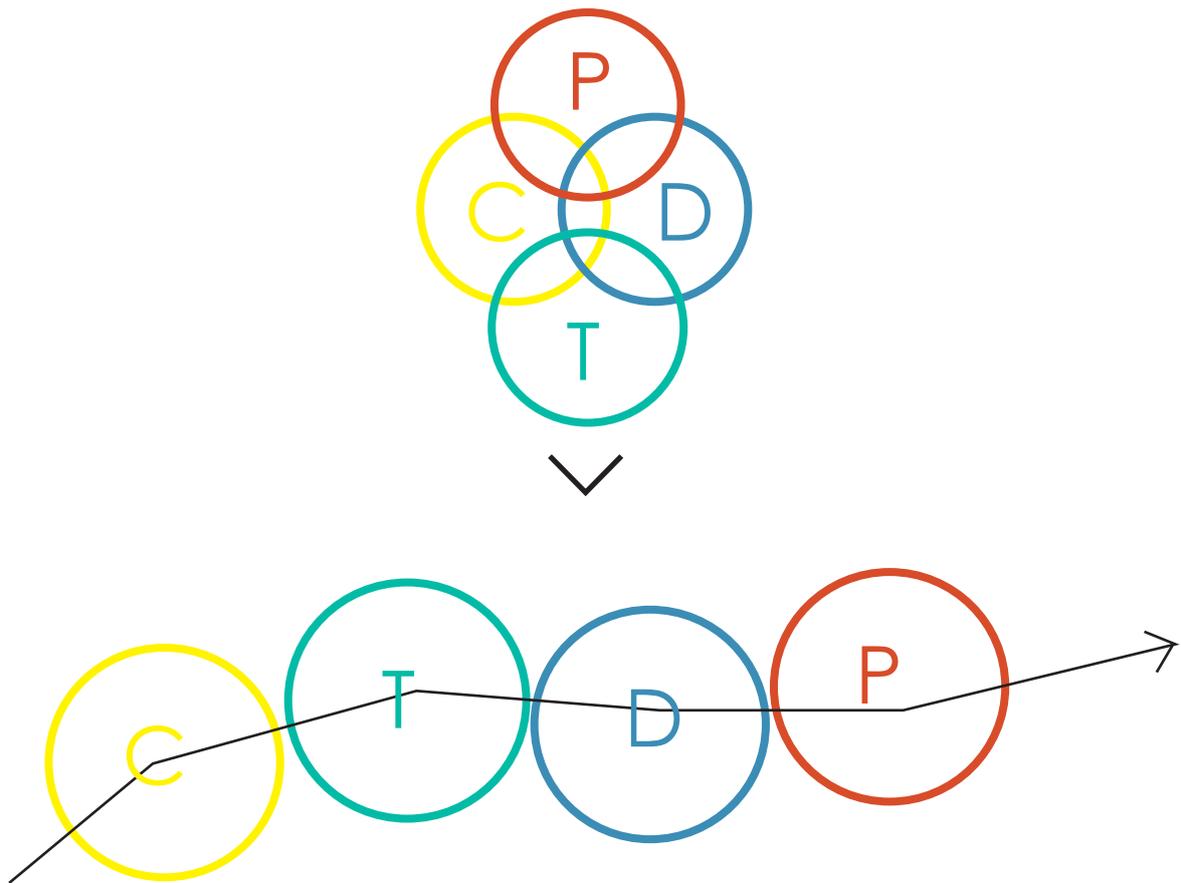


K



Waste is intrinsically linked to people's modes of consumption and everyday activities and possibilities. When the seemingly distinct spheres meet in Ward 20, new spaces emerge in peoples' everyday and practices (Stanek, Schmid, & Moravánszky, 2014). In this sense, waste is re-conceptualized as everyday life spheres of production, consumption, transport and disposal





Strategies

Vision, Principles and Guidelines

Vision

Building on the existing waste circuits and the acknowledgement of waste as a practice embedded in the everyday life, we envision a repaired and consolidated alternative waste management system, that perceives waste as an asset and drive the development process through the co-production of the city. In this, different actors with different capabilities, working towards supporting livelihoods, strengthen social networks and recognise Ward 20 within Yangon.

Waste circuits propel Ward 20 to be included in the larger process of the development in which Yangon is currently immersed, as a people-centred transformation alternative.

In this sense, the vision aims to connect waste circuits of Ward 20 to the wider city waste circuits and potentialize them to ensure that different views on development can coexist and complement each other

3R's Principles (3R's), Rethink recognition, Repair & Consolidate, Redistribute resources) Three overarching principles were adopted to express the strategy's core values, fundamental rules that will be followed to develop our design guidelines and responsive strategies. A "3 Rs" core value principles stemming out of the conceptualization of waste as value and the understanding of various trajectories of waste journey within Ward 20 and to the city.

Rethink recognition: The concept of recognition, as introduced by Nancy Fraser (Fraser, 2000) "to accommodate the full complexity of social identities, instead of one that promotes reification and separatism". In this, proposed strategies aim to acknowledge, understand and validate the everyday life practices of recycling and initiatives of waste volunteering activities in Ward 20 that become crucial to challenge the capital state-led city development in the process of transformation. Furthermore, rethinking recognition Ward 20 waste travel journey does not only acknowledge the Ward 20 waste as piece and part of the city, rather it seeks ways to extend waste management practices from within Ward 20 to the city as a form of resistance to state-led development within the city rapid growth and economic development.

Redistribute resources:

Redistribution of resources is the claim to reconsider the quest for inclusive participation. It argues that for participation to be effective has to stem from the equal ground of access to resources. When a community does not have access to resources, participation becomes less effective. We adopted a core concept in our propose strategies that give access to Ward 20 community for collective saving providing them with resources both financial and social and thus allow for an equal ground of participation in the time of transition

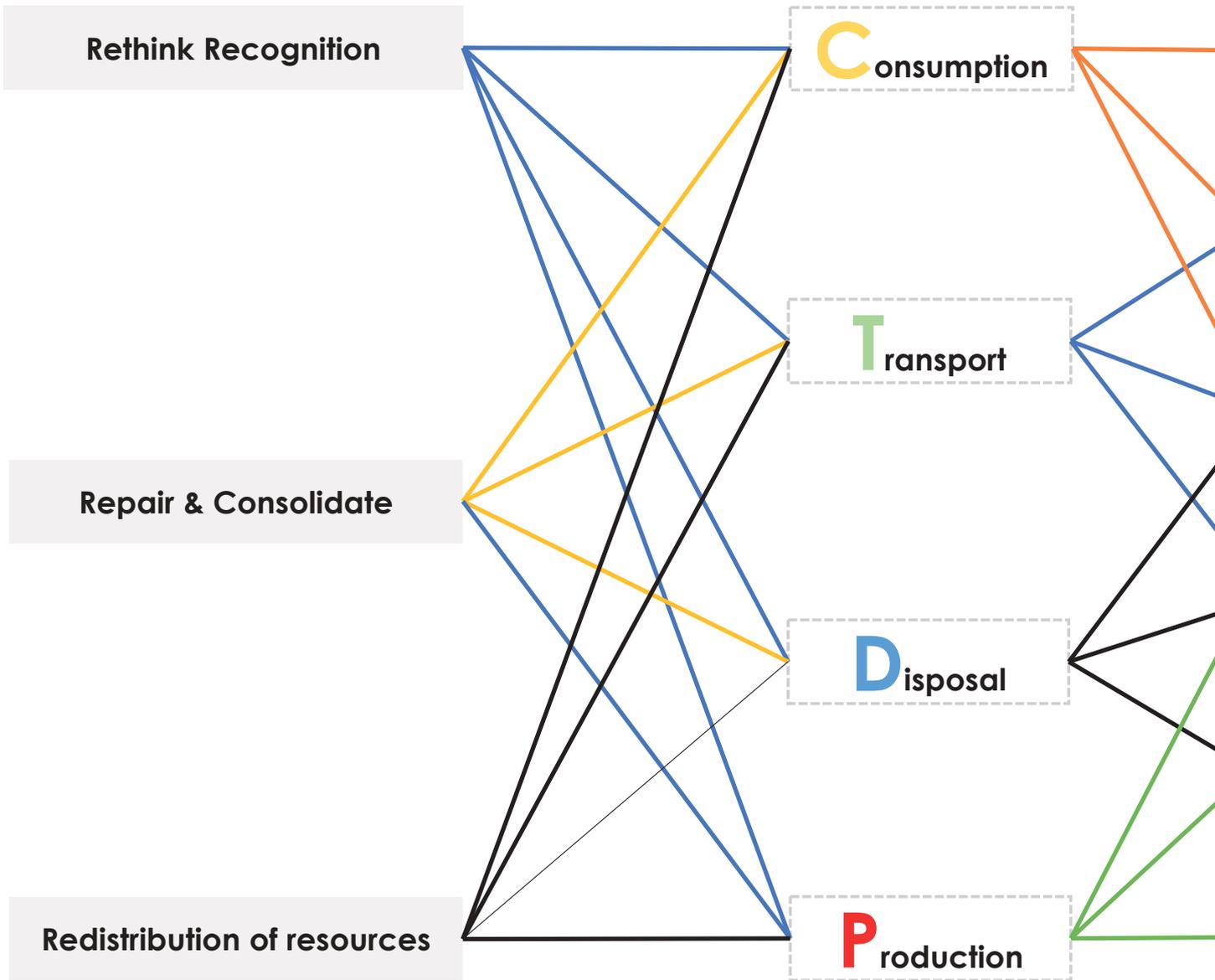
Repair & consolidate: Repair & consolidation as explained by Bahn (Bhan, 2019) as two specific vocabularies used to shape the urban thought in the south.

Repair as explained by Bhan "it suggests a particular assemblage of practices" (2019, p. 7). Within the identified spheres of process of waste Journey; Consumption, transportation, Disposal, Production, we have proposed strategies to restore the urgent immediate need over the substantive material improvement. We looked at what is available in the material daily life of the community and quickly access what can be easily used and chose it for the proposed strategy. Third, we did not presuppose any actors. We built on what the community initiative and liaises with the actors already present in Ward 20.

Principles

Strategic

Repair and Consolidate:



Reduce
Consumption

Redistribute
Transportation

Redistribute
Disposal

Responses

REDUCE

REDUCE the waste production, especially packaging

- a) By buying in large quantities
- b) By reinforcing the existing activity of alternative packaging

REDISTRIBUTE

REDISTRIBUTE the waste collection system and income generation around it

- a) Waste collection management on agreement.
- b) Facilitate waste collection
- c) Cooperative of waste workers

TRANSFORM

TRANSFORM the value of waste and its relations

- a) Give value to waste by generating economy
- b) Give value to waste beyond economy

Consolidate as explained by Bhan is the consideration of other systems of provision to urban services that do not necessarily confine to the “universal “system of provision for a radical shift in perspective to sociotechnical systems of provision of urban services. In doing this, existing actions, networks and systems are considered viable and can be consolidated even if it falls outside our systems of knowledge and field of professional experience.

