TRAINING MANUAL

Design and implementation of urban projects for the provision of low cost land for housing

Dw

NCE
Namibian Chamber of Environment

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1 INTRODUCTION

This first draft of a training manual for the design and implementation of urban projects for the provision of low cost land for housing has been produced by Development Workshop Namibia during 2019. The manual aims to be a practical guide for local authorities and their partners regarding the appropriate design and successful implementation of low cost land and housing projects. The manual will also be used as a basis of seminars for students in the fields of geography and urban and regional development.

The lack of low cost land for housing is one of the most pressing development challenges in Namibia. It is also the main cause for the continued and rapid growth of informal settlements. As recent experiences of several local authorities in Namibia show, there are simple and practical ways to provide low cost land for housing, at scale, and with little costs to local authorities. What is needed most is local political will, a certain level of technical expertise, and strategic partnerships with private and non-governmental organisations (NGOs).

It is clear that the provision of sufficient land for housing alone will not solve all urban development challenges. Much else has to be done to break down the continued social and economic division in towns, promote local economic development, and ensure timely and appropriate investments into bulk infrastructure. Nevertheless, as long as informal settlements continue growing out of control, all these challenges are burdened with additional complexity.

The development of this manual was generously supported by the German Development Assistance (GIZ) and the Namibian Chamber of Environment (NCE). The component on sanitation has further been supported by the Global Environment Facility Small Grants Programme (GEF-SGP). The content of the manual will continuously develop in parallel with lessons learnt from work on the ground by DWN and the NCE. The content of this draft has been updated on 31 October 2019.

2 MODULE 1: URBANISATION – OPPORTUNITIES AND CHALLENGES

2.1 Urbanisation – a global phenomenon

Two notions of 'urbanisation':

1. Provision of 'urban' services to an area, including: street layout & paving; plot demarcation; infrastructure (water, electricity, etc.); and 'public' services - with a certain continuity and density;
2. A social & demographic process whereby the proportion of people living in urban areas grows, linked to the expansion of such urban areas.

Linked to the second definition of 'urbanisation' are the concepts of:

- Urbanisation rate: proportion of the population living in urban areas; and
- Urban growth rate: generally expressed as annual population percentage growth.

Demographic components of urbanisation:

- Population (year x+1) = population (year x) + births - deaths + net migration

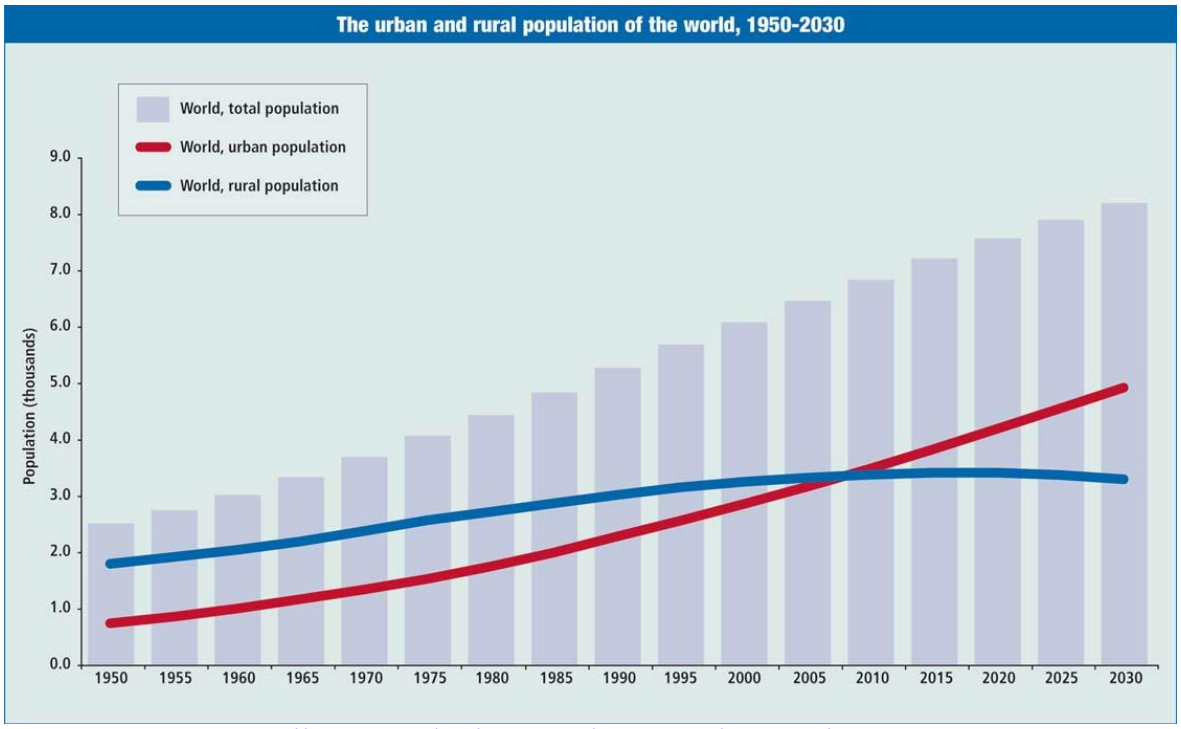
Causes of urbanisation: natural growth or migration?

- Complex issue: interaction between both, varies according to time and place
- Various reasons for rural-urban migration (economic, social, security), but generally linked to the perception of a city as a place of opportunity
- Lower fertility rates in urban areas than in rural areas, but significant contributors to urban population growth
- Higher fertility rates among migrants to city - complex relationship between migration and natural growth

Historical context for urbanisation and urban development

- Only 2% of the world population was urban in 1800 - around 50% in 2000
- Initially there was a strong link between urbanisation, industrialisation and demographic growth
- From pre-industrial to industrial city: demand for labour in concentrations of heavy industry; migration, urban expansion and demographic concentration; changes in social and economic structures; strong demand for services

- Continuing urbanisation and industrialisation: city growth becomes both consequence and cause of growth; mechanisation of industry, diminishing relative importance of agriculture and increase in tertiarisation of economic activity in urban areas



Source: United Nations, http://www.un.org/esa/population/publications/WUP2005/2005wup.htm, 2015

Summary: Urbanisation...

- is a demographic and social process whereby urban population as a proportion of the total population grows.
- combines natural population growth within cities with rural-urban migration.
- is driven by complex economic, social and political factors that depend on the time and place.
- is both an opportunity and a challenge: the opportunity lies in the link between urbanisation rate and income per capita levels; the challenge is urbanisation's link to growth in housing and infrastructure shortages.
- demands effective responses with a solid social base in the areas of land use control and planning, which make use of, and promote, the city's human and economic resources to the benefit of its inhabitants.

2.2 Urbanisation and urban development in sub-Saharan Africa

Historical context for urbanisation in sub-Saharan Africa

- Indigenous urbanisation: example of Nigeria - urban centres as centres for trade and administration
- European urbanisation in 1st imperial expansion: (e.g. in South Africa) trade, defence and administration of surrounding territory (not large colonies)
- Colonial urbanisation (West Africa): trade and administration/defence; indirect social and economic control - colonial and dual city

- Colonial urbanisation (East and Southern Africa): direct social and economic control; trade and administration/defence including mining areas - colonial and European city
- Recent urbanisation (except in South Africa): managed withdrawal of colonial powers and neo-colonialism in some cases; collapse of colonial power in others (Mozambique, Angola, Zimbabwe) - hybrid city
- Recent urbanisation (South Africa): Apartheid (1948-19894 and 'controlled urbanisation' - dual city
- Urbanisation always linked to general trends in dominant political economy, influenced by specific physical, political, economic, social and cultural context

Scale of urbanisation in sub-Saharan Africa

- Most recent challenge: globalisation of the world economy
- 1920 - 5% of the population (<7 million urban dwellers)
- 1930 - 6%; 1940 - 7%; 1950 - 10%; 1960 - 13% (36 million)
- 1970s - demographic shift with annual urban growth rates of 6-8%
- While in Latin America and Asia urban growth rates have passed their peak, they continue to be strong in sub-Saharan Africa (albeit with relatively small absolute numbers)
- In 2000 there were around 300 million people living in urban areas in Africa, i.e. 37% of the population (Asia 38%, Latin America 75%)
- Projections for 2020 estimate double the current urban population (588 million), i.e. 48%

Urban/rural population in the world and in Africa

Region	Urban population **2015**	Rural population **2015**	% urban **2015**	Urban population **2025**	Rural population **2025**	% urban **2025**
World	3,957 million	3,367 million	54.0%	4,705 million	3,377 million	58.2%
Africa	471 million	694 million	40.4%	658 million	809 million	44.9%

Source: adapted from: http://www.geohive.com/earth/pop_urban.aspx

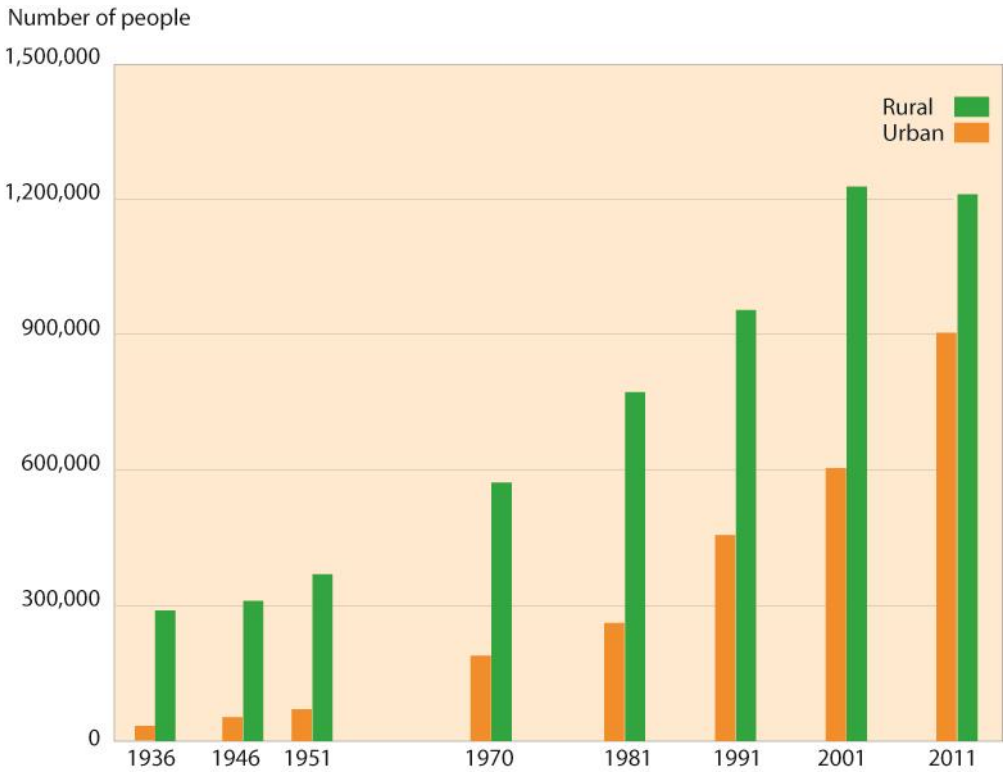
2.3 Urbanisation in Namibia[1]

2.3.1 Urbanisation rates

Urban and rural population growth in Namibia from 1991 to 2011

- Namibia's overall population grew from 1,409,915 in 1991 to 2,113,077 people in 2011
- The urban population almost tripled from 382,280 to 903,434 over that period, while the rural population only increased by about 220,000 people from 1991 to 2001, and then actually decreased by some 20,000 people from 2001 to 2011.
- National growth over the past two decades thus largely occurred in towns and cities.

[1] Most of the information in this module is from the DWN publication:
Weber, B. & Mendelsohn, J. (2017). *Informal settlements in Namibia: their nature and growth: Exploring ways to make Namibian urban development more socially just and inclusive.* Development Workshop Namibia, Windhoek, Namibia



Urban growth rates in Namibia

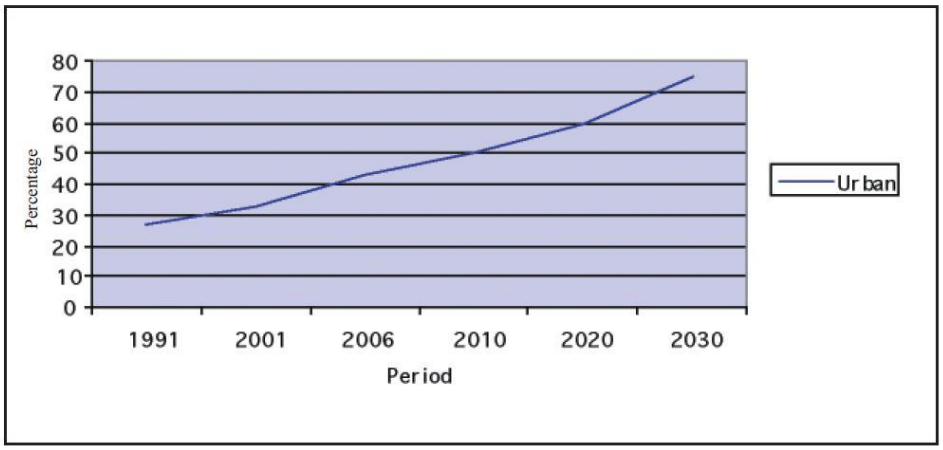
- Between 1991 and 2011, most Namibian towns experienced an annual growth rate of more than 4%.
- Some urban centres grew even faster, for example Oshakati at an average of 7% per year.
- By contrast, some towns in southern Namibia grew rather little.

The sizes and growth rates of selected towns using census figures from 1991, 2001 and 2011.

Town	1991	2001	2011	Annual growth rate 1991-2011	Total growth 1991-2011
Rundu	26,125	40,714	61,872	4.4%	137%
Oshakati	9,303	26,775	35,600	6.9%	283%
Katima Mulilo	12,599	23,786	28,200	4.1%	124%
Windhoek	141,562	227,543	322,300	4.2%	128%
Walvis Bay	21,249	42,015	61,300	5.4%	188%
Keetmanshoop	14,945	18,900	18,900	1.2%	26%
Gobabis	8,330	13,739	19,101	4.2%	129%
Outapi	2,351	3,373	6,727	5.4%	186%
Otjiwarongo	14,558	19,477	28,249	3.4%	94%

Projections of Vision 2030

- By 2030, an urbanisation rate of approximately 75%.
- In 1991, the urbanisation rate was 27%.
- Within 50 years, Namibia will have changed from a largely rural into a largely urban based society.



Source: Vision 2030, https://www.namfisa.com.na/wp-content/uploads/2017/10/Vision-2030.pdf

2.3.2 Rapid growth of informal settlements

Growth of brick/block houses and shacks

- From 1991 to 2011, the number of brick or block houses roughly doubled from 73,881 houses to 163,793. During the same period, the number of shacks multiplied more than seven times from 10,288 to 77,899 homes.
- The growth rate of shacks was therefore more than three times higher than that of formal brick or block houses.
- In 1991, 86% of all urban houses were made from bricks or blocks and only 12% were shacks, but by 2011 one third (32%) of all urban homes were shacks.
- The map in Figure 1 shows that informal settlements are across Namibia, even in the smallest towns.
- A survey in 2009 counted a total of 398 separate informal settlements in Namibia (Shack Dwellers Federation of Namibia (SDFN) 2009).

Year	1991	2001	2011
Brick or block	73,881	106,594	163,793
Shack	10,288	29,765	77,899
Other house	1,849	2,321	1,687
Total	**86,018**	**138,680**	**243,379**

Pie charts of the percentages and a table of the numbers of different house types in 1991, 2001 and 2011.

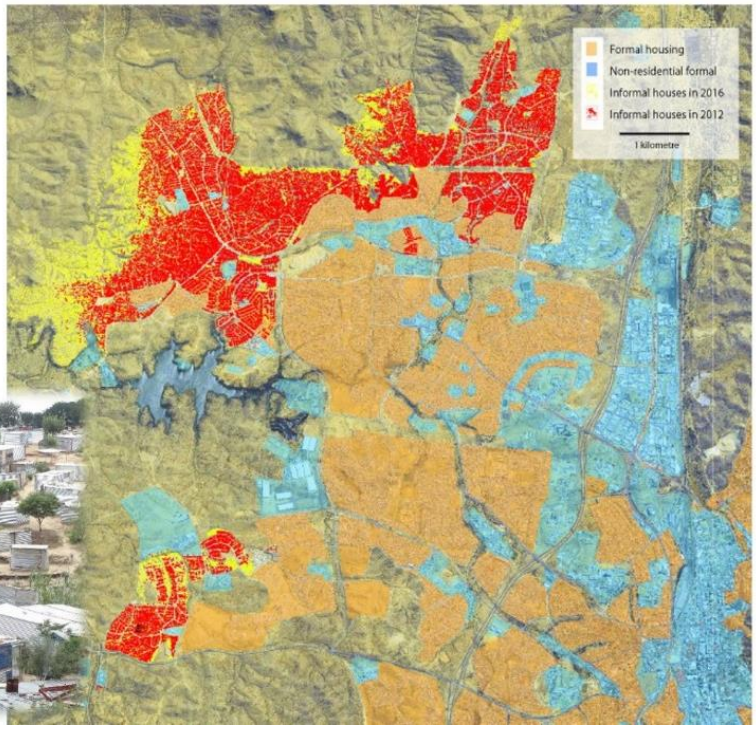
- Statistics provide a measure of the demand for housing and services.
- Families living in shacks are in need of formal housing and piped water, sewerage, waste removal and electricity services.
- In 2011 about 78,000 formal houses were needed to replace the urban shacks.

- In 2017 the demand rose to about 140,000 houses.
- The rate of annual growth in the number of urban shacks between 1991 and 2011 was 10.6%.

Growth of informal housing in Windhoek from 2012 to 2016:

Windhoek:

- **Shacks in 2012**
- **Shacks in 2016**
- >3 500 shacks per year



Urban growth in the future

<u>Current urban growth rate projections show:</u>

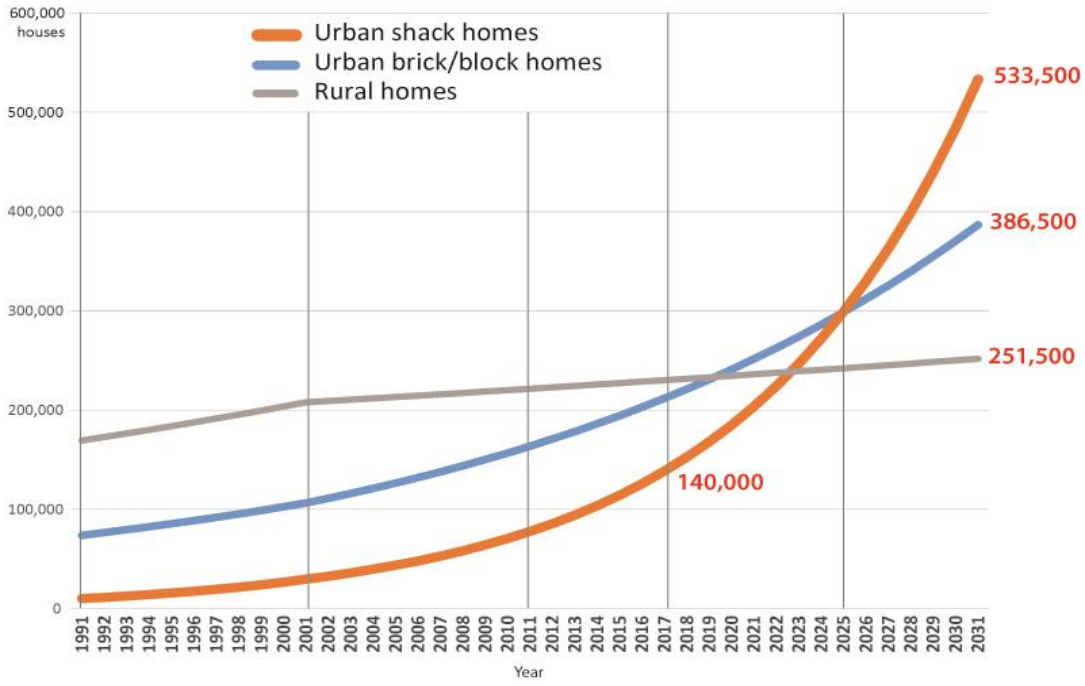
1. There are now (2019) about 160,000 urban shacks in Namibia, 10 times more than in 1991.
2. The number of urban shacks will outnumber formal urban brick/block houses by 2025, and it will outnumber all rural houses by 2023. The predominant form of housing in Namibia will then be urban shacks.
3. Namibia will have over half a million urban shacks 13 years from now in which about 2 million people will live. The number of urban homes in 2030 will be about 3.5 times more than all the rural homes.

Based on the 2001-2011 growth rates, the estimated numbers of formal brick houses and informal shacks from 2015 to 2017 are given in the following table:

Estimated number of formal and shack houses in 2015, 2016 and 2017

Year	**Formal housing units**	***No. of additional units/year***	**Informal housing units**	***No. of additional units/year***	**Total housing demand**
2015	194,447		114,393		
2016	202,983	*8,536*	125,947	*11,554*	**20,090**
2017	211,894	*8,911*	138,668	*12,721*	**21,632**

These figures indicate that of an estimated 21,632 urban homes built between 2016 and 2017, 12,712 (59%) were shacks and 8,911 (41%) were formal structures.



