

Upgrading and Formalization of the Havana  
Extension 6 & 7 Settlement Area

# SCOPING REPORT

**ENVIRONMENTAL IMPACT ASSESSMENT AND  
CONSTRUCTION  
ENVIRONMENTAL MANAGEMENT PLAN**

**MAY 2013**

Prepared for:



Jointly prepared by:



## 1

VISION 2030  
STATEMENT**Sub - Vision** on Migration, Urbanization and Population Distribution

*“There is free movement of the population within the country and population distribution is maturely adjusted to the location of resources for livelihood. Namibia is a highly urbanized country with about 75 percent of the population living in proclaimed urban centres, while the predominance of Windhoek has considerably reduced as a result of growth of other urban centres throughout the country.”*

## 2

MET's  
MISSION

*“To maintain and rehabilitate essential ecological processes and life support system, to conserve biological diversity and to ensure that the utilization of natural resources is sustainable for the benefit of all Namibians, both present and future, as well as for the international community.”*

## 3

CoW THRUST  
GOAL  
STATEMENT

*“Provide basic services and maintain infrastructure; Ensure a healthy, clean, safe and secure environment for all; Create an environment for socio-economic development, and Promote public participation.”*



## DOCUMENT ISSUE STATUS

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Windhoek

**Project title:** *Environmental Impact Assessment & Construction Environmental Management  
Plan for the upgrading and formalization of the  
HAVANA EXTENSION 6 & 7 Settlement Area*

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# 1. Executive Summary

The City of Windhoek (CoW), like any other big city and more specifically being the capital city of Namibia, has and is still continuously experiencing rapid urbanization since independence. The Havana, Babylon and Kilimanjaro reception areas are examples of the City's attempt to accommodate and to provide land to the influx of new residents to the City.

The City can however not keep up with the rate at which to deliver serviced land, which inevitably is resulting in the mushrooming of several informal settlement areas in and around the City on open portions of land. HAVANA EXTENSION 6 & 7 is one of these unproclaimed yet inhabited existing informal settlements, which now requires to be upgraded and formalized.

The activity of upgrading and formalizing the HAVANA EXTENSION 6 & 7 township through zonation and the installation of sewage, water, electricity, stormwater and road infrastructures requires an Environmental Clearance Certificate to commence in terms of the Environmental Management Act, 2007 (Act No. 7 of 2007) and its Environmental Impact Assessment Regulations. Hence the appointment of the Consortium [comprising of SED Consultancy and AFROMACH Investment (PTY) LTD] as Environmental Assessment Practitioner (EAP) by the CoW to conduct the environmental assessment process and to draft all required environmental reports such as this Scoping Report.

HAVANA EXTENSION 6 & 7 is not a Green Field Development area and is located on the north-western periphery of the Windhoek urban area within the proposed Portions 1 (23,4577 ha) and Portions 2 (25,7832 ha) of the Remainder of Portion B of the farm Nubuamis No. 37. The proposed development site falls

within the Khomas Hochland Brokenveld, but is characterized by a clearly visible disturbed natural environment. The few vegetation communities at HAVANA EXTENSION 6 & 7 provide minimal habitats to few available amounts of birds, mammals and reptile species. The area comprises of three major landforms namely slopes (with an average gradient of 1:7 to 1:8), ridges and ephemeral river courses. Sand, gravel and limited silt deposit in the minor river courses and overlay the bedrock.

The soils are generally less than 1 meter thick and the area is generally overlain by outcrop, which may be covered by a very thin veneer of quartz float and regolith. The land or any portion thereof is not subject to flooding, tidal action or sand penetration and has not been filled in, drained or flattened. It is contended that on site geological conditions do not pose a hindrance to a township establishment or upgrading. The general overall mean annual rainfall in the Windhoek area is in the order of 200 to 400mm per annum occurring mainly between November and April, and with an average evaporation in the region of 3400mm per annum. The temperature varies between 4°C - 32°C with a prevailing south-easterly wind direction.

Apart from the Environmental Management Act No. 7 of 2007 and its Regulations, the Constitution of the Republic of Namibia of 1990; the Local Authorities Act No. 23 of 1992 and all relevant municipal regulations; a number of general legislation on environmental management; legislation on biophysics and biodiversity conservation; legislation on water management; legislation that deal with resettlement; and legislation on health, safety and socio-economic issues were reviewed as an important component of an

Environmental Impact Assessment (EIA) study to inform the developer of all possible legal requirements to be fulfilled before the upgrading and formalizing exercise of the HAVANA EXTENSION 6 & 7 settlement can commence.

Furthermore, legislation requires that Interested and Affected Parties (I&APs) be consulted adequately during an EIA process in order to allow stakeholders to raise issues of concern; to make suggestions for enhanced benefits, and to comment on the findings of the EIA as part of the decision making process. Two Public Meetings were held one on the 23 February 2013 and on the 20 April 2013 with significant high participants' attendance of approximately 490 and 240 I&APs respectively. This high turn-up is attributed to the extra invitation efforts and resources utilized e.g. newspapers adverts, displaying a number of posters at various strategic places; personal phoning, visiting and inviting individual I&APs, and most importantly local languages announcements in the national radio services. Issues and comments raised were mainly socio-economical of nature and more particular on property ownership and the provision of associated amenities.

Potential environmental impacts aspects assessed are those associated with civil earthwork during constructions such:-

- the impacts on the limited ecology due to civil earthwork during constructions and resettlement activities after constructions;
- noise impacts associated to construction activities, traffic movement, possible future commercial and entertainment activities;



- ❖ air pollutions during the construction phase, pre-and post-traffic movements, and from evaporation ponds and sanitation facilities' emissions;
- ❖ surface and groundwater pollution due to leakages and or spillages of oil, grease and fuel from earthmoving equipment and machineries, and the few pilot sanitation and evaporation ponds facilities;
- ❖ solid waste management as a result of construction debris, future domestic and commercial waste, and
- ❖ socio-economic issues such as safety, health, poverty and basic public amenity needs.

This assessment concludes and recommends that the project, as

described in this EIA Scoping Report, is environmentally acceptable and that the enormous socio-economic benefits associated with this project confirm that the construction of water, sewerage, electricity, stormwater and roads services in HAVANA EXTENSION 6 & 7 can proceed subject to a commitment by the City of Windhoek and the Construction Contractors to ensure compliance and adherence to the mitigation measures as recommended in Chapters 6 & 7 of this Report as well as in compliance with all the relevant legislative requirements.

It is also further recommended that the City of Windhoek assign an Environmental Officer to monitor the site activities throughout construction to advise and ensure compliance to all requirements.



## 2. Introduction

### 2.1. Brief Project Background Information

The Namibian Government has put aside funds through the Targeted Intervention Program for Employment and Economic Growth (TIPEEG), over a period of three years (2011 – 2013), for the construction of services in informal settlements in Namibia.

The main services earmarked for construction include potable water, sewerage, electricity and roads infrastructures. This Program is aimed at addressing the severe shortages of serviced land and housing that is currently been experienced throughout the entire country and more particular in Windhoek.

The CoW has appointed a consortium [SED Consultancy and AFROMACH Investment (PTY) LTD] as Environmental Assessment Practitioner (EAP) to conduct and develop an Environmental Impact Assessment (EIA) and Construction Environmental Management Plan (CEMP) for the upgrading and formalization of the unproclaimed (but inhabited or existing) HAVANA EXTENSION 6 & 7 informal settlement.

This is done to comply with the provisions of Namibia's Environmental Assessment Policy, the Environmental Management Act, 2007 and its Regulations which require that all listed activities be subjected to Environmental Impact Assessments.

The conducting and development of the Environmental Impact Assessment (EIA) and drafting of the Construction Environmental Management Plan (CEMP) for this development is guided by the above mention Act and the CoW terms of reference.

The first phase in Windhoek covered services to areas such as OTJIMUISE EXTENSION 10 and ONGULUMBASHE among others in 2011. The City of Windhoek has budgeted for the above areas as part of the first phase. The areas of Rocky Crest South Extension 4 - 9, HAVANA EXTENSION 6 & 7 and Brakwater Mix Settlement are now included in this phase. These initiatives aim at complimenting national government in addressing serviced land shortages and improving livelihood in the City of Windhoek.

It is with this in mind that the City of Windhoek (CoW) plans to upgrade and formalize the unproclaimed (but inhabited or existing) HAVANA EXTENSION 6 & 7 informal settlement. These extensions stretch along Monte Cristo road and lies to the south west of existing Havana Township. The zoning of the proposed HAVANA EXTENSION 6 & 7 is mainly general residential, institutional, business and public open space. The services and infrastructure that will be installed include sewage, water, electricity, stormwater management and roads.

The development of HAVANA EXTENSION 6 & 7 is a very important development for the City of Windhoek to facilitate among others relocations of households in areas that are being upgraded as well as households in areas where the densities are too high. The Need and Desirability for the establishment of Havana Extensions 6 and 7 was approved on 16 November 2001 by the Hon. Minister of Regional and Local Government and Housing followed by the City Council approval of the layout for these two Township Extensions in November 2001.

### Government makes huge injection in Windhoek's informal settlements

• CATHERINE SASMAN

**CENTRAL** Government has made N\$310 million available over the next three years for the upgrade of informal settlements around Windhoek under the Targeted Intervention Programme for Employment and Economic Growth (Tipeeg).

The Windhoek municipality said the first transfer of N\$110 million has been received from the National Planning Commission, which mayor Elaine Trepper said would be used for the provision of water, roads, sewerage, and electricity in low income areas.

A contractor to do the civil construction has been commissioned for a 10-month project at Otjomuise Extension 10.

Other projects are to follow at the Havana, Okahandja Park and Ongulumbashe informal settlements.

The City also entered into a private-public partnership pilot project with a local company in October last year to plan, design, and service land in Academia Extension 1 and Otjomuise Extensive 4.

Work has already started at Otjomuise Extension 4.

Trepper believes that the two projects will fast-track land delivery and make a positive impact on the acute shortage of land in Windhoek.

She urged residents to desist from land grabbing and to follow official procedures available on land allocation "just as the case in communal areas".

The local authority's credo for the current financial year is to enhance service delivery.

Windhoek mayor Elaine Trepper last Wednesday evening said the challenge is to continuously provide services to those who have no access to such services, while the municipality experiences a squeeze on available serviced land, and increased pressure on water, electricity, and sanitation.



## 2.2. Terms of Reference

### 2.2.1. PROJECT OBJECTIVES

The objective of this consulting service is to conduct an Environmental Impact Assessment (EIA) study together with an Environmental Management Plan (EMP) for Havana Extension 6 & 7.

### 2.2.2. REQUIREMENT OF THE EAP's

The consultants or members of the consulting team or company (herein referred to as Environmental Assessment Practitioner - EAP ) must meet the general requirements for EAP's as indicated in Section 4 (a) and perform his/her work in full compliance with Section 4 (b, c, & d) of the Environmental Impact Assessment Regulations.

### 2.2.3. ENVIRONMENTAL ASSESSMENT REQUIREMENTS

The environmental assessment process must be carried out in accordance with Part VII & VIII of the Environmental Management Act, 2007 and Section 15 of Environmental Impact Assessment Regulations: Environmental Management Act, 2007.