Design guidelines

The 3Rs principles are operationalized into four spheres of socio-spatial processes, which are consumption, transportation, disposal and production. Each sphere consists of sets of socio-spatial practices that are repaired & consolidated, redistributed and or recognized. For instance; Volunteering act of drainage canal (Transport and disposal spheres) cleaning by the community is consolidated although the fact that dumping in the canal does not seem the substantive solution to the clogged drainage. Furthermore, we proposed buried dumping sites located at the clogged areas in the drainage networks to capture the waste flow through the drainage canals as an action of repairing.

Strategic responses

Scaling up

The strategies are classified into three main approaches that have the entry point of repairing and consolidating the city upgrading in Yangon.

Reduce, Redistribute and Transform aim to deal with the gaps found in the waste circuits, resulting from our analysis of everyday urban living conditions. All the interventions are outcomes of the fieldwork and stem from collective participation and city co-production.

While recognising that our proposal is a negotiation between various stakeholders and agendas to try to reach a more just city, it is necessary to recognise that there is a potential for not reaching consensus. Different forces of power can generate conflicts during the negotiation, and it will be required to modify those strategies to materialise them. However, we believe in the power of social transformation through collective actions and the capacity of those relationships to negotiate power relations in everyday life.

Our strategies are not limited to the waste management system, they go beyond it from the beginning of the operations. As Davis (2004) explains, scaling up also demands a dual commitment to inclusion and institutionalisation. Adding to this, Mosse (2010) argues that empowering is about challenging institutions and structures that propagate inequalities power. In this sense, we prioritise the continuation of our interventions from the ground to the city level in the sense of connecting the community-led actions with the formal institutions that operate in Yangon.

As Boonyabancha (2005) state, unlocking rooms for people to be part of the urban management is the real decentralisation, and following this, city upgrading is a powerful manner of decentralisation. Therefore, our suggestions are interventions that can potentialise social mobilisation as a base of the process of upgrading, and can use the co-production of knowledge and space to impact institutions and policies on a large scale.

Ultimately, the below quotation from Fiori represents our base of understanding that to tackle waste management in Ward 20 it is necessary not to see it as an isolated aspect of the city, but as a part of intricate urban institutions that operate in synergies and contradictions across processes in diverse dimensions and scales. A system that intertwines in the economic, political, social, and, crucially, spatial aspects.

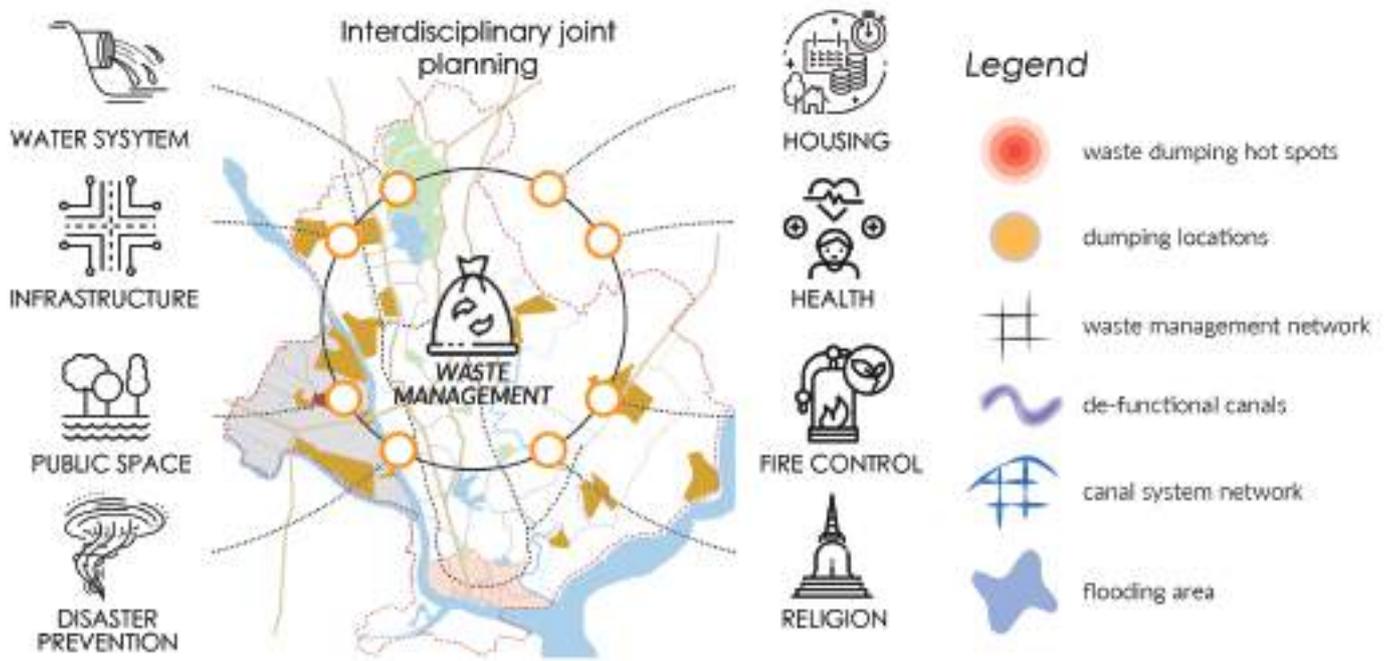
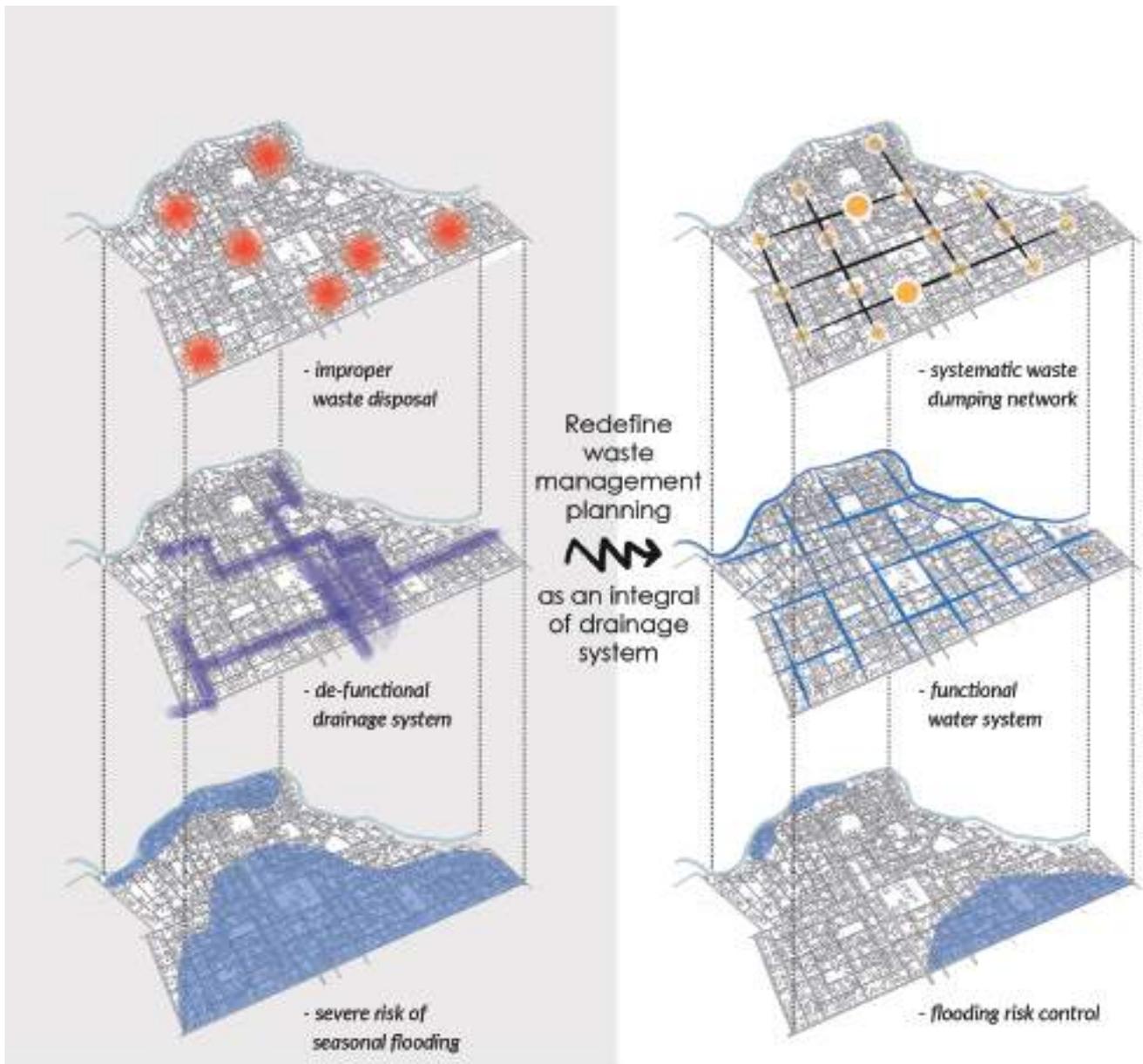
“Scaling up was increasingly seen as a result of multidimensional, multisectoral, and multifiscal processes; as not a quantitative process but a change in the quality of the city itself and in the nature of its political institutions;” Fiori, J. (2013)

In this regard, as waste management for Ward 20 seemed to manifest itself on the broader city context as it is strongly linked to the everyday lives of people. Initially, we propose two broader strategies to express how we see the approach for waste management in various dimensions of the city and through the articulation of its multiple scales (Fiori and Brandão, 2010).

1. We Identified the seemingly distinct spaces of waste cycle into spheres (consumption, transportation, disposal and production) and acknowledged that more often than not they are not found in separate spaces. The emergence of particular spaces when one or more than one spheres meet, calls for a shift in the attention to the strong relationship of waste with the disciplines of public space, infrastructure and disaster. In the particular

context of Ward 20 and Yangon, waste is strongly linked to flooding and disaster that are caused by waste accumulation and canal clogging. On another level, the accumulation of waste into the drainage canals in Ward 20 and across the city has naturalized the scene of waste, and masked the visual quality of the canal and its potential to transform into a qualitative landscape feature. The relation of the canal to waste and flooding transform its understanding from a separate system of operation that is perceived as an independent discipline of knowledge into an integral part of the infrastructure planning process. Therefore we proposed to recalibrate waste management planning and make it central to the disaster, infrastructure and public spaces planning.

2. Waste and drainage seem to be intersecting in many levels and on many scales, nevertheless, diverged in the planning process. A combined planning system will implicate further recognition of waste in Ward 20 as, at the moment, it is considered as a marginal issue compared to other prominent systems, mainly drainage. As a “less of a concern” urban service limited to allocation of dumping sites locations, merging waste with drainage in the planning process is key to a more just and equitable development.



Reduce the waste generation.