Different typologies of informal settlements

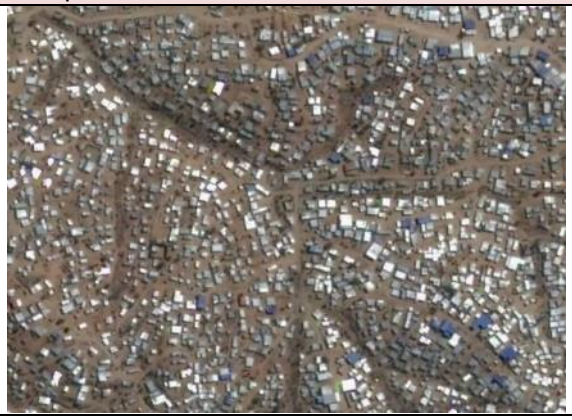
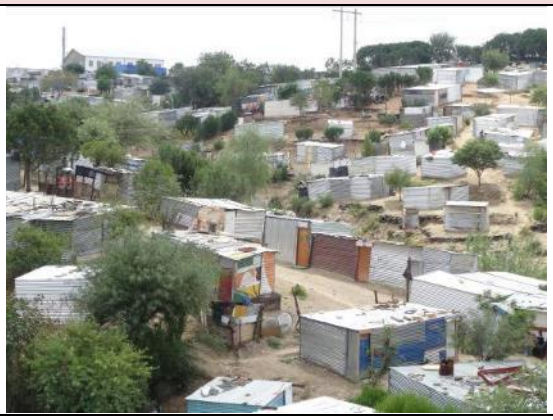
While most informal settlements have some common characteristics, many have details that differ significantly.

- Certain settlements consist of recently established collections of small corrugated iron shacks at the edge of towns. They have no services or roads, and risk demolition by local authorities because of their unauthorised presence.
- Other informal settlements, however, are well established, have planned road layouts, and are provided with electricity, water and sewerage. These settlements are recognised by local authorities, and erf occupants pay monthly rental fees or similar charges for their land and services. The only difference between such an informal settlement and a formal residential area is the fact that the settlement has never been formally proclaimed, and its residents don't have registered tenure.

Classification of informal settlements

1. Uncontrolled expansion area (sprawl);
2. Structured informal settlement; and
3. Unstructured informal settlement with high density.

1. Uncontrolled expansion area (sprawl)	Level of intervention required: medium
Example: north eastern expansion area in Epako, Gobabis	
	
Main characteristics: ▪ No services ▪ No organised physical structure ▪ Minimal supervision by local authorities ▪ Low, but rising population density ▪ Rapid expansion	Required interventions for upgrading: ▪ Implementation of an ordered physical structure, taking advantage of existing low densities ▪ Reservation of public space for future infrastructure ▪ Provision of services ▪ Settlement proclamation ▪ Provision of tenure security
2. Structured informal settlement	Level of intervention required: minimal to medium
Example: Uupindi informal settlement in Oshakati	
	
Main characteristics ▪ Basic services provided ▪ Some form of organised physical structure ▪ Supervised by local authorities ▪ Considerable percentage of permanent homes built with bricks and mortar ▪ Medium population density	Required interventions ▪ Settlement proclamation ▪ Provision of tenure security ▪ Continued upgrading through incremental service provision

3. Unstructured informal settlement with high density	Level of intervention required: very high
Example: Havana informal settlement in Windhoek	
	
Main characteristics ▪ Minimal services ▪ No organised physical structure ▪ Minimal supervision by local authorities ▪ High population density ▪ Continued densification	Required interventions: ▪ Re-blocking (physical restructuring of settlement based on a layout plan) ▪ Removal of some residents to new settlement areas (long and costly process) ▪ Reservation of public space for future infrastructure ▪ Provision of services ▪ Settlement proclamation ▪ Provision of tenure security

- The third category, unstructured high density informal settlements, is the most challenging, and requires substantial effort and costs if the settlements are to be transformed into formal ones.
- By contrast, uncontrolled expansion areas and structured informal settlements can be upgraded with relatively little effort. It is particularly important that basic structures and road layouts should be implemented early in uncontrolled expansion areas, thus avoiding uncontrolled densification that would lead towards Type 3 informal settlements.

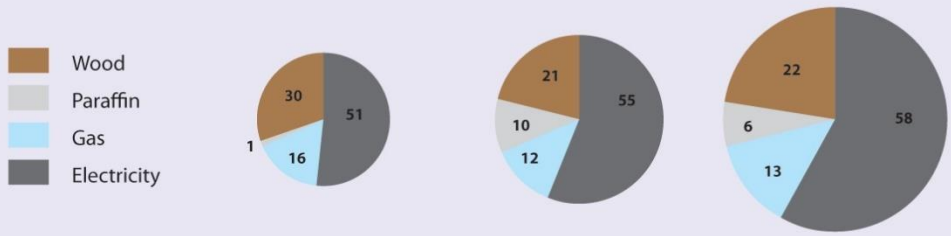
In addition to variation between the three types, additional diversity results from different development or upgrading efforts. For example:

- Some settlements with obvious signs of informality (such as the prevalence of shacks) have been provided with access roads and services, but have not been proclaimed as formal townships. Informal areas upgraded by the City of Windhoek are examples.
- Some settlements that have been proclaimed recently and are therefore no longer informal, still have characteristics of informal settlements (such as shack housing and the absence of services). Residents are in the process of purchasing their plots as a precondition to being permitted to build permanent homes. Some recently proclaimed extensions in Outapi are in this condition, for instance.

2.3.3 Urban Infrastructure and services

- Infrastructure and services strengthen the socio-economic development of a household.
- Electricity, water, sanitation and good transport facilitate the lives of household members, freeing up time for productive economic activities and reducing socio-economic vulnerability, as well as many preventable diseases.
- While investments have been made to service some urban poor in Namibia since independence, the investments have not kept pace with the rapid growth of informal settlements.
- Many settlements are therefore partially serviced, or not at all.

Cooking fuel (2011 census)



Year	1991	2001	2011
Electricity	44,245	76,905	141,354
Gas	14,146	17,078	31,803
Paraffin	1,079	14,305	15,219
Wood	25,816	28,589	54,226
Other fuel	732	1,803	777
Total	**86,018**	**138,680**	**243,379**

Pie charts of the percentages, and a table of the numbers of all urban households using different types of cooking fuel in 1991, 2001 and 2011.

Sanitation (2011 census)
The percentage of urban residents without toilets almost doubled from 13% in 1991 to 24% 2011.

Year	1991	2001	2011
No toilet	11,317	24,726	57,288
Pit or bucket	6,584	13,281	21,898
Private Flush	54,337	65,195	109,518
Shared Flush	13,094	34,302	53,458
Other toilet	686	1,176	1,217
Total	**86,018**	**138,680**	**243,370**

Pie charts of the percentages, and a table of the numbers of all urban households using different types of sanitation in 1991, 2001 and 2011

- The ensuing lack of hygiene has considerable negative impacts on the safety and health of people in informal settlements, as well as on people elsewhere in towns, for example:
- Women face safety risks when obliged to use the bush at night.
- Faeces on open ground are the cause of many diseases, especially for children.
- In Windhoek, diarrhoea is the third-most common cause for hospital attendance, and the second-highest cause of paediatric admissions.
- This is a strong indicator of the profound negative impact of these sanitary circumstances on informal settlement residents, adding an additional burden to the already poor and vulnerable.

2.3.4 Housing materials

The great majority of houses in urban areas are constructed of either bricks or blocks (formal structures) or corrugated iron (informal structures).

- Corrugated iron is cheap.[2] A simple shack can be erected within a day or so, and in case the shack has to be moved, the same material can be used to erect a new structure in a different location.
- Local authorities also tolerate corrugated iron in informal settlements, where the use of permanent construction materials for houses is often prohibited.
- However, many shack residents have the means to build with bricks if they were allowed to do so.
- Incomes vary in informal settlements: a considerable number has formal employment, many are engaged in the informal economic sector.
- Most shack owners could invest in permanent housing structures, at least incrementally and over time.
- Residents of informal settlements in neighbouring countries with generally lower income levels than Namibia normally build much more with permanent building materials.
- Similar conditions are true in certain Namibian towns, where residents may build with bricks in some informal settlements, sometimes to such an extent that housing with permanent building materials is the dominant type of housing.

	
Shack houses in Havana, Windhoek	House in Uupindi informal settlement in Oshakati

[2] The materials for the construction of a small 3 x 3 metre shack with a door and one window may cost up to N$7,000. Some people add insulation, for example by applying wooden panels along the inside of the walls.

2.3.5 Tenure security

In Namibia, houses erected in unproclaimed settlements are not eligible for freehold titles and do not have formal tenure security over the land on which they are built.

This has many drawbacks since land tenure security is fundamentally important for:

1. Socio-economic household development in terms of generating wealth

- Tenure security provides a means to secure investments made into a property, and to generate wealth over generations.
- Investment in property is also one of the most effective ways of building up savings, especially for the poor that often lack other methods of savings available to the better-off.
- For poor people, such savings are especially important to reduce socio-economic vulnerability, and to provide an economic springboard for future generations.
- Compelling evidence from across the world indicates that the poor are able and willing to create savings through their properties – if only they are provided with the opportunity to do so.
- The absence of tenure security therefore denies the poor of their most important investment opportunities, limiting economic development options, and maintaining current vulnerability and poverty.
- Children from homes that have been denied investments in land are at a competitive disadvantage compared with those in the formal parts of towns that inherit legally recognised, and therefore valuable, property.

2. Serving as collateral for commercial loans

- Namibia's well-functioning banking sector often requires property as collateral security for loans, thus the lack of a registered property makes it much more difficult for the poor to access credit to further their economic development.
- This again puts – and keeps – the poor at a competitive disadvantage compared with people in formal urban areas where property owners benefit from registered tenure security.

3. Providing protection against eviction

- Despite investments made into shacks, there always remains the risk of eviction and the loss of these modest assets.
- The uncertainty of being evicted can put immense additional pressure on households, and could also make informal property owners reluctant to invest in improving their living conditions.

4. Regulating the transfer of rights

- Tenure security facilitates and regulates the transfer of land rights, thus helping to protect the vulnerable from abuse by the more powerful, for example.
- By regulating the sale and inheritance of land, conflicts are avoided, and the weaker, more vulnerable people are protected – such as women, children, and the poor.

2.3.6 Lack of planned physical structure

Many informal settlements have irregular physical layouts that are not formally planned.
The lack of organised and planned physical structures creates various disadvantages for informal settlement residents, for example:

1. Laying out and providing services to unstructured informal settlements are difficult. Infrastructure such as water pipes, electricity grids and sewerage systems are usually laid

along roads, without which the installation of infrastructure becomes challenging, indeed often impossible.

2. Unstructured and unplanned settlements cannot be legally proclaimed under current planning legislation and policy, effectively condemning them to permanent informal status without tenure rights for their residents.
3. Once an unstructured informal settlement densifies, restructuring and upgrading becomes costly, since it usually involves resettling residents to provide space for the laying out of roads and erven.

Summary of implications of a lack of tenure security and planned settlement structure

No structure	1. Limited options to legalise settlement 2. No secure tenure 3. Limited provision of services and infrastructure 4. Limited overall development options for the settlement 5. Development is costly; it requires the shifting of people and may incur considerable political costs
No tenure	1. No investment or wealth generation options 2. Limited access to credit 3. Risk of eviction 4. Limited protection for the transfer of land rights

- The physical structure of an informal settlement therefore has a major influence on its development.
- If there is a basic road layout and space available for public services (such as schools and clinics), the settlement can be proclaimed by regular administrative procedures and upgraded with the installation of services and infrastructure.
- However, if a settlement suffers from both minimal structure and a high population density, development is effectively blocked unless considerable resources are invested to physically reorder the homes and other structures.
- Physically ordered informal settlements thus have great advantages, increasing the chances for residents to obtain secure tenure, services and all the associated benefits outlined above.
- Many local authorities are well aware of these facts, and have used limited local resources to ensure that new, growing informal settlements have basic road layouts that allow for proclamation and the eventual installation of basic services and infrastructure.

2.3.7 Environmental challenges

Informal settlements create (or are associated with) various environmental problems, most of which stem from inadequate services, infrastructure and planned physical structure. Three challenges are of particular concern in Namibia:

1. Removal of vegetation and deforestation at the periphery of informal settlements

- Large areas of natural woodland have been steadily cleared, mainly by residents in informal settlements who are too poor to use other fuels for cooking and heating.
- Areas thus degraded expand over the years, as a result of increasing demands for wood and because firewood is only available beyond zones that have already been cleared.
- The clearing sometimes leads to increased soil erosion, mainly by water flowing along paths trodden by people harvesting wood. Interestingly, the production and sale of charcoal to low income urban residents have not developed in Namibia, unlike in most central African countries.

2. Open solid waste and pollution of water resources

- Local authorities sometimes lack the resources or inclination to collect solid waste systematically and regularly.
- The problem may be severe in informal settlements where waste collection and removal services are often absent.
- The accumulated waste is unsightly, and is a source of disease and pollution, especially when heavy rains wash away rubbish. Faecal material that accumulates in river beds, under bridges and in shrubby areas is likewise a source of disease.
- In 2011, a total of 16,344 homes in Windhoek used the bush for their toilet requirements.
- Extrapolations using growth rates between the 2001 and 2011 censuses indicate that there should now be about 30,000 Windhoek homes faced with the same daily problem.
- With about 4 people in each home, the volume of excrement generated by the 30,000 families each day is colossal.
- Water in Windhoek's Goreangab Dam is badly contaminated by domestic and human waste, much of the pollution coming from surrounding informal settlements.

3. Flooding

- The towns located in the Etosha-Cuvelai Basin (such as Outapi, Oshakati, Ongwediva, Ondangwa and Oshikango) are prone to flooding.
- Space on higher ground above the reach of floods is limited and fully allocated to formal urban uses. Informal settlements have therefore expanded in drainage lines *(iishana)* and other lowlands that are periodically flooded.
- These settlements suffered severe damage in 2008, 2009 and 2011.

2.3.8 Formal and informal land and housing markets

Formal land and housing market

The following table provides an overview of the formal lower and middle income land and housing categories:

Income levels	Product	Cost range	Observations	Availability	Provided by	Financing options
	LAND					
Very low and low	Partially or not serviced erven in non-proclaimed areas, but legalised by local authorities	Free of charge, with monthly rental fees to the local authority	Distribution based on waiting lists; employees even with low salaries often do not qualify as erven are earmarked for the lowest income bracket	Very low	Local authorities	n/a
Very low to lower middle	Minimally serviced erven in non-proclaimed areas, but legalised by local authorities	N$10,000 – N$20,000	Only few local authorities (i.e. Outapi, Ruacana) provide such erven; DWN will provide such erven in Oshakati from 2018 onwards, also in Karibib and Okahao	Very low	Local authorities, Development Workshop Namibia (DWN)	Cash
Middle to upper	Fully serviced erven with gravel roads	N$50,000 – N$80,000	Mostly in lesser developed/smaller towns	Low	Developer	Cash; Home loan/developer financing if home construction is included
Middle to upper	Fully serviced erven with tar roads	N$100,000 – N$300,000	Erf prices vary from town to town	Low	Developer	
	Houses (Basic house excluding erf price)					
Middle to upper	One bedroom	N$170,000 – N$250,000	House prices on average N$5,000-N$6,000/square meter; price depending on construction details, floor area, location, developer's profit margin	Reasonable	Developer	Home loan / developer financing services
	Two bedrooms	N$240,000 – N$300,000				
	Basic three bedrooms	N$280,000 – N$400,000				

Informal land and housing markets

Access to residential land and housing in informal settlements is normally not regulated by law or official procedures. The land and housing market is therefore also informal, in contrast to the formal market in the 'formal' parts of Namibia's towns. The market consists of two segments: the land market, and the housing market.

a. The land market

Residents get access to land in a variety of ways, many of which characterise informality:

- *Illegal occupation:* A resident simply occupies a piece of land without any authority. This occurs commonly at the margins of informal settlements, and results in unstructured urban sprawl. People living on land occupied in this fashion are frequently targeted for eviction by local authorities.
- *Purchase:* A resident purchases a piece of land from a land occupant or 'owner' who has some sort of ownership claim over the area. Research conducted in 2009 indicated that amounts up to N$3,500 were then paid for informal residential plots (Mooya 2009). Some evidence suggests that some informal plots may be sold for prices as high as N$45,000,[3] and informal plots in peri-urban areas are sold for between N$10,000 and N$75,000.[4]
- *Allocation by community leader:* Some residents state that the land where they have built their shack was allocated to them by a local community leader.
- *Rent of erf:* Informal plots are rented with lease fees paid to either the plot 'owner' or the local authority. The occupant pays a rental fee for the land, but puts up her/his own shack dwelling.
- *Allocation by local authority:* Some informal land is allocated by local authorities. The informal market is then at the interface with the formal market, with the expectation of the informal land being formalised at some stage.
- *Allocation by family:* In many cases new family members put up back-yard shacks on plots that belong to their parents or other family members. Some residents report that this form of land acquisition is often practised to avoid being seen to occupy vacant land illegally. This may be one of the most important factors contributing to the continuing densification of informal settlements.

b. The housing market

- *Renting:* Prices for rent vary, depending on the town, shack location and shack size. Some are as low as N$100 – N$400 per month, while a shack near a main road with its own electricity, water and sanitation systems may rent for N$2,000, for instance.[5] Rental agreements between tenant and land lord are usually verbal, but often in the presence of witnesses. Anecdotal evidence suggests that the erection and rental of shacks is an established business practice, their land lords often living in the formal parts of town.
- *Shack purchase/sale:* Shacks are sold and purchased in informal settlements, with prices varying according to town, location, size and quality of the construction. According to some residents, prices may range between N$4,000 and N$10,000. Most sales agreements seem to be verbal.
- *Self-construction:* Many residents that acquire informal land build their own shacks. The costs vary according to size and quality. A one-bedroom shack may cost as little as N$1,500 for the materials and N$1,500 for labour.[6] Bigger dwellings, with more bedrooms, concrete floors, windows, doors and some insulation may cost N$7,000 or more.[7]

[3] For example, according to a sales advertisement on Facebook on 16 May 2017

[4] Mendelsohn & Nghitevelekwa (2017).

[5] The increasing cost of living in a shack (New Era, 20 May 2016) https://www.newera.com.na/2016/05/20/increasing-cost-living-shack/

[6] The increasing cost of living in a shack (New Era, 20 May 2016) https://www.newera.com.na/2016/05/20/increasing-cost-living-shack/

[7] According to cost assessments done in the context of this research at a construction material retailer in Windhoek.

2.4 Conclusions, challenges and opportunities

The book on informal settlement growth in Namibia mentioned earlier (Weber & Mendelsohn 2017), produced some key recommendations.

The challenges related to existing informal settlements and their continued rapid growth in Namibia are enormous. However, compared with many other countries in southern Africa, Namibia's informal settlements are relatively small, with considerable local institutional and technical capacity to manage the challenges effectively.

All possible proactive steps should be taken to avoid establishing settlements that fit the first scenario: disorganised, unstructured and dense shanties of corrugated iron shacks. Conversely, steps taken towards creating the second scenario are to be encouraged: ordered settlements where low income residents own their land, can build permanent homes and look forward to the incremental provision of services. These steps require proactive planning of informal settlements *before* people settle there. Perhaps law and policy will one day encourage development of the latter kind.

The key recommendations are the following:

Recommendation 1: Focus on the provision of land, not housing
To address the housing crisis of Namibia's low income urban residents, the focus should shift from the provision of housing towards the provision of affordable land. The construction of houses should be left to the residents, allowing them to build at their own pace, with a minimum of obstacles and a maximum of encouragement.

Recommendation 2: Gain control over informal settlement expansion
Gaining control over informal settlement growth should be a priority for any town in Namibia. This requires a supply of properly planned and affordable low cost land. In the absence of considerable government subsidies, the only way to keep costs of erven low is to minimise services, which can then be bought and upgraded over time.

Recommendation 3: Support innovative, proactive and pragmatic approaches of local authorities
Local authorities are the key actors that manage urban development in their areas of jurisdiction. They normally identify local challenges long before anyone else, and they are often the first to produce innovative and pragmatic solutions. These local initiatives and answers should be supported by government, NGOs and the private sector. Specific support should also be provided to help local authorities:[8]

- Manage the complex, and often lengthy, township proclamation process.
- Manage projects to provide low cost land or upgrade existing informal settlements.[9]
- Promote aspects of social inclusion, economic efficiency and environmental sustainability.

Recommendation 4: Accelerate the provision of tenure in structured or upgraded informal settlements
Many informal settlements are ready to be proclaimed, having planned physical structures and demarcated erven, for instance. Without any additional funds the settlements could be proclaimed by removing administrative obstacles that stem from current policy. A national inventory of

[8] Much support can come from town planning consultants, many of whom would be willing to provide pro bono services to local authorities, especially authorities that are proactive and pragmatic. Partnerships with non-profit organisations could also provide vital support to local authorities.
[9] The management of planning consultants, land surveyors, environmental impact assessments (EIAs), the selection and registry of new erf owners, and maintaining control over newly developed areas often pushes the capacities of local authorities to the limit.

settlements that are ready for proclamation should be compiled, and their proclamation fast-tracked by the Ministry of Urban and Rural Development (MURD).

Recommendation 5: Attracting private sector investment
The provision of low cost urban land can be done on a cost recovery basis, therefore facilitating private sector involvement, while safeguarding real benefits for local authorities. Land can be supplied with minimal use of public funds by government, as is the case with the development of middle and upper income housing.

Recommendation 6: International donor funding and Corporate Social Responsibility (CSR) support for upgrading projects
Many dense and unstructured informal settlements cannot be upgraded without significant resources. Scarce public funds should be assigned to such areas, and used to leverage additional funding from international donor organisations and CSR funds from the Namibian private sector.

Recommendation 7: Turning rapid urbanisation and the creation of new townships into an economic opportunity for Namibia
The development of Namibia's rapidly growing towns should be guided by principles of social inclusion, economic efficiency and environmental sustainability. Planning provides opportunities to create new townships that are conducive to the economic and social needs of its residents, the town and the nation. Migrants from impoverished rural areas need homes that provide them with self-esteem services, security and long-term outlooks to be economically productive. The integration of low income residents into the formal land market can also increase public funds from rates and taxes for the betterment of all.