The consultant is required, but not limited to do the following:

- ☒ Assess the environment (in conjunction with the proposed layout plan) and describes how the environment may be effected by the activity and the manner in which the physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed activity.

- ☒ NB: Considering that there is adequate information about the environmental sensitivity and control zones of the area and as well as other environmental facets such as the geology, vegetation and

hydrology, cultural aspect and habitat, only a socio-economic study and hydrological study are required as part of specialist study.

- ☒ In consultation with the department of Planning Urbanization and Environment: Sustainable Development Section, the consultant should clearly describe the need and desirability of the proposed development and where practically possible identify potential alternatives or proposes adjustments to the proposed layout plan of the proposed development, clearly stating the advantages and disadvantages that the proposed layout plan or alternatives may have on the environment and/or the community that may be affected.

- ☒ The consultant is required to consult with the department of Transportation to obtain relevant information regarding road planning and storm water infrastructure and also to consult with the Department of Infrastructure, Water and Waste Management to obtain information regarding the installation of other engineering services.

- ☒ The consultant must clearly indicate the methodology used in determining the significance and magnitude of potential effects.

- ☒ Description and comparative assessment of all alternatives identified during the assessment process.

- ☒ Description of all environmental issues that were identified during the assessment process, an assessment of the significance

of each issue and an indication of the extent to which the issue could be addressed by the adoption of mitigation measures.

- ☒ Prepare a detailed Environmental Management Plan that can be used as guide to monitor compliance to the recommendation made in the EIA and to assist in managing and monitoring activities of the contractors during the execution of the project particularly during the installation of bulk eservices such as sewer, roads, storm water and electricity. Thus, the EMP must clearly clarify the roles and responsibilities of the City of Windhoek and that of the contractors.

### 2.2.4. PUBLIC CONSULTATIONS PROCESSES

Public consultation process should be carried out in accordance with Part XI, Section 44 of Environmental Management Act, 2007 and Section 21 – 24 of the Environmental Impact Assessment Regulations and the City of Windhoek Public Participation Guidelines for Environmental Impact Assessment.

In short, the public and other stakeholder's involvement is the key to the success of this project. Therefore, the consultant shall design a formal community consultation process which outlines the method(s) and tools for engaging stakeholders in the community and maximizing input at each stage of the project, including but not limited to public meetings, workshops, notices and mail/hand-outs.

The notice for public participation should be advertised at least twice in the local newspapers and must run for at least two or three weeks prior to the public



meetings/sessions. In addition, individual meetings should be held with key stakeholders, including municipal staff, municipal Advisory Committees (if any), public agencies, the business community and community interest groups. Written briefs and other documentation shall be encouraged and accepted by the Consulting Firm.

### 2.2.5. DURATION OF THE PROJECT

It is/was expected that the process of appointing the successful consultant will/would take about 45 days after the closing date and the expected duration for the EIA study is estimated to be five (5) months. As such, the consultant is expected to provide a project programmed as part of his technical proposal to indicate the timeframe that it will take the consultant to complete the project. The program shall be within the bound of this Term of Reference.

The contract will be awarded on the issuance date of the letter of acceptance and the contract commencement date shall be on the issuance date of the Letter of Acceptance.

### 2.2.6. PROJECT REPORTING

The successful consultant is (as so and when required) expected to conduct monthly meetings with the Clients representatives (COW: Environmental Management Division) to discuss the project progress, problems and other technical aspects.

### 2.2.7. AVAILABLE DATA

It is the responsibility of the Consultant to obtain all relevant and existing national or local regulations, Acts, policies and guidelines. However, the following can be obtained from the Environment Management and Urban Policy Division and these data will only be made available to the appointed consultant namely:

- ❏ Cadastral Layout Drawings of the proposed development
- ❏ Preliminary Street Layout Designed by the City's Town Planners
- ❏ Water Resources Management Act No. 24 of 2007
- ❏ The Windhoek Environmental Structure plan
- ❏ Windhoek Town Planning Scheme
- ❏ Windhoek Structure Plan

### 2.2.8. GENERAL REQUIREMENTS

- ❏ The consultant must reflect in his/her offer a detailed written program or time schedule as to how the work is to be done.
- ❏ The consultant shall conduct his/her work in consultation with and to the satisfaction of the client.
- ❏ The consultant is required to submit inception, draft and final reports in term of the approved program.
- ❏ The Environmental Impact Assessment Report should include the Environmental Management Plan that stipulates how the likely impacts are to be mitigated and monitored and recommended measures to guide the implementation of a project and ongoing operations thereafter.

All the above requirements can be achieved by following the legally prescribed procedure as illustrated in Section 2.3 below.



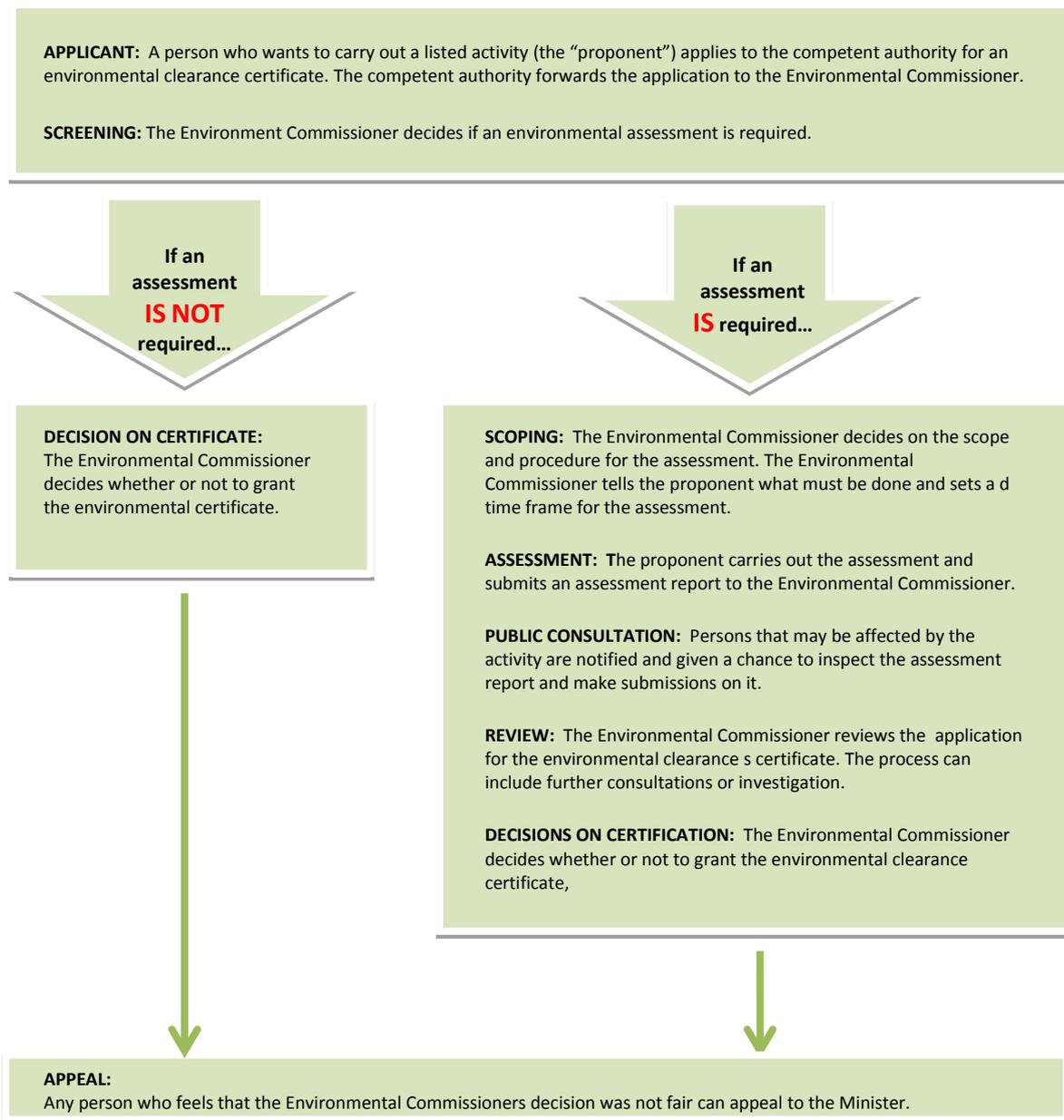
### 2.3. Procedural Requirements in Obtaining an ECC

The EIA process is expected to identify and propose mitigation measures of key environmental, socio-economic and cultural aspects and their impacts that may lead to discrepancy during and after the construction phase of the project. This will enable the Environmental Commissioner to decide whether to grant or not to grant an ECC by strictly following the process of applying for an ECC as per Schedules 5 and 6 of the Environmental Impact Assessment Regulations: Environmental Management Act, 2007.

This is followed by the required process after the submission of the ECC application namely the conducting of public consultations; opening and maintaining I&APs register; the preparation and submission of the required scoping and assessment reports – all these in terms of Schedules 7, 8, 15, 21 and 22 - 24.

Figure 1, on the next page illustrates a simplified process on how to get an ECC.