Reduce Consumption

Small packaging was identified as one of the biggest challenges in Ward 20. Our intention is to reduce the amount of waste in general, but more specifically, to reduce the amount of packaging that goes into the drainage. Therefore, reducing the packaging will support the process of cleaning the ward and will reduce flooding caused by the drainage clogging. How:

a) By buying in large quantities

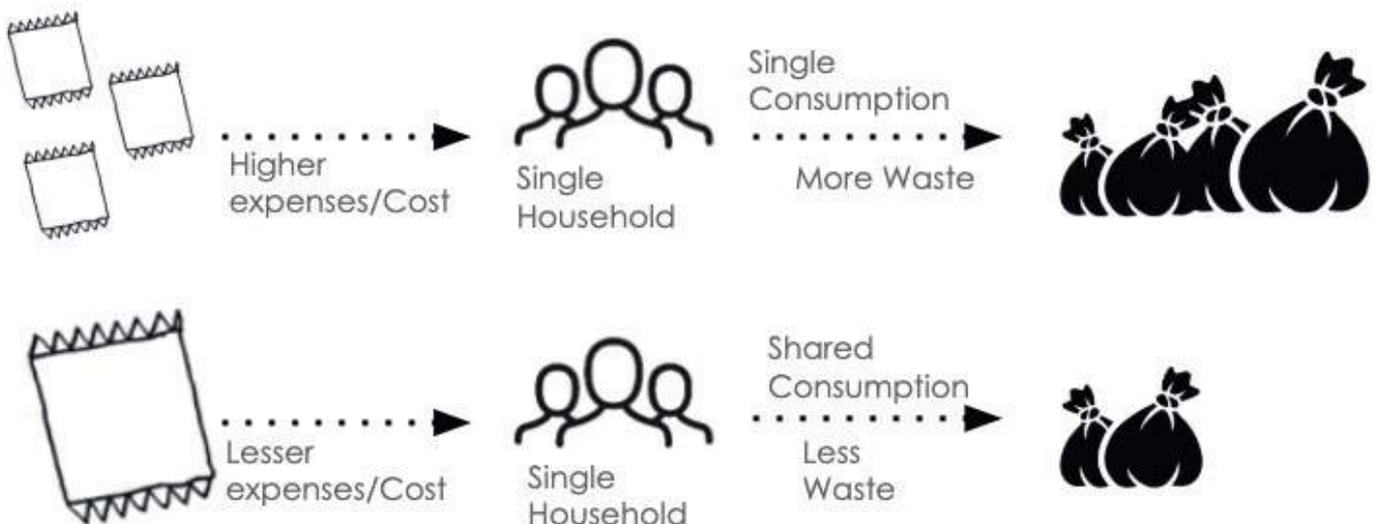


Supporting shops through research, workshops, and necessary infrastructure to transition from selling small, packaged goods to selling in bulk at a lower price. Buyers can also bring their pots from their homes to use as containers. By buying in bulk:

Individual purchase will be cheaper, generating savings for the community, as the HH can contribute more to the saving groups. Packaging waste will be reduced.

This intervention can also be applied to the saving groups, who can buy basic goods in large quantities to resell to the community itself, lowering the price of key domestic products whilst generating income.

How?





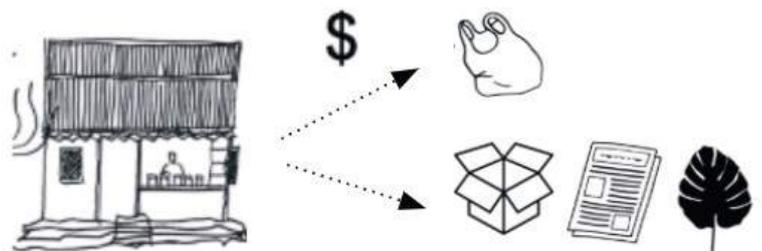
b) By reinforcing the existing activity of alternative packaging



In Ward 20, the residents already reuse materials as packaging when they buy goods. The intervention is to support this habit and boost other forms of alternative packaging, such as materials that are easier or quicker to recycle or even decompose. Moreover, in the medium-term, plastic bags can be charged to reinforce even more the use of alternative packaging.

Long term: Both interventions of alternative packaging and selling in bulk set by Ward 20 can, through the support of other actors, operate as a mechanism to set pressure on shops, companies and institutions to change their perceptions and policies around packaging.

How?



Redistribute the waste collection system and income generation around it.

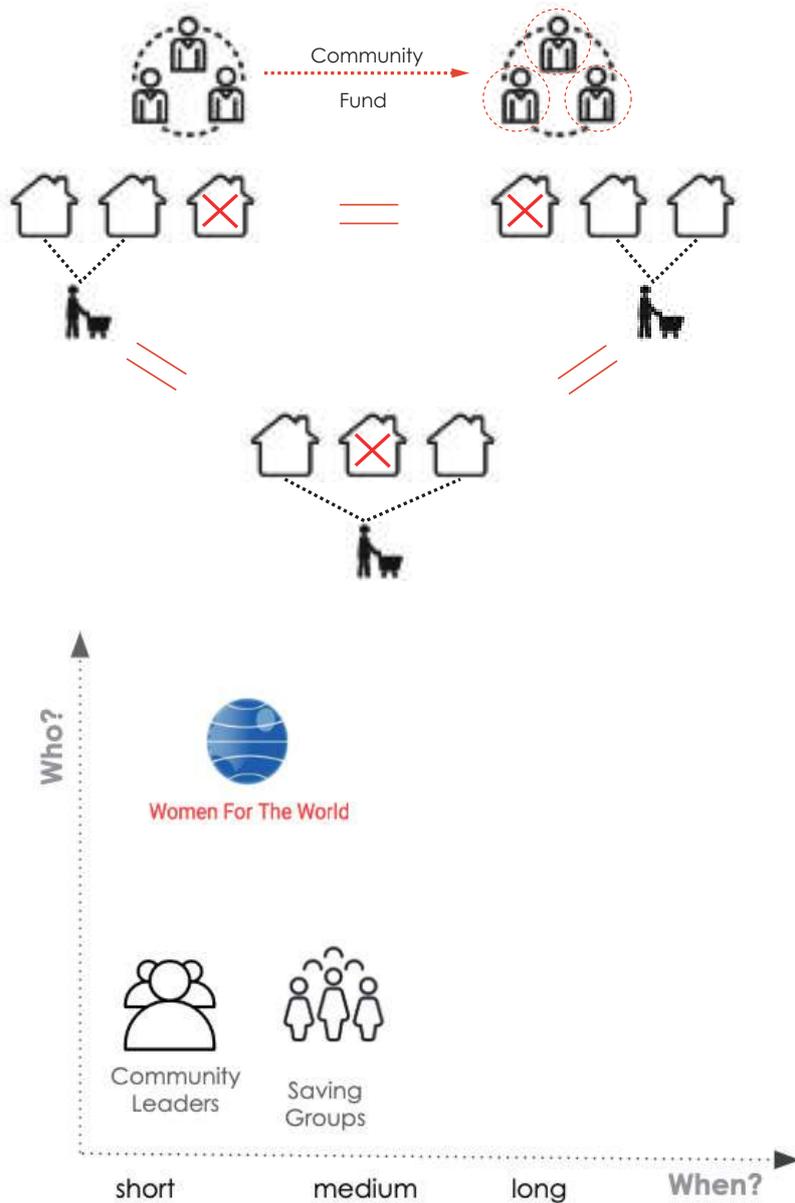
Redistribute TTransportation

We identified potential to tackle two sides of the same challenge: On the one hand, the inefficient disposal of plastic bags in the Ward, and on the other, the lack of raw material in the factories that can be covered by recycling plastic bags. Thereby redistribution can enhance networking, solidarity, efficiency and income in the whole community. The livelihoods of the residents and those who work with waste and recycling are also affected positively. The redistribution of the extra income could potentially be reinvested in savings groups.

a) Waste collection management on agreement

Residents can not always afford to pay to dispose their waste. The proposal supports the collection of HH garbage by setting up a community fund. The neighbours collaborate and rotate the payment to generate a common fund for this activity.

How?





c) Cooperative of waste workers

Several workers are involved with waste collection and recyclables in Ward 20. However, they currently work individually and in high vulnerability. The intention is to recognise their contribution to WM, reduce vulnerability, improve their economic and social conditions by supporting and connecting them through an association of workers with a common goal.

The cooperative enables the creation of jobs, generates income, thus enabling the economic and social ascension of these groups, causing an economic balance. Furthermore, the environmental aspect becomes essential, as cooperatives contribute decisively to reducing the environmental impact caused by consumption.

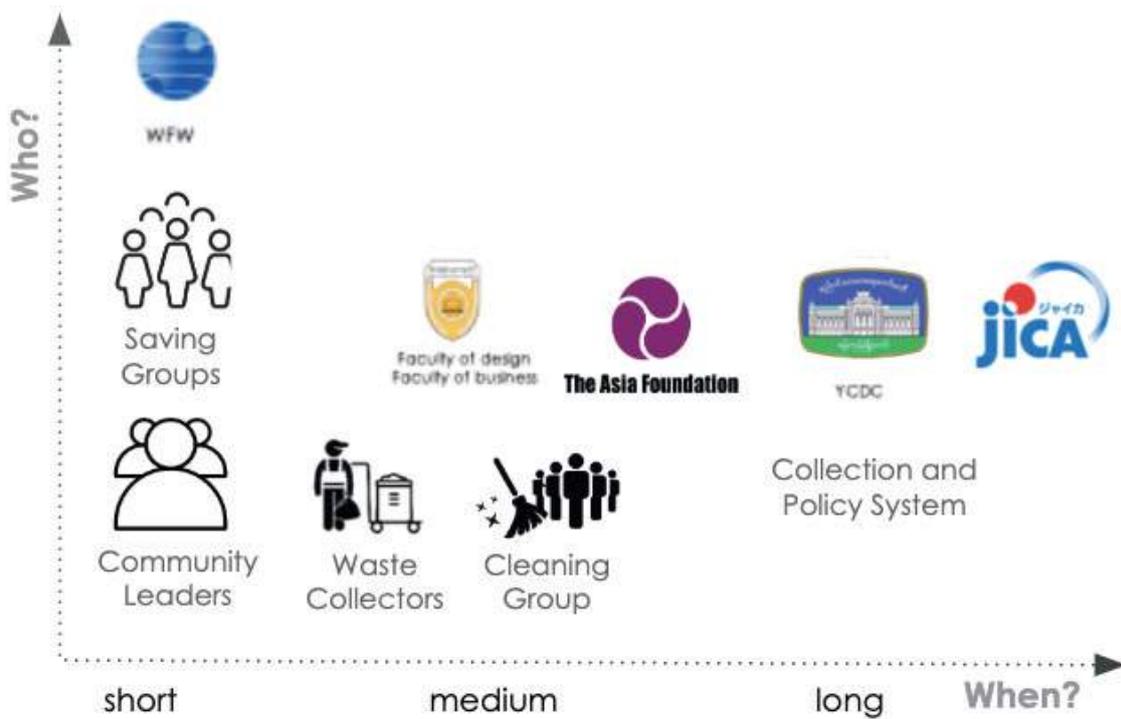
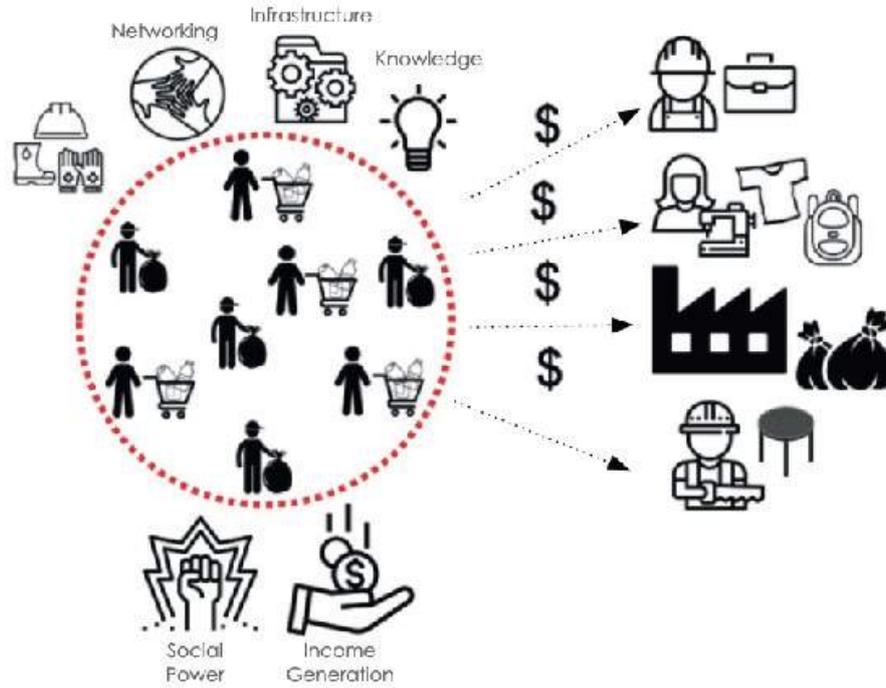
A possible way of administering the cooperative is through the social Economy of Solidarity, in which the means of production and the income are distributed among the collectors. Decision-making is done collectively, the organisation is self-managed, and the obligations and benefits are divided more horizontally.