3 MODULE 2: SUSTAINABLE DEVELOPMENT & URBAN PLANNING

3.1 Sustainable development

The concept of sustainable development

- The concept of sustainable development has its origins in an increased concern about environmental protection during the 1970s.
- Two especially important events triggered this interest:
    - The Club of Rome report, 'Limits to Growth', raised a number of critical questions concerning the then dominant development model of economic growth, arguing that new production techniques must take into account environmental concerns in order to avoid resource depletion.
    - The United Nations (UN) Conference on Human Environment held in Stockholm that resulted in the creation of the United Nations Environmental Programme (UNEP), also serving as a triggering event for a series of trendsetting studies and strategy papers regarding environment and development.
- End of the 1980s: the Brundtland Commission's report 'Our Common Future' reinforced the emphasis to consider the relationship between social, economic and environmental aspects of development (WCED 1987). For describing this approach to development, the term 'sustainable development' became increasingly used during this period.

Sustainable development = development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

The following important events are worth mentioning:

- In 1992, a UN conference on sustainable development was held in Rio de Janeiro in Brazil, usually referred to as the 'Rio Earth Summit'.
- The Manifesto for Sustainable Development, known as Agenda 21. It is a comprehensive plan of action to be taken globally, nationally and locally by organisations of the United Nations system, governments, and major groups in every area in which human beings impact on the environment.

Today: sustainable development goals

Summary of sustainable development goals

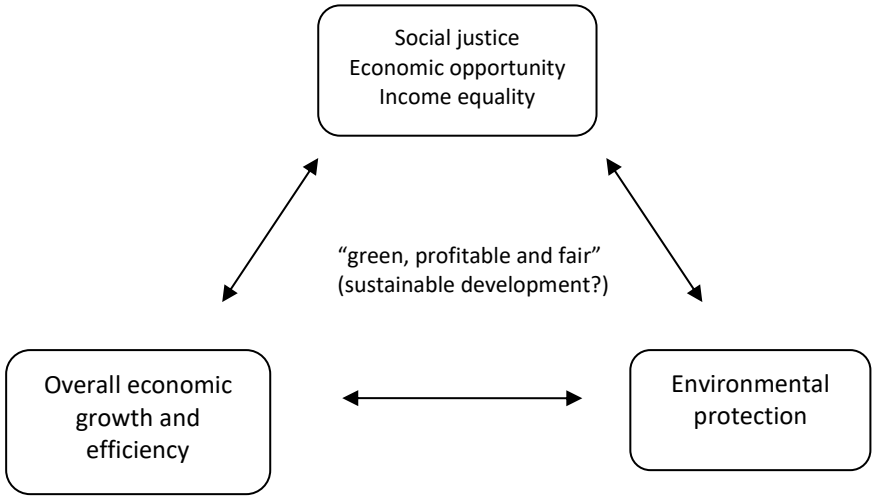
1	**No poverty**	End extreme poverty in all forms by 2030.
2	**Zero hunger**	End hunger, achieve food security and improved nutrition and promote sustainable agriculture.
3	**Good health and wellbeing**	Ensure healthy lives and promote well-being for all at all ages. Ensure that everyone has health coverage and access to safe and effective medicines and vaccines.
4	**Quality education**	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
5	**Gender equality**	Achieve gender equality and empower all women and girls. Ensure that there is an end to discrimination against women and girls everywhere.
6	**Clean water and sanitation**	Ensure availability and sustainable management of water and sanitation for all. Everyone on earth should have access to safe and affordable drinking water.
7	**Affordable and clean energy**	Ensure access to affordable, reliable, sustainable and modern energy for all. We can become more energy efficient and invest in clean energy sources such as solar and wind.

8	**Decent work and economic growth**	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
9	**Industry innovation and infrastructure**	Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster Innovation.
10	**Reduced inequality**	Reduce inequality within and among countries.
11	**Sustainable cities and communities**	Make cities and human settlements inclusive, safe, resilient and sustainable. To make cities sustainable for all, we can create good, affordable public housing. We can upgrade slum settlements. We can invest in public transport, create green spaces, and get a broader range of people involved in urban planning decisions.
12	**Responsible consumption and production**	Ensure sustainable consumption and production patterns. We can consume in a way that preserves our natural resources so that our children can enjoy them, and their children and their children after that.
13	**Climate action**	Take urgent action to combat climate change and its impacts.
14	**Life below water**	Conserve and sustainably use the oceans, seas and marine resources for sustainable development.
15	**Life on land**	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.
16	**Peace, justice and strong institutions**	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.
17	**Partnership for the goals**	Strengthen the means of implementation and revitalise the global partnership for sustainable development.

Source: https://www.un.org/sustainabledevelopment/sustainable-development-goals/

Triangle of sustainable development

Sustainable development goals are often allocated into three broad categories: Social, economic and environmental:



Social justice and equality

- Social justice
- Economic opportunity
- Income equality
- Provision of services among different social groups
- Levels of social inclusion and exclusion respectively
- Characteristics of informal settlements
- Levels of participation in governance

Overall economic growth and efficiency

- Ease to register and operate private businesses
- Levels of tenure security
- Provision of infrastructure for businesses and industries
- Efficiency of the transport system
- Labour skills and education/vocational system
- Housing and workers' efficiency

Environmental protection

- Groundwater quality monitoring and protection
- Control over deforestation
- Protection against floods
- Solid waste removal
- Sanitation

Institutional strength

- Levels of collection of rates and taxes
- General financial management
- Maintenance of infrastructure and services
- Levels of economic and physical planning
- Levels of participation in different governance processes (e.g. budget allocation, town planning, settlement upgrading, service implementation and maintenance)

Negotiating needs and interests

- These different components are often competing!
- Components are being negotiated in planning processes by different stakeholders
- Trade-offs are unavoidable
- Important: any town needs a long-term vision and underlying principles that inform such negotiation

Group exercise and presentation to the plenary:

Exercise: What are the main challenges and opportunities for more sustainable urban development in Namibia?

- ➢ Use the three categories of the sustainability triangle to make your case

3.2 Components of urban planning

3.2.1 Concepts of urban planning

Land as a resource

- Land is a resource – it can be used for production, housing, or other purposes.
- One characteristic of urban land is the large number of people that need access to it. Therefore, this situation makes urban land a resource with high demand and little availability.
- Ways must exist to guarantee access and use of urban land, depending on the needs of the residents.
- Therefore, there must be mechanisms that manage access to land, as well as planning and managing its use.

Main characteristics of urban planning

- It is part of urban governance – an activity that tries to reconcile different needs and expectations of different actors in the urban environment.
- It is an activity with a political content – it distributes resources and has an ideological dimension.
- It is oriented towards the future – strategies are developed to achieve desired future situations, but it has to be based on current realities and include activities to make the desired future achievable.
- 'Modern' urban planning was developed as a public sector activity, but today has developed into a collaborative effort involving civil society as well as the private sector.

A very brief history of urban planning

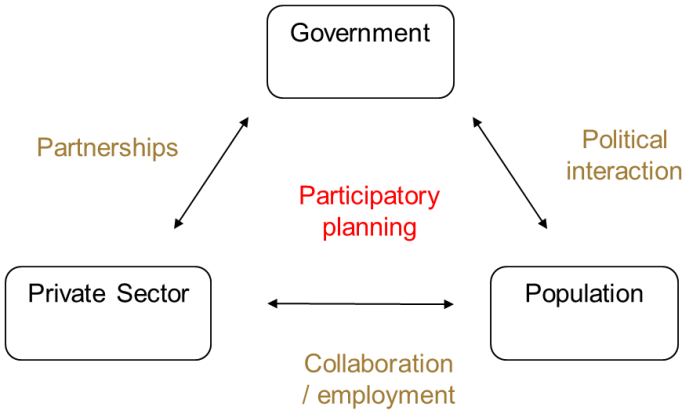
- Classical traditions – The first urban civilisations in different parts of the world developed criteria and mechanisms to construct organised and ordered towns (e.g. Greek, Roman).
- Industrial revolution (1800-1900) – Rapid urbanisation and lack of infrastructure forced local governments in industrialising countries to change laws and adjust practices to provide acceptable housing and sanitation.
- Institutionalisation of planning – 'Rational Planning' became an established activity of the state – rational in the sense of focus on physical structure and rational analysis of economic and social issues. Ministries for Planning were created, as well as urban planning legislation. The state planned and constructed housing and infrastructure. In most countries, this planning approach was supported by rapid economic growth and modernisation.
- From rational planning to systems planning (1960s and 1970s) – The limits of rational planning became evident. Cities were too complex, rather seen as socio-economic systems. Planning became a cycle: plan-implement-evaluate-plan.
- Increased participation (1980s and 1990s) – the failure of many planning projects led to the involvement of private sector and civil society. Public participation and public-private partnerships became the norm.
- Innovative planning in rapidly urbanising countries – In many countries in Asia, Latin America and Africa, planning models which have been developed in Europe and North America have failed. New planning approaches developed in different countries, taking into account rapidly growing informal settlements, for example.

Planning and sustainable development

- Innovative planning in rapidly urbanising countries and increased participation can facilitate sustainable development approaches.
- Objectives of sustainable urban development are often conflicting and need to be negotiated.

- Different segments of the population have different needs; they all need to be represented (e.g. business community, low income residents, churches).

3.2.2 Participation in planning



Different actors may have different responsibilities

- Central Government: define national policy, legislation, development of financing mechanisms, national strategies
- Regional/provincial governments: define regional and metropolitan strategies, develop regulations, develop programmes, develop regional level strategic plans
- Local government: participate in the definition of national policy, legislation and programmes; implement national programmes at local level; prepare local plans; create mechanisms for participation
- Private sector: participate in the definition of national policy, legislation and programmes; participate in financial mechanisms, including investments
- Non-government institutions: participate in the definition of national policy, legislation and programmes; promote sector specific interests (e.g. poor, women, children); channel funding to planning and development initiatives
- Public in general: participate in development of local planning processes and implementation of projects; participate in the development of local and regional policy and programmes

Participation can take place on the level of strategic planning, as well as development of local and detailed plans.

3.2.3 Long term planning (structure & master plans)

Master plans

- The are some of the most common long term planning instruments.
- The main objective of master plans is to guide the development of a town during a period of 10 or 20 years, for example.

- They are important mechanisms to translate government policy into special practice.
- They includes land use zoning.
- Master plans are periodically adjusted.

But:

- The usefulness of master plans is often questioned in the context of rapidly growing towns.
- Master plans are more useful for slow growing towns.
- The focus is more on the end product ('how it should be'), rather than on 'how to get there'.

Therefore, alternative long-term planning models are often used.

City Development Strategy (CDS)

- A collective strategy of different stakeholders in a specific town
- Serves as a basis of economic development and includes specific analyses such as institutional and financial plans
- Is for time periods of 10-15 years
- It is a participatory process, including the key stakeholders in a specific town

Strategic spatial planning

- In many regions in Europe, this form of planning has substituted master plans.
- It takes into account that cities change rapidly, and out of control of local authorities.
- The main objective is to increase the competitiveness of towns in a regional and global context.
- It is about creating a common vision among different actors in a town.
- It has an emphasis on infrastructure investments which is a key aspect for the spatial development of a town.

Basic urban plan / urban grid

- Simplified urban planning document
- Outlines the development of a town for 10-15 years
- Reference document for future investments
- Focus on road layout, drainage, infrastructure reserves, environmental risk areas
- Urban grid: focus on road layout in areas that are under risk of rapid unplanned sprawl (e.g. informal settlements)
- Advantages:
    - Rapid plan development
    - Low costs
    - Participatory
    - Effective to prevent informal settlement sprawl

3.2.4 Structure plans and town planning schemes in Namibia

Structure plans

- Less regulatory and control oriented; more flexible and future oriented than a town planning scheme
- Not a statutory document like a town planning scheme
- Not required by law, hence it can be prepared, amended and cancelled by the local authority

Purpose of a structure plan

- Provides guidelines for the future development of a town
- Establishes a framework for consistent and rational decision making
- Embodies Council policies and indicates the desired direction of development as defined by these policies
- Should be accessible to all inhabitants

Town planning scheme

- Document containing a comprehensive policy statement and serving as a framework and foundation for future development and land use patterns
- A statutory document enforceable by law
- Compiled for local authorities in terms of the Town Planning Ordinance 18 of 1954 in order to coordinate development
- Contains provisions such as zoning, height of buildings, building lines, primary uses, etc. on each property within the town
- When a town planning scheme is developed, the relevant local authority and the community members are consulted and the proposal is presented to the community for comments within a review process and such a scheme becomes a public legal document

- The Namibian legislation defines the 'Town Planning Scheme' as the main planning instrument to regulate urban land use
- The term 'Town Planning Scheme' is derived from early English town planning legislation and entails the notion that town planning is concerned with two main activities:
    - the preparation of a master plan for future development
    - zoning laws

3.2.5 Urban design – an introduction

To be developed.

4 Module 3: Services – options, costs and financing mechanisms

4.1 Water

4.1.1 Responsibilities

In most Namibian towns, NamWater is responsible to provide bulk water to a specific town. Bulk water is then often stored in a ground reservoir, and can be pumped to a NamWater elevated reservoir.

Upon leaving the NamWater elevated reservoir, the water passes through water meters that count the amount of water that goes into the town´s reticulation system (the network of pipes). The town then has to pay NamWater according to the meter readings. On their side, the town must make sure that the billing of the end users is enough to pay NamWater. If the end user billing is not fully implemented, the town enters into debt with NamWater or has to use other funds.

The extension and maintenance of the reticulation system are also responsibilities of the town, as well as the instalment of additional groundwater tanks and elevated reservoirs across town. Such infrastructure can be paid either by the town directly through government or other subsidies, or be outsourced to developers and costs integrated into erf prices.

Leaking reticulation systems and inefficient client billing are two of the main reasons why towns get into debt with NamWater.

Rundu owes NamWater N$60 million

SOME areas at Rundu were left without water for five days after NamWater discontinued the water service due to the town defaulting in payments towards a service debt.

The town's chief executive officer, Fransiska Thikerete, confirmed to *The Namibian* today that the town owes NamWater N$60 million, and that they have an agreement with the parastatal to pay N$1 million a month towards the N$60 million debt.
NamWater spokesperson Johannes Shigwedha said a payment was made yesterday afternoon at 12h00, and the residents had water again. “Rundu is trying its best. A payment was made, and the water is running again,” Shigwedha told *The Namibian*. He added that they do make provision that schools and hospitals have water before they discontinue the town's water service either because they have defaulted, or the units have run out.
The town makes use of a prepaid water service. According to the chief executive, the town uses water worth around N$600 000 every week, which amounts to about N$3 million per month. Thikerete told *The Namibian* that she understands from colleagues that the water service being discontinued was as a result of the council owing N$4 million towards the serviced debt. “A payment of N$1 million was made to NamWater this afternoon,” the chief executive confirmed.
Kasera Timoteus (32) from the Ndama settlement said that there has been no water since Sunday until today. He said it is not the first time that the water service has been discontinued. “We are really tired. They never tell us that the water is going, it just goes. It is really difficult,” Timoteus said. Another Rundu resident, who declined to be named, said they do not understand why the water service is always disconnected if they as residents pay the bills on time. “It's like we are living in a Third World country now. People are going to the river for water, imagine. They don't even explain what is going on. We need to know,” the resident said
The Namibian, 15.02.18
https://www.namibian.com.na/174466/archive-read/Rundu-owes-NamWater-N$60-million

4.1.2 Assessing demand

Assessing future water demand
Future water demand is one of the key issues in water supply planning; therefore demographic and service information is required: This includes

- the current population;
- the number of households;
- the number of residential consumer units;
- the incomes related to these consumer units;
- the number and type of non-residential consumer units;
- current levels of water service;
- current consumption; and
- the demand for services, in terms of willingness to pay for the services desired.

Information required for appropriate projections:

- Population growth;
- Economic growth;
- Growth in number of consumer units;
- Level of service provided to residential consumer units;
- Changes in income levels of residential consumer units;
- Changes in consumption per consumer unit; and
- Weather patterns and climate.

Factors to consider:

- Water supply: Quality; distance; quantity (expected consumption after upgrading)
- Sanitation facilities: Toilets, disposal systems; hand washing; disease transmission

4.1.3 Water reticulation

Water supply options
Selection of water supply terminals
Water supply terminals are divided into public (communal) and private installations:

- Public or communal installations are those installations to which the public and the community have access.
- Private installations are those that render water to individual households.

The selection of terminals for a community depends on a number of factors, the most important being

- affordability of the system (by agency/users);
- selected method of cost recovery;
- unit cost to end-user; and
- long-term maintenance requirements.

Public/communal water supply

- These systems normally comprise a source or consumer terminal where water is collected in containers or buckets.
- Walking distance in low density areas is up to 250 metres.
- In densely populated areas the walking distance is 100m (±two minutes).
- One tap is required per 25-50 dwellings.

- The maximum number of people served per water point is 300.
- The maximum number of people served per tap is 150.
- The maximum walking distance from a dwelling to a standpipe is 200 m.
- An acceptable discharge capacity from a standpipe is about 10 litre per minute per tap.

4.1.4 Cost summary

Approximate costs[10]

Item	N$
Household connection in layout with 300 m^2 plots (approximate overall cost per erf, including all cost for reticulation without bulk)	6,000 – 9,000
Water meter	900
Fire hydrant	8,200
House connection – single	2,200
House connection – double	2,700
900 m^3 ground storage panel tank	2,300,000
Pump station (incl. civil, mechanical and electrical works) including backup pump	287,500
100 m^3 elevated reservoir	1,150,000
1 kilometre Class 9 uPVC 160 mm pipeline (bulk feed)	414,000
1 metre Class 9 uPVC 160 mm pipeline (bulk feed)	414
Increase for rocky terrain	Additional 30% on construction costs

4.2 Sewerage and sanitation[11]

4.2.1 Sanitation units, contextual variables and scale

Sanitation units

- Sanitation units are at the core of a sanitation system.
- Typical sanitation units are communal flush toilets, dry toilet systems, or different pit latrine models.

The most important variables for good sanitary units are:

1. Technical design and functionality
2. Quality of construction
3. Affordability

[10] These costs are averages taken from the Bill of Quantities produced by Knight Piesold Engineers and Lithon Consulting Engineers in the context of the DWN/NCE programme for the provision of low cost land for housing.

[11] The bulk of this chapter is from the DWN report:
Development Workshop Namibia (DWN) 2018. *Report on work in progress - Project: Developing and testing low cost sanitation solutions for Namibia's informal settlements*. Development Workshop Namibia, Windhoek, Namibia http://dw-namibia.org/wp-content/uploads/2018/11/Report-on-work-in-progress-low-cost-sanitation-solutions-DWN-12Nov18.pdf

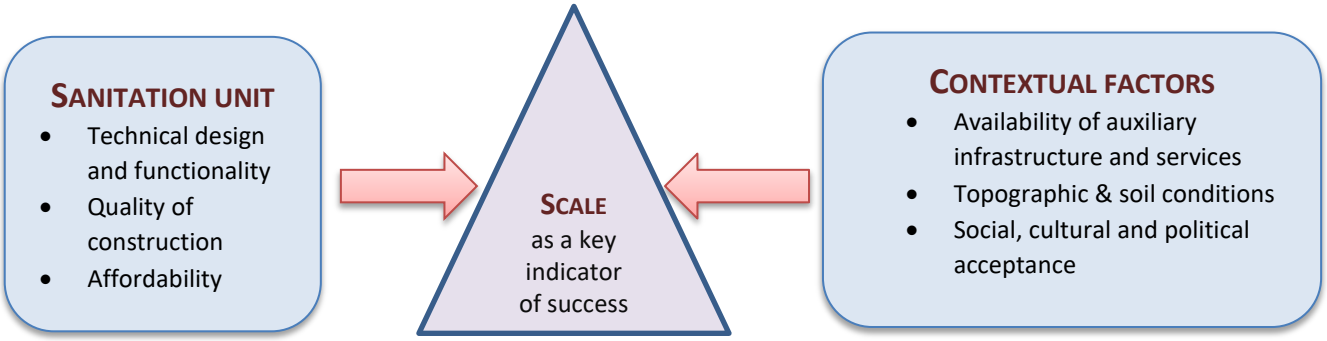
Contextual factors

While the functionality and quality of a sanitation unit is fundamental for the well-functioning of the system, contextual factors are of equal importance, as for example:

1. Availability of auxiliary infrastructure and services that allow the sanitation unit to function
    - *For example the reliable provision of water without which a flush toilet system cannot work;*
2. Topographic and soil conditions that influence the construction of the systems and risk of environmental pollution
    - *For example when rocky surfaces make excavation for pits or conservancy tanks difficult and expensive; and*
3. Social, cultural and political values and behaviour that determine the implementation of specific sanitation systems
    - *For example the refusal to allow the construction of dry toilet systems by some local authorities*

Measuring success

Good sanitation systems gain value as they become available to more and more people. The scale of a sanitation programme, therefore, is a key indicator to measure the success of a programme.



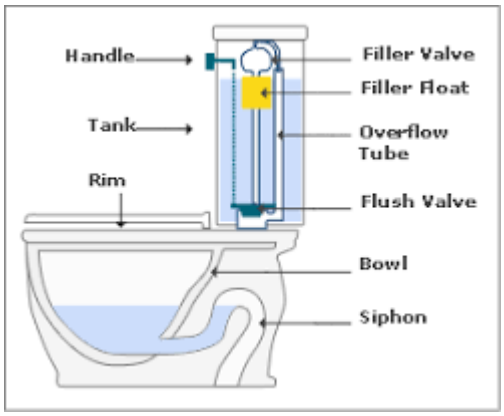
4.2.2 Categories of sanitation systems

- Sanitation systems can be grouped into three broad categories.
- The models of sanitation systems within those categories can vary considerably, depending on the specifications of the different system components.