## How to obtain an Environmental Clearance Certificate





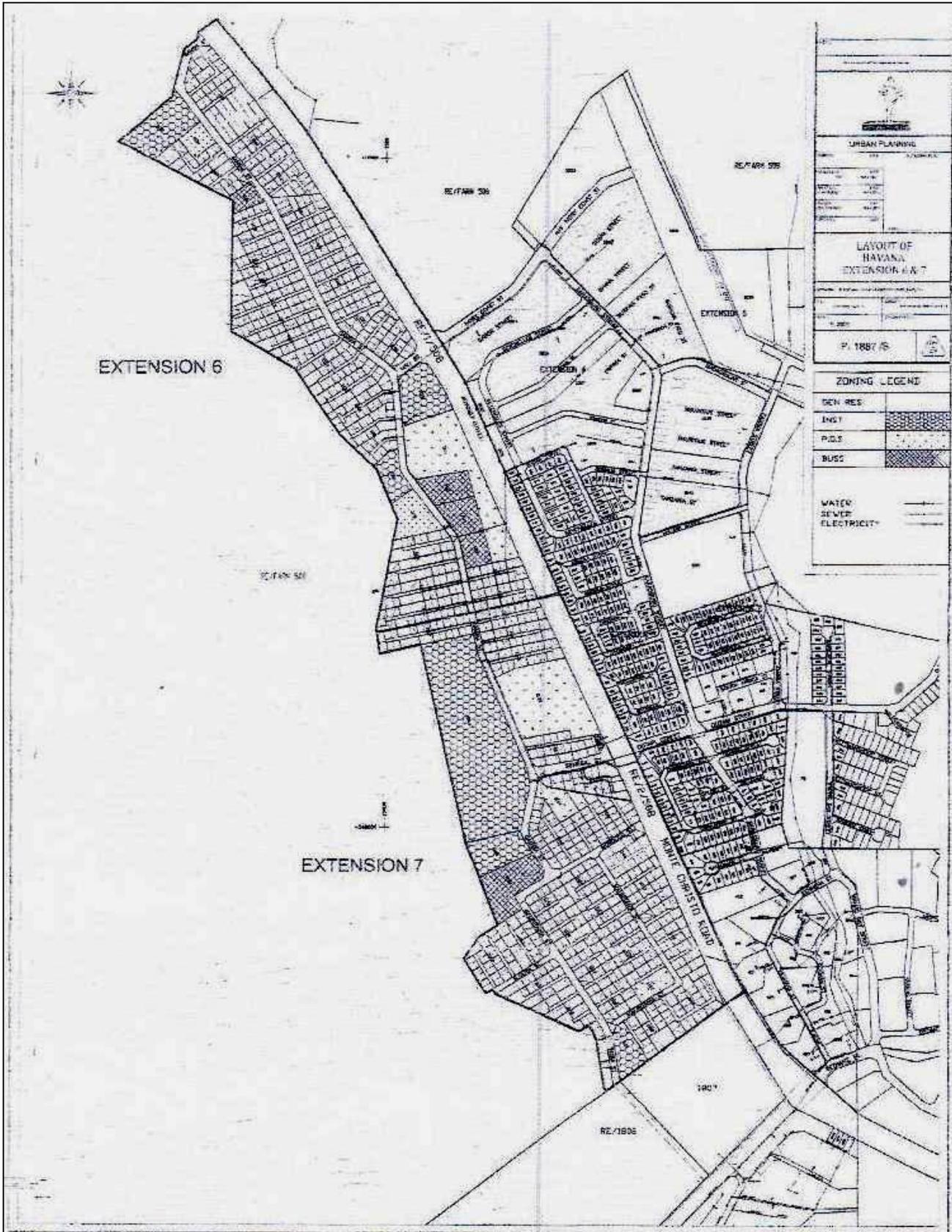


Figure 3: Site Layout of the HAVANA EXTENSION 6 & 7 Informal Settlement

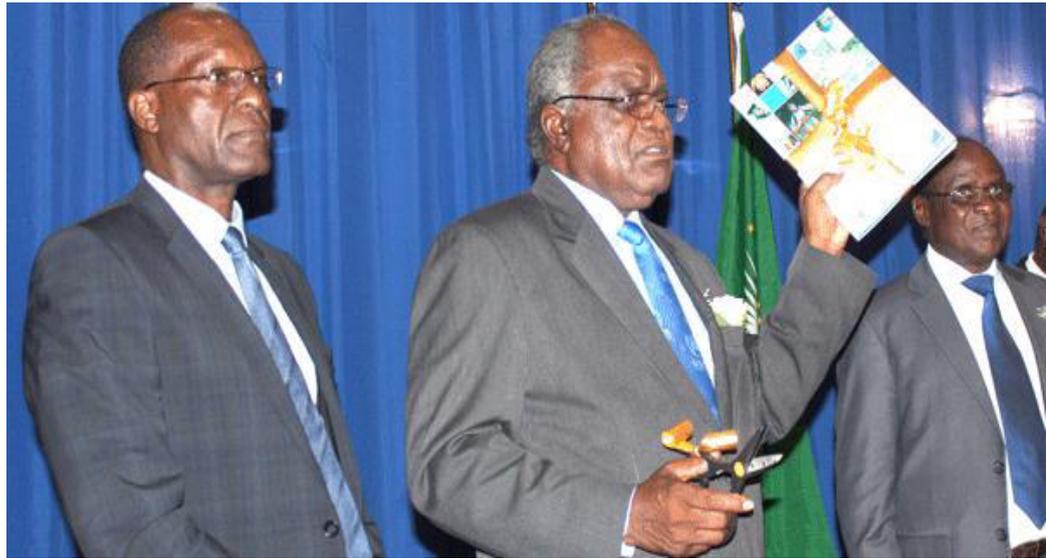


## 3.2. Development Rational

The 2011 *Population and Housing Census Basic Report* released recently on the 28 March 2013 revealed that urbanization has increased since the last census in 2001 and today more than 43 percent of Namibians live in urban areas compared to 33 percent in 2001. In particular the City of Windhoek experienced a period of rapid urbanization shortly after independence and attempted to provide land to the influx of residents with reception areas. Havana Township, Babylon and Kilimanjaro reception areas were examples of the City's attempt to accommodate the influx of new residents to the City in reception areas.

The City could however not keep up with the rate at which to deliver land because of limited financial resources and the number of new residents moving into the City. The result inevitably was the mushrooming of several informal settlement areas in and around the City on open portions of land. These open portions of land ranged from public open spaces and institutional zoned vacant land reserved for schools and/or clinics to vacant land outside the City limits in the northern and north western parts of the City.

In 1999, the City approved its *Development and Upgrading Strategy* as the policy framework within which to deal with land delivery and service provision for all the income groups in the City and to offer residents a number of service levels, whilst securing land tenure. The strategy made provision for six (6) development levels ranging from a zero (0) development level as found in the informal areas where no planned erven or services are found to a development level six (6) where planned erven with full services are provided. The range of service levels made it possible for the City



to provide serviced land at more affordable prices and less amounts to the lower income residents in especially the informal settlement areas.

Following the inception of the *Development and Upgrading Strategy* in 2000, a combination of two development approaches were followed in land delivery. The first was the physical upgrade of qualifying informal settlement areas and the second being Greenfield Development in terms of the different development levels of the *Development and Upgrading Strategy*.

Since 2000, several projects to upgrade the living conditions of residents in the informal areas have been completed. When this started, there were 27 informal settlement areas or groups scattered throughout the City on open portions of land and erven. A total of 17 areas, accommodating 4662 households were identified as upgrading areas and 10 areas with 1888 households were classified as resettlement group areas.

The recently released 2011 *Population and Housing Census Basic Report* confirmed the housing crisis being experienced in Namibia.

In a newspaper article of 28 March 2013 by Edgar Brandt [*Article Views (non-unique): 641*] it was reported that President Hifikepunye Pohamba had lamented the critical housing situation that has made housing a luxury for many Namibians.

*"It is a source of great concern that 16% of the population live in shacks or improvised housing units. This situation must be addressed and addressed speedily,"* Pohamba said during the launch of the 2011 *Population and Housing Census Basic Report* that indicates that about 336,000 Namibians have been condemned to live in corrugated iron-sheet shack dwellings like in HAVANA EXTENSION 6 & 7.

The census showed that 38% of Namibia's 2.1 million people live in traditional dwellings, 30% live in detached houses, 16% live in shacks and 8% live in semi-detached dwellings such as townhouses. In addition, 80% of households have access to safe drinking water, while only about half of all households – 49% – have access to toilet facilities. *"Our country faces many challenges that require urgent*



action" as emphasized by President Pohamba.

Presently there are a significant number of households that reside in either improvised housing units or traditional dwellings within the City. Few of these had access to any services at the time. Through the development and upgrading strategy, the City is continuously providing serviced sites. However, the problem was regarded as extensive and the City could not, by its own admission, have the

capacity to upgrade all the informal areas simultaneously (Council Submission: 16/15/2/3/13). Hence the intervention of the Namibian Government in putting aside funds for the construction of services in all informal settlements of Windhoek over a period of three years through the TIPEEG Programme.

It is thus of paramount importance that the establishment of resettlement area for land invaders, defaulters, overpopulated areas, areas being upgraded as well as for

self-help groups is urgent. The proposed Havana Extensions 6 ( $\pm$  23,4577 ha) and 7 ( $\pm$  25,7832 ha) as indicated in Figure 3, which is an informal settlement located inside the Windhoek Municipal area with an estimated 750 informal structures hosting approximately 3500 inhabitants requires urgent and speedy upgrading and formalization.

### 3.3. Proposed Development Services

HAVANA EXTENSION 6 & 7 is presently provided with Development Levels (DL) 1 and 2 services in accordance with the City's Development and Upgrading Strategy. The present services are unstructured gravel roads; few dry communal sanitation toilets and water points which are supposed to serve approximately 20 households per toilet block.

These service levels target households with very low-income levels where low cost recovery is expected. The City of Windhoek however plans to upgrade and formalize the already existing and inhabited HAVANA EXTENSION 6 & 7 settlement through zonation and the installation of sewage, water, electricity, stormwater and road infrastructures, and has consulted the communities on their upgrading needs. The site works would include but not limited to:

#### 3.3.1. ZONATION

The proposed layouts of Extensions 6 and 7 will make provision for approximately 50 residential blocks providing approximately 1250 household erven with a density of 1/150m<sup>2</sup> each.

The layout of the township also makes provision for 6 institutional

erven for the purpose of accommodating churches, crèches or other institutional needs. One institutional erf (Portion 11) has been strategically placed at the main entrance to Extension 6 to create a prominent and attractive landmark within the Township. Another institutional erf (Portion 30) is already accommodating the Havana Primary School in Extension 7.

Five (5) business erven are provided along the central spine road to maximize access to future shops or market areas. The 3 business sites in Extension 6 were placed such that the future residents of Extension 7 could share in these facilities. It is envisaged that the City would develop a market on one of these sites in order to create informal business employment opportunities for future residents.

Furthermore 2 municipal erven to accommodate future substations, and 3 public open spaces are also provided for.

## Housing, energy top priorities for Windhoek

• AMY SMITH

PROVIDING housing, electricity, water and sanitation to informal areas, as well as urgently looking into renewable energy, was high on the priority list at the City of Windhoek's first council meeting for 2013.

Mayor Agnes Kafula said at Wednesday night's council meeting that informal settlements and under-serviced areas would continue to enjoy priority this year.

She said a lack of money, as well as rapid urbanisation, hampered the municipality in delivering the desired services to these areas.

Kafula emphasised that the lack of serviced land for housing and commercial development remains an insurmountable challenge to the council because of the illegal occupation of land. "The City has been experiencing unprecedented illegal and disorderly land occupation in these peripheral areas," she said.

Government has given the Windhoek municipality NS\$310 million for the servicing of low-cost areas under the Targeted Intervention Programme for Employment and Economic Growth (Tipeeg).

"I am happy to report that the first phase launched at Otjomuise Extension 10 last year is nearing completion," said the mayor. This site is expected to offer nearly 1 200 residential erven, five business and three institutional plots.

Similar projects are planned for the Okahandja Park and Ongulumbashe informal settlements.

"After servicing, qualified applicants whose names are already on the waiting list will be allocated plots to build formal houses," Kafula said.

Servicing of land is expected to be completed in Otjomuise extension 4 in March, and 500 erven in Academia will follow.

Kafula said these initiatives would put the council in a position to address housing shortages and eventually mitigate the high property prices in Windhoek. She added that illegal land grabbing would not be tolerated and appealed to people to be patient.



### 3.3.2. Present Services

In accordance with the City's *Development and Upgrading Strategy*, Development Levels 1 and 2 services (gravel roads, communal toilets and water points which serve on average 20-25 households per toilet block) are being provided to the area targeting households with very low-income levels and where low cost recovery is expected. It should be noted that because of the low-income levels of the target households, initially no power connections could be provided to the area, though electrical lighting is provided for community security purposes and to minimum parts of the settlement e.g. the Havana Primary School.