Short term, the cooperative can start through the support of the WFW together with a small group of waste collectors. The WFW can have the role to explain the concept and the benefits of working collectively. The first initiatives in this process can be around the awareness for better working conditions, through protective equipment. Later they can have support from other institutions to buy essential equipment to improve their performance. For instance, machines for compiling plastic to prepare for selling. They could then sell the recyclable materials in a larger quantity at a higher price. They can also expand their frontiers to commercialise other raw materials that they do not currently collect.

Initially they can continue using their own spaces to work and in the future they can have the support of other actors to set up a working environment.

Long term, the process can operate as a form of recognition and representation of the waste workers to have support with resources from the government, who can learn from this initiative to provide a future connection with the current waste collection system to improve it. Perhaps in the future, this can become a policy to support other initiatives throughout the township and the country.

How?



Redistribute Disposal

b) Facilitate the collection

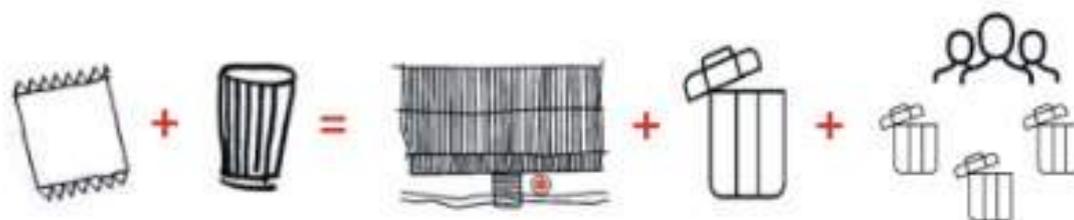


Short term:

- Redesign bins for recycling and locate them strategically, placing them higher from the ground to protect from floods.
- Collaborate with businesses/factories to ask for raw materials and create further demand for sellable waste.

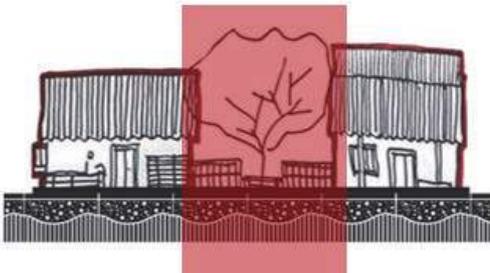
Medium and long term:

- Connect the previous intervention with a more complex system of dumping sites that can consolidate the initiatives of the community with the YCDC waste collection system.
- Strategically identify locations of empty plots to turn into HH-level dumping sites through collective decision and self-management.
- Redesign accessible disposal sites for everyone.
- Proper final disposal - Evenly distribute and create more community-level temporary disposal sites that are more accessible for community residents and YCDC waste services. Therefore, non-recyclable waste can be disposed properly.



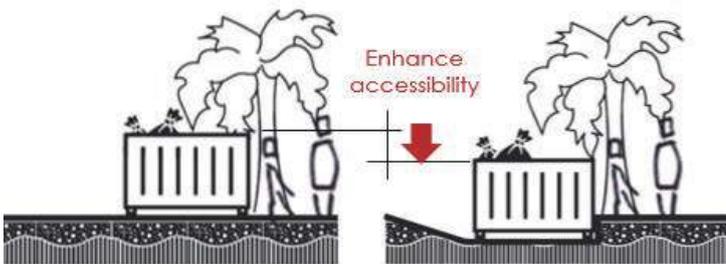
How?

1. STRATEGICALLY IDENTIFY LOCATIONS FOR DUMPING SITES

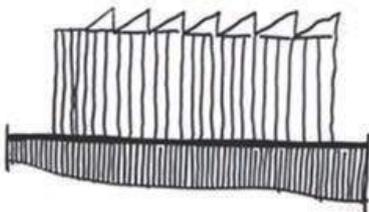


Use empty plots for household-level dumping sites
Collective decision;
Self management

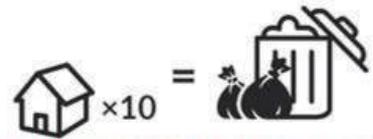
2. REDESIGN ACCESSIBLE DISPOSAL SITES FOR ALL



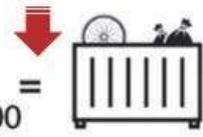
3. PROPER FINAL DISPOSAL



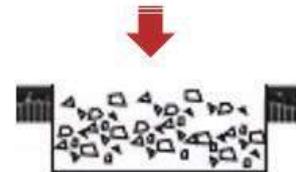
Evenly distribute and create more community-level temporary disposal sites which should be more accessible for both community residents and YCDC waste services. Therefore Unrecyclable waste could be disposed properly



e.g. 10 households share 1 trash bin



e.g. 200 households share 5 trash containers in 1 disposal sites



e.g. waste factory; waste landfill

Transform the value and its relations.

Transform Production

This strategy aims to recalibrate the perception, value and relations around what is perceived today as waste by the community in Ward 20.

a) Give value to waste by generating economy



This intervention aims to build capacities and knowledge to transform non-sellable materials into new products that can be used or commercialised.

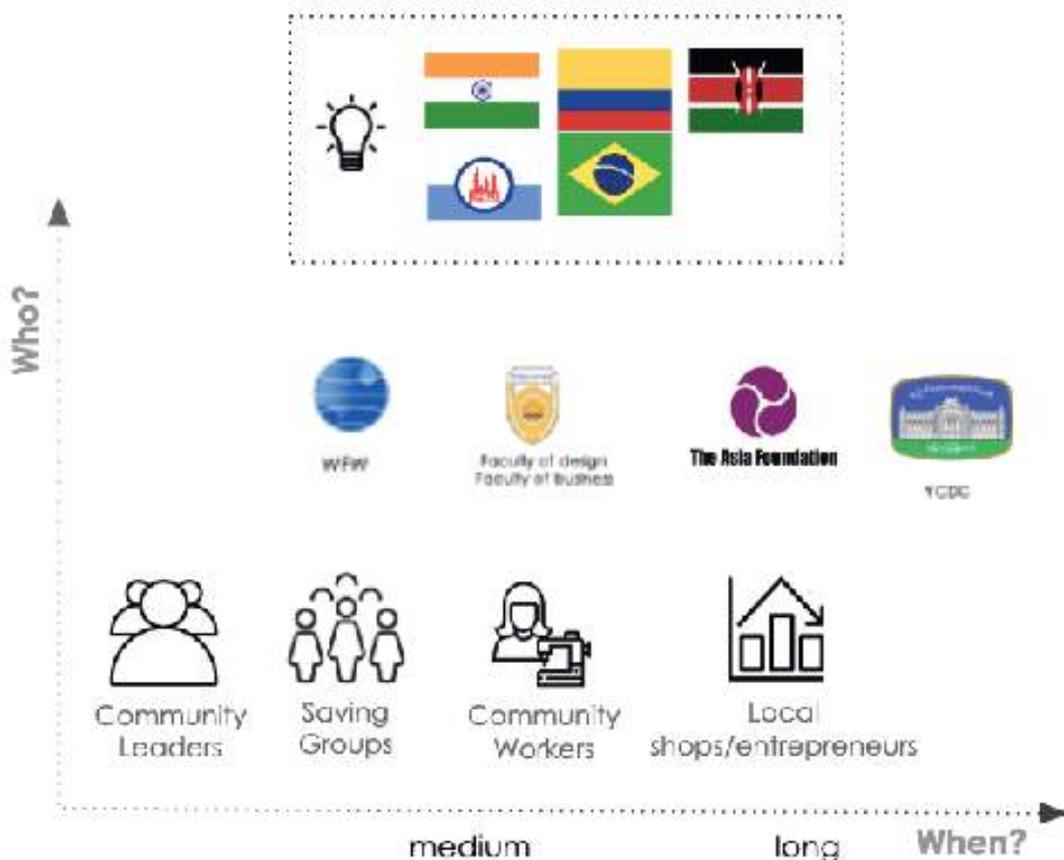
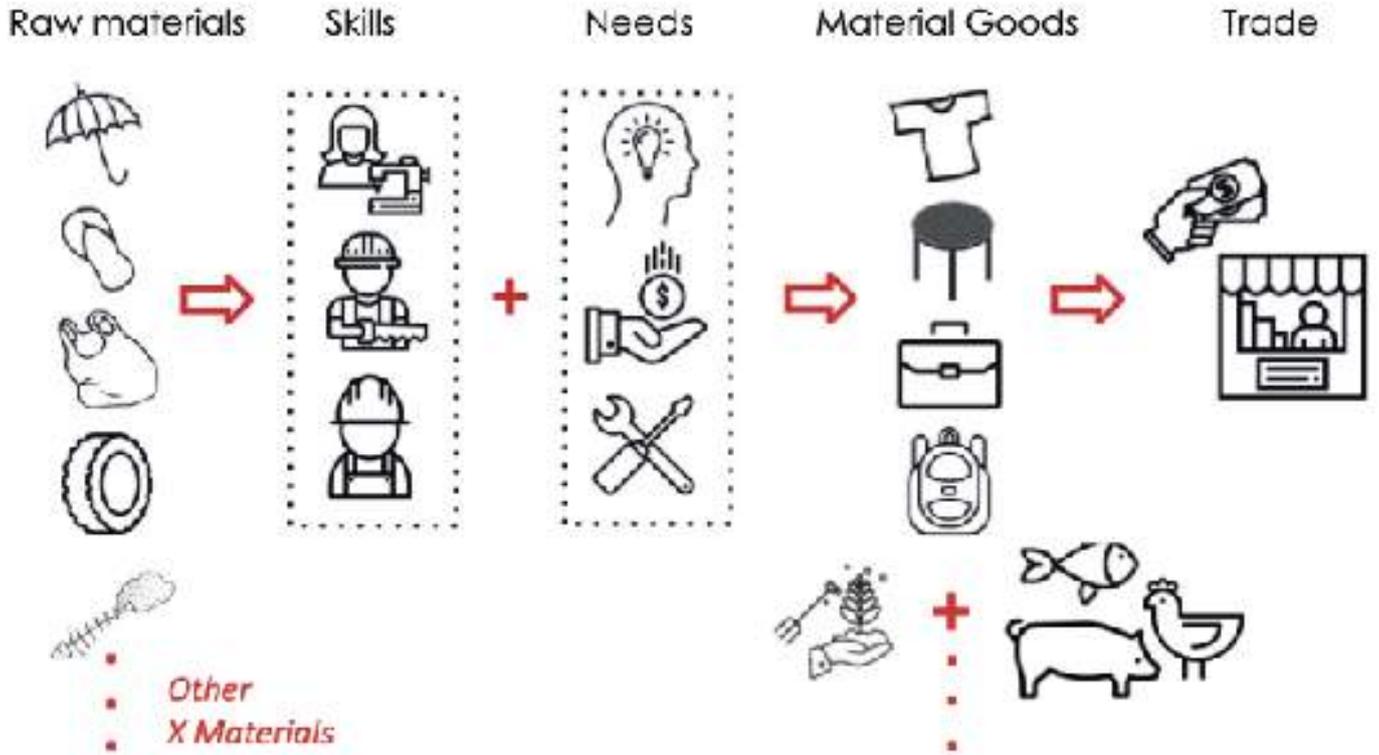
The principle of this intervention is similar to the waste collection centre, where workers can work through collective action through self-management in a Solidary Economy manner. In this process, they can transform raw materials into sellable ones generating more income for the community and improving their living conditions, reducing the amount of waste, enhancing solidarity and creating awareness of the environment. Once again, this can be used to support more saving groups and reinforcing their role.