Category	Model variations
1. Waterborne sewage (Flush toilets / pour flush toilets)	▪ Private or communal flush toilets ▪ Linked to sewerage reticulation system, conservancy tank or septic tank ▪ With private water connection (flush toilet) or communal water connection and/or grey water use (pour flush) ▪ Waste treatment in oxidation ponds or other waste water treatment facilities
2. Pit latrine systems	▪ Simple pit latrines ▪ Ventilated Improved Pit (VIP) latrines ▪ Double vault pit latrines (with two pits) ▪ Dry or wet pit latrines ▪ Pour flush pit latrines
3. Urine Diversion Dry Toilet (UDDT) systems	▪ UDDT toilet bowls (e.g. Otji Toilet) or squatting pans ▪ UDDT through evaporation (e.g. Enviroloo) ▪ Double vaults or bucket based

4.2.3 Private flush toilets

- Private flush toilets have a water connection and a water seal in the siphon that keeps the odour from escaping through the bowl.
- Pour flush toilets work on the same principle, but there is no water connection or tank. Instead, the user pours water from a bucket, the water being collected from an outside source such as a communal water tap. Grey water, such as used water from bathing or the kitchen can also be used.



Main components of a flush toilet system


Pour flush toilet with seepage pit in Havana informal settlement, Namibia

- Most often, flush toilets are connected to a sewerage reticulation system. In the absence of such, a flush toilet can also be connected to a conservancy or septic tank (see below).
- Flush toilets can considerably increase the use of water in a household, as each flush of the toilet uses between 6-12 litres, depending on the toilet model.
- The availability of sufficient water therefore is fundamental, as well as the affordability of water. The use of grey water, however, can minimise the amounts and costs of water used for pour flush systems. In informal settlements, pour flush toilets are sometimes connected to simple pits where liquids seep away through the soil.
- In these cases, the water seal makes such pour flush toilets more comfortable as no odour comes from the pit.

Costs estimates[12]

Item	N$
Toilet system (tank, bowl, flush mechanism)	1,500
Sewer connection	15,000 - 20,000
Septic tank locally built	8,000
Septic tank (plastic, 1000 litres) [13]	6,000
Conservancy tank (plastic)	6,000
Pit with brick walls, using 20 cm hollow blocks	3,000
Water usage 1500 litres per month (50 litres per day)[14]	To be calculated

[12] The cost estimates in this and the following modules are not yet complete, as much of the information will be collected in the course of the construction of demonstration systems. Nevertheless, this report leaves spaces for the relevant numbers that will be inserted as the information becomes available.

[13] Prices provided by Calcamite Water and Sanitation Solutions (www.calcamitetanks.co.za)
The tanks are sold in South Africa (as per 24 October 2018):

- 1000 liter for up to 4 people: ZAR 4,270
- 1500 liter for up to 6 people: ZAR 6,096
- 2500 liter for up to 9 people: ZAR 7,600

The prices do not include transport or import taxes. The tanks are designed as septic tanks, but can be converted into conservancy tanks by closing the outlet. See below in part 4.2.5 for a picture.

[14] http://www.windhoekcc.org.na/documents/51b_tariff_booklet_2017_2018.pdf / tariffs of other towns

4.2.4 Communal flush, communal pour flush and ablution blocks

In order to lower costs, flush toilets can be designed to be used by more than one family. Such communal flush toilets have similar technical features to household level flush toilets:

- The flush toilet mechanism is the same.
- They can be connected to a water reticulation system, or used as pour flush systems.
- They are preferably connected to a sewerage system, but can also work with conservancy or septic tanks.
- Water needs to be available and be paid for either by the users or the local authority. (The grey water option does not exist in communal systems).

The construction of communal flush toilets can be done in different ways as illustrated in the following images, for example as free standing toilet units, communal ablution blocks or containerised solutions.

Community flush toilets in informal settlements in Windhoek

Community ablution blocks, Durban, South Africa

Community toilet block structure (India)

Toilet cabins (India)

Pour flush system (India)

Maintenance

- The main challenge of all communal toilet systems is maintenance. If they are not regularly and sufficiently cleaned, if repairs are not done and vandalism not controlled, they become unusable within a very short period of time.
- Different approaches can be used: in examples in Durban (South Africa) and Mumbai (India), maintenance is done by a paid caretaker. In the case of Durban, those units that initially did not have caretakers became mostly unusable due to a lack of hygiene, vandalism and general lack of maintenance.
- In Windhoek, the lack of maintenance is the single biggest cause of the high percentage of vandalised and unusable communal toilets.
- While in some cases the users organise themselves to clean and maintain the toilets, in most cases maintenance is not sufficiently organised.

- One reason is that when the toilets are constructed by the City of Windhoek (CoW), there is no provision to prepare the users for maintenance tasks.
- There is no policy to do so, no standard approach, nor specific activity to facilitate the creation and training of maintenance committees.

4.2.5 Conservancy tanks

- A conservancy tank is an underground tank which stores sewage that consists of blackwater (toilet waste) and greywater (kitchen, shower, sink, and laundry waste) until the time of emptying. It must be watertight to prevent the leakage of foul water or the ingress of groundwater.

- Modern conservancy tanks are commonly made from glass-reinforced plastics, polythene or steel.[15] In Namibia's informal and low income residential areas, however, most conservancy tanks are made of bricks and concrete.

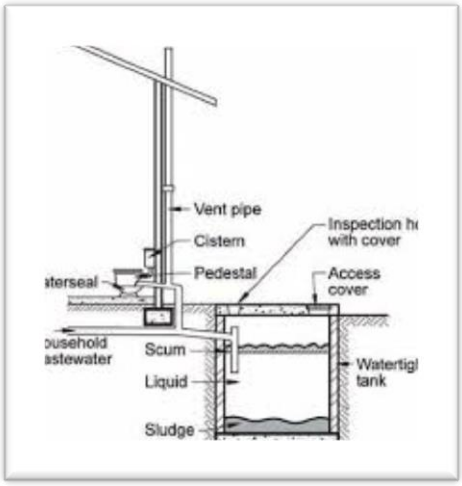
- In Namibia, conservancy tanks have been used widely in the past (until an upgrade some 15 years ago, the whole town of Karibib, for example, used conservancy tanks) and are still used in many informal and low income residential areas. They provide a good solution in situations where there is access to water, but no sewerage reticulation system.

- Conservancy tanks need to be emptied regularly, depending on the size of the tank and the number of users. This service is provided by trucks with mounted tanks and pumps that suck the sludge from the conservancy tank onto the truck. The truck then disposes the sludge in the local oxidation pond or other waste water treatment site. The trucks are usually named 'Honey Suckers' and can be operated by the local authority or the private sector.

- Conservancy tanks are usually used when households have domestic water connections. However, as discussed above, greywater can be used for flush systems linked to conservancy tanks, and in these cases access to communal water taps may be sufficient.

- In hard surface areas such as rock, it can be difficult and costly to build conservancy tanks. Therefore, the condition of the soil is an important variable to take into account when considering the use of this sanitation component.

[15] http://akvopedia.org/wiki/Conservancy_tank



Conservancy tank design

Conservancy tank in Oshakati informal settlement, being emptied by a 'honey sucker'

Private sector 'honey sucker' in Oshakati

2500 liter plastic conservancy tank [16] (www.calcamitetanks.co.za)

Cost estimates

Cost item	Cost estimate
Local artisan-built conservancy tank (15,000 liters)	N$ 12,000
Imported (SA) plastic conservancy tanks: 1000 litre – 5400 liter (for 4-25 people)	ZAR 4,270 – ZAR 19,390 (excl. import duties)

4.2.6 Septic tanks

- A septic tank is an underground chamber made of concrete, fibreglass or plastic, through which domestic wastewater flows for basic treatment. Settling and anaerobic processes reduce solids and organics, providing some treatment to the wastewater. Therefore, a septic tank system is a type of simple on-site sewerage facility and can be used in areas that are not connected to a sewerage system. The term 'septic' refers to the anaerobic environment that develops in the tank which decomposes or mineralises the waste discharged into the tank.

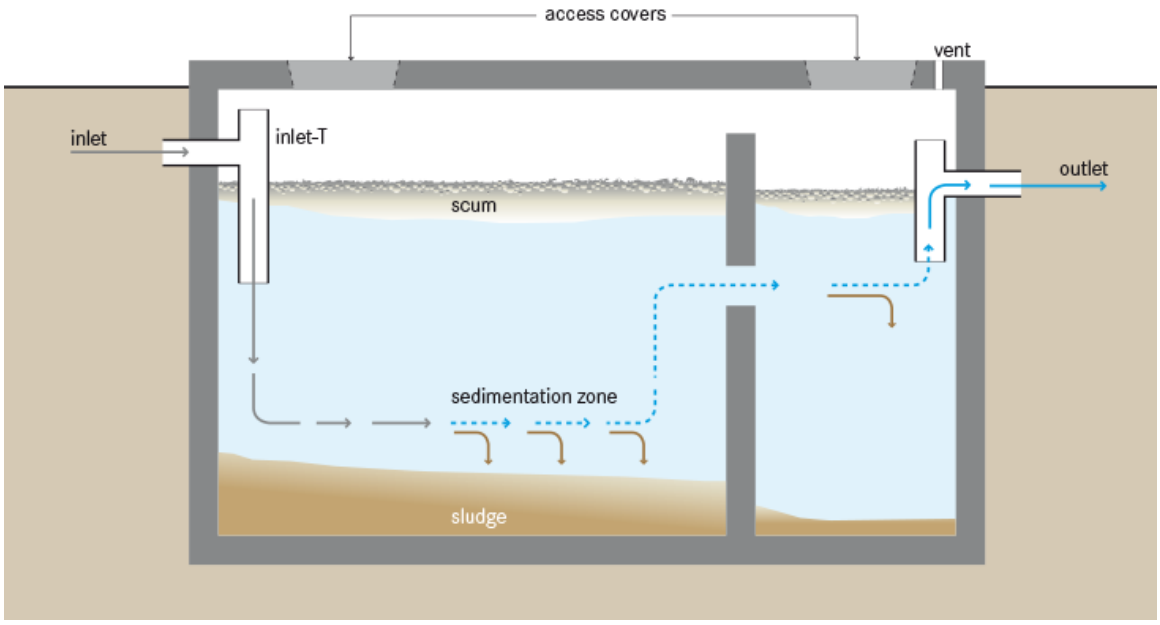
- Groundwater pollution may occur and can be a problem. However, groundwater pollution risks are lower compared to pits, as the water is minimally treated, and the water outlet is

[16] www.calcamitetanks.co.za

close to the surface, giving more space between the effluent and the groundwater than is the case with a 2 meter deep pit for example.

- All wastewater of a household can flow to a septic tank. As the minimally treated liquids exit the tank, it fills up slowly with only solids. These, however, also need removal, but at much fewer intervals than conservancy tanks (for example every 5 to 10 years). Modern plastic septic tanks may look exactly like conservancy tanks, but they have an internal division and outlet.

- In Namibia, conservancy tanks are often called 'septic' tanks. This, however, is a misnomer, as the function of a septic tank is very different from that of a conservancy tank. Septic tanks are rarely used in informal settlements or formal low income residential areas. One reason may be the price, another one the lack of knowledge of local artisans of how to build them.



Schematic diagram of a septic tank (https://en.wikipedia.org/wiki/Septic_tank)

4.2.7 Sewerage reticulation systems

Reticulated sewerage is a system of pipes, manholes and often pumps, with connections to properties in a certain area, through which waste water is disposed from individual properties to a central treatment facility.

Compared to water reticulation systems, sewerage reticulation systems are more complex and expensive, mainly due to following reasons:

- Sewage pipes need to be bigger than water pipes, due to the solids and general thicker constitution of waste water compared to clean water.
- Sewerage systems need manholes at regular intervals for maintenance and control purposes.
- The use of gravity to guarantee flow is more challenging than with water systems (which for example use water towers). Pump stations are often needed, at considerable costs.

Cost estimates

Cost item	Cost estimate (N$)	Observations
Sewerage reticulation connection to dense layout with 300 m^2 plots	N$15,000 – N$21,000	Not including sewer main to water treatment facility
Sewerage reticulation connection to less dense layout with 300 m^2 plots	Up to N$40,000	
Pump station	More than N$ 1 million	

4.2.8 Oxidation ponds

- Oxidation ponds are large, shallow ponds designed to treat various wastewaters naturally through the interaction of sunlight, bacteria, and algae.
- They are designed to reduce organic content and remove pathogens from wastewater. They are man-made depressions confined by earthen structures.
- Wastewater enters on one side of the pond and exits on the other side, after spending several days in the pond, during which treatment processes take place.
- There are often several ponds with different functions to reduce organic content and remove pathogens.
- In most ponds both bacteria and algae are needed in order to maximise the decomposition of organic matter and the removal of other pollutants. [17]


Oxidation pond in Otjiwarongo: this is a rather large pond, due to the size of the town.

- Oxidation ponds are especially well suited for warm climates because of the intensity of sunlight and temperature that are needed for the treatment process. They cost less to build than other treatment facilities and can be considered as one of the cheapest wastewater treatments options in terms of maintenance.

- However, oxidation ponds do require relatively large areas, they emit odours that may be disturbing to close-by residential areas, and there is a risk of groundwater contamination or overflow, especially when the pond is operating above its intended capacity.

- Therefore, while reticulated sewerage systems have no negative environmental impact at household level (opposed to the risk of groundwater pollution from pit latrines, for example), there are, as the following example shows, environmental risks associated with the functioning and maintenance of an oxidation pond.

[17] https://en.wikipedia.org/wiki/Waste_stabilization_pond

Example Ongwediva - Sewage dams get full

The Ongwediva town council built an overflow canal from one of the sewage dams to allow the sewage to flow into the Elyambala pan (oshana), because all 20 oxidation dams of the council are full to capacity and cannot keep up with the town's fast-growing population. However, after the good rains in the area, the Elyambala pan was filled with rain water which was being contaminated by sewage water from the oxidation dams. This toxic mixture has been flowing into the nearby villages of Elyambala and Otshinyadhila. The contaminated pans have fish which villagers catch for own consumption and for sale to other people. This poses a serious health hazard to the villagers and people who consume the fish. In addition, cattle, goats, sheep and donkeys also drink the contaminated water while cattle herders always wade through the water when tending the animals. People in the area, including school children, are forced to walk through the water, risking contracting some diseases. The town council has decided to construct additional sewage dams to deal with the problem […].

"Elyambala Village under Sewage Water" The Namibian, 1 April 2015

4.2.9 Pit latrines - design and concept

A pit latrine or pit toilet is a type of toilet that collects human faeces in a hole in the ground (pit) which is usually covered with a concrete slab containing a drop hole. There are many varieties of pit latrines, according to the choice of:

1. toilet seat connected to the drop hole
2. ventilation systems to minimise smell
3. construction of the pit
4. type of superstructure on top of the hole

- **Properly built and maintained, pit latrines can decrease the spread of disease by reducing the amount of human faeces in the environment from open defecation.**
- **It decreases the transfer of pathogens between faeces and food by flies for example, which is a major cause for infectious diarrhoea and intestinal worm infections.**
- **In short, a pit latrine is a low cost method of keeping faeces away from people. By 2013, pit latrines were used by an estimated 1.77 billion people world-wide.** [18]

The Indian government, for example, has been running a campaign called 'Clean India Mission' since 2014 in order to eliminate open defecation by convincing people in rural areas to purchase, construct and use toilets, mainly pit latrines.

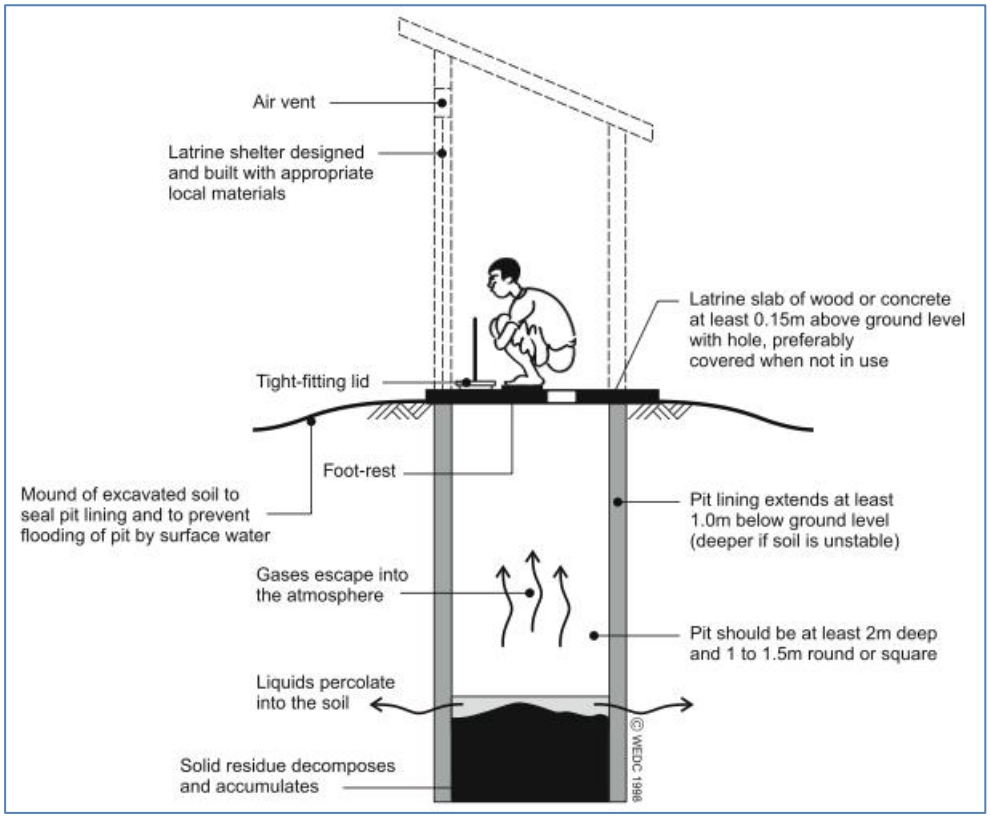
It is estimated that 85 million pit latrines have been built due to that campaign as of 2018.[19]
In South Africa, in the informal settlements of Durban, there are also an estimated 45,000 improved pit latrines contributing to improved sanitation where waterborne sewage is not available (Roma et al. 2011).

[18] https://en.wikipedia.org/wiki/Pit_latrine
[19] https://en.wikipedia.org/wiki/Pit_latrine

Pit latrines are internationally accredited: a simple pit latrine with a slab, for example, counts as improved sanitation, as measured by the Sustainable Development Goals.[20]

The pits of pit latrines are seepage pits and not sealed, as in the case of conservancy tanks. There is therefore a risk of groundwater contamination, especially in following cases:

- Where the groundwater table is very close to the bottom of the pit;
- Where the groundwater table occasionally rises above the bottom of the pit and the pit gets flooded;
- Where the pit gets flooded from surface water, causing contaminated run-off water and increased levels of seepage; and
- Where the pit is built in rock and fissures allow contaminated liquids to reach the groundwater.



Design of a simple pit latrine (http://civilengineersforum.com)

It has been found that the linear travel of pollution is governed primarily by the groundwater flow velocity and the viability of the organisms (Lewis et al. 1980). A useful and widely accepted guideline based on this research is that the maximum distance faecal pathogens will move through soil without fissures (including sand) is as far as the groundwater moves in ten days. In low-lying flat areas, with a high groundwater table, the groundwater flow is almost certain to be less than one metre per day, so a distance of 10 metres from latrine to source is adequate.[21]

As discussed below, there are pit latrine models that can be used under difficult soil and hydrological conditions, such as elevated pit latrines or latrines with shallow pits.

[20] Goal 6: Clean water and sanitation
[21] http://www.lboro.ac.uk/orgs/well/resources/fact-sheets/fact-sheets-htm/lcsahgt.htm

In general, pit latrines should be considered a viable alternative to open defecation. Under almost any circumstances, any kind of pit latrine is an improvement if compared to the negative consequences of open defecation. Secondly, more than any other sanitation system, pit latrines are often owner built and therefore truly affordable for the poor. Also, well-built pit latrines can last for decades, as the example of Oshakati shows below.

Pit latrine designs

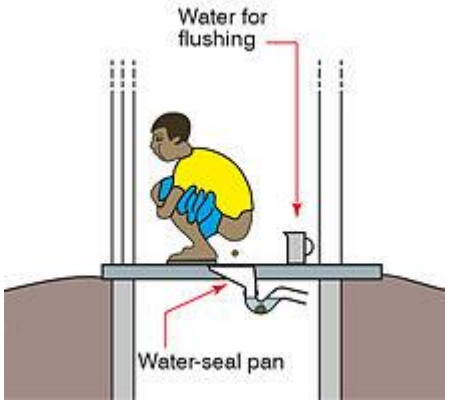
There is a wide variety of pit latrine designs, depending on how the different components of the latrine are designed and built. The main components of a latrine are:

1. Toilet seat
2. Pit
3. Ventilation
4. Super structure

Toilet seat

The drop hole can be connected to a toilet seat or squatting pan for user comfort. Pit latrines are usually designed as dry toilets without water for flushing. However, a normal toilet seat or squatting pan with a water seal can be used, and water poured after each use. In this case, the latrine becomes a 'pour flush pit latrine'.

Improvised toilet seat in a pit latrine (Havana informal settlement, Windhoek)

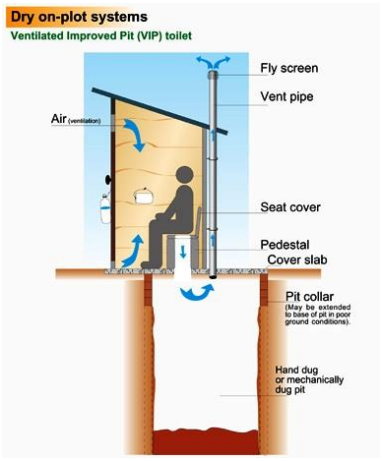


Design of squatting pan with water seal, pour flush system. (https://en.wikipedia.org/wiki/Pit_latrine)

'Normal' toilet seat on pit latrine, floor with tiles, and used in combination with pour flush system (Havana, Windhoek)

Ventilation

Ventilation systems can be used to minimise the smell in pit latrines. Such pit latrines are then often called 'VIP latrines', standing for 'Ventilated Improved Pit latrines'.