Approximately 60 % of the area cannot be connected to the existing sewer system because of the location of watersheds and has thus been provided with pilot dry sanitation sewer systems. The remaining 40% of the area drains towards the existing sewer system

and can be provided with waterborne sewer systems. (Note Chapter 5 of **APPENDIX D: Specialist Socio-Economic & Cultural Report** for more detailed information).

### 3.3.3. Recommended Services Upgrading

As stated above, services to these extensions will incrementally be upgraded in accordance with a rise in income levels of the residents. Hence this initiative to supply each site within a block with its own water, electricity, sewer and stormwater service connections as well as a road network.

The City of Windhoek, through this consultancy, has consulted the communities regarding options for upgrading schemes according to what their needs are and their financial abilities allow. The socio-economic survey recommends the provision of Development Level 4 by providing waste, electricity, tarred roads and water as well as sewage

infrastructure connected to existing reticulations as the majority within the settlement will afford the additional services and the City will be able to recover cost for providing such service (Note Chapters 6 - 8 of **APPENDIX D: Specialist Socio-Economic & Cultural Report** for more detailed information).

In conclusion, the City is further encouraged to continue training and informing the communities about methods to save for further service upgrading as well as to provide input (labour) for all upgrading in order to save on servicing costs, to ensure employment as well as "ownership" of the services so provided in terms of the City's *Development and Upgrading Strategy*.

## 3.4. Legislative and Regulatory Framework

An important component of an EIA study is the identification and review of applicable and relevant legislation and guidelines that have been considered during the assessment process and thus thereby informing the developer and or the proponent of all possible legal requirements as well as the permit applications to be fulfilled before the commencement of the proposed activity. The sections below briefly list the scope of environmental, socio-economic and cultural legislation relevance to the upgrading and formulization of HAVANA EXTENSION 6 & 7.

## 3.5. The Constitution of the Republic of Namibia of 1990

The Constitution of the Republic of Namibia is the foundation and guiding supreme legislation [according to **Article 1(6)**] were the country strongly commits itself to the rule of law, democratic governance, respect for fundamental human rights and freedoms, and sustainable development. The Constitution contains two key clauses relevant to the sustainable development namely:

**Article 95(l)** puts forward the government intention that the state shall actively promote and maintain the welfare of the people by adopting, inter alia, policies aimed at among others:

*(e) ensurance that every citizen has a right to fair and reasonable access to public facilities and services in accordance with the law, and*

*(l) maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of natural resources on a sustainable basis for the benefit of all Namibians both present and future ...."*



**Article 144** puts forward the government constitutional link to international environmental and socio-economical laws and Multilateral Environmental Agreements (MEAs) applicable to Namibia such MDGs, UNFCCC, UNCBD, UNCCD among others.

Furthermore and in accordance with the Constitution, the national government also formulated policies, programmes and development plans (such as Namibia's Green Plan, Vision 2030, NDP's and etc.) as well as legislation directed at sustainable development.

### 3.6. The Local Authority Act No 23 of 1992

The **Local Authorities Act No 23 of 1992** and all relevant **municipal by-laws** are applicable since the upgrading and formalization of HAVANA EXTENSION 6 & 7 is a CoW proposed activity. This Act provides for the determination of local authority councils, the establishment of such councils and defines the powers, duties, and functions of these councils. In summary some of the relevant duties and functions are:

- ❏ to supply water, sewerage, solid waste removal and electricity to the residents in its area for household, business or industrial purposes;
- ❏ to establish and maintain cemeteries;
- ❏ to construct and maintain streets and public places;
- ❏ to establish, carry on and maintain a public transport service;
- ❏ to establish, with approval, a housing scheme, whether by

- itself or in conjunction with any other person;
- ❏ to establish, carry on and maintain markets and, for that purpose, to construct and let market houses, auction or sale rooms, stalls, warehouses and other buildings for the sale or storage of goods at such market;
- ❏ to establish, carry on and maintain abattoirs; aerodromes; an ambulance service; bands and orchestras; dipping tanks; a fire brigade; museums and libraries; pounds; nurseries and a traffic service;
- ❏ to construct and maintain buildings or depots for the reception or storage of perishable goods;
- ❏ to establish and maintain parking garages and to designate areas for the parking of vehicles;
- ❏ to beautify and secure the neatness of its area, including the planting, trimming or removal of trees;

- ❏ to establish and maintain any building or structure for any community requirement, and
- ❏ to determine by notice in the Gazette, the charges, fees and other moneys payable in respect of any service, amenity or facility established and provided by it under this Act or any matter regulated and controlled by it there under.

The Act further allocates to the Mayor of the local authority the responsibility to initiate and formulate planning and development policies, initiate promotion for socio-economic enhancement opportunities and closely monitor the implementation of planning and development policies.

### 3.7. Legislation on General Environmental Management

The **Environmental Management Act No. 7 of 2007** gives effect to Article 95(l) of the Namibian Constitution in that it establishes objectives of the Act, principles of environmental management and the necessary Act administrative framework. The Act further gave legislative support to the **Namibia's Environmental Assessment Policy**, which policy recognizes that EIAs are a key tool towards implementing integrated environmental management. In

effect, the Act is legally binding (following the gazetting of listed activities) through its **Environmental Impact Assessment Regulations**, which stipulates the implementation processes dealing with issues such as environmental clearance applications, public participation, environmental scoping and assessment reports, and environmental management plans among others. The HAVANA EXTENSION 6 & 7 EIA and EMP

process has to meet the above mentioned requirements in order to be issued with an ECC.

One main relevant legislation in preparation, is the **Pollution Control and Waste Management Bill**, which Bill aims to promote among others sustainable development; to prevent and regulate the discharge of pollutants to the air, water and land; to furthermore regulate noise, dust and odour pollution; to make



provision for the establishment of an appropriate framework for integrated pollution prevention and control; to establish a system of waste planning and management

and to enable Namibia to comply with its international law obligations. It should be noted that the Bill, if enacted, may repeal, in their entirety, the **Atmospheric Pollution**

**Prevention Ordinance No. 11 of 1976**, the **Hazardous Substances Ordinance No. 14 of 1974** and Section 21 of the **Water Act No. 54 of 1956**.

### 3.8. Legislation on Biophysics and Biodiversity

The **Nature Conservation Ordinance No. 4 of 1975** is one of the major biodiversity and most comprehensive environment-related legal instrument in Namibia governing the conservation of wildlife and protected areas. While the **Protected Areas and Wild Management Bill**, once enacted, will protect all indigenous species and control the exploitation of all plants and wildlife.

It further undertakes to provide for and promote the maintenance of ecosystems, essential ecological processes and Namibia biodiversity and to promote the mutually beneficial co-existence of humans with wildlife as well as to give effect to Namibia's international obligations to legal instruments such as the Convention on Biological Diversity. The Bill recognizes that biodiversity must be maintained, and where necessary, rehabilitated and that essential ecological processes and life support systems must be maintained. This Bill will repeal the **Nature Conservation Ordinance No. 4 of 1975** once enacted.

It is with this in mind that Namibia has taken up the challenge of conserving species and ecosystems to limit the increasing rate of loss of biological diversity by drafting the second **National Biodiversity**

**Strategy and Action Plan (NBSAP: 2011-2020)**. The aim of the NBSAP is to protect ecosystems, biological diversity and ecological processes through conservation and sustainable use, thereby supporting the livelihood, self-reliance and quality of life of Namibians.

The Action Plan intends to provide overall strategic guidance for the implementation of Article 95 (l) of the Constitution, and details practical activities through which sustainable development can be achieved. Further to this, the Action Plan attempts to provide a national strategic framework for natural resource management activities, involving biological resources management, also including trade and economic incentives. It aims to prioritize activities and measures needed to implement this strategy effectively for the next decade.

The **Forestry Act No. 12 of 2001** consolidates the laws relating to the use and management of forests and forest produce and provides for the control of forest fires. Forests produce is defined as anything that grows or is naturally found in the forests and includes any living organism or product or any inanimate of mineral, historical, anthropological or cultural value.

The Act deals with the protection of the environment, soil, water, protected plants and other elements of bio-diversity and related parties and stakeholders can reach agreements on how to create a protected area. It further deals with protection and removal of the natural vegetation. On the other hand the **Development Forestry Policy for Namibia** aims to reconcile rural development by empowering farmers and local communities to manage forest resources on a sustainable basis.

The **Soil Conservation Act No. 76 of 1969** makes provision for the prevention and combating of soil erosion and the protection, improvement and conservation of soil, vegetation and water supply sources and resources.



### 3.9. Legislation on Water

The **Water Act No. 54 of 1956** gives the Minister the power to, among others, investigate water resources, plan water supply infrastructure, develop water schemes, control water pollution, protect, allocate and conserve water resources, inspect water works, levy water tariffs and advise on all matters related to the water environment in general. It makes provision for the protection of river catchments, drilling of boreholes and making of wells. It further controls effluent discharge into rivers and weather modifications and outlines regulations that govern the optimal use of water resources.

The intention is for the Water Act to be replaced by the **Water Resources Management Act No. 24 of 2004** once signed by the Minister. The purpose of this Act is to ensure

that water resources are protected, used, developed, conserved, managed and controlled in a sustainable manner for the benefit of all Namibians. It will make provision for a permit application to discharge effluent or to construct an effluent treatment facility or disposal site. This Act is based on the **National Water Policy**, which Policy is further elaborated on under section 4.7 below.

At the City level, the **Water Supply Regulations** regulates the prevention of undue water consumption, the supply of non-potable water by the Council, private boreholes and the laying of pipes in streets and public places. The locally adopted **Water Demand Policy** controls the provision of/and undue wastage of water supply in the City, while the **Water and**

**Drainage Regulations** are strongly based on environmental conservation principles.

In general, water quality is regulated by many standards including Namibia Water Quality Standards and Guidelines for Potable Water, the South Africa National Standards 241 Drinking Water Standards published by the SABS, the Water Quality Guidelines for Artificial Recharge Water, the Rand Water Guidelines and also the Special Qualities Guidelines from the report Water Quality Requirements for the Artificial Recharge of the Windhoek Aquifer (2005) compiled by Windhoek Aquifer Joint Consultants.

### 3.10. Legislation on Land Use and Settlement Areas

The **Land Use Planning Policy Document** was drafted by the Ministry of Environmental and Tourism in 1994 and defines five physiographic land forms, namely communal state land, privately owned commercial farmland, proclaimed state land, urban areas and wetland systems, including their catchments. The policy emphasizes the sustainability of natural resources, biodiversity and essential ecological processes.

In addition, the **National Land Use Planning Policy** provides a framework for the implementation of regionally integrated land use plans, while the **Regional Planning and Development Policy** acknowledges the trend of the increasing degradation of pastures, rangelands and woodland, with special attention to soil, water and

forest management as development tools.

The **Mountain Catchment Areas Act No. 63 of 1970** provides for the management and conservation of land in designated mountain catchment areas. The Minister may give direction to owners or occupiers of land situated within any mountain area, e.g. the Eros Mountains, relating to the conservation, use, management and control of the area and the prevention of soil erosion.