- It helps improve livelihoods by adding value to what is currently perceived as waste. The idea is to create high quality design products that when commercialised result in greater gains than when only the raw material is sold.
- It supports the transfer of knowledge and capacity building, as well as collaboration amongst residents.
- Building awareness about recycling and sustainability.

Short and medium term, this can start through the support of the saving groups and the WFW with residents using their skills. Further, this can involve the engagement of the university and other funds to support further expansion.

Long term, perhaps this type of initiative can be used as a lesson for the YCDC about the recognition of community-led initiatives and Solidary Economy to become a possible principle in their policies and mechanics of operating the city upgrading.

How?

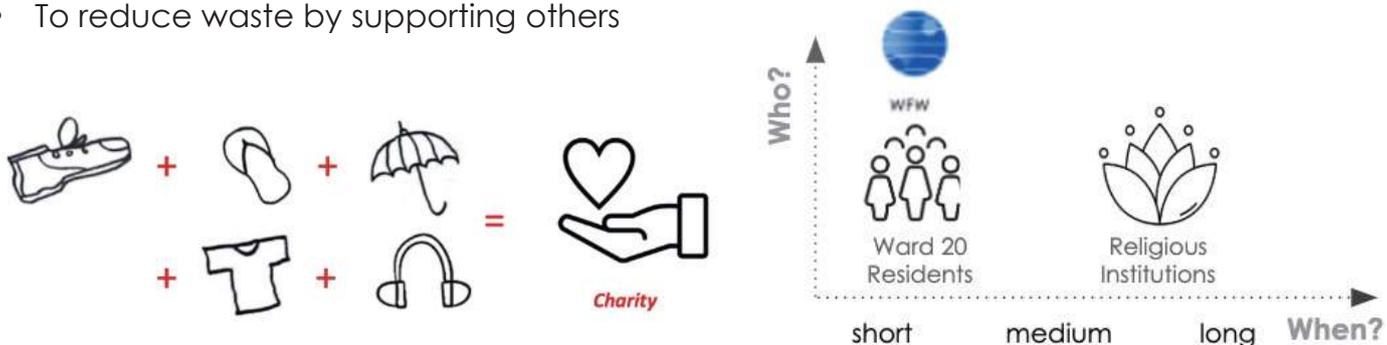




b) Give value to waste beyond economy 

Acknowledging other local values, such as religious or spiritual ones, we propose redefining goods perceived as supplementary into ones that can be donated for solidarity purposes or charities.

- To acknowledge other values that are important in the local culture.
- To reduce waste by supporting others

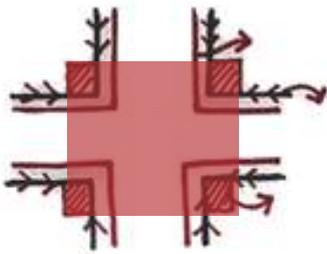
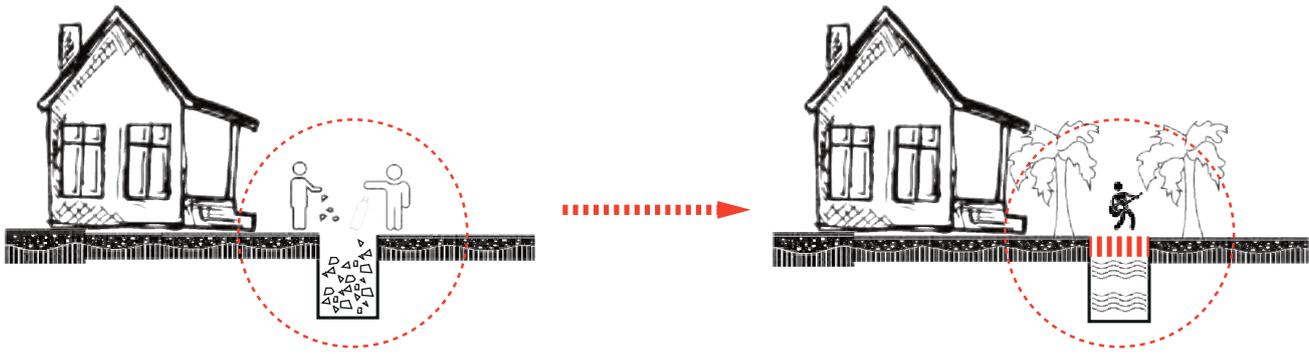


Transform the clogged canals.

Transform Disposal

How?

In the short term, we use drainage to collect waste and clean up the drainage regularly. After a long period of time, we cover the drainage with local materials like bamboo and plant trees on both sides of the drainage.



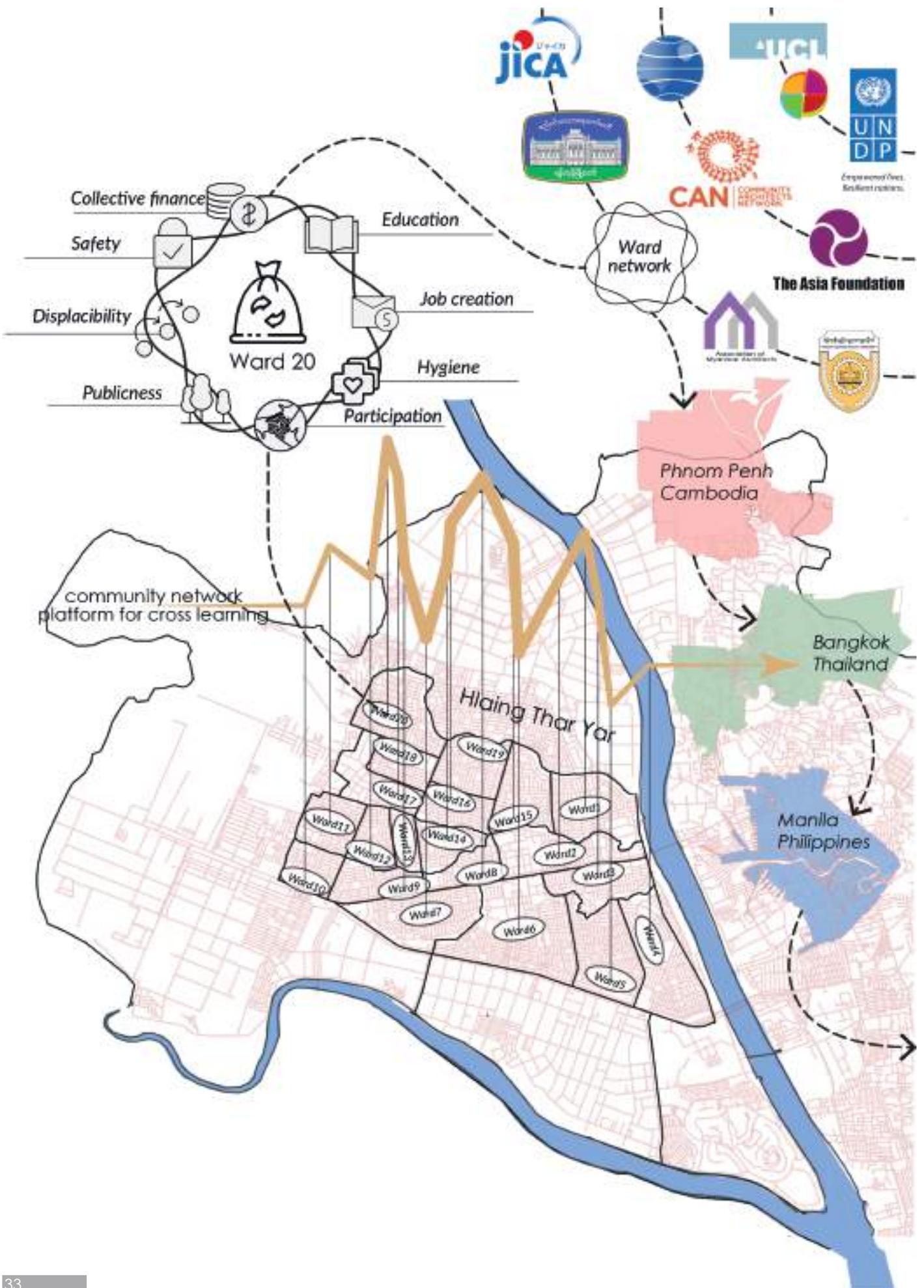
Recognize that the canal system is not only problematic but potential in the process and circuits of waste management

We have seen that people are now used to throwing garbage into the canals, and a large amount of garbage will accumulate at the intersection of the canals.