Design of VIP Latrine (http://civilengineersforum.com)

Very basic owner built VIP latrine (Havana, Windhoek)

Professionally built VIP latrine, with extra big black ventilation pipe and urine diversion (Otjiwarongo; Ecosolutions, http://www.otjitoilet.org)

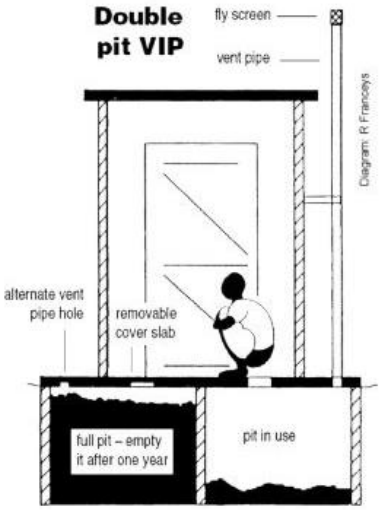
The ventilation works better with a big black pipe as on the picture above to the right. The black colour increases heating by the sun and the larger pipe allows larger volumes of air to be heated and to circulate. As the air in the pipe is heated, it rises and sucks more cold air through the toilet seat. This way, the smell inside the toilet structure is reduced even more.

Pit

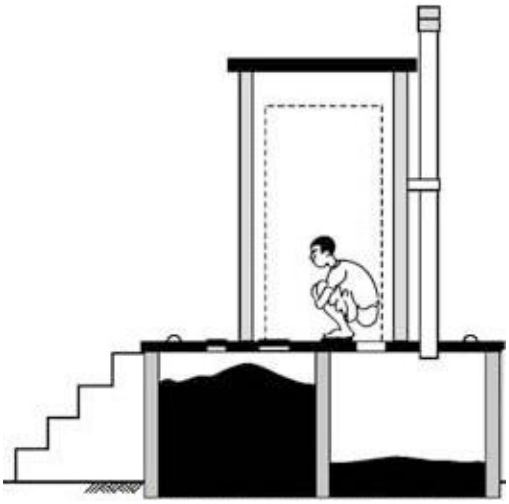
The pit has to be reinforced, except under conditions of reasonably hard soils where a slab on top may be sufficient. The most common pit reinforcement is construction with bricks. The VIP latrine from Ecosolutions for example uses some 530 bricks (type: 'super bricks'). Other options for reinforcements are concrete rings, or, for more improvised and smaller owner-built latrines, 200 litre oil drums for example.

The space of the pit influences the time it takes to be filled. The VIP latrine from Ecosolutions for example is designed for a 1.9 m deep pit that will take approximately 10 years to be filled with a maximum of 5 users. Filling of the hole is slowed down by the fact that part of the solid matter degenerates naturally. After 10 years, the existing hole can either be cleaned or a new hole can be built, and the top structure and toilet seat moved.

To avoid the cleaning of the pit and moving of the top structure, some pit latrines are built with two chambers ('double vault' pit latrine). Once the first one fills up, the drop hole is sealed, and a second drop hole (in the same superstructure) is used to start filling up the second one. As the second one fills, the solid matter in the first one degenerates further.



Double vault pit latrine design (http://www.washplus.org)



Elevated double vault pit latrine. This model can be used in flood prone areas or where groundwater is close to the surface. (http://helid.digicollection.org/en/d/Js2669e/7.6.6.html) Elevated pits can be higher in diameter to compensate for reduced depth (Brandberg 1985).

Examples of home-built pit latrines and pour flush toilet systems in Havana, Windhoek

Wet and dry pits

Wet pits are those pits where urine goes into the same pit together with faeces. Dry pits are those where urine is diverted into a separate (small) seepage pit (just like in UDDT systems as discussed in the next Module). Research suggests that faeces degeneration processes in wet pits are more efficient (Mara & Sinnatamby 1986).

Case study: The Okakedi VIP pit latrine (Oshakati)

During the 1990s, the Oshakati Human Settlements Improvement Programme (OHSIP) had a significant impact on the development of the four main informal settlements in that town: Oneshila, Evululuko, Uupindi, and Oshoopala. The four settlements were upgraded during that project with the aim to improve the livelihoods of its residents. For example, Uupindi became semi-formalised after plots, house numbers, roads and open spaces had been provided. Infrastructure such as street lights was funded by the Danish Council, while other services were supplied by the Town Council.

For the provision of improved sanitation, the project introduced dry toilet systems. Different designs of waterless toilets were obtained and demonstration models constructed at community centres. After residents weighed pros, cons and costs of each design, a preferred model was selected. The selected model convinced by being odourless, and from this derives its acronym 'okakedi' toilet, standing for okanjuwo kakena edimba ('non-smelling toilet').

Special brickmaking projects were initiated in parallel to provide the bricks (hollow core blocks) for the toilets. At the height of production, 100 people were involved in brickmaking at four community centres, producing more than 70,000 bricks every month (equivalent of 240,000 standard sized 'super bricks')[22]. Toilets were built on every plot where the owner requested one and had paid a small registration fee. Local contractors were doing the work, but were required to hire at least 50% of their work force from the informal settlements. In the course of the project, 1300 okakedi toilets were built in the four informal settlements (Fuller 1996).

Hollow cement brick

'Super brick'

The okakedi toilet is a VIP toilet design with a shallow but horizontally extended pit. Many of the toilets constructed in the 1990s are still in use and are testimony of an exceptionally well designed VIP toilet system design and solid construction quality.

4.2.10 Key issues

This assessment clearly shows that there is no single 'best practice' solution that can be applied in different contexts. Rather, a diverse range of sanitation systems and subcomponents of successful approaches exist. These must be variably electable under different

[22] The so-called 'super bricks' are small bricks that are used in most of Namibia for the construction of houses. All bank financed housing is required to use those bricks. However, due to its small size and lack of hollow space, the cement and sand content is considerable, as is the effort when produced and laid. In much of northern Namibia, bigger hollow bricks are used. These bricks have better insulation characteristics, making houses cooler in summer and warmer in winter.

circumstance and in different contexts. The creation of a complete inventory of the most successful systems and subcomponents will be one of the main outcomes of this project.

The assessment also made a preliminary analysis of the conditions that must exist for different systems to work. These are:

Waterborne sewage

Waterborne sewage with reticulation systems and conservancy/septic tanks needs water as well as wastewater treatment capacity for the system to work. If considering waterborne sewage, a project must therefore assess the following:

1. Availability of bulk water
    - *Is there sufficient water to service the additional households?*
2. Cost of water if it is available
    - *What are monthly average costs for the end user and can she/he afford it?*
3. Availability of water treatment capacity
    - *Is there sufficient capacity at the oxidation pond or other treatment facility?*
4. In the case of conservancy/septic tanks:
    - *Can sludge removal services be provided by the local authority or the private sector?*
5. In case of communal flush toilets:
    - *Can a reasonable consensus be achieved by the population in terms of use and maintenance?*
6. Financing of the project:
    - *Can the capital costs for the sewerage reticulation system be financed within the context of this project?*

Considering pit latrine systems

If a project is considering the installation of pit latrines, the following key issues must be assessed:

1. Are pit latrines supported by the local authority?
2. Are pit latrines socially accepted?
3. Are pit latrines already in use in the specific location? If yes, what models are used?
4. Are the soils & water tables favourable for the construction of deep pits? If not, can elevated pits be considered?
5. Are the soils & water tables favourable to prevent groundwater pollution? Can a monitoring system be set up?
6. Can the capital costs for pit latrines be financed within the context of this project?

Summary of conditioning factors for different sanitation systems:

Sanitary unit	*Key conditions*
1. Individual sewer connections	▪ Water available and affordable ▪ Sufficient wastewater treatment capacity
2. Communal flush toilets or ablution blocks	▪ Water available and cross-subsidised ▪ Effective maintenance ▪ Sufficient wastewater treatment capacity
3. Conservancy tanks	▪ Reliable sludge removal (private sector)

Sanitary unit	*Key conditions*
4. Septic tanks	▪ Approved by local authority
5. Different pit latrine systems	▪ No risk of groundwater contamination ▪ Enabling soil/groundwater conditions or possibility of elevated pit designs

Examining the costs

The option(s) that may be considered suitable must then be examined by the consulting engineer, and a preliminary cost estimate provided. This cost estimate must be discussed with the local authority and project beneficiaries in order to decide on the final solution.

Main challenge: costs

- Owner-built pit latrines: Where possible, cheap owner-built pit latrine systems can be adopted, providing a solution that is most likely affordable to the poor.
- Cross subsidies: if a project has mixed levels of service provision and plot prices, a certain percentage of the pricier plots can be added in order to subsidise the sanitation solutions systems for the poorest in the same project area.

The scaling up of a sanitation programme is likely to have more success when integrated into a broader development programme

International experience shows that the provision of sanitation systems on a large scale is easier if the sanitation component is part of a wider programme. International experience further shows that it is nearly impossible for stand-alone sanitation projects to work on a cost recovery basis.

4.2.11 Community-Led Total Sanitation (CLTS)

Introduction to CLTS

CLTS is an innovative methodology for mobilising communities to completely eliminate open defecation (OD). Communities are facilitated to conduct their own appraisal and analysis of open defecation (OD) and take their own action to become ODF (open defecation-free).[23]

At the heart of CLTS lies the recognition that merely providing toilets does not guarantee their use, nor result in improved sanitation and hygiene. Earlier approaches to sanitation prescribed high initial standards and subsidies offered as an incentive. But this often led to uneven adoption, problems with long-term sustainability and only partial use. It also created a culture of dependence on subsidies. Open defecation and the cycle of faecal–oral contamination continued to spread diseases.

In contrast, CLTS focuses on the behavioural change needed to ensure real and sustainable improvements – investing in community mobilisation instead of hardware, and shifting the focus from toilet construction for individual households to the creation of ODF villages. By raising awareness that as long as even a minority continues to defecate in the open everyone is at risk of disease, CLTS triggers the community's desire for collective change, propels people into action and encourages innovation, mutual support and appropriate local solutions, thus leading to greater ownership and sustainability.

[23] Text retrieved from: https://www.communityledtotalsanitation.org/page/clts-approach

CLTS was pioneered by Kamal Kar (a development consultant from India) together with the VERC (Village Education Resource Centre), a partner of WaterAid Bangladesh, in 2000 in Mosmoil, a village in the Rajshahi district of Bangladesh, whilst evaluating a traditionally subsidised sanitation programme. Kar, who had years of experience in participatory approaches in a range of development projects, succeeded in persuading the local NGO to stop top-down toilet construction through subsidy. He advocated change in institutional attitude and the need to draw on intense local mobilisation and facilitation to enable villagers to analyse their sanitation and waste situation and bring about collective decision-making to stop open defecation.

CLTS spread fast within Bangladesh where informal institutions and NGOs are key actors. Both Bangladeshi and international NGOs adopted the approach. The Water and Sanitation Programme (WSP) of the World Bank played an important role in enabling the spread to neighbouring India and then subsequently to Indonesia and parts of Africa. Over time, many other organisations have become important disseminators and champions of CLTS, amongst them Plan International, the United Nations International Children's Emergency Fund (UNICEF), WaterAid, Stichting Nederlandse Vrijwilligers (SNV), the Water Supply and Sanitation Collaborative Council (WSSCC), Tearfund, Care, World Vision and others. Today CLTS is in more than 60 countries in Asia, Africa, Latin America, the Pacific and the Middle East, and governments are increasingly taking the lead in scaling up CLTS. Many governments have also adopted CLTS as national policy.
After initially being conceived as an approach for rural sanitation only, there have been a variety of adaptation, for example in urban and peri-urban settings, in schools and in post emergency and fragile state contexts.

CLTS in Namibia
Namibia faces a sanitation and hygiene crisis with a national average of 46% of its population practicing open defecation (OD); in urban areas 26% compared to 70% in rural areas. The high level of OD continues to pose a great public health risk.

The poor sanitation situation is intensified by poor hygiene practices amongst the communities. A 2014 assessment implemented by UNICEF found a huge gap between knowledge and practice. It established high levels of hygiene knowledge on the importance of hand washing (87%). However, only 54% practise hand washing with soap at critical times. The high level of OD and poor hygiene practices have a negative impact on the health status of the population which has manifested in the ongoing Hepatitis E outbreak.

The Ministry of Health and Social Services (MoHSS) declared a Hepatitis E outbreak on 14 December 2017, which started in the informal settlement of Windhoek in the Khomas region and has since spread to 12 out of the 14 regions by February 2019. According to the MoHSS Hepatitis E Situation Report (No 54), by 10 March 2019 a total number of 4,796 Hepatitis E cases were recorded, causing a total of 42 deaths with a Case Fatality Rate (CFR) of 1%, of which 18 (44%) were maternal deaths. The majority of the cases were reported in informal settlements (Havana and Goreangab in Windhoek and the Democratic Resettlement Community (DRC) in Swakopmund) which are characterised by high OD rates, unhygienic conditions and poor hygiene practices.

Stopping open defecation, proper containment of human excreta and improving hygiene practices in the informal urban settlements and in rural areas are unavoidable needs to eliminate the Hepatitis E outbreak. The City of Windhoek (CoW) has been providing shared toilets in the informal settlements. However, the provided toilet facilities are often vandalised and not used or maintained properly, which eventually lead to their disuse, which thus cannot address the problem of high OD rates.

To address the sanitation related challenges in the informal settlements, the CLTS approach has been chosen as response strategy for behaviour change which is requisite to eliminate open defecation

practices, improve hygiene practices (i.e. proper handwashing with soap) and proper use and maintenance of communal toilet facilities. Through the CLTS approach households will have the possibility and opportunity to construct their pit latrines of an acceptable standard for the municipality, connecting their toilets to the existing sewerage systems where available in compliance with the CoW's procedures, or rehabilitate vandalised public toilets and, with assistance of the project, create sustainable and effective toilet management mechanisms.

CLTS triggering exercises will create demand among the community members to engage with one of the above options for improved sanitation. To address this demand, Sanitation Centres will be established to demonstrate and provide low-cost sanitation solutions to facilitate the construction of pit latrines at household level, and to provide instructions for sewer connections to initiate the rehabilitation of vandalised public toilets. The centres will also engage with youth groups who will be provided with technical and financial support to establish and operationalise sanitation enterprises in partnership with relevant institutions and non-governmental organisations.

It is against this background that UNICEF and the United Nations Development Programme (UNDP) have entered into a programme cooperation agreement (PCA) with Development Workshop Namibia to establish sanitation centres and provide the required training to youth groups in Moses Garoeb and Samora Machel constituencies which are most affected by the Hepatitis E outbreak.

The objectives of the programme are to:

1. provide access to appropriate and affordable sanitation technology for household level sanitation solutions;
2. facilitate community awareness and engagement for effective management of public toilets and hygiene promotion; and
3. provide training and mentoring to youth groups to establish and operationalise sanitation enterprises.

4.3 Electricity

Chapter still to be developed.

4.4 Roads

Chapter still to be developed.

4.5 Solid waste management

Chapter still to be developed.

4.6 Municipal finances and urban management

Chapter still to be developed.

5 MODULE 4: IMPLEMENTATION OF URBAN DEVELOPMENT PROJECTS – EXAMPLE: DWN/NCE PROGRAMME FOR THE PROVISION OF LOW COST LAND FOR HOUSING

5.1 Programme summary[24]

To address the rapid informal settlement growth in Namibia, Development Workshop Namibia (DWN) and the Namibian Chamber of Environment (NCE) have initiated a programme for the provision of low cost land for housing in 2018. The programme works through partnership agreements with local authorities. The local authority provides the land and DWN provides the funding and professional services to develop the land. The plots with titles are then sold to low income residents at development costs (USD 700 – USD 1,200). The sales proceeds go into a local bank account that is jointly managed by the local authority and DWN. The bank account becomes a revolving fund, financing the development of the next area, and making the programme financially sustainable.

DWN collaborates with institutions that represent all professions involved in the development of a new neighbourhood. The programme is supported by MURD, and projects are already underway in four towns. Demand from local authorities has been above expectations.

Key issues and problems addressed

Based on the most recent numbers of the Namibian Statistics Agency (NSA), more than 160,000 shacks exist in Namibia today, and more than 12,000 shacks (with some 40,000 people) are erected each year. At the current rate, more urban shacks will exist than urban brick houses by 2025. Recent research and a publication by DWN (Weber & Mendelsohn, 2017) have provided detailed information about the nature and magnitude of informal settlement growth in Namibia and have identified pragmatic approaches to effectively address the challenge. The study concludes that because informal settlements perpetuate inequality and poverty on a massive scale, they should be considered the single most pressing urban challenge in Namibia.

Namibia is in the midst of societal transition from a mainly rural towards a mainly urban-based society. The way in which this transition is managed, and cities are established, will lay the ground for Namibia's social and economic development for decades to come.

If cities in Namibia are to develop in a more socially inclusive and economically efficient way, informal settlement growth must be transformed into planned formal growth. Only by regaining control over land use, can local authorities, their partners and the residents engage in proactive and participatory planning processes that promote more sustainable urban development.

As examples across the world further show, planned and structured urban growth are among the most effective means to provide low income urban residents with tenure security and services.

How the programme is addressing these challenges

DWN's programme for the provision of low cost land for housing seeks to address this situation by providing legal land for housing at affordable prices. Using a financially sustainable approach, the programme is expanding rapidly in order to provide land at a scale that meets local demand, thereby making the informal land and housing market redundant and transforming unplanned and informal urban growth into a formal and planned urban expansion.

[24] See annexure for a fact sheet on the programme

The programme works through partnership agreements with local authorities. In each project town, DWN signs an agreement that provides the implementation framework. The local authority then provides the land and DWN initiates the development process. New residential areas with affordable land for housing are thus developed as an alternative to the informal land and housing market. The plots are then sold to low income residents at development costs (USD 700 – USD 1,200).

The plots in these areas have freehold titles, and are partially serviced with water, on-site sanitation and access roads. Initial services are limited in order to keep the purchase price low. The new owners of the plots are allowed to build their houses incrementally and at their own pace. Further services can be provided to the neighbourhood over time, either through local government sources, central government subsidies or bilaterally funded infrastructure projects.

DWN works in close collaboration with a team of major urban development stakeholders in Namibia, namely a registered town planning company, a registered land surveyor, an engineering firm and a conveyancer. The team represents all professions that are involved in the development of a new urban neighbourhood, from project inception to transfer of title. Working with these partners, ways have been found to streamline the existing land delivery process, and synergies have developed that allowed all institutions to considerably lower their fees.

Financial project management in each town is through a local revolving fund. This is a local bank account with signatories from both sides: the local authority and DWN. For the first four project towns, local donors have provided more than USD 100,000 of funding, facilitating the payment of professional services and the construction of basic infrastructure. As the plots are sold, the sales proceeds go back into the revolving fund, allowing the development of the next phase.

Where no donor contributions for revolving funds are available, the collaborating institutions (including DWN) agreed to only invoice towards the end of the project cycle, when sales proceeds have generated the necessary cash flow. The programme can therefore expand with or without revolving fund capital.

The programme is officially supported by MURD. Agreements have been signed with four towns already and more than 1,200 plots are currently being developed. Negotiations are further underway with an additional six towns. The rapid expansion is stretching DWN's institutional capacity, and for successful scaling up, critical institutional support is needed.

Key outputs of the programme

The main outputs of the project are:

1. The main output of this project is partially serviced residential plots with freehold titles in numbers that meet local demand. In the four towns where the project is currently active, a total of 1,200 plots are currently being developed. Additional support would allow the programme to expand to currently at least 6 more towns, with some 1,800 plots to be planned and developed. That would be about 25% of the annual low cost land and housing demand in Namibia. Through the revolving funds, the same number of erven will then be developed repetitively over years to come without any additional funding.

2. A second output is the revolving funds that are being established in each town. The revolving fund bank accounts are opened in the local branches of First National Bank, the biggest bank in Namibia. A typical bank account framework and online authorisation procedures have

been developed with the bank, reflecting the joint management of the accounts. The revolving funds are important to facilitate the sustainability of the programme.

3. A third output is this training manual on urban project management and the training of local authority technical personnel. DWN is currently developing a first draft of a best practice guide for urban projects such as implemented by the DWN land programme. The guide is based on DWN's regional experiences over the last decades and the experiences gained specifically in Namibia with the programme for the provision of low cost land for housing. The guide will further add to the institutional strength and sustainability of the programme, facilitating the training of local authority technical personnel.

The following chapters will provide more details about the institutions involved in such projects, and processes for project implementation.