The **2003 National Land Tenure Policy** covers all land tenures systems in urban, communal, commercial (freehold) and resettlement areas, and is intended to guide all land tenure rights in Namibia. The policy promotes the sustainable utilization of land and other resources. By regulating

different land tenure rights, it provides secure tenure for informal urban settlers, farm workers and occupiers. On the other hand, the primary objective of the **National Resettlement Policy** is to resettle eligible people on an institutionally, sociologically, economically and environmentally sustainable manner and in such a way that they become self-supporting. While the **Deed Registry Act of 1937** provides for freehold land titles and normally has a title deed condition in all title deeds preventing the growing of the *Prosopis* trees because of the destructive nature of its roots.

The **Town Planning Ordinance No. 18 of 1954** makes provisions for the establishment of Town Planning Schemes. According to the **Town Planning Scheme of 1967**, no structures may be erected and no activity may take place which may



entail the direct or indirect alteration of the physical, chemical or biological properties of groundwater or pollution of groundwater in any way so as to make it less fit for any beneficial purpose for which it may reasonably be expected to be used. The scheme further prohibits and described in detail conditions that could lead to water pollution adversely effecting water quality. The Scheme also prohibits top-soil stripping activities, save for the approval of the Council. Likewise, the mining or removal of sand or gravel from watercourses for any purpose is also prohibited.

On the City level, the **Windhoek Environmental Structure Plan** highlights ecologically sensitive

areas, in terms of biodiversity potential soil erosion, potential ground water pollution and vulnerability. It provides guidelines for carrying out environmental impact assessment in each sensitivity zone. The **Open Spaces Policy** ensures the adequate provision of open spaces, and provides for a hierarchy in their functions.

It recommends appropriate use commensurate with the designated function of the open space, maintaining that fragile ecosystems, like the river courses, hilltops and other natural features are identified for conservation efforts. It promotes a balanced distribution of conservation and recreational open spaces. It further aims to raise

awareness of special interest groups and the public about opportunities inherent in the City's open spaces for improvement of their environment and individual life styles.

It also highlights and disseminates opportunities for City / private sector partnerships involving open spaces as elements in promoting social upliftment, recreational development, and conservation, while, the **Park Regulations** prohibits the removal and harming of vegetation and other objects of zoological, geological, archaeological, historical or other scientific interest. It also regulates bush and weed control, invader species and trees in open spaces.

### 3.1.1. Legislation on Health and Safety

The **Labour Act No. 15 of 2004** requires precautions to be taken against dust levels, exposure to hazardous substances, and noise levels in or around any premises in connection with any development operations such as during the construction of the envisaged services. Whereas the **Atmospheric Pollution Prevention Ordinance No. 11 of 1976** provides for pollution prevention of the atmosphere and controls noxious or offensive gas and smoke as well as gases emitted by normal or construction vehicles.

The **Public Health Act No. 36 of 1919** (and subsequent amendments) prohibits the existence of a nuisance on any land owned or occupied by any person, and where a local authority is of the opinion that a nuisance is seriously offensive or a serious menace to health, it may serve a notice on the owner or occupant of the nuisance to immediately remove the nuisance.

The **National Water Policy** provides a framework for equitable, efficient and sustainable water resources management and water services, and stresses sectoral coordination, integrated planning and management as well as resources management aimed at coping with ecological and associated environmental risks.

It states that water is an essential resource to life and that an adequate supply of safe drinking water is a basic human need. The policy makes it clear that water concerns extend beyond human needs for health and survival. Water is essential to maintain natural ecosystems and the policy recognizes that, in a country as dry as Namibia, all social and economic activity depend on healthy and aquatic ecosystems.

The **Water and Sanitation Policy** promotes the supply of water, as well as, improved sanitation at an affordable cost to all Namibians. The policy also states that improved

provision of sanitation can contribute to improved health, ensure a hygienic environment, protect water sources from pollution, promote water conservation, and stimulate economic development.

On the local level, the City has adopted the **Hazardous Substances Ordinance No. 14 of 1974** and the **General Health Regulations**, which prevents the dumping of matter that is hazardous, offensive or a disfigurement of the environment, as well as public defecation. The **Windhoek Healthy Cities Profile and Plan** deals with living conditions in Windhoek, mortality rates, access to services and action plans to improve living conditions and access to services.

The **Noise Control Regulations** deal with, and provide control over the rights to emit sound via any type of broadcasting equipment with the sole purpose of preventing noise nuisance that could negatively affect the general amenity of an



area. Allowable noise levels permitted vary between areas depending on the applicable zoning and land use.

The overall purpose of the **Health Regulations** is to ensure that community health in the city is ensured by preventing unhygienic and unhealthy conditions which may jeopardize this. They provide

the framework within which the City Council control *inter alia* nuisances and hygienic conditions in public buildings and dwellings, the quality of sanitary services, septic tank and filter installations, removal and control of refuse, the use of movable, temporary or unauthorized structures, the keeping of animals, measures against rodents and control of mosquitoes,

and the prevention of lead poisoning. Lastly, the **Street and Traffic Regulations** g/n 9/30 official gazette no. 352 of 15.1.1930 deal with *inter alia*: traffic safety, noise in streets, pollution, sweeping of streets in front of businesses and the cutting of trees and vegetation on pavements.

### 3.12. Legislation on Socio-Economics and Culture

The Government of the Republic of Namibia has realized that the current state of the socio-economic environment are either causes or effects of poverty and vulnerability and has thus put various policies, strategies and legislation in place to address these causes.

One of these is **Vision 2030**, which was compiled as a long-term framework for sustainable development planning, and states that: *"The nation shall develop its natural capital for the benefit of its social, economic and ecological well-being by adopting strategies that: promote the sustainable, equitable and efficient use of natural resources; maximize Namibia's comparative advantages; and reduce all inappropriate use of resources. However, natural resources alone cannot sustain Namibia's long-term development, and the nation must diversify its economy and livelihood strategies."*

The **National Development Plans** are derived from the Vision 2030, the **SWAPO Party Manifestos**, the directions from **Cabinet Retreats**, the **Millennium Declaration Goals**, which are all country guiding sectoral developments.

In 1998 Cabinet approved the **Poverty Reduction Strategy for Namibia (PRS)** (GRN 1998b). This document provides a common

framework for sector-specific initiatives aimed at poverty reduction. In addition, Cabinet recommended the design of a **National Poverty Reduction Action Programme 2001 – 2005 (NARAP)** and adopted it in 2003.

This document 'provides a practical and comprehensive statement on the implementation of the PRS' by making recommendations on a number of concrete steps that have to be taken to reduce poverty (GRN 2003: 6). The NPRAP drew attention to the 'great variation in the dynamics and types of poverty that are experienced in different regions' and recommended as a specific action the preparation of Regional Poverty Profiles to 'assess the extent, nature, influences and locations of poverty in the region' as well as Regional Poverty Forums to promote discussion on how to reduce poverty in the regions (Ibid: 79-80).

Recently the Government of the Republic of Namibia got deeply concerned about the high and persistent unemployment rate, especially among the young unskilled segment of our Nation and introduces a new program called **Targeted Intervention Program for Employment and Economic Growth (TIPEEG)**, which is a three-year program, starting with the 2011/12 fiscal year and its main aim being to address the high unemployment

rate, while also supporting strategic high growth sectors.

The **Regional Councils Act No. 22 of 1992** confer the responsibility on Regional Councils to attend to the planning and development of a region inclusive of socio-economic development, natural resource protection and environmental management, infrastructure development and management of settlement areas, provide assistance to local authorities where required, and to take care of the general administration of the region.

The **National Heritage Act No. 27 of 2004** provides for the identification, protection, conservation and management of all natural places and objects of cultural heritage significance of Namibia, as well as public education, and in accordance with other relevant national laws and international conventions, ensures that Namibia heritage benefits current and future generations.

Worthwhile mentioning is the **Environmental Investment Fund of Namibia Act No.13 of 2001** which aims to promote sustainable economic development of Namibia through investment in and promotion of activities and projects that protect and maintain the natural and environmental resources of the country.



The City of Windhoek formulated and adopted a number of supporting regulations, policies, and strategies in support of National Development Programmes. One of this is the **Development and Upgrading Strategy** which was adopted in 1999 as a policy document to deal with land delivery for all the income groups in the City

and to offer residents a number of service levels, whilst securing land tenure. A revised **Local Economic Development Strategy (LED)** for the City was adopted in 2007 for up to the year 2012 where a number of LED objectives, development strategies were formulated with defined internal and external responsible stakeholders.



## 4. Interested and Affected Parties Consultation Process

Public participation is the cornerstone of any EIA process. Its key objective is to allow stakeholders to raise issues of concern and suggestions for enhanced benefits, and to comment on the findings of the EIA. The Namibian Environmental Assessment Policy, Environmental Management Act No.7 of 2007 and its Regulations require that Interested and Affected Parties be adequately consulted during the EIA process.

### 4.1. Application Notifications

The EAP gave notices to all potential interested and affected parties (I&APs) as per the public consultation process requirements by:

- (a) Fixing 60 X 42cm and A3 size notices for "Scoping and Feedback *Public Meetings as well as Registration of Interested and Affected Party*" at approximately 30 conspicuous and strategically located places such as clinics, schools, shebeens, shops, multi-shopping centres and etc. to the public in and around HAVANA EXTENSION 6 & 7 and at the Samora Machel Constituency Council Office during the weeks of 11 – 23 February 2013 and 15 – 20 April 2013;
- (b) Giving written and verbal notices to the Samora Machel Constituency Councilor Hangula on the 08 February 2013 and 08 April 2013 as the Constituency under which HAVANA EXTENSION 6 & 7 resorts;
- (c) Giving written and verbal notices to specifically Mr. John Shilongo and other environmental, town planning and community development staff as the CoW Local Authority Council representatives on the 07 February 2013 and 08 April 2013;
- (d) Giving individual written notices to the Khomas Regional

Council development planners;

- (e) Giving written and verbal notices to Ms. Saima Angula of MET as an organ of state responsible for or as custodian of the Environmental Management Act No.7 of 2007 and its Regulations;
- (f) Advertising the application the entire week from the 18-22 February 2013 and 15 & 19 April 2013 in three newspapers (Namibian, New Era and Informante) circulated widely in Namibia;
- (g) Making national radio announcements in indigenous languages during the entire weeks prior to the two public meetings, and in addition
- (h) Making radio and public announcements by the Samora Machel Constituency Council Office the two days prior to the two public meetings.
- (i) The Draft Scoping Report was emailed to all I&APs with email addresses and two hardcopies to the Samora Machel Constituency Council Office from the 02 – 27 May 2013 for comments.

The above mentioned public consultation process arrangements were agreed upon after consultations between the EAP and the CoW. Attendance to the Scoping Public Meeting held on the 23 February 2013 was approximately 490 I&APs, while the second

Feedback Public Meeting held on the 20 April 2013 recorded a reduced attendance of approximately 240 I&APs. Both these significantly high attendance figures indicate the concerted efforts made in encouraging and promoting I&APs' participation.

**APPENDIX B** contains the Stakeholder Communication Plan; ECC application to MET; public meetings advertisements; attendance lists; meetings minutes and shared information.