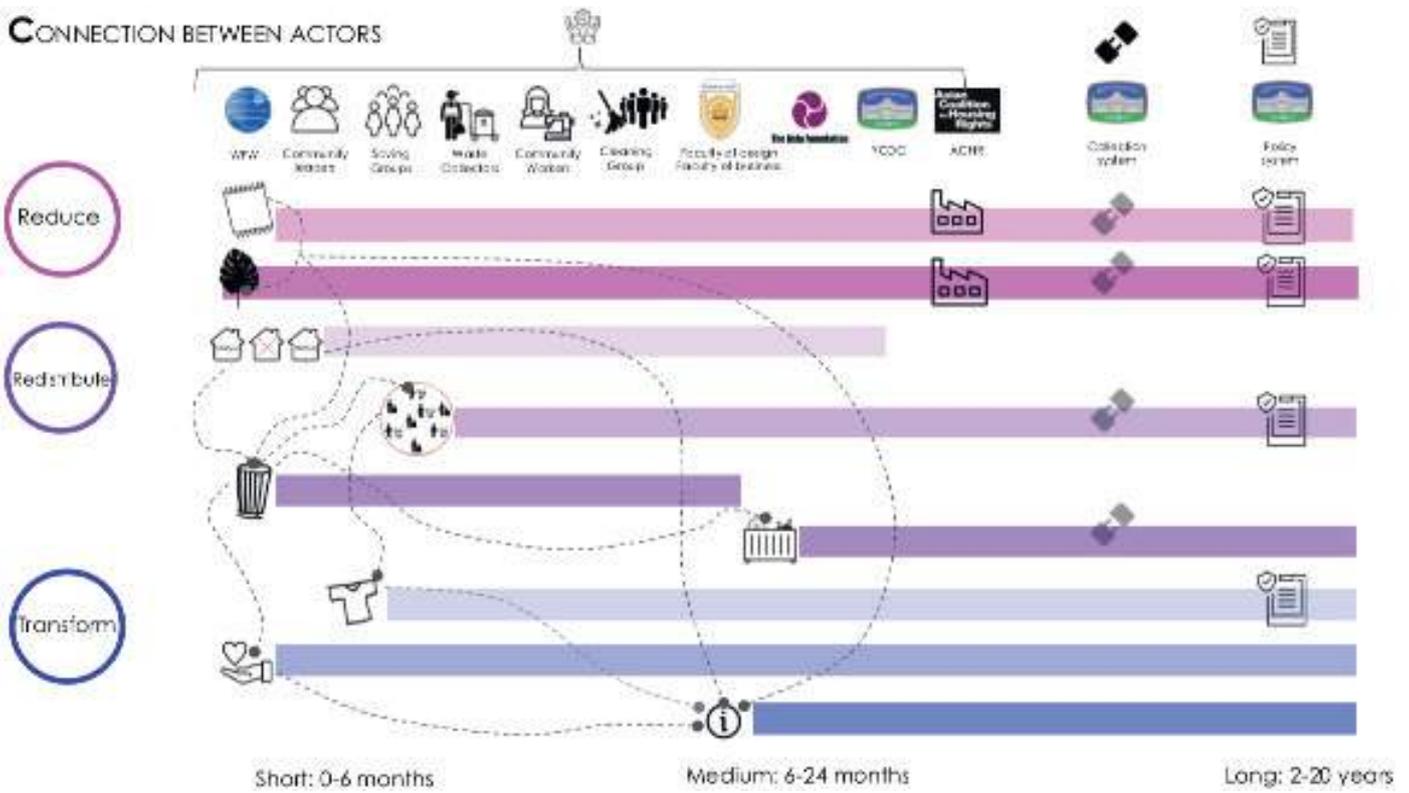
Transform **K**nowledge

The interventions on the ward level should be seen as a learning process. In which community and formal institutions can learn from each other how to connect and operate through the co-production of the city. In this sense, the experiences from the Ward 20 should be connected through a platform of networking between diverse wards and institutions to act as a catalyst for knowledge, practice and support that can be further connected with institutions outside of Yangon, such as ACHR, and experiences that exist in the Global South.

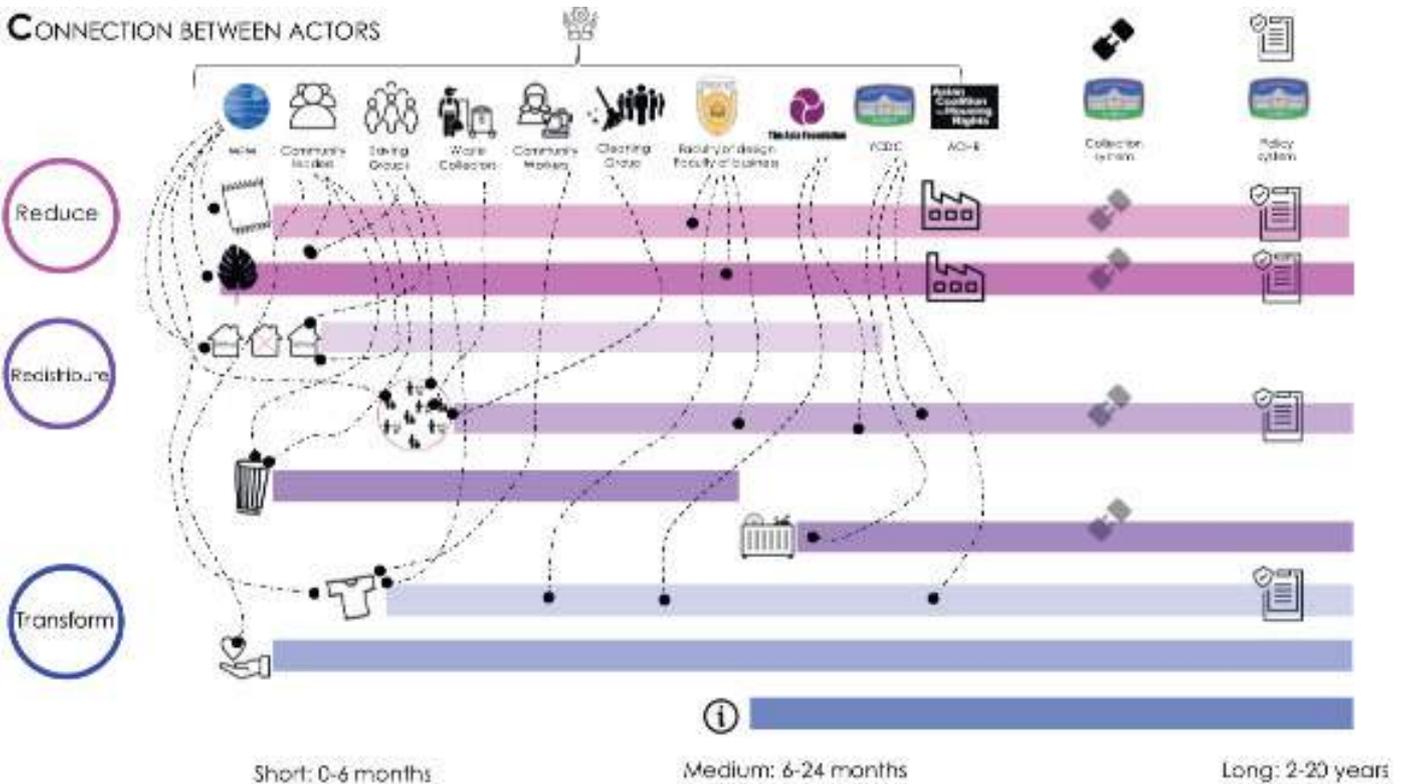


Sum-up C(P) + T + D

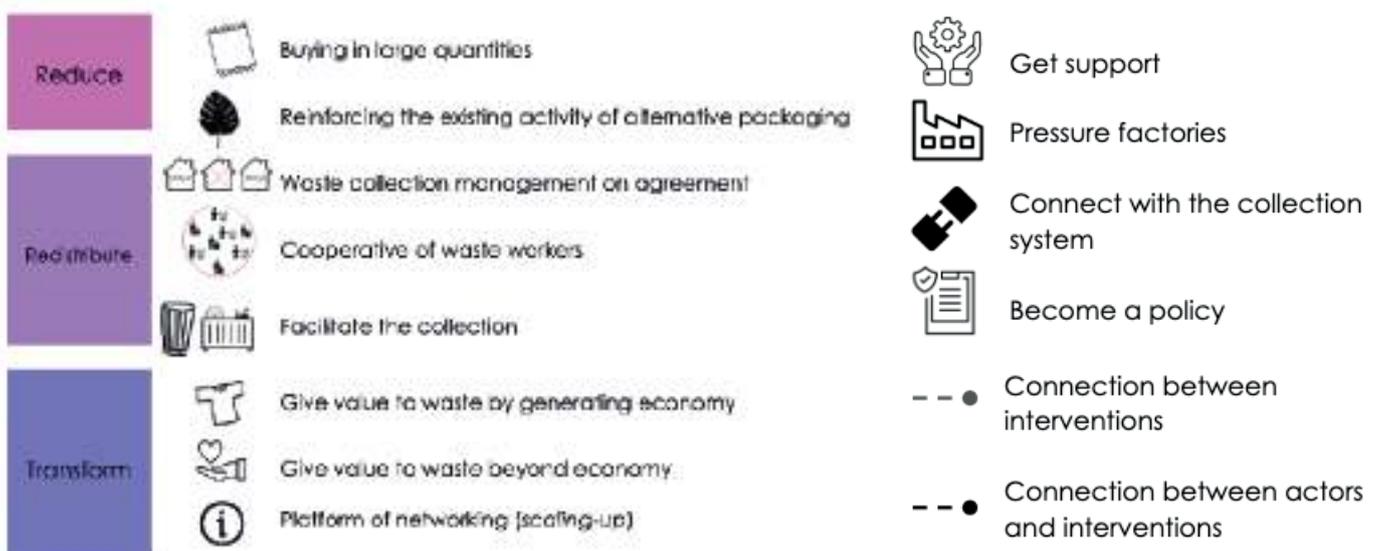
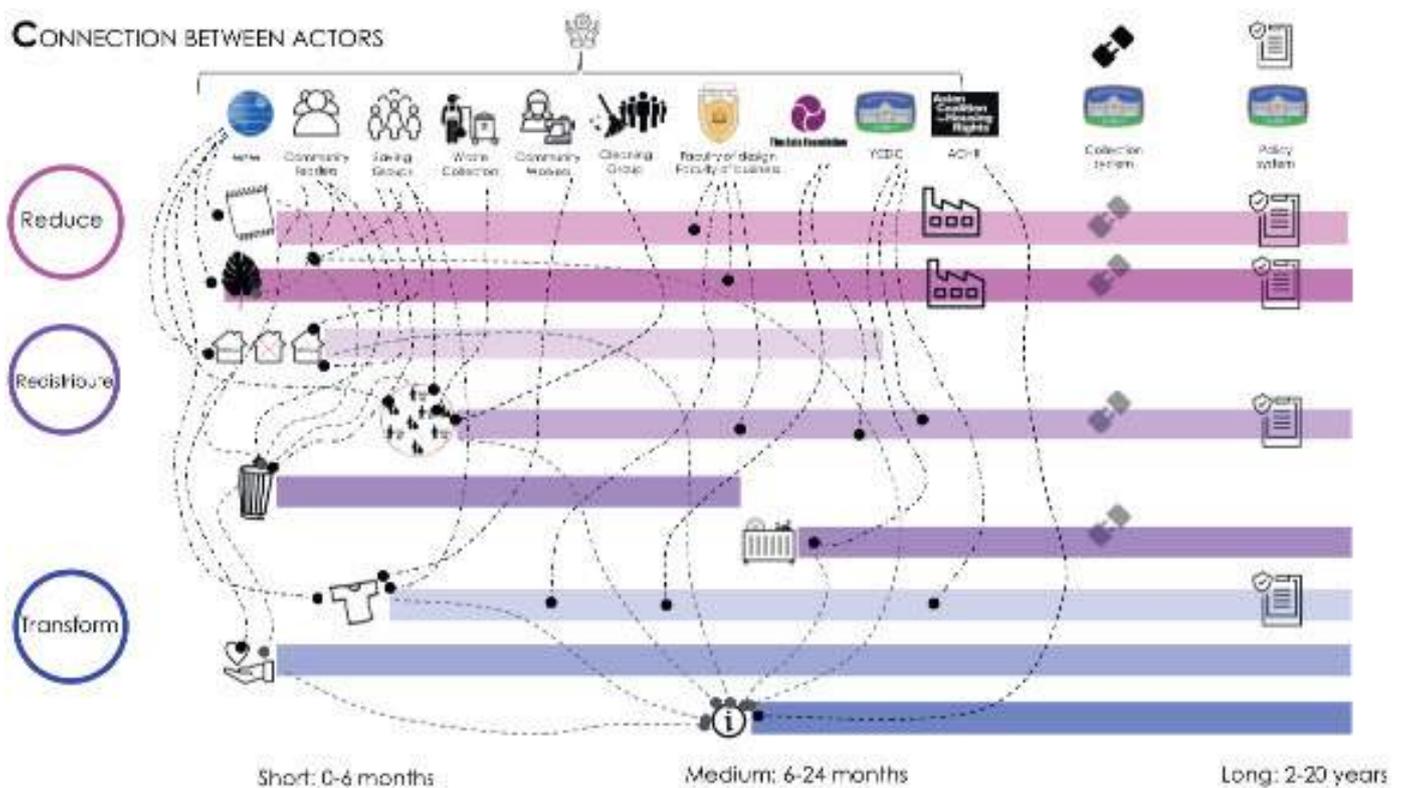
CONNECTION BETWEEN ACTORS