5.2 Different actors and their responsibilities

There are six main actors involved in any project implemented by the programme. The table below provides a short summary:

1. **Local authority**	1. Key actor 2. Project oversight 3. Provides all necessary procedural approvals for **the** township proclamation process 4. Approves all technical outputs during the course of the project 5. Liaises with MURD where necessary 6. Manages beneficiary selection and processing together with project manager 7. Authorises project payments together with project manager
2. Town Planner	1. Involved from the beginning of the project 2. Makes early site visit to evaluate project feasibility, together with project manager 3. Implements base mapping (can be outsourced to land surveyor) 4. Implements environmental clearance, conducts community meeting, and ensures Ministry of Environment and Tourism (MET) approval 5. Develops project layout 6. Submits township proclamation process to the Namibia Planning Advisory Board (NAMPAB) and Townships Board and ensures approval by both boards and MURD
3. Land Surveyor	1. Conducts topographical survey and submits to town planner 2. Surveys layout produced by town planner, pegging the erven 3. Produces a General Plan of surveyed layout and submits to the Surveyor General 4. Ensures approval from the Surveyor General
4. Engineer	1. Upon signing of the Memorandum of Understanding (MoU), implements bulk servicing assessment to assess the feasibility of the project 2. Provides servicing cost estimates based on preliminary layout produced by the town planner 3. Provides detailed engineering design and cost estimates based on surveyed layout provided by the land surveyor and town planner

	4. Conducts tendering process with contractors 5. Supervises contractors and approves final construction
5. Conveyancer	1. Opens Township registry 2. Receives digital and complete files of project beneficiaries (from project manager) 3. Transfers titles from local authority to purchasers of individual erven 4. Lodges and registers transactions at Deeds Registry
6. Project manager	1. Initiates contact with the local authority and prepares and signs the MoU 2. Ensures donor funding 3. Ensures smooth communications throughout the project, among service providers, and between service providers and the local authority 4. Manages beneficiary registration together with the local authority 5. Manages and controls the beneficiary database and payments, together with the DWN accountant 6. Checks all technical outputs of the project, including layouts and engineering reports 7. Authorises project payments together with the local authority 8. Maintains regular on-site presence, and works in close collaboration with the CEO and his staff

5.3 Project preparation

5.3.1 MoU with local authority

- Presentations to the local authority, often through preliminary meetings with the CEO and his staff, and subsequent presentations in full council meetings
- Agreement on project objectives, scope, and implementation area
- Signing of the MoU
- The MoU stipulates project deliverables against outcomes from aerial survey and bulk infrastructure assessment. Non-compensated land occupations (especially in northern Namibia), and lack of bulk infrastructure must not be held against project outcomes
    - **Done by project manager**
    - **See annexure for an example of an MoU**

5.3.2 Aerial / topographical survey

- Drone aerial survey for topography and contours
- Assessment of cadastral boundaries, land occupations
    - **Done by land surveyor**
    - **See annexure for an example of an aerial survey**

5.3.3 Bulk infrastructure assessment

- Assessment of bulk water provision to project area: This includes assessment of water availability, existing lines that will conduct water to the project area, and the water pressure of those lines.

- Assessment of the sanitation infrastructure: This includes assessment of the capacity of existing water treatment plans and sewerage reticulation systems in the proximity of the project area.
- Assessment of electricity provision:
    - **Done by engineer**
    - **See annexure for a table of contents of an infrastructure assessment done for Okahao**

5.3.4 Erf cost calculations for project design

- The price of the erven should not be defined in the MoU, but approximate costs can be discussed.
- These costs can be based on approximate standard costs, based on previous project experiences.

For example (Karibib project, initial estimates):

Project costs per erf	
Town Planner	1,700
Land Surveyor	1,700
Project manager	1,000
Engineers	474
Conveyancer	1,300
Water	6,278
Roads	2,390
Preliminary and General	1,671
Total	**16,513**

- **Numbers provided by the engineer, final calculations done and presented by the project manager**

5.3.5 Setting up of the project revolving fund – bank account

- A project FNB account is opened through the revolving funds account manager in Oshakati.
- Following the MoU, there are two signatories from FNB and two signatories from DWN.
- Several documents have to be signed by the signatories as requested by the account manager.
- All signatories must then activate their online accounts following instructions given by the account manager.
    - **Done by project manager**

5.4 Planning and pegging

5.4.1 Implementation timeline

- All project partners meet to agree on the project timeline.
- This process is facilitated by the town planner. A project timeline document is produced by the town planner.

- A typical project of 300 erven for example has an estimated duration of 8 – 10 months up to the completion of service construction when the erven can be occupied by the new owners.
- Both township proclamation, and then conveyancing, however, is likely to go beyond this timeline.
    - **Implemented by the town planner**
    - **See annexure for an example of a project timeline**

5.4.2 Preparation of draft layout

- Based on the topographical survey, existing structure plans and other information, the town planner prepares a first layout.
- The town planner makes a site visit during this process.
- The draft layout is shared with the local authority, land surveyor, engineer and project manager for comments and input.
    - **Done by the town planner**
    - **See annexure for an example of a layout plan**

5.4.3 Preliminary engineering designs

- The engineer prepares the preliminary designs (Bill of Quantities – BoQ) that allow for servicing cost estimates.
- Once the cost estimates are approved by the local authority and project manager, the draft layout can be submitted to the council for approval by the council management committee and the full council meeting.
    - **Done by the engineer**
    - **See annexure for an example of a Bill of Quantities (BoQ)**

5.4.4 Pegging and production of the General Plan

- Once the layout is approved during a council meeting, the council communicates this approval officially and invites the land surveyor for the pegging.
- The town planner sends the Computer-aided design (CAD) files of the layout to the land surveyor, who in turn calculates the layout with surveying software (basically calculating the coordinates for all vertices in the layout).
- The surveyor then goes on site with one or two land surveyors. Labourers are hired locally to carry and hit pegs, as well as to collect and whitewash stones.
- After pegging the whole layout, the surveyors conduct a control survey, taking the coordinates of all pegs that were put in the ground.
- Back in the office, the surveyor projects the surveyed pegs and produces the General Plan. This is basically the layout of the town planner, but now surveyed and possibly with some minor alterations.
    - **Done by the land surveyor**
    - **See annexure for an example of a General Plan**

5.4.5 Date stamping of the layout and submission to the Townships Board

- The town planner produces the final layout based on the General Plan, as received by the land surveyor.

- This final layout is then sent to the local authority, stamped and returned to the town planner.
- The town planner then prepares the submission of the application to the Townships Board.
    - **Done by the town planner**
    - **See annexure for the table of contents of a Townships Board application**

5.5 Beneficiary registration and financial management

5.5.1 Beneficiary registration

Initial registration

- After approval of the layout by the Town Council (see above), the project can start with the beneficiary registration.
- Registration can take place in different ways: for example from an existing waiting list, by registering eligible shack dwellers in town, or by application from members of the local groups of the Shack Dwellers Federation of Namibia (SDFN).
- An initial database is established with the names and contact details of all beneficiaries.
- The beneficiaries are then contacted and invited to a meeting where the project is explained. The meeting is chaired by the local authority.
- Beneficiaries must then confirm their participation within a specific period of time.

Beneficiary database

Once beneficiaries confirm their participation, utmost care must be taken to fully comply with the following steps:

1. The beneficiaries' details are entered into the project standard database (see annexure xx).
2. They must sign the following documents: a Letter of Intent (annexure xx), the Financial Intelligence Act form (see annexure), and provide the necessary information about their marital status (see box below).
3. They must provide a copy of an ID. The copies of documents provided do not need to be authenticated.

Unique client number

Upon signing the Letter of Intent, the beneficiaries are provided with the banking details and a unique client number. All payments done by any beneficiary must be in the name of her/his unique client number.

- **Done by the project manager**
- **See different annexures as referred to above**

Care must be taken when registering the marital status of beneficiaries:

- If beneficiaries are married in community of property, both partners must submit their IDs, both must sign on the same Letter of Intent, and both must fill in a separate Financial Intelligence Act form. The property is then registered in the name of both.
- If beneficiaries are married out of community of property (if an antenuptial contract was registered in the deeds registry) , then they have a choice to register in only one party's name or in both and one or both must sign, depending on who is buying.
- When a couple is married in terms of a Proclamation (which is quite common in northern Namibia for example), this means they are married out of community of property and then only one party needs to sign.

5.5.2 Payment regulations and control

The payment regulations
These are outlined in the Letter of Intent (see annexure xx). In this letter, the beneficiaries agree on the following:

- *I agree to pay N$xxx for a residential plot of approximately 300 square metres;*
- *I agree to make an initial deposit of N$xxx to be paid within xx months of signing this Letter of Intent;*
- *I agree to pay a minimum monthly instalment of N$xxx until I have paid off the whole amount of N$xxx; I further understand that I am permitted to pay more than the minimum monthly instalment which will allow me to occupy my plot sooner;*
- *I agree to be removed as a beneficiary if I fall in arrears with more than a month's instalment, in which event, I agree to be reimbursed the amount that I paid, minus a 10% penalty fee; and*
- *I agree that the plot will only be indicated as my plot for occupation once I have paid off the complete amount of N$xxx;*

Payment registration

- All beneficiaries must do the initial deposits within a previously stipulated period of time.
- Whenever the beneficiary makes a payment, she/he must bring the deposit slip to the project office for registration.
- The project office receives the deposit slip and registers the payment in the client database.

The project office maintains two databases: one electronic and one physical

- Electronic: All documents, including the signed Letter of Intent, the Financial Intelligence Act form, marital status documents, ID and deposit slips are scanned in the project office and saved in a computer folder with the client's unique client number.
- Physical: All above-mentioned documents are kept in a plastic folder, one for each client, numbered with the unique client number, and archived in sequence according to the number.

Also, the project office staff member writes the unique client number on all documents of all clients (ideally with a red pen, on the top right corner of each document).

5.6 Servicing

5.6.1 Construction of services – contractor selection and supervision

As the MoU is between the local authority and a developer (in this case DWN), the developer has the right to appoint the contractor and it is not required to make a public tender. This facilitates the rapid implementation of the project.

The contractor is thus chosen through a collaborative approach with the town council and the project engineer.

5.7 Conveyancing

5.7.1 Townships board approval

To be developed as projects reach that stage

5.7.2 Opening of township registry, transfer of title

To be developed as projects reach that stage

5.8 Project monitoring and future developments

5.8.1 Building control

To be developed as projects reach that stage

5.8.2 Different approaches for incremental service upgrading

To be developed as projects reach that stage

5.9 Lessons learned

Following are some of the most important lessons learned to date:

1. Good and diligent project management is the key for the timely implementation of a land development project as described above. This includes tight budgetary control, facilitation of communication among partners, and continuous follow-up on all issues pending.
2. Diligent client database management is one of the single most important tasks of the local DWN project manager.
3. An MoU should not be signed until a project area is identified and land ownership has been confirmed.
4. A well written MoU does not automatically solve issues. Continued attention must be given to all key issues in the MoU and challenges discussed immediately as they arise.
5. The aerial/topographical survey should be done by the same land surveyor that is pegging the layout.

6. Layouts produced by the town planner must be reviewed and checked carefully by all project partners at the preliminary and final stages (except the conveyancer).
7. Concepts of urban design should be introduced gradually for the new townships to become components of a progressive approach towards more inclusive urban development.
8. Participation of local residents should be increased as the partners and the local authority become more confident with the procedures of providing land to low income residents.
9. Bulk SMS communication is the most efficient form of communication with a large group of clients.
10. For a development of up to 300 erven, a revolving fund (donor contribution) of NAD500,000 is sufficient to initiate activities.
11. The more the different professional service providers work as a team, the faster the project can be implemented and the fewer mistakes are made. All service providers should be copied into important email communication and all should be regularly updated by the project manager.

5.10 The role of project management

5.10.1 Principles of good project management

Currently being developed

5.10.2 Project management in the context of an urban land delivery programme in Namibia

Currently being developed

Case studies and group work: Provision of low cost land for housing in Oshakati, Okahao and Karibib

- Short presentations on all three projects, using A0 sized maps
- Group work: planning, developing and implementing similar projects in the participants´ home towns

These group exercises are prepared by the facilitator according to the background of the participants. A0 sized maps are provided of the home towns of the participants, and prior to the training, they are requested to bring along town planning schemes or other relevant information about their towns. This exercise is the most important one of the training course, as it helps to internalise and also to adapt the steps as described in the modules above.

6 MODULE 5: LEGISLATION

This module is an initial draft to be further developed through the first trainings. The summaries of the laws provide useful overviews of the scope of the different laws. During the first trainings, specific laws will be analysed through group exercises, where the groups will identify and discuss specific sections of a law. It will therefore be a joint analysis of what aspects in a specific law are important for different stakeholders in different contexts.

This joint analysis will be particularly useful for the local authorities act and the new planning act, in trainings with local authority technicians.

6.1 Local Authorities Act, 1992 (Act no. 23 of 1992)

OBJECTIVES

Provide for the determination, for purposes of local government, of local authority councils; the establishment of such local authority councils; to define the powers, duties and functions of local authority councils; and to provide for incidental matters.

INTRODUCTORY PROVISIONS

1. Definitions

PART I-DETERMINATION AND ESTABLISHMENT OF LOCAL AUTHORITY COUNCILS

2. Determination of local authority councils
3. Declaration of areas of local authorities as municipalities, towns or villages, and existing municipalities
4. Alteration of declaration of local authorities
5. Appointment of delimitation commission and division of local authority areas into wards
6. Governing bodies of local authorities

PART II- QUALIFICATIONS OF AND DATES FOR ELECTIONS FOR MEMBERS OF LOCAL AUTHORITY COUNCILS AND MEETINGS OF LOCAL AUTHORITY COUNCILS

7. Qualifications of members of local authority councils
8. Dates for elections of members of local authority councils
9. Periods of office for members of local authority councils
10. Oath by, and code of conduct for, members of local authority councils
11. Mayors and deputy mayors of municipalities or towns and chairpersons of local authority councils
12. Manner of elections for mayors and deputy mayors of municipalities or towns and chairpersons of local authority councils
13. Vacation of office by members of local authority councils, and filling of casual vacancies
14. Meetings of local authority councils
15. Minutes of meetings
16. Inspection of, copies of, and extracts from, minutes
17. Validity of certain decisions taken by local authority councils and acts performed on authority of local authority councils
18. Remuneration, allowances and benefits of members of local authority councils
19. Contracts with, and work for, local authority councils in which members are interested
20. Prohibited practices in respect of members of local authority councils

PART XVIII- GENERAL PROVISIONS

88. Public meetings for purposes of discussion of matters of public interest
89. Meetings of local authority councils for purposes of discussion of matters of mutual interest
90. Responsibility of local authority councils in relation to public water-courses
91. Right of entry upon private land by local authority councils
92. Failure by local authority councils to exercise or perform its powers, duties and functions
93. Service of documents
94. Regulations
95. Repeal of laws, and savings
96. Short title and commencement

6.2 Urban and Regional Planning Bill

OBJECTIVES

Establish an urban and regional planning board, to regulate the national development framework, regional and urban structure planning; to decentralise regional and urban planning and land use management; provide for zoning schemes, subdivisions and consolidation of land, establishment of urban areas and extension of urban areas situated in local authorit in such a way as will most effectively promote health, safety, order, amenity, convenience and environmental and economic sustainability in the process of development; and to provide for matters incidental thereto.

SECTION

1. Definitions

PART I- URBAN AND REGIONAL PLANNING BOARD AND COMMITTEES OF THE BOARD

2. Establishment of Urban and Regional Planning Board
3. Functions and powers of the Board
4. Composition of the Board
5. Term of office
6. Vacation of office and filling of vacancies
7. Remuneration of members of the Board
8. Meetings of the Board
9. Committees of the Board
10. Meetings of committees of the Board

PART II- NATIONAL DEVELOPMENT FRAMEWORK AND STRUCTURE PLANS

11. Preparation of national development framework and structure plans
12. Objectives of a national development framework
13. Notification of a national development framework
14. Approval of a national development framework
15. Objectives of regional structure plans
16. Notification of a regional structure plan
17. Approval of a regional structure plan
18. Objectives of urban structure plans
19. Notification of urban structure plan
20. Approval of urban structure plan
21. Revision of regional and urban structure plans
22. Continuation of urban structure plans

64. Re-vesting and transfer of public places and reserved land in de-establishment of urban area or portion of urban area
65. Alteration, amendment or cancellation of general plan
66. Effect of alteration, amendment or cancellation of general plan
67. Extension of boundaries of approved urban area or approved extension

PART VI- GENERAL

68. Furnishing of comment and information
69. Compliance with zoning scheme and conditions of subdivision
70 Duties of owners of land affected by zoning scheme or conditions imposed
71. Rectification of contradictions
72. Right of entry
73. Conditions
74. Appeal to Minister
75. Diagram not required to be annexed
76. Offences and penalties
77. Regulations
78. Use of land
79. Delegation of powers and assignment of functions and duties
80. Amendment of section 31 of Act No. 22 of 1992
81. Amendment of section 32 of Act No. 22 of 1992
82. Construction of certain expressions
83. Repeal of laws and savings
84. Application of Act
85. Short title and commencement

6.3 Environmental Management Act 7 of 2007

OBJECTIVES

To promote the sustainable management of the environment and the use of natural resources by establishing principles for decision making on matters affecting the environment; to establish the Sustainable Development Advisory Council; to provide for the appointment of the Environmental Commissioner and environmental officers; to provide for a process of assessment and control of activities which may have significant effects on the environment; and to provide for incidental matters.

PART I- DEFINITIONS AND OBJECT OF ACT

1. Definitions
2. Object of Act

PART II- PRINCIPLES OF ENVIRONMENTAL MANAGEMENT

3. Principles of environmental management

PART III- GENERAL FUNCTIONS AND POWERS OF MINISTER

4. Functions of Minister
5. Powers of Minister in respect of waste

PART IV- SUSTAINABLE DEVELOPMENT ADVISORY COUNCIL

6. Establishment of Advisory Council
7. Functions of Advisory Council
8. Composition of Advisory Council
9. Term of office of members of Advisory Council
10. Vacation of office and filling of vacancies
11. Meetings of Advisory Council

6.4 Land Survey Act 33 of 1993

OBJECTIVES

To regulate the survey of land; and to provide for matters incidental thereto.

INTRODUCTORY PROVISIONS

1. Definitions

CHAPTER 1- ADMINISTRATION OF ACT

2. Appointment of Surveyor-General
3. Powers and duties of Surveyor-General
4. Survey regulations board
5. Regulations
6. Fees of office

CHAPTER 2- DUTIES OF LAND SURVEYORS

7. Duties of land surveyors

CHAPTER 3- ORIGINAL SURVEYS AND RESURVEYS

8. Original survey of land
9. Diagram of land surveyed under direction of Surveyor-General
10. Rectification of title deeds after determination of boundary dispute
11. Endorsement of diagrams when correct position of beacon or boundary has been determined and agreed on
12. Rules for arbitrators
13. Approval of diagram of portion of unsurveyed land
14. Replacing existing diagram by new diagram after resurvey
15. Resurvey of block of land other than township

CHAPTER 4-DIVISION SURVEYS

16. Division diagrams
17. Procedure on division survey
18. Division of land abutting on sea or tidal river or lake or vlei
19. Diagram of exact fraction of land
20. Reference marks

CHAPTER 5-TOWNSHIPS

21. Resurvey of township
22. Defrayal of costs of resurvey of township
23. Approval of new general plan
24. New general plan supersedes erroneous diagrams
25. Alteration or cancellation of general plan

CHAPTER 6 BEACONS AND BOUNDARIES

26. Beacons and boundaries lawfully established
27. Removal of uncertainty in description of curvilinear boundary
28. Land abutting on a river
29. Manner and cost of erecting beacon for survey purposes
30. No erection or excavation to be placed or made near trigonometrical station
31. Repair or re-erection of beacon or mark
32. Offences and compensation in respect thereof
33. Authorisation for removal or disturbance of beacon or mark

CHAPTER 7 GENERAL PLANS AND DIAGRAMS

34. Manner of preparing general plan or diagram
35. No registration of land without approved general plan or diagram

36. General plan or diagram to be signed by land surveyor
37. Rectification of overlapping diagram
38. Diagram for consolidated title
39. Registrar and owner to be notified of incorrect diagram
40. Correction of registered diagram

CHAPTER 8 MISCELLANEOUS PROVISIONS

41. Powers of Surveyor-General and land surveyors for purpose of performing functions
42. Act binds State
43. Act not applicable to surveys for purposes of mines, railways and irrigation works
44. Notice to Surveyor-General of application to court
45. Restriction of liability
46. Repeal of laws and savings
47. Short title and commencement

6.5 Flexible Land Tenure Act 4 of 2012

OBJECTIVES

Create new forms of title to immovable property; to create a register for these forms of title and registrars to register these forms of title; to provide for the nature of the rights conferred by these forms of title; and to provide for matters incidental thereto.

SECTIONS

1. Definitions
2. Objects of Act
3. Application of Act
4. Establishment of Land Rights Offices
5. Appointment of Land Rights Registrar and other officers
6. Registers
7. Duties of Registrar
8. Powers of Registrar
9. Nature of starter title rights
10. Nature of land hold title rights
11. Preliminary steps before establishment of starter title or land hold title scheme
12. Establishment of starter title scheme
13. Establishment of land hold title scheme
14. Upgrading of starter title scheme to land hold title scheme
15. Upgrading of starter title or land hold title to full ownership
16. Regulations
17. Enforcement of restrictive conditions
18. Associations
19. Appeals
20. Short title and commencement

7 ANNEXURES

7.1 Documents produced by the project manager

7.1.1 Annexure: Fact sheet on the Programme for the Provision of Low cost Land for Housing

NATIONAL PROGRAMME FOR THE PROVISION OF LOW COST LAND FOR HOUSING

Namibian Chamber of Environment

DEVELOPMENT WORKSHOP NAMIBIA

Contact: b.weber@dw-namibia.org / Tel: +264 81 358 21 79

AIMS OF THE PROGRAMME

- ⇒ To assist local authorities across Namibia to provide affordable land for housing as a measure to stop informal settlement growth;
- ⇒ To provide minimally serviced residential plots with title, in neighborhoods that can be upgraded with additional services over time;
- ⇒ To provide a basis for low income residents to invest into their properties and housing over time;
- ⇒ To assist Namibia to address its housing and urban land crisis in an affordable manner;

IMPLEMENTATION

DEVELOPMENT WORKSHOP NAMIBIA - an urban development specialized NGO: Providing technical expertise and project management to the programme (www.dw-namibia.org).

NAMIBIAN CHAMBER OF ENVIRONMENT - an umbrella organization for the environmental NGO sector in Namibia: Managing the land development fund of the programme (www.n-c-e.org).

FINANCIAL CONCEPT

LAND DEVELOPMENT FUND - supported by donor contributions: Financing the development of low cost erven across Namibia.