**Pictures:** Scoping Public Meeting held on the 23 February 2013 (Photos by Metha Uushona)



**Pictures:** Feedback Public Meeting held on the 20 April 2013 (Photos by Metha Uushona)



## 4.2. Registration of Interested and Affected Parties

The EAP opened and maintained a register which contains the names and contact details of:

- (a) All persons who, as consequences of the public consultation process conducted in respect of this activity, have submitted written comments and attended both public meetings;
- (b) All persons who after completion of the public consultation process have requested, in writing, for their

names to be placed on the register, and

- (c) All organs of state which have jurisdiction in respect of this activity.

No access to the register was requested verbally or in writing during the entire process. Both non- and registered interested or affected parties were provided sufficient opportunities to make verbal and written comments on any environmental and socio-

economic issues that they believed may be of significance for consideration during the entire assessment process and after receiving access to the Scoping Report which the EAP also considered fulfilling an assessment report requirements. Such comments were considered and forms part of this report for the attention of the Environmental Commissioner.

## 4.3. Summary of Issues Raised

No environmental impact related comments were raised or received from interested and affected parties as part of the consultation process. Instead all comments raised were socio-economical related of nature with more emphasis on tenure or erven ownership and lack of or poor municipal services as confirmed by a *LaRRI Public Discussion* newspaper clip below and the **Specialist Socio-Economic & Cultural Report** – APPENDIX D.

### Informal dwellers unhappy with municipal services

By Confidence Reporter

**T**HE plight of people living in informal settlements remains acute resulting from a lack of consistent basic municipal services such as electricity, water, housing, transport, refuse and waste removal.

Informal dwellers from Katutura said this during a public discussion on living conditions in informal settlements over the weekend organised by the Labour Resource and Research Institute (LaRRI) in collaboration with the “Legacies of a Colonial Town” and a team of volunteers.

At least 30 representatives from informal settlements such as Havana, Greenwell Matongo, Otjomuise, Damara 7 and Okuryangava gathered at the National Art Gallery where they tabled their “undesirable” living conditions.

The representatives echoed similar problems in their respective communities of lack of basic services critical for quality of life. They said they were unhappy with the service delivery received from local authorities and that perceptions of service delivery amongst them had deteriorated.

“We have lived in shacks for more than 20 years without water and electricity. We also do not have toilets and make use of river beds to relieve ourselves. We also have problems with violence and noise pollution because of shebeens”.

The members, who also held the discussion last year, say their problems remain unchanged because elected leaders have “forgotten” about them.

“There has been no tangible progress made in terms of service delivery at local government level. All we have are empty promises and deteriorating living conditions. We do not feel safe in our own communities because of crime and other social ills. Law does not favour the poor”.

Philip Louhl, an Architect Lecturer at the Polytechnic of Namibia and facilitator at the discussion said that hopefully the discussion will start critical debates and change in future.

“The City of Windhoek is well aware of such problem but they do not produce expected results. The discussion is aimed at finding other ways people can help themselves and make them a part in finding solutions that directly involve them”.

They said they are not exposed to leaders such as lawyers to inform and educate them on their rights and the country’s laws as enshrined in the Constitution.

“We are not asking anything for free, we just need a little help to boost our living conditions and our lives. We need to make our country a shack free land, with equal opportunities”.

The public discussion marks the start of a year-long project that LaRRI will be undertaking under the topic of “Living conditions in informal settlements”, with the objective to bring together inhabitants with direct experience of living in informal settlements to discuss active ways of changing their situations and to collectively come up with citizen’s proposals.



## 5. ENVIRONMENTAL IMPACT ASSESSMENT

### 5.1. Brief General Description of the Environment

#### 5.1.1. Natural Environment

HAVANA EXTENSION 6 & 7 falls within the Khomas Hochland Brokenveld, which generally is characterized by a complex and varied vegetation (Africon 2004) as influenced by heterogeneity and microhabitats. However the project area only hosts a few negligible numbers of *Prosopis* trees, *Acacia mellifera*, *Acacia erioloba* (camelthorn), *Boscia albitrunca*, *Albicia antihelmintica*, *Aloe littoralis*, *Commiphora* spp. and *Acacia erubescens*. This is because HAVANA EXTENSION 6 & 7 is an already proclaimed inhabited existing informal township, and as a result the natural environment is significantly disturbed.

In general, vegetation types differ on the slopes and ridges from that nearer to watercourses. The slopes and ridges characteristically harbour indigenous shrubs, whereas the riverbeds accommodate *Acacia* species. Frequent accompanying species are the perennial grasses and herbs.

#### 5.1.2. Geology and Geomorphology

This area comprises of three major landforms, namely slopes, ridges and ephemeral river courses. The geology is dominated by the Damara Sequence. The project area is underlain by pre-Cambrian aged meta-sedimentary strata of the Kuiseb Formation of the Damara Sequence. The Kuiseb Formation comprises a more than 6000m thick succession of mica schist, graphitic

schist, marble and quartzite. The main rock type is identified as biotite schist, but with minor strata of micaceous quartzite, feldspathic schist and amphibole schist (Mendelsohn, *et al*, 2002).

Sand, gravel and limited silt deposit in the minor river courses and overlay the bedrock. The area around Windhoek including HAVANA EXTENSION 6 & 7 is generally dominated by a less than 1 meter thick top soil that is rich in materials derived from weathered underlying rocks. The area is generally overlain by rocky outcrops, which may be covered by a very thin veneer of quartz float and regolith. The slopes of the area have been analyzed with a minimum gradient of 1:10; a maximum gradient of 1:4, and an average gradient of 1:7 to 1:8.

#### 5.1.3. Hydrogeology and Surface Water

Tredoux *et al* (2009) stated that the aquifer within the Windhoek area is located to the south of the city and extends northward from the Aus Mountains about 20 to 25 km from the city center. The Windhoek aquifer has a water table at 70m below the surface and is bounded by impermeable formations on all sides with gneiss on the south, amphibolites of the Matchless Belt to the north and low permeability formations consisting of dominate schist formation on both the eastern and western sides (Tredoux *et al*, 2009). Windhoek is surrounded by

five ephemeral rivers, however none of those rivers are close by HAVANA EXTENSION 6 & 7.

Project area specific detailed hydrogeological information is contained within **APPENDIX C: Specialist Hydrogeology Report.**

#### 5.1.4. Climate

Although not specifically representative of the project site only, weather data for Windhoek was used to estimate climatic conditions in the project area. Rainfall in Windhoek follows the national trend and occurs mainly between November and April, but is described as unpredictable, sporadic and of high intensity as influence by climate change impacts.

The mean annual rainfall is in the order of 200 to 400 mm per annum with an average evaporation in the region of 3400 mm per annum (City of Windhoek, 2011). The average daily maximum temperature in summer in Windhoek is approximately 32°C (December) and the minimum 4°C in winter (July) (Katjiua & Eiseb, 2011). Wind in Windhoek is common throughout the year and is highly variable. Prevailing winds are generally from a north-easterly and or south-easterly direction.



## 5.2. Biophysical Assessment and Proposed Measures

Physical on-foot and by-car site assessment visits were conducted during the scoping and assessment phases to analyze the physical and biophysical characteristics of the study area. HAVANA EXTENSION 6 & 7 is adjacent to other settled and developed areas and is an already inhabited existing informal settlement. As a result HAVANA EXTENSION 6 & 7 is characterized by a significantly disturbed natural environment where almost all of the expected species were not found on site during fieldwork. The few vegetation communities thus only provide minimal habitats, migratory route and or breeding site to negligent amounts of birds, mammals and reptile species.



**Pictures:** Informal housing structures & facilities in HAVANA EXTENSION 6 & 7 (Photos by Metha Uushona)

HAVANA EXTENSION 6 & 7 is not a green field development and it is thus contended that there are no endangered fauna or flora species in the area that would hinder a township upgrading development. The "Principles of Environmental Management" should however prevail and the mitigation measures detailed below should complement the Construction Environmental Management Plan (CEMP) outlined in Chapter 7 of this report.

### 5.2.1. Related to the Ecology

#### Aspect Description

The civil earthwork of land clearing and site preparation as well as the construction of services and routes will disturb the only remaining ecosystem when removing the flora. The construction of services of such magnitude will obviously disturb the soil cover and vehicular movements will create dust, noise and various types of pollution levels that will cause mortality and or migration of the few available fauna within the entire surroundings.

#### Mitigatory Measures

The Project Manager/Construction Contractor should position and

construct the site access roads, contractors lay-down area and services infrastructures such as to preserve as much as possible of matured trees and vegetation along roads, riverine/drainage line and other infrastructural development nodes. The preservation of existing trees, as much as possible, will ensure aesthetic compatibility with the surrounding environment. Infrastructure should not be constructed within water drainage areas, and vehicular movement and access during construction should be restricted to designated areas. A biodiversity enhancement programme (parks, green open spaces and etc.) should be considered after construction for

areas within the settlement by the CoW's Environment and Parks Divisions.

### 5.2.2. Related to Noise

#### Aspect Description

Noise impacts to human from construction activities will be short-term and will end as soon as construction is completed. However, it is likely that recreational and traffic levels would significantly increase in the settlement area upon the completion due to the usage of the new road network, urban infrastructures and entertainment activities. Road safety problems may also be experienced by the workforce and



residents during and after constructions.

#### **Mitigatory Measures**

The Project Manager/Construction Contractor should commit to restrict construction and traffic operations to daylight hours to prevent noise inducements at night such as to ensure that the values of residents in the surrounding areas are respected. Noise levels generated by traffic during and after the construction should be controlled by appropriate traffic signs and regulations. The construction workforce should be provided with all necessary Personal Protective Equipment including approved earplugs. The Construction Contractor as well as the CoW should occasionally make use of Occupational Health & Safety experts to advice and recommend measures that are satisfactory to relevant Authorities. Noise generating activities e.g. factories, shebeens and etc. should be regulated through relevant local authority regulations.

#### **5.2.3. Related to Air Quality**

##### **Aspect Description**

Similarly, dust impacts to human from construction activities will be short-term and will end as soon as construction is completed. Traffic has the potential to generate dust and emit Carbon Dioxide (CO<sub>2</sub>) odours. However, due to the perceived less numbers of vehicles in HAVANA EXTENSION 6 & 7 (compared to other affluent suburbs) and vast open spaces, it is believed that this will be acceptable.

On the other hand, potential impacts from the pilot communal dry-toilets and nearby evaporation ponds can produce airborne contaminants such as Hydrogen Sulfide (H<sub>2</sub>S), ammonia (NH<sub>3</sub>), Carbon Dioxide (CO<sub>2</sub>) and Methane (CH<sub>4</sub>). Employees and residents exposed to dust and such odours can develop coughing,

chest tightness, diarrhoea, eye irritation, fatigue, fever, headache, nasal irritation, nausea, and phlegm symptoms.

#### **Mitigatory Measures**

The Project Manager/Construction Contractor should ensure that dust and gaseous emissions levels are kept as low as possible and that exposure measurements are conducted by trained and authorized personnel. Furthermore, all types of air quality data collected from measurements of concentrations of contaminants in the work environment or any possible future workshops must be recorded and made accessible to employees, work-place safety representatives and surrounding residents as required by law. Once again, the workforce should be provided with all necessary Personal Protective Equipment including approved dust masks.