CONNECTION BETWEEN ACTORS



CONNECTION BETWEEN ACTORS



In the following graphics, we show how all interventions work and connect.

The first graph shows how interventions interconnect and how they occur over time. Some interventions can start quickly, others need a bit more elaboration to begin. Several responses are for an extended period and others for a short period. Also, a couple of interventions may be replaced by more elaborate forms in the future. Lastly, interventions are also planned to connect with institutions in the long term to become part of the mechanism of the city operation.

In the second graph, it is demonstrated how different actors can participate in the interventions over time.

Finally, the last graph shows how all interventions and actors connect over time.

Conclusions

This report is the result of a three-month research project, which included a two-week field study in Yangon, Myanmar. The research project aims to understand how urban design and city wide upgrading strategies can be harnessed to support socially just development in the context of a transitioning Yangon. Departing from the context of Yangon in a moment of transition, it therefore explores how can waste serve as an asset that supports community mobilisation and livelihoods? Furthermore, how can it be capitalised upon to promote inclusive development in the context of Yangon in the current transformative era?

This research project reconceives waste as an asset and as a practice of the everyday life, meaning that waste emerges as the cause and consequence of social, economic, and spatially-embedded actions. It argues that waste has the potential to support economic development and livelihoods, social mobilisation and cohesion, and the equitable production of space--thus serving as a tool that enables people to make a decent life in the city, which symbiotically rebuilds the city along new lines (Amin, 2014, p. 157).

This report presents principles, guidelines, and strategies that, recognise the practices on the ground and further support the functioning of the existing waste management processes in informal settlements. The findings presented in Part IV, in this sense, constitute a strategy in themselves, generating evidence that supports the recognition of the complex mobilisation and waste management procedures that take place on the ground. At a broader scale, the aim is to build on "grounded and speculative alternatives that can animate and stitch together a plethora of diverse and molecular experiments", including historically marginalised populations in processes of city making, and therefore shaping a truly transformational Yangon (Bahn, 2019).

Moreover, through the redefinition of the concept of waste and the waste management system, this proposal decolonises urban planning practice, pointing out the limitations in JICA plans of waste management (JICA, 2018) and the European Feasibility study (2012). It contends that urban planning should be grounded on the co-production of knowledge and that iterative and more flexible ways of city planning must be engaged, first to successfully provide necessary infrastructures and services to scale, but more importantly as a first step to achieve more just cities.

As illustrated through the strategies of this report, we are convinced a more human and political approach to city making, based on the premises of social justice, are both possible and necessary. As Somsook Boonyabanha said in Yangon, "we need to plan for people, with people in the centre". Cities are for people after all.

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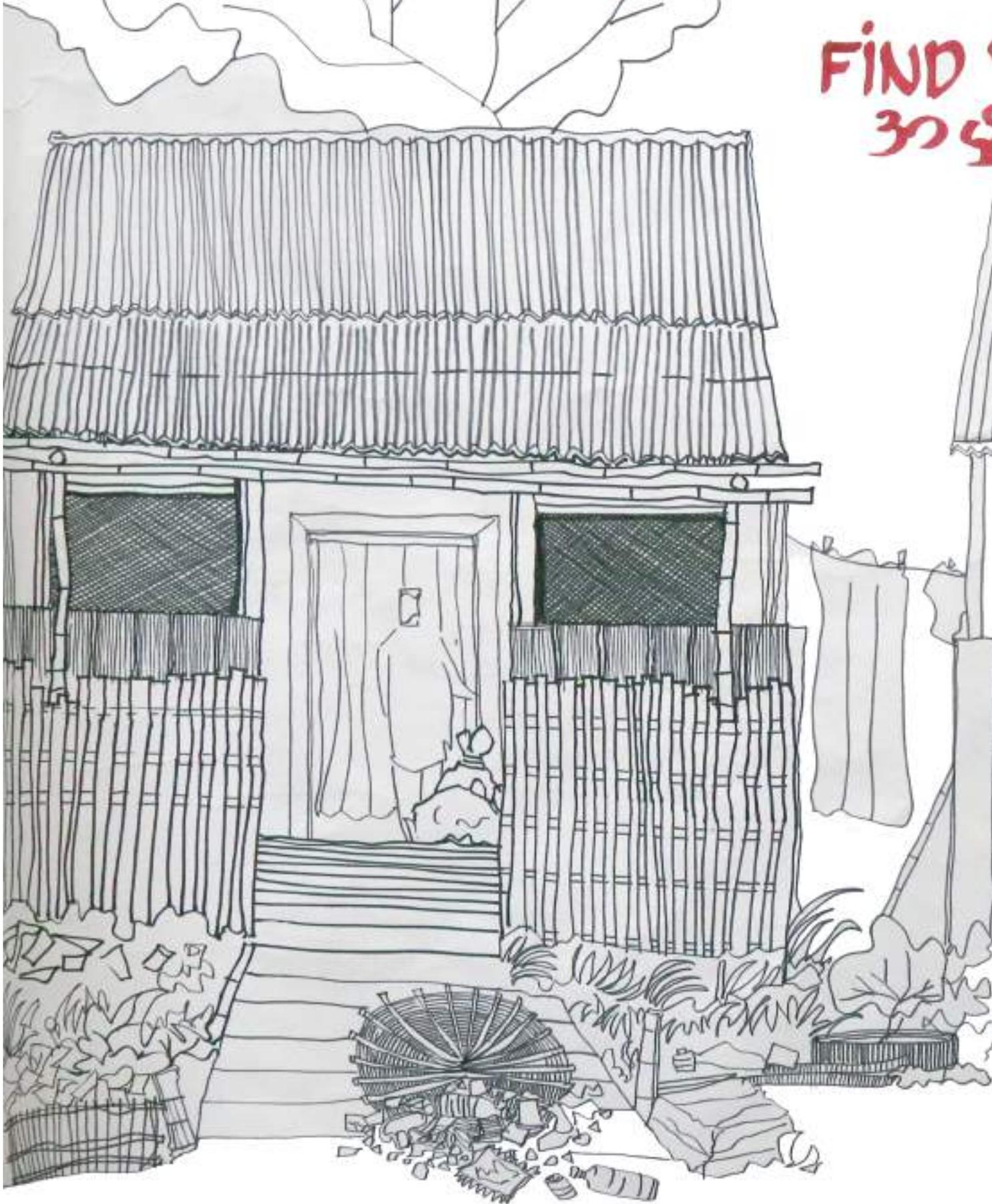
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A ppendix

P

PRODUCTION / ὀζοσ ηϋ

FIND
305



59



WAYS TO REDUCE PRODUCED WASTE

နည်းများ: ကိုယ့်အားချက်များ: လမ်း: များ:



NON-SELLABLE
ရောင်း၍မရ
သောအရာများ

LESSEN THE PRODUCTION / ထုတ်လုပ်မှုကို လျှော့ချခြင်း GIVE / GENERATE VALUE တန်ဖိုး: ဤအားဖြင့် ဖန်တီးခြင်း

PLASTIC BAGS + **PLASTIC CUPS** = + **RECYCLED BIN** +

PLASTIC
ပလတ်စတစ်

FACILITATE COLLECTION / LOCATE BIN NEXT TO SHOP
အချိန်များ: ခုဆောင်ခြင်း /
ဆိုင်ဆောင်ရာ၌ အချိန်ပိုများစေခြင်း

BINS FROM RECYCLED MATERIAL
မိမိတို့: မည်သည့်
မျှအားဖြင့် အချိန်ပိုများ
COLLECT & SHARE