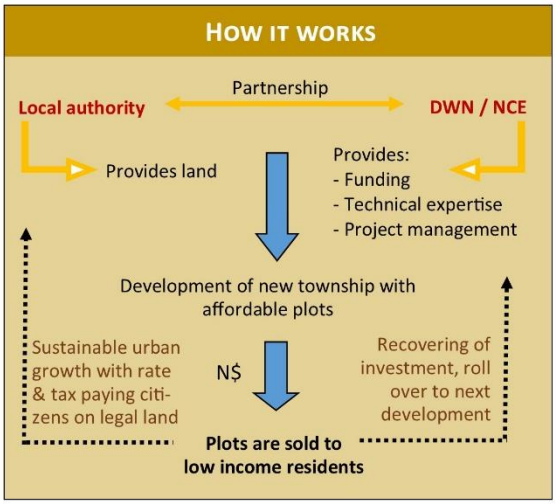
COST RECOVERY - through the sale of minimally serviced low cost plots: The programme is financially sustainable, but without returns and profits, in order to keep the price per plot as low as possible.

POLICY INTEGRATION

GOVERNMENT SUPPORT - accredited and supported by the Ministry of Urban and Rural Development.

CONTRIBUTION TO NATIONAL DEVELOPMENT PRIORITIES - contributing directly towards the Harambee Prosperity Plan and NDP 5.

HOW IT WORKS



Plots: minimally serviced, with title and below N$ 15,000;
No profits are made, but the ground laid for sustainable urban expansion.

CREATING NEIGHBORHOODS FOR A COMMON FUTURE

Organizational governance

Board of Trustees	Board of Trustees
Namibian Chamber of Environment	Development Workshop Namibia

Professional expertise in the boards: Land surveyor, Town planner, Investment manager, Academic, Architect, Researcher, Corporate sector manager, Sustainable development specialist

OUR TEAM

OUR SUPPORTERS

URBAN DYNAMICS

Knight Piésold CONSULTING

STRYDOM & ASSOCIATES aerial photography

Lithon Project Consultants

CURRENT DONORS

german cooperation

giz

RMB NAMIBIA Traditional values. Innovative ideas.

AUDITED BY

PRICEWATERHOUSECOOPERS

B2GOLD NAMIBIA

7.1.2 Annexure: Project MoU

MEMORANDUM OF UNDERSTANDING

"(hereinafter referred to as the "Agreement")"

between

THE TOWN COUNCIL OF xx

Herein duly represented in term of Council Resolution No: *xx*

By **xxx** in his capacity as **Chief Executive Officer**

and

xxx

in his/her capacity as Chairperson of the Management Committee

(Herein after referred to as **"the Council"**)

and

DEVELOPMENT WORKSHOP NAMIBIA TRUST

a charity trust duly incorporated in accordance with the laws of the Republic of Namibia with Registration No: 538/16, herein represented by **Mr Beat Weber** in his capacity as **Executive Director.**

(Herein after referred to as "**the Developer")**

"(Both hereinafter jointly referred to as the "Parties" and individually as the "Party")"

for

DEVELOPING MINIMALLY SERVICED LOW COST ERVEN IN xxx

PREAMBLE

WHEREAS the Council owns undeveloped land and intends to speed up the process of availing minimally serviced land in its area of operation;

WHEREAS the Developer seeks to avail affordable residential land for the benefit of low and lowest income residents;

WHEREAS the Developer seeks no profit, but acts on the basis of its social mission to assist the low and lowest income residents in Namibia's urban settlements;

WHEREAS the Council and the Developer propose to conclude a Memorandum of Agreement;

1. THE PARTIES AGREE AS FOLLOWS:

1.1 Obligations of the Council:

a. Avails virgin land to be planed and serviced for residential erven of not less than 300 square metres for low income residents;
b. Makes budgetary provision for bulk water infrastructures and access roads and any other bulk provision of infrastructure up to the boundaries of the new township;
c. Provides office space for the Developer's project coordinator;
d. Assigns the necessary staff members within the establishment of the Council with the required expertise to implement the project, assisted by the Developer's project coordinator;
e. Mobilise the residents to participate in the project;
f. Makes budgetary provision for compensation of the communal farmers that will be affected by the proposed project where applicable;
g. Approves the allocation of the erven to the beneficiaries in line with Council policy of allocating land;
h. Comply with the provision of section 63(2) and (3) of the Local Authorities Act, 23 of 1992.

1.2 Obligations of the Developer:

a. Acquires the necessary funding for the implementation of the project;
b. Provides a project coordinator to work with the Council's staff for the implementation of the project;
c. Provides all necessary services to develop minimally serviced erven as described in this agreement and subsequent addenda;
d. Appoints the service providers such as Town Planner, Land Surveyor, Engineer and Conveyancers for this project;
e. Provides overall coordination and project management in terms of this agreement and submits progress reports to Council on a quarterly basis;
f. Will continue seeking additional funding for the project that may allow the development of additional erven, subject to an agreement with the Council.

1.3 Services to be provided by the Developer for the development of the new township:

a. Land surveying services by a registered land surveyor. Outputs include production of a General Plan and pegging of the new township;
b. Town planning services by a registered town planner. Outputs include the development of a layout plan, implementation of environmental assessment, obtaining of approval of the Namibian Planning and Advisory Board and the Townships Board regarding the need and desirability and the final layout of the proposed development as set out in this agreement and successful proclamation of the new township;

c. Consulting engineering services. Outputs include detailed design and budgeting of all services to be provided to the new township. The engineer shall further be responsible for the tendering process and selection of construction company that will construct the services;
d. Conveyancing services: Outputs include deeds office registrations related to, inter alia, (i) the local authority title registrations as may be required, (ii) the general plan and township establishment, (iii) proclamation of the township(s), (iv) assisting the local authority with the deeds of sale (post Letter of Intent) compliant with statutory requirements, (v) transfer of property to beneficiaries and (vi) registering Council's conditions notarially against the title deeds;
e. Payment of constructors for the construction of the services;
f. Project management services by the developer.

1.4 Implementation of the project

a) The layout will have approximately xx erven;
b) Given the considerable size of the new township, the project can, if so preferred by the Developer, be implemented in several phases to be agreed on with the Town Council;
c) The phasing of the project applies to the construction of service only. Town planning, land surveying and engineering designs can be done for the whole area at once;
d) As soon as the beneficiaries of the first phase have paid in full, the project will initiate the servicing of the next phase. The servicing of following phases is done under the same conditions. The phasing will not delay the project implementation, but ensure that there is demand for the erven provided through the project.

1.5 Financial matters are to be conducted as follows:

1.5.1 General financial management

a. Financial contributions from donors will be transferred to a land development project account of the Namibian Chamber of Environment (NCE);
b. The NCE channels funds through the Developer to implement the project as described in this agreement;
c. The Council and the Developer open a joint bank account, with one signatory from each institution, with all bank transactions and movements requiring authorisation of both signatories;
d. All erf payments as outlined below (1.5.2) are made to this joint bank account;
e. Erf payments by beneficiaries are made to recover the initial amount of the revolving fund.

1.5.2 Erf payment procedures:

a. The cost of developing the new erven shall be decided by an addenda to this agreement, considering the final layout and calculations of costs of all services provided;
b. The beneficiaries eligible for purchasing erven through this project are to be selected by the Council's established selection procedures, with involvement of the Developer's project coordinator;
c. The payment for the erven shall be made as per Letter of Intent;
d. All identified beneficiaries shall pay a first instalment (deposit) to the joint project account prior to the commencement of the project, to ensure that there is sufficient demand for the erven to be developed;
e. The development and construction of services of the new township (or any phase if implemented in phases) shall commence after all beneficiaries have signed a Letter of Intent and committed to the project with the above-mentioned deposit;
f. Subsequent payments by the beneficiaries will be made as specified per Letter of Intent (monthly instalments for example).

1.5.3 Additional financial considerations:

a. Only after having paid their erf in full, the beneficiaries shall be allowed to occupy the erf;
b. The beneficiaries can, if they so want, pay at shorter intervals than outlined above;
c. If a beneficiary fails to comply with the payment schedule without valid reasons, she/he shall be removed from the beneficiary list and replaced by another beneficiary as identified through established Council procedure;
d. The initial deposit and all payments are refundable, but charged with a penalty percentage of 10%;
e. In case the costs per erf are less, the amount of the deposit and all payments shall be adjusted accordingly;
f. The land availed by the local authority shall be transferred directly to the beneficiary; the Developer shall at no stage of the project become the owner of the land.

1.5.4 Reimbursements from the joint bank account to the NCE land development project account

a. The joint bank account gives security to both the Council and the Developer: It allows the Council to fully control erf payments and it provides security to the Developer that costs recovered from this project are not used for other Council expenses.
b. Money in the joint bank account is to be used for projects to continuously develop erven in xxx, always on a cost recovery basis as outlined in this agreement;
c. The projects must be of the same nature and specifications as this first project, referred to by this agreement and its addenda;
d. Once there are no more projects of such nature and specifications to be implemented (period up to three months), the full amount (the initial 'revolving fund') shall be reimbursed to the NCE who may then apply the funds in another town. This is to ensure that the money provided by the donors is always in use to develop low cost land for housing.

1.6 Suspensive conditions:

This agreement is subject to the following suspensive conditions:
Approval is obtained from the Minister of Urban and Rural Development in terms of Section 30 (1)(t) and (z) (i) (ii) of the Local Authorities Act, Act 23 of 1992, as amended, for the intended purpose contained in this agreement.

1.7 Modification

This agreement which constitutes the entire Agreement between the parties may be modified if agreed to in writing between the two parties, such agreement then being an **addendum** to the original agreement.

1.8 Arbitration

In the event of any dispute or difference arising between the parties relating to, or arising out of this Agreement, the parties will immediately meet to attempt to settle such dispute or difference, and failing such settlement within a period of 30 days, the dispute or difference will be submitted to Arbitration, to be held in Windhoek, Namibia, in accordance with the provision of the Arbitration Act 42 of 1965.

IN WITNESS whereof, the undersigned representatives, being duly authorised thereto by their respective institutions, have signed this Agreement in duplicate in English, in the presence of undersigned witnesses:

Signed at _____ on this _____ day of _____ 20XX.

_____ _____

_____
The Council
xxx Town Council
Herein represented by
xxxx
In his/her capacity as
Chief Executive Officer

As Witnesses

1. _____

2. _____

_____
The Council
xxx Town Council
Herein represented by
xxxx
In his/her capacity as
Chairperson of the Management Committee

As Witnesses

1. _____

2. _____

Signed at
_____
_____
_____
__ on this ___ day of
_____
_____
_____
20XX.

_____
_____
_____
_____

_____
The Developer
Development Workshop Namibia
Herein represented by **Beat Weber**
In his capacity as Executive Director

As Witnesses

1. _____ 2. _____

7.1.3 Annexure: Letter of Intent

This project aims to provide low cost residential erven for low income residents in xxx. The project is jointly implemented by the xxx Town Council (xTC) and Development Workshop Namibia (DWN). The project has a purely social objective and no profits are made by either xTC or DWN. The price of the applicable erven consists of: Professional fees (town planner, land surveyor, consulting engineer, conveyancer, project manager), and service construction costs (collectively called the "Project Costs"). The land on which the project is implemented belongs to xTC and is provided for free *(or: state cost)* for this project. The price that the beneficiaries of this project pay is merely to recover the Project Costs; which amounts shall be applied towards the planning, surveying and servicing of follow- up phases.

I, _____with ID no. _____,

hereby agree to the following:

Payments

1. I have voluntarily manifested my interest to participate in this project;
2. I agree to pay N$xxx for a residential plot of approximately 300 square metres;
3. I agree to make an initial deposit of N$xxx to be paid within xx months of signing this Letter of Intent;
4. I agree to pay a minimum monthly instalment of N$xxx until I have paid off the whole amount of N$xxx; I further understand that I am permitted to pay more than the minimum monthly instalment which will allow me to occupy my plot sooner;
5. I agree to be removed as a beneficiary if I fall in arrears with more than a month's instalment; in which event, I agree to be reimbursed the amount that I have paid, minus a 10% penalty fee;
6. I agree that I will only be indicated my plot for occupation once I have paid of the complete amount of N$xxx;
7. I agree to install a water meter at my own cost once I want to start using water on my plot;
8. I agree that I will receive a freehold title to my plot (transfer related costs are included in the plot price) once all regulatory requirements have been fulfilled and the township has been proclaimed;
9. I agree that I will pay rates and taxes as stipulated by OTC.

Conditions:

1. I am aware that only partial services will be provided to the plot, in order to keep the purchase price low;
2. The services include a domestic water connection;
3. I agree to build an on-site sanitary solution within a period of 3 months after occupying the plot. The sanitary solution shall be one of the demonstration systems, or another system allowed by OTC; the sanitary solution can be for my plot only or shared with a maximum of three neighbouring plots; *(this paragraph depends from town to town)*
4. I agree that I am not allowed to sell the plot and any structure on it for a period of 7 years after first occupation and that this condition shall be registered against the title deed of the plot;
5. I agree that I can build a first top structure with improvised building material (such as corrugated iron), but that I must initiate the construction with bricks within one year of occupation of the plot;
6. I agree to comply with all existing Town Council building regulations that may apply to my plot and agree that it is my responsibility alone to inform myself about these regulations;
7. I understand that I shall be required to sign (and agree to sign) a formal sale agreement with xTC in the form determined by OTC and based upon the content of this Letter of Intent and such other terms and conditions as either the OTC or the Minister of Urban and Rural Development may determine.

I confirm that I have read and understand all information in this letter of intent.

Signed at: _____ on this _____ day of __ _____ 20XX

7.1.4 Annexure: Beneficiary database

Plot Information						Owner Information									
	Plot Number	Extension	Size (m2)	Plot Price	Zoning	Unique client number	Name of Owner	Type of client	Occupation	m/f	ID number	Tel. contact	Size of hh	Date signature letter of int	Date signature title deed
								shack owner/ tenant / new registration							

Payments					Total	Balance
Payment 1		Payment 2		Payment P3		
Date	Amount	Date	Amount	Date		
					0	

7.1.5 Annexure: Service provider payment monitoring sheet

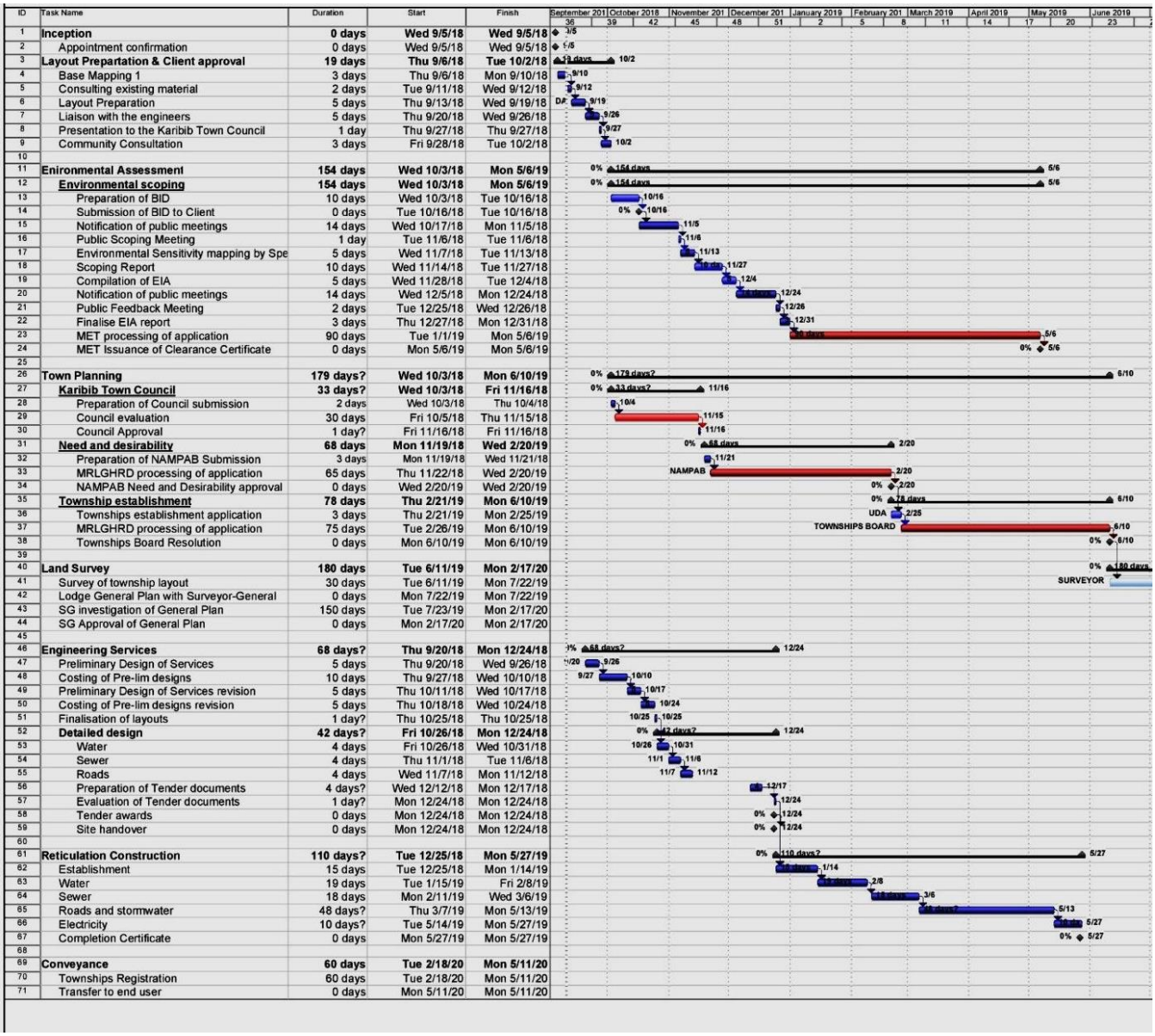
Expense monitoring sheet — Karibib

Number of erven	350

Expenses	Cost per erf	Total fees	Total invoiced to date	Outstanding balance	Invoice amount 1	Date	Invoice amount 2	Date	Invoice amount 3	Date
	N$									
Town Planner	1,700	595,000	140,852	454,148	140,852	04-Apr-19				
Land surveyor	1,500	525,000	0	525,000						
Engineer		0	0	0						
Conveyancer (incl. deeds registry fees)	1,300	455,000	0	455,000						
Environmental clearance	70	24,500	0	24,500						
Project management (DWN)	1,000	350,000	0	350,000						
Water household connection	6,000	2,100,000	0	2,100,000						
Town Council charge on land		0	0	0						
Contingency		0	0	0						
Costs / erf	**11,570**	4,049,500	140,852	3,908,648						

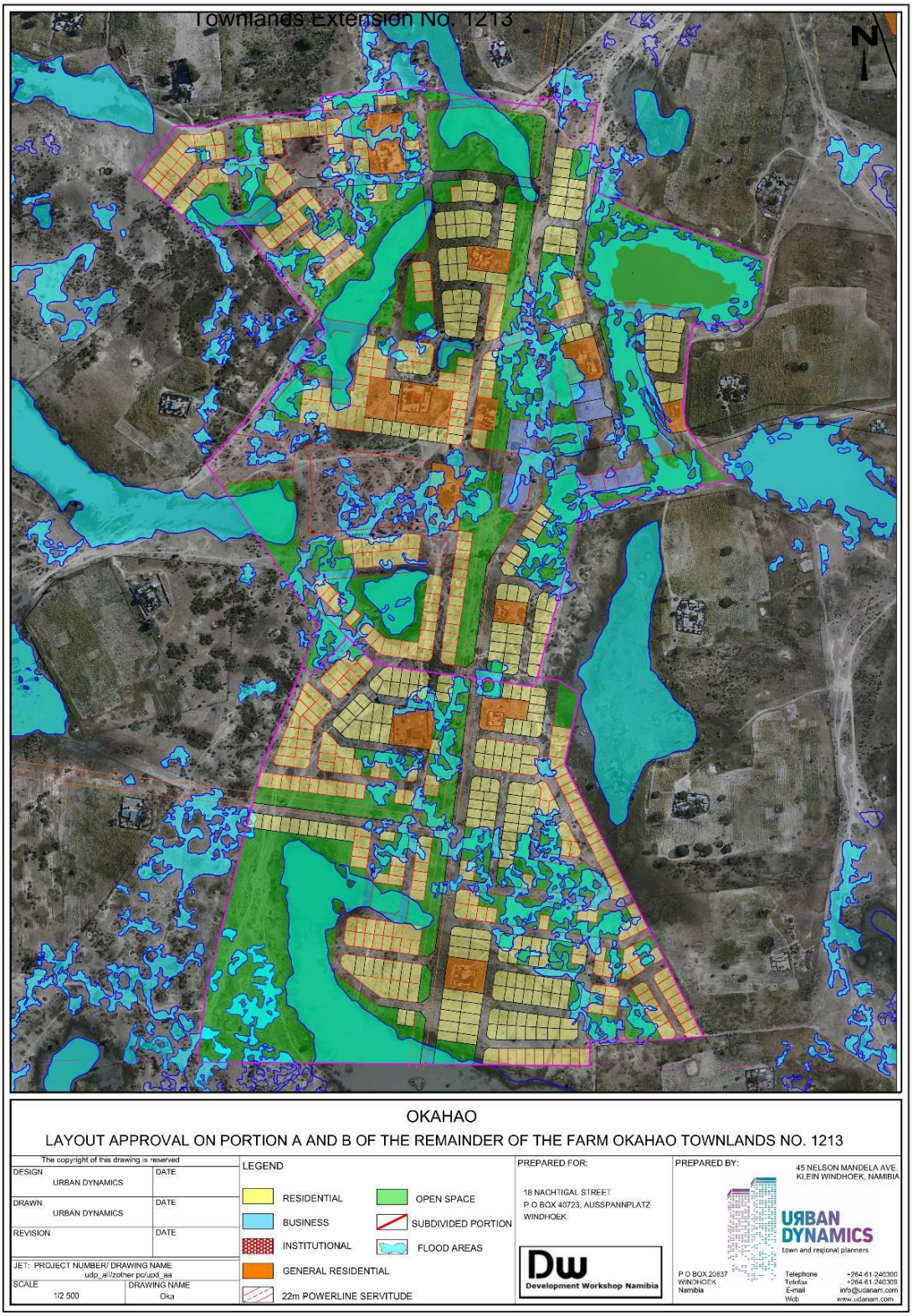
7.2 Documents produced by the town planner