#### **5.2.4. Related to Water Quality**

##### **Aspect Description**

The potential impacts, of contaminating both ground and surface water especially during the rainy season, to be considered are the possibility of oil and fuel leakages and spillages from the construction machineries and earthmoving equipment as well as any chemical used during construction. There is a potential for ground-and surface water pollution as outlined in **APPENDIX C: Specialist Hydrogeology Report**.

#### **Mitigatory Measures**

No direct discharge of liquids of any nature should be made into any waterways. Wastewater runoff should be avoided by all means, and waste should be kept or stored within the construction area and disposed of properly at a designated or authorized site. This means that the construction area should be kept clean at all times. Substances that have the potential of causing pollution should be

handled properly and accounted for. To further minimize pollution, any available pollution control equipment should be used when necessary. The sewage and its reticulation network should be linked to the city's existing network and monitored at all times when commissioned. Recommendations outlined in **APPENDIX C: Specialist Hydrogeology Report** should be adhered to.

#### **5.2.5. Related to Solid Waste**

##### **Aspect Description**

Solid waste such as construction debris, domestic and commercial waste will be generated during and after the construction phase. The non-discretionary disposal of solid waste has the potential to negatively impact the few surrounding biodiversity; pollute the air, soil, surface and groundwater; affect the health and safety of residences as well as the aesthetical appearance of the surrounding environment.

#### **Mitigatory Measures**

The Project Manager/Construction Contractor and the CoW are advised to adopt "best practicable environmental practices". This means practices that provide the most benefit or cause the least damage to the environment as a whole, at a cost acceptable to society, in the short and long term. Facilities or infrastructures that are necessary for the functioning of waste management activities should be put in place to integrate and facilitate all waste management services such as waste collection, treatment, recycling and disposal services during and after constructions.

Only council approved public waste transfer, treatment and disposal facilities or sites should be used for the recycling of recyclable waste or material, and the temporary storage or final disposal of garden waste, builders' rubble,



domestic waste including any possible business, industrial, special industrial or hazardous waste. The Project Manager/Construction Contractor and the CoW should thus take all practicable steps to

ensure that waste is managed in a manner that will protect health and the environment and that such services be integrated into the normal solid waste operation of the City and kept as far as possible from

communities e.g. the disposal site close to the Havana Primary School and that such site rather be developed as a sport field facility.

### 5.3. Hydrogeological Assessment and Proposed Measures

The conducting of a specialist hydrogeological study was one of the consultancy terms of reference requirement. A detailed assessment of the environmental impact to ground and surface water for the upgrading and formalization of the HAVANA EXTENSION 6 & 7 development is contained in the **APPENDIX C: Specialist Hydrogeology Report**.

Notable is that the project area is characterized by a dominant schist formation, which is identified to be of low permeability due to its porosity. Schist naturally acts as an aquiclude because of its poor character in hosting the groundwater. Mapani, (2005) further explained that the city of Windhoek

is categorized as high risk city because of the thin soil cover and a fault that reach the groundwater table. Most of the ground water contamination in Windhoek is a result of sewage pipe burst that can leak into the groundwater system.

The soil is moderately to highly erodible. The already thin soil horizons could be easily removed by water upon disturbance by construction activities, which could extensively contribute to erosion. Furthermore, this shallow soil has high potential to erosion which can further be accelerated by the excavation and removal of vegetation. The land or any portion of HAVANA EXTENSION 6 & 7 is not subject to flooding, tidal action or

sand penetration. The land or any part thereof has not been filled in, drained or flattened. At present, no other suitable land exists on which this ultra-low-income development may be accommodated immediately. It should therefore be strived to optimise the use of the land under discussion, although parts are not suitable in terms of gradients. The guidelines of the City's Development and Upgrading Strategy should be followed with the design of the layout (residential development only allowed on areas not steeper than 1:6). Recommendations to be adhered to are described in more detail in the **Specialist Hydrogeology Report** prepared by **Namib Hydrosearch**.

### 5.4. Socio-Economic Assessment Needs and Proposed Measures

"*Planning for the People*" instead of "*Planning with the People*" may not improve the basic socio-economic needs of those the intended development was planned for. "*Planning with the People*" is the key to the success of this project as this can enhance ownership and leads to decreased negative basic socio-economic factors such as high crime rate, higher levels of unemployment, increased poverty, unhygienic and unsafe conditions, and etc.

It was with this in mind that **Socio-Economic & Environmental Governance Consultants** conducted a specialist socio-

economic and cultural impact study for HAVANA EXTENSION 6 & 7.

In addition to the planned services HAVANA EXTENSION 6 & 7 residence identified other needs such as the establishment of a water tap for each household; electrification of each household as well as street lightning; individual household waterborne toilets; the establishment of healthcare (e.g. clinic) facilities; the provision of an all-inclusive shopping centre/mall; proper collection and disposal of household waste; a multi-purpose and entertainment centre for the unemployed youth; educational facilities (e.g. a crèche and high schools), a proper sport field facility

for both the primary school and community as well as places of worship e.g. church. It is further recommended that construction activities be highly labour intensive and local labour or surrounding communities (both male and female, skilled and unskilled) be employed as a priority to meet the objectives of the Targeted Intervention Program for Employment and Economic Growth (TIPEEG). Detailed recommendations contained in **APPENDIX D: Specialist Socio-Economic & Cultural Report** should inform the City Council during the provision of services to the HAVANA EXTENSION 6 & 7 communities.



## 6. CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

### 6.1. The Construction Environmental Management Plan

A Construction Environmental Management Plan (CEMP) is a site-specific plan developed to ensure that all contractors and sub-contractors comply with the environmental conditions of approval for the project and that the environmental risks are properly managed. In actual fact, the CEMP is the essential link between environmental impacts assessment and project activities. It is to ensure that environmental impacts identified during the assessment stage are properly managed on site and control measures are implemented.

This CEMP is developed to outline measures that need to be implemented in order to minimize adverse environmental degradation associated with the construction of water, sewerage, electricity, stormwater and road services infrastructures in the informal settlement of HAVANA EXTENSION 6 & 7 in Windhoek. It serves as a guide for the construction contractor, sub-contractors and their respective workforce on their roles and responsibilities concerning environmental management on the site and it provides a framework for environmental monitoring throughout the construction period.

Since that this CEMP provides guidance in managing and maintaining potential environmental impacts associated with the construction of services to a

minimum, it should be noted that this CEMP becomes a legally binding requirement which will form the basis of the environmental contract between the City of Windhoek (CoW), Construction Contractors and or Project Manager, Ministry of Environment and Tourism (MET) and any other relevant authority. This CEMP will help the Construction Contractor/Project Manager to map progress toward achieving continual improvements. In this way, the tabulated mitigatory measures will assist Construction Contractor, the MET and the CoW in ensuring that impacts to the environment are minimized during the construction of water, sewerage, electricity and roads services in the informal settlement of HAVANA EXTENSION 6 & 7 as well as in an emergency case as outlined in this Chapter.

This follows that the main aspects covered by SED Consultancy during the CEMP development process in meeting the above mentioned requirement are to:

- Encourage good management practices through planning and commitment to environmental and socio-economic issues;
- Define how the management of the environment is reported and performance evaluated;
- Provide rational and practical environmental guidelines to minimize disturbance of the natural environment;

- Prevent or minimize all forms of pollution;
- Protect available indigenous flora and fauna;
- Prevent soil erosion and facilitate re-vegetation of effected areas;
- Comply with all applicable laws, regulations, standards and guidelines for the protection of the environment;
- Adopt the best practicable means available to prevent or minimize adverse environmental impacts;
- Develop waste management practices based on prevention, minimization, recycling, treatment or disposal of waste;
- Describe all monitoring procedures required to identify impacts on the environment, and
- Train employee and contractors with regard to safety and environmental obligations.



## 6.2. CEMP Development Methodology

The stipulated environmental impact assessment procedure in terms of the Environmental Impact Assessment Regulations: Environmental Management Act, 2007 was followed although people are already living in HAVANA EXTENSION 6 & 7 and within a significantly disturbed environment and thus not only requiring the identification of environmental impacts but also socio-economic and cultural impacts as well as hydrogeological impacts to inform a detailed Construction Environmental Management Plan (CEMP) in guiding the envisaged construction activities.

The following key activities and tasks have been undertaken as part of the EIA and CEMP development process, namely to:

- Solicited initial input from main shareholders e.g. CoW, MET, Construction Contractor and etc. This is essential toward the development of a sound plan. Since no resource sits in isolation, an environmental management plan can affect a number of other parties. For the best adherence and acceptance of a plan, input is needed to address concerns early in the planning process.
- Identified the problems and or questions associated with the construction of water, sewerage, electricity, stormwater and roads services in the informal settlements of HAVANA EXTENSION 6 & 7. Clearly defined objectives were identified in order to remain centered on a management plan. Only in this way can the success of this construction environmental management plan be gauged.
- Developed or identified an environmental impact statement (EIS). An EIS considers all interlinked

sustainable development impacts as the management plan will need all possible financial, political and socio-economical backup. This support will judge the efficacy of the plan.

- Made a list of applicable criteria, standards and principles for construction as required by legislation, regulation, policies and etc. As standards include criteria to fit various types of projects, much of the information is often irrelevant to any particular one. Went through any standards or reference guides to be complied with and marked all requirements applicable to each situation e.g. water, sewerage, electricity and roads services. Where a specific service did not need to comply with specific standards, made a list of clearly defined goals for the management plan.
- Conducted socio-economic surveys and inventories of plants and wildlife as affected by the development. These initial numbers provide baseline data. The success of the plan is judged by the impacts on these figures. They also help provide tangible evidence, especially important for non-technical shareholders.
- Listed all possible ways of meeting each service construction requirement. For each project goal or requirement, described the specific actions that must be taken in the facility or on-site to meet it.
- With the development objectives in mind, developed several approaches to a solution. A definitive solution is not always clear, thus incorporated shareholder input

in any approach. Oftentimes shareholder input brought new conditions to light and directed the development of a plan.

- Choose one option for each requirement. The options for each goal were narrowed down either with a high-end approach where the solution was chosen by a collaborative effort involving several consulting team members. The strategy ultimately came down to how familiar the members were with each area of the service construction impacts. The consulting team members got feedback from community and project management to see whether there are any problems or objections to the plan.
- Wrote the management plan. A construction environmental management plan often involves multiple components, requiring expert insight from several professionals. This plan was developed and written by a team of experts.
- Created instructions and checklists. This eco-management plan will likely require some changes in routine. All members of the team were supplied with specific instructions that they should follow in creating checklists to make the transition as seamless as possible.
- Established the extent of the management plan and what the client must do on its own. It is easy for a management plan to end up in someone's hands and never be executed. Informed the client that creating the plan is an iterative process requiring routine correspondence to tailor it to Project Contractor's specific needs.



- Seek public input through two public meetings and continuous engagements with registering as I&APs. An attempt to gather public input is always required, especially in this case of municipal-owned land.

Through the EA process, the following issues have been identified as some of the very crucial aspects for the Construction Contractor, the CoW and or the MET to consider, namely to:-

- Make the proposed plan available (online and also by mail). Any citizen who wishes to view the plan should have the reasonable means to obtain a copy.
- Implement the plan. Once public and environmental concerns have been addressed, implementation of the plan should begin. It is

important to adhere to the plan as approved.