=

ACCESSORIES
လျှော့ချခြင်း: အားပေးခြင်းများ

COLLECTION AND RECYCLING BY/THROUGH CHARITY

= +

ORGANIC
အားပေးခြင်း: အားပေးခြင်းများ
အားပေးခြင်း: အားပေးခြင်းများ

COMPOST / MANURE FOR AGRICULTURE + GARDENING
အားပေးခြင်း: အားပေးခြင်းများ

FEEDING PETS
အားပေးခြင်း: အားပေးခြင်းများ



TRASPOT

အမှိုက်သယ်ယူ



SOLID
အမှိုက်



TIME A
အချိန်



WASTE C
အမှိုက်စုတ်

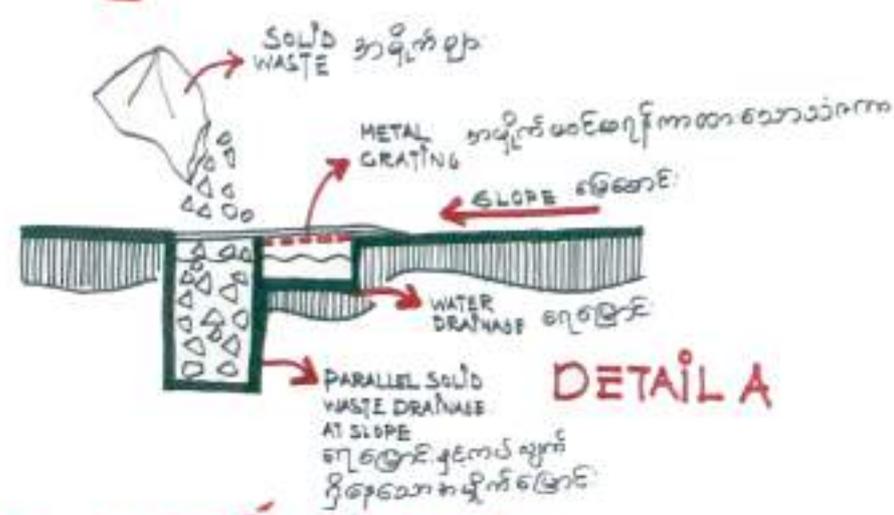


အ
CO
F

ပျော်စရာစားနပ်ရိက္ခာစနစ်

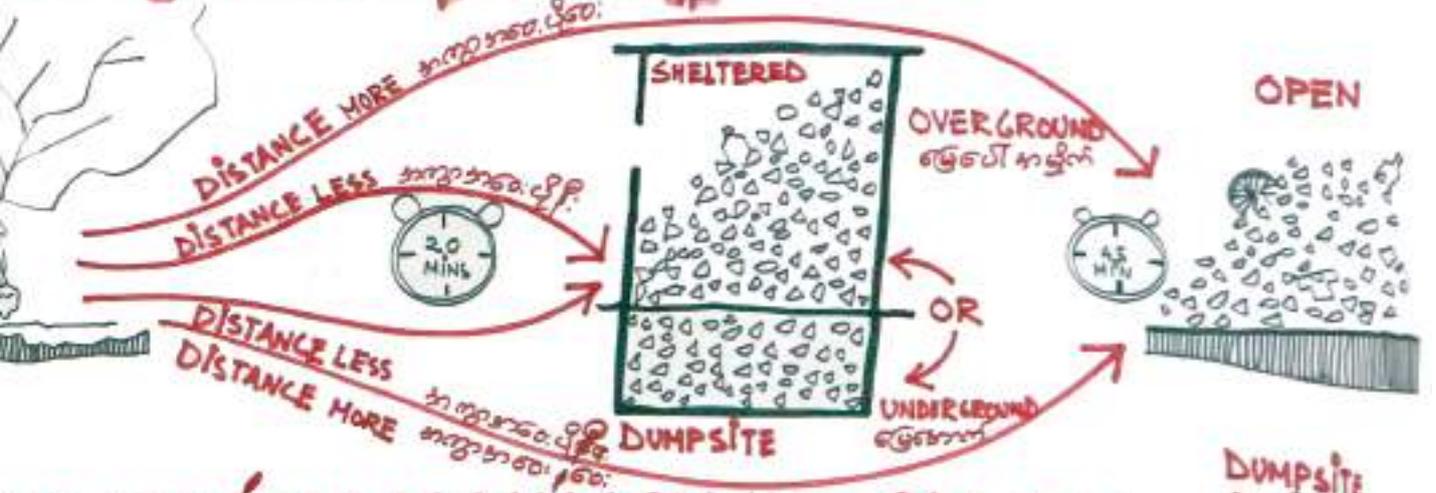
WASTE COLLECTION

ပျော်စရာစားနပ်ရိက္ခာစနစ်



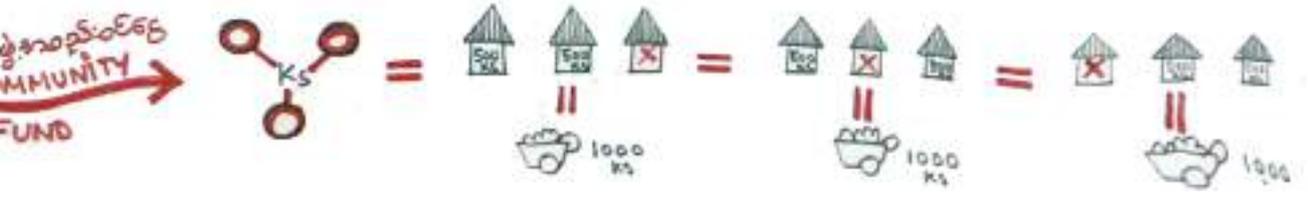
AND DISTANCE EFFICIENCY

အကွာအဝေး၊ ပျော်စရာစားနပ်ရိက္ခာစနစ်



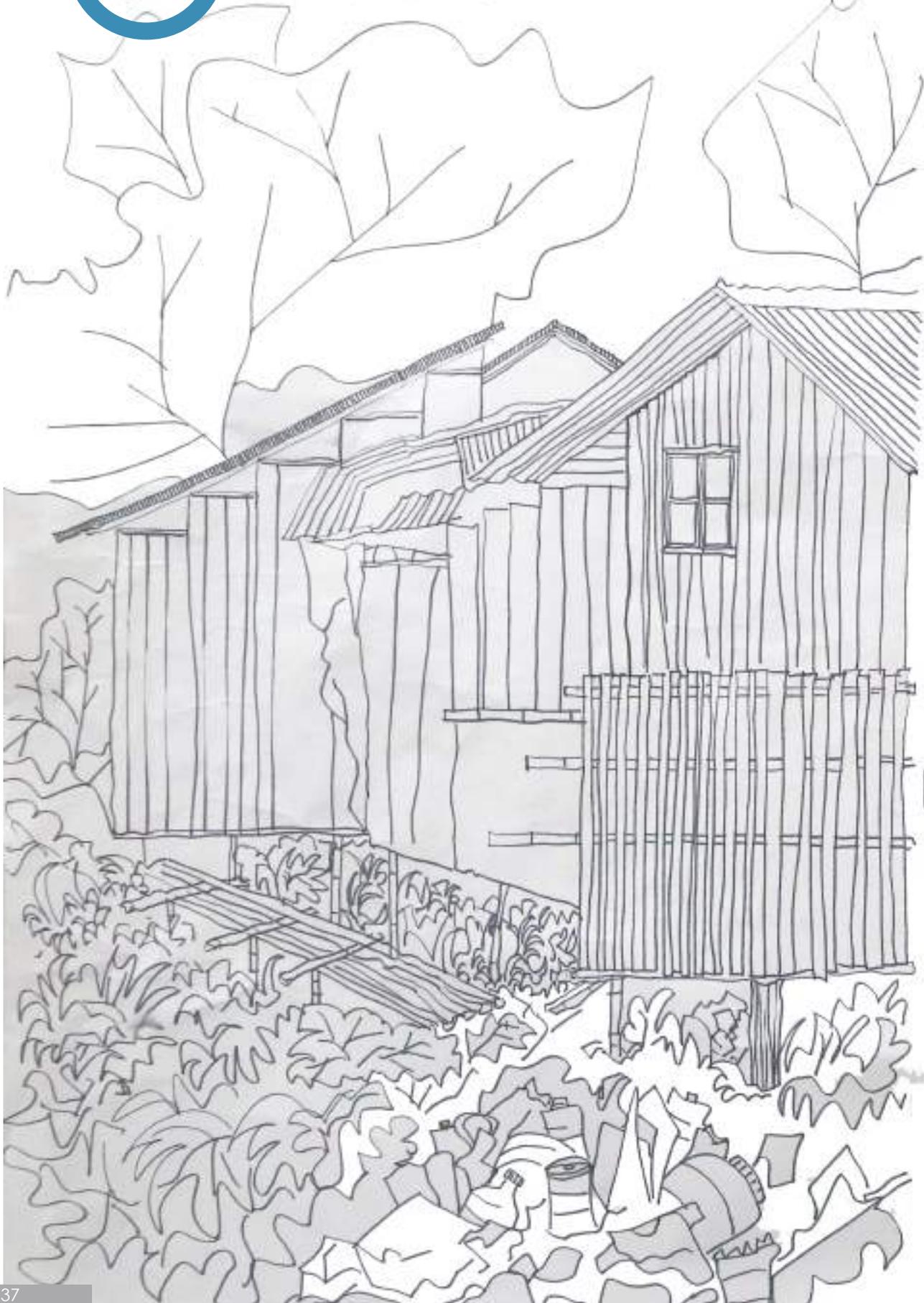
COLLECTION MANAGEMENT ON AGREEMENT

စောင့်ရှောက်မှုပေးပြီးမှ အမှိုက်စုဆောင်းခြင်း



D

DISPOSAL အမျိုးအစားများ



DUMP



OPEN
ပွင့်လှစ်

FACTORY



FACTORY
စက်ရုံ

DRAWING

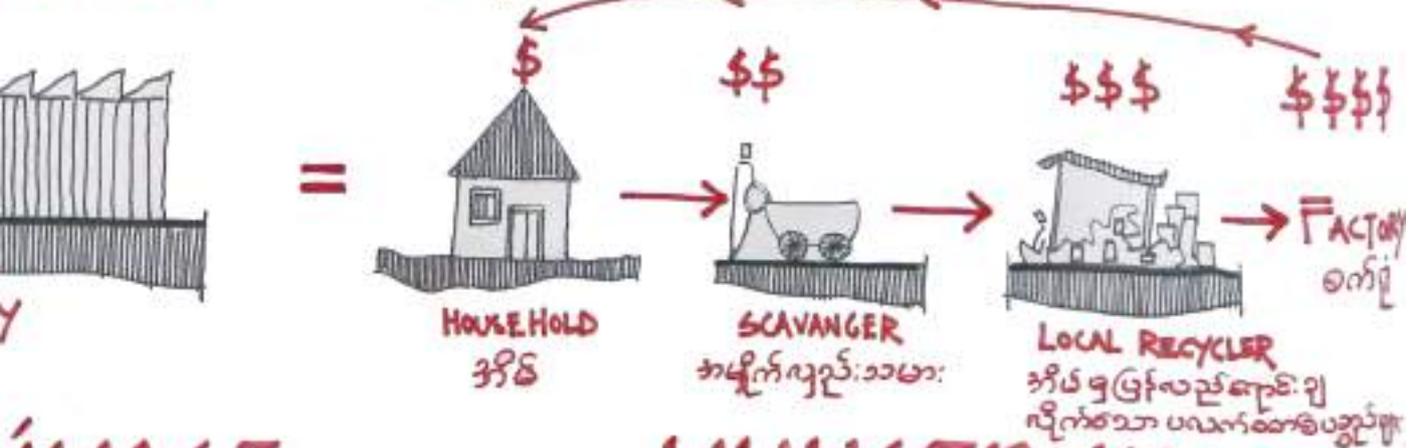
ဧည့်



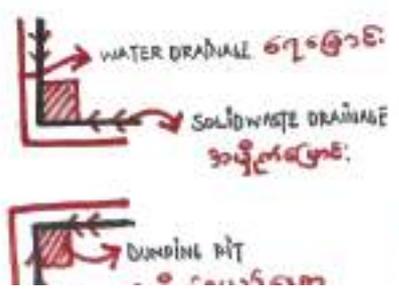
DUMPING SITES အမှိုက်ပုံများ



FACTORY စက်ရုံများ



DRAINAGE များ



UNUSED SPACES အသုံးမပြုသောနေရာများ