7.2.1 Annexure: Project timeline



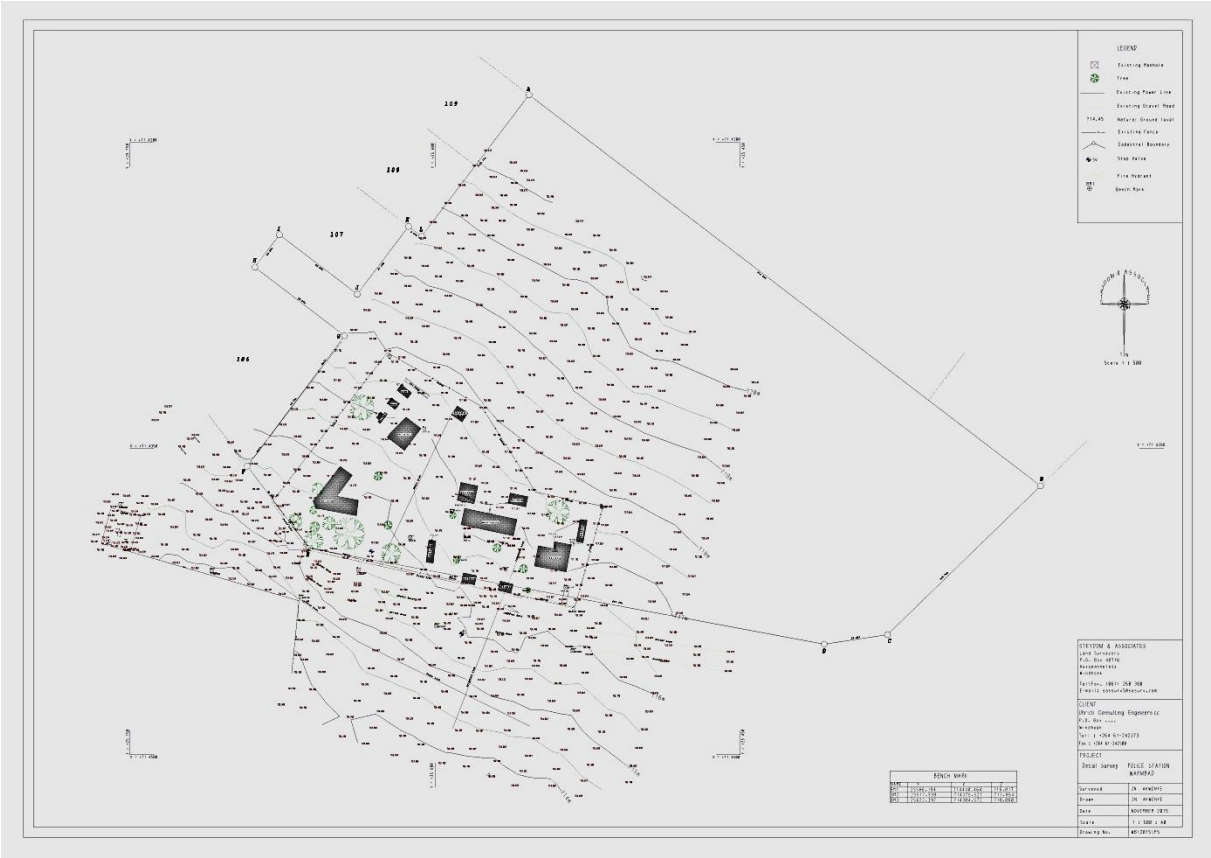
ID	Task Name	Duration	Start	Finish
1	**Inception**	**0 days**	**Wed 9/5/18**	**Wed 9/5/18**
2	Appointment confirmation	0 days	Wed 9/5/18	Wed 9/5/18
3	**Layout Preparation & Client approval**	**19 days**	**Thu 9/6/18**	**Tue 10/2/18**
4	Base Mapping 1	3 days	Thu 9/6/18	Mon 9/10/18
5	Consulting existing material	2 days	Tue 9/11/18	Wed 9/12/18
6	Layout Preparation	5 days	Thu 9/13/18	Wed 9/19/18
7	Liaison with the engineers	5 days	Thu 9/20/18	Wed 9/26/18
8	Presentation to the Karibib Town Council	1 day	Thu 9/27/18	Thu 9/27/18
9	Community Consultation	3 days	Fri 9/28/18	Tue 10/2/18
10				
11	**Enironmental Assessment**	**154 days**	**Wed 10/3/18**	**Mon 5/6/19**
12	**Environmental scoping**	**154 days**	**Wed 10/3/18**	**Mon 5/6/19**
13	Preparation of BID	10 days	Wed 10/3/18	Tue 10/16/18
14	Submission of BID to Client	0 days	Tue 10/16/18	Tue 10/16/18
15	Notification of public meetings	14 days	Wed 10/17/18	Mon 11/5/18
16	Public Scoping Meeting	1 day	Tue 11/6/18	Tue 11/6/18
17	Environmental Sensitivity mapping by Spe	5 days	Wed 11/7/18	Tue 11/13/18
18	Scoping Report	10 days	Wed 11/14/18	Tue 11/27/18
19	Compilation of EIA	5 days	Wed 11/28/18	Tue 12/4/18
20	Notification of public meetings	14 days	Wed 12/5/18	Mon 12/24/18
21	Public Feedback Meeting	2 days	Tue 12/25/18	Wed 12/26/18
22	Finalise EIA report	3 days	Thu 12/27/18	Mon 12/31/18
23	MET processing of application	90 days	Tue 1/1/19	Mon 5/6/19
24	MET Issuance of Clearance Certificate	0 days	Mon 5/6/19	Mon 5/6/19
25				
26	**Town Planning**	**179 days?**	**Wed 10/3/18**	**Mon 6/10/19**
27	**Karibib Town Council**	**33 days?**	**Wed 10/3/18**	**Fri 11/16/18**
28	Preparation of Council submission	2 days	Wed 10/3/18	Thu 10/4/18
29	Council evaluation	30 days	Fri 10/5/18	Thu 11/15/18
30	Council Approval	1 day?	Fri 11/16/18	Fri 11/16/18
31	**Need and desirability**	**68 days**	**Mon 11/19/18**	**Wed 2/20/19**
32	Preparation of NAMPAB Submission	3 days	Mon 11/19/18	Wed 11/21/18
33	MRLGHRD processing of application	65 days	Thu 11/22/18	Wed 2/20/19
34	NAMPAB Need and Desirability approval	0 days	Wed 2/20/19	Wed 2/20/19
35	**Township establishment**	**78 days**	**Thu 2/21/19**	**Mon 6/10/19**
36	Townships establishment application	3 days	Thu 2/21/19	Mon 2/25/19
37	MRLGHRD processing of application	75 days	Tue 2/26/19	Mon 6/10/19
38	Townships Board Resolution	0 days	Mon 6/10/19	Mon 6/10/19
39				
40	**Land Survey**	**180 days**	**Tue 6/11/19**	**Mon 2/17/20**
41	Survey of township layout	30 days	Tue 6/11/19	Mon 7/22/19
42	Lodge General Plan with Surveyor-General	0 days	Mon 7/22/19	Mon 7/22/19
43	SG investigation of General Plan	150 days	Tue 7/23/19	Mon 2/17/20
44	SG Approval of General Plan	0 days	Mon 2/17/20	Mon 2/17/20
45				
46	**Engineering Services**	**68 days?**	**Thu 9/20/18**	**Mon 12/24/18**
47	Preliminary Design of Services	5 days	Thu 9/20/18	Wed 9/26/18
48	Costing of Pre-lim designs	10 days	Thu 9/27/18	Wed 10/10/18
49	Preliminary Design of Services revision	5 days	Thu 10/11/18	Wed 10/17/18
50	Costing of Pre-lim designs revision	5 days	Thu 10/18/18	Wed 10/24/18
51	Finalisation of layouts	1 day?	Thu 10/25/18	Thu 10/25/18
52	**Detailed design**	**42 days?**	**Fri 10/26/18**	**Mon 12/24/18**
53	Water	4 days	Fri 10/26/18	Wed 10/31/18
54	Sewer	4 days	Thu 11/1/18	Tue 11/6/18
55	Roads	4 days	Wed 11/7/18	Mon 11/12/18
56	Preparation of Tender documents	4 days?	Wed 12/12/18	Mon 12/17/18
57	Evaluation of Tender documents	1 day?	Mon 12/24/18	Mon 12/24/18
58	Tender awards	0 days	Mon 12/24/18	Mon 12/24/18
59	Site handover	0 days	Mon 12/24/18	Mon 12/24/18
60				
61	**Reticulation Construction**	**110 days?**	**Tue 12/25/18**	**Mon 5/27/19**
62	Establishment	15 days	Tue 12/25/18	Mon 1/14/19
63	Water	19 days	Tue 1/15/19	Fri 2/8/19
64	Sewer	18 days	Mon 2/11/19	Wed 3/6/19
65	Roads and stormwater	48 days?	Thu 3/7/19	Mon 5/13/19
66	Electricity	10 days?	Tue 5/14/19	Mon 5/27/19
67	Completion Certificate	0 days	Mon 5/27/19	Mon 5/27/19
68				
69	**Conveyance**	**60 days**	**Tue 2/18/20**	**Mon 5/11/20**
70	Townships Registration	60 days	Tue 2/18/20	Mon 5/11/20
71	Transfer to end user	0 days	Mon 5/11/20	Mon 5/11/20

7.2.2 Annexure: Project layout

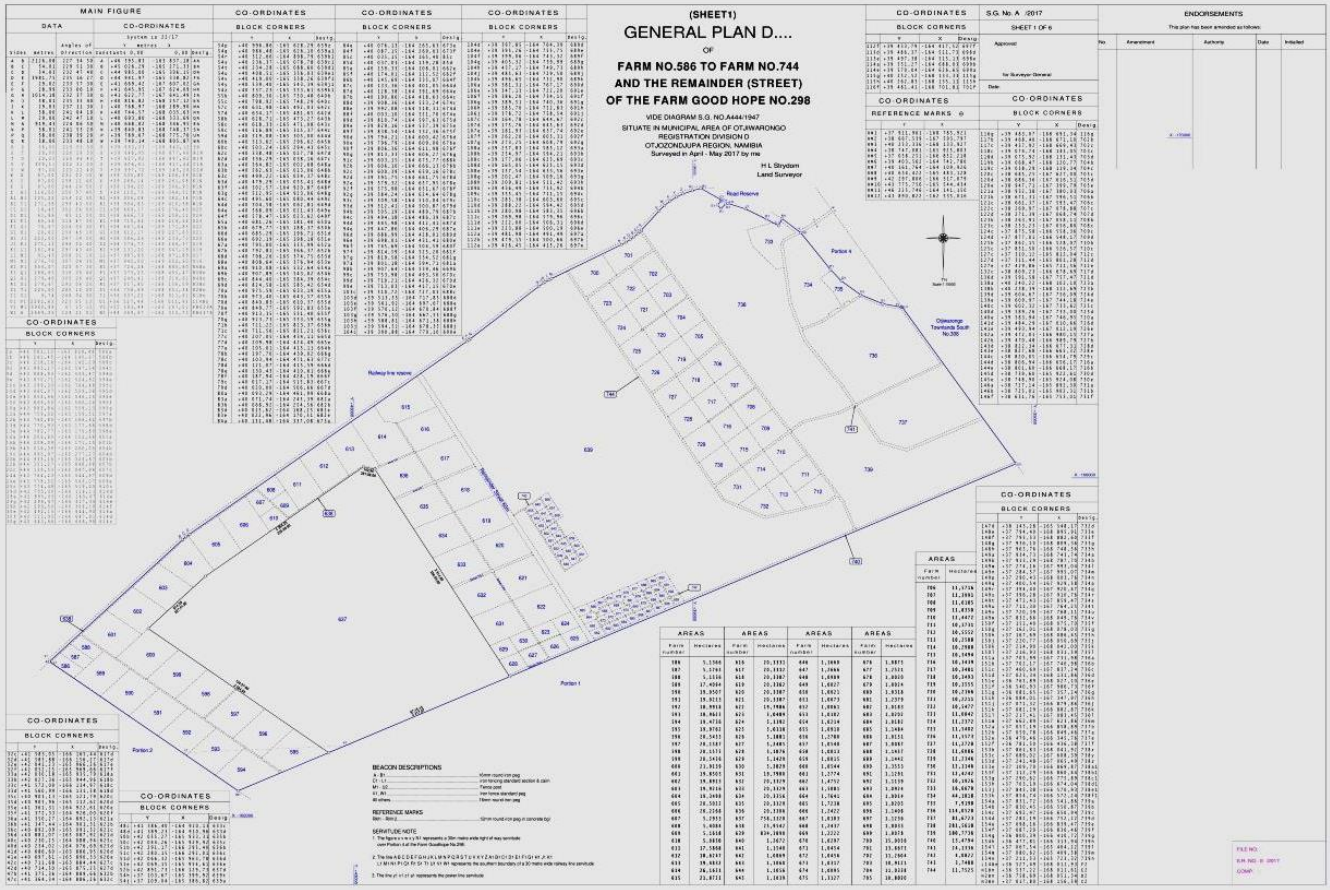


7.3 Documents produced by the land surveyor

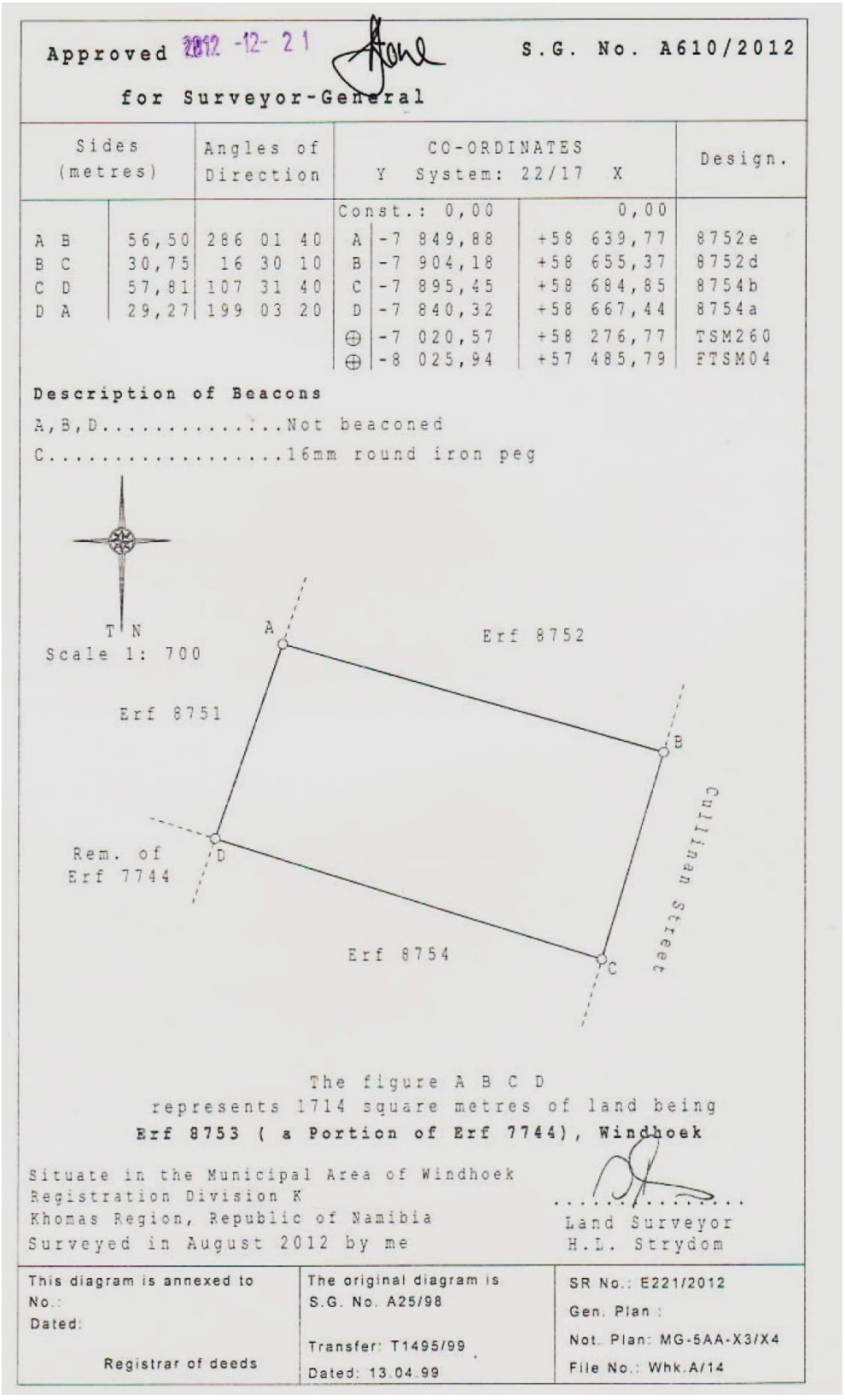
7.3.1 Annexure: Topographical survey



7.3.2 Annexure: General Plan



7.3.3 Annexure: Diagram



Approved 2012 -12- 21

for Surveyor-General

S.G. No. A610/2012

Sides (metres)		Angles of Direction		CO-ORDINATES Y System: 22/17 X			Design.
				Const.: 0,00		0,00	
A B	56,50	286 01 40	A	-7 849,88	+58 639,77		8752e
B C	30,75	16 30 10	B	-7 904,18	+58 655,37		8752d
C D	57,81	107 31 40	C	-7 895,45	+58 684,85		8754b
D A	29,27	199 03 20	D	-7 840,32	+58 667,44		8754a
			⊕	-7 020,57	+58 276,77		TSM260
			⊕	-8 025,94	+57 485,79		FTSM04

Description of Beacons

A,B,D.....Not beaconed

C.....16mm round iron peg

T N

Scale 1: 700

Erf 8752

Erf 8751

Rem. of Erf 7744

Erf 8754

Cullinan Street

A

B

C

D

The figure A B C D
represents 1714 square metres of land being
Erf 8753 (a Portion of Erf 7744), Windhoek

Situate in the Municipal Area of Windhoek
Registration Division K
Khomas Region, Republic of Namibia
Surveyed in August 2012 by me

.....
Land Surveyor
H.L. Strydom

This diagram is annexed to No.: Dated: Registrar of deeds	The original diagram is S.G. No. A25/98 Transfer: T1495/99 Dated: 13.04.99	SR No.: E221/2012 Gen. Plan : Not. Plan: MG-5AA-X3/X4 File No.: Whk.A/14

7.4 Documents produced by the engineer

7.4.1 Annexure: Bill of Quantities (BoQ) – example of a summarised BoQ

Proposal - Okahao Services
COMBINED SERVICES

Knight Piésold CONSULTING

SUMMARY OF SECTIONS

SECTION	DESCRIPTION	AMOUNT N$
1	SEWER	5,355,699.00
2	WATER	1,738,940.00
3	ROADS	701,360.00
	SUBTOTAL	7,795,999.00
	Add 15% VAT	1,169,399.85
Total Carried		**8,965,398.85**
Total Cost Per Erf		**31,679.85**

SUMMARY OF COSTS NOT INCLUDED

SECTION	DESCRIPTION	AMOUNT N$
4	SEWER CONSERVANY TANKS	3,885,000.00
5	FIRE HYDRANTS	135,960.00
6	WATER METERS	250,455.00
	SUBTOTAL	4,271,415.00
	Add 15% VAT	640,712.25
Total Carried		**4,912,127.25**
Total Cost Per Erf		**17,357.34**

SUMMARY OF FEES FOR SUMMARY OF SECTIONS

7	PROFESSIONAL FEES %	9.87
	PROFESSIONAL FEES	769,465.10
	FEES LESS DISCOUNT (40% DISCOUNT OFFERED)	**461,679.06**
8	DISBURSEMENTS	44,000.00
	SUBTOTAL	505,679.06
	Add 15% VAT	75,851.86
	TOTAL FEES AND DISBURSMENTS	**581,530.92**

7.4.2 Annexure: Table of contents of a bulk service assessment – example Okahao, 2019

ISO 9001, ISO 14001
OHSAS 18001

TABLE OF CONTENTS

PAGE

7.5 Documents managed and/or produced by the conveyancer

7.5.1 Annexure: Financial Intelligence Act Form

THE FINANCIAL INTELLIGENCE ACT 13 OF 2012– RECORD OF PRESCRIBED CLIENT PARTICULARS NATURAL PERSONS

FULL NAME(S)	
PREVIOUS NAMES (IF ANY)	
NATIONALITY	
IDENTITY NUMBER	
INCOME TAX NUMBER	
OCCUPATION	
MARITAL STATUS	
POSTAL ADDRESS	
RESIDENTIAL ADDRESS	
TELEPHONE NUMBER	
NATURE AND LOCATION OF BUSINESS ACTIVITIES	
E-MAIL ADDRESS	
SOURCE OF FUNDS	

BANK ACCOUNT DETAILS OF CO: ACC NUMBER	
❖ Name of Bank	
❖ Account Holder	
❖ Branch	

Please supply the original or certified copy of the following documents together with this form:

- ❖ Identity Document or passport (if a foreign national)
- ❖ Identity Document or passport (if a foreign national) of each person authorised to conduct business on behalf of this natural person
- ❖ Marital status confirmation (i.e. signed declaration, certified marriage certificate, certified divorce decree or certified death certificate of spouse or equivalent for foreign nationals)
- ❖ Copy of income tax certificate from the Ministry of Finance or equivalent from a foreign national;
- ❖ Proof of authorisation of representatives (eg. Authorising resolution or confirmation signed by the Managing Director/Chief Executive Officer).
- ❖ Proof of residential address (e.g. utility bill, insurance quote,lease agreement etc.)

Description of business (Brief description of type of business conducted and general source of funds)

I hereby confirm that the above information and attachments are true and accurate.

Signature:	Date:
Name:	
Capacity:	

7.5.2 Annexure: Title deed

Insert copy of deed once first ones are produced in the context of the current projects

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