- Modify the plan as necessary. If contingencies such as closing off areas to the public prove unpopular, compromises can be developed that satisfy public and environmental needs. A plan with strong public approval has a greater chance of success.
- Continue monitoring the resources. Implementation of the plan is only the beginning. Continued monitoring and reporting will help gauge whether the plan was able to solve the identified issue. Monitoring also helps agencies tweak a plan as needed, but always after public disclosure.
- Always give the public adequate time to respond, especially if the plan involves restrictions of any sort. Sometimes, compromise is not

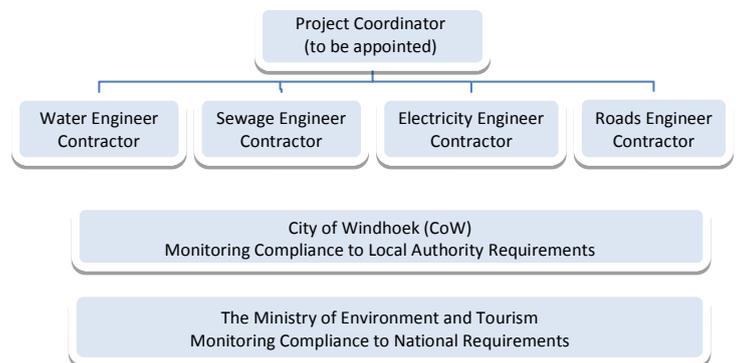
possible. In the end, the protection of the environment should guide the decision-making process. Address concerns early. Never let unpopular concerns be unaddressed.

This construction environmental management plan was written to guide short-term goals and decision making and will provide environmental related guidelines. By having this plan in place, the Construction Contractor will have means to make good decisions. With public input, the plan helps agencies measure public opinion. It can help to guide future management decisions, especially when citizens are affected. It creates focus within an agency, guiding it through management changes.

### 6.3. Overall CEMP Responsibility

The Project Manager/Construction Contractor is the designated responsible person in terms of the HAVANA EXTENSION 6 & 7 site regulations for contractors and will also be responsible for environmental control on site during the construction period. Ideally it is suggested that a pre-construction meeting should be held in order to reach an agreement on specific roles of the various parties and possible penalties for non-compliances.

In addition, surrounding residents must have been notified in advance of any potentially disturbing activities and the Construction Contractor should ensure that any approvals, licenses and permits as required by legislation are obtained before works commence, while MET and CoW monitor compliance to the CEMP as depicted below.



## 6.4. Important Contact Numbers

It is recommended that contact numbers of the Project Manager, the Site Supervisors, Safety Officers, Emergency Services (such as the ambulance, fire brigade, police and etc.) as well as CoW, MET, MLRGHRD and any other key resource representatives (as per the CEMP Standard Form SEDC01 in Appendix E) be known and displayed.

The respective site supervisors are the contact point to deal with all immediate environmental issues and emergencies on site. They are responsible for ensuring all such issues are resolved. Contractors' team members must notify the site supervisors of any environmental issues on site.

However, the Project Manager and Site Supervisors should be nominated to be available to relevant external authorities on a 24-hour basis. They have the authority to take any action on site as directed by an authorized officer of any relevant external authority. All relevant authorities, affected property owners and others in the vicinity or affected by specific works should be informed of the project, activity and timeframes.

## 6.5. Working Hours of the Project

All activities carried out on the site and in relation to this development shall comply with the relevant provisions of all legislation relating to the construction activities. A detailed Schedule of Environmental Legislative Requirements with obligations relevant to this Project is outlined in Chapter 4. Appropriate scheduling of construction activities e.g. construction activities to start at sunrise (when most people are awake and safe to work) and stop at sunset is recommended.

## 6.6. Complaints Registration and Environmental Incidents

Any complaints received from the community concerning any aspect of the project must ideally be directed to an environmental toll-free line to be made available by the project manager. Such complaints or environmental incidents should be recorded and investigated (Form SEDC03) and a response (even if pending further investigation) given to the complainant within 2 days.

If an environmental complaint (such as a complainant regarding noise or pollution) is received, a written report should be prepared and given to the Project Manager or clients' representative within two (2) working days. This report should include details of the complainant, details and nature of the complaint, the date and actions taken

to correct the problem and proposed measures to prevent the occurrence of a similar incident.

## 6.7. Emergencies Procedures

All environmental incidents should be reported to the provided numbers and persons as per standard form SEDC01 and dealt with promptly to minimize any potential impacts. Unexpected or accidental environmental incidents should be managed in accordance with CoW emergency procedures. The designated responsible person in terms of the HAVANA EXTENSION 6 & 7 site for contractors will ultimately be responsible for the prevention of reoccurrences of such environmental and emergency incidents on site during construction. An emergency evacuation process, the emergency firefighting system and the emergency plans for spillage containment shall be included in all site inductions.

## 6.8. Non-Conformance Control

A non-conformance occurs when a procedure or environmental safeguard is not followed, or does not perform as required by this CEMP. The CoW and MET will monitor non-conformances to the CEMP and initiate a corrective and preventive action where required. Non-conformance is reported in form SEDC02.

Difficulties may be encountered with carrying out mitigation measures that could result in future non-compliance. The responsible person shall put in place measures to motivate staff members to comply with the CEMP, and to deal with acts of non-compliance, or malicious damage to the environment by any staff member.

## 6.9. Training and Induction of Employees

In terms of the Environmental Management Act No. 7 of 2007 and the Labour Act No. 15 of 2004 the Contractor has a responsibility to ensure that all those people involved in the project are aware of and familiar with the environmental, health and safety requirements for the project (this includes sub-contractors, casual labour, etc.) and in compliance to the CEMP.

This CEMP shall be part of the terms of reference for all contractors, sub-contractors and suppliers. All contractors, sub-contractors and suppliers have to give some assurance that they understand the CEMP and that they will undertake to comply with the conditions therein. All senior and supervisory staff members shall familiarize themselves with the full contents of the CEMP. They shall know and



understand the specifications of the CEMP and shall be able to assist other staff members in matters relating to the CEMP. It is further suggested that Construction Contractor establishes environmental, health and safety performance objectives and targets for the project.

### 6.10. Environmental Monitoring

Environmental monitoring must be undertaken on a regular basis by both the CoW and MET. This monitoring will be undertaken in order to ensure compliance with all aspects of this CEMP. In order to facilitate communication among all stakeholders, it is vital that a suitable chain of command is structured that will ensure that the recommendations have the full backing of the construction teams before being conveyed to the Contractor.

### 6.11. CEMP Amendments and Instructions

No CEMP amendments (relaxation or revision of any mitigation measure) shall be allowed without approval from the relevant authority (i.e. MET). Motivations for amendments to the CEMP may be discussed with the MET and CoW. These amendments or instructions issued by both the MET and CoW shall be implemented within the specified time frame.

### 6.12. Mitigation Measures

Specified activities that pose potential environmental impacts and environmental management mitigation measures to be implemented during construction are tabulated below.

Most environmental impacts of developments occur in the construction phase of the project. As a result the regulation of construction activities and the general conduct of the workforce is an essential component of this CEMP.

MITIGATION MEASURES RELATED TO SITE ACCESS IMPACTS	RESPONSIBILITY
<ul style="list-style-type: none"> <li>✚ Project Contractor must take into account any limitations when deciding on access or alternative routes to the construction site.</li> </ul>	Project Contractor & Service Contractors
<ul style="list-style-type: none"> <li>✚ Choice of access routes should take into account minimum disturbance to HAVANA EXTENSION 6 &amp; 7 residents.</li> </ul>	
<ul style="list-style-type: none"> <li>✚ All roads for construction access must not be created on an ad hoc basis but maintained as planned and approved ahead of construction activities.</li> </ul>	
<ul style="list-style-type: none"> <li>✚ The location of all underground services and servitudes must be recorded and adhered too as identified and confirmed before construction commenced.</li> </ul>	



MITIGATION MEASURES RELATED TO THE ESTABLISHMENT OF THE CONTRACTORS LAY-DOWN AREA IMPACTS	RESPONSIBILITY
<ul style="list-style-type: none"> <li>❏ Potable water must be available at all times at various points within the Contractor's area.</li> <li>❏ There is no need to provide portable chemical toilets. The available community waterborne sewerage and the dry pilot toilets must be utilized by all site staff at all times.</li> <li>❏ An adequate number of waste receptacles must be available at strategic locations for gathering all types of refuse, and to minimize littering.</li> <li>❏ Recycling and the provision of separate waste receptacles for different types of waste must be encouraged.</li> <li>❏ A fenced off area must be allocated for waste sorting and disposal.</li> <li>❏ Potable water is to be sourced from an existing supply, and made available at various locations.</li> <li>❏ A dedicated source of water for dust suppression purposes must be determined during site establishment.</li> </ul>	Project Contractor & Service Contractors

MITIGATION MEASURES RELATED TO THE MAINTENANCE OF THE CONTRACTORS LAY-DOWN AREA IMPACTS	RESPONSIBILITY
<ul style="list-style-type: none"> <li>❏ The Contractor must monitor and manage the drainage of the site to avoid standing water and soil erosion.</li> </ul>	Project Contractor & Service Contractors
<ul style="list-style-type: none"> <li>❏ Identification of disposal sites for the various categories of waste likely to be generated on site and must be provided with documented proof of the type and volume of waste disposed of at these sites.</li> <li>❏ The general cleanliness of the site and compliance with the CoW waste disposal requirements will form part of the site inspections.</li> <li>❏ Where possible, waste must be collected for recycling programmes provided that the original contents of the containers were not hazardous.</li> <li>❏ Scrap metal (components, sheet metal, nails and fins) must be stored in a designated scrap metal container (e.g. a skip).</li> <li>❏ When the scrap metal container is full, the scrap metal must either be collected by a scrap metal dealer or transferred to an appropriate disposal site.</li> <li>❏ Hazardous substance containers, contaminated substrates and materials used in the clean-up of spillages must be stored in a designated, impermeable container (e.g. a skip).</li> <li>❏ The hazardous substance containers, contaminated soil, clean-up materials, etc. must be transferred to an appropriate disposal site on a regular basis.</li> <li>❏ An adequate number of self-contained chemical toilets must be established in case. Contractors must supply toilet paper at all toilets, and will be responsible for their maintenance and servicing.</li> </ul>	Project Contractor, Service Contractors, MET & CoW Safety, Health, Environment and Quality Officers



<ul style="list-style-type: none"> <li>❏ The temporary ablation facilities, if any, must conform to the requirements stipulated by the Department of Health of the CoW.</li> <li>❏ In case, toilets must be placed outside areas susceptible to standing or flowing water.</li> <li>❏ The ablation facilities must be maintained in a clean and orderly state and are to be regularly cleared to prevent odour and pest problems.</li> <li>❏ A contingency plan for spills from toilets must be in place.</li> <li>❏ Contractors must ensure that no spillage occurs when chemical toilets are used, cleaned and cleared and that the contents is carefully stored and transported when removing off-site. All spills must be recorded in the incident management system.</li> </ul>	
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MITIGATION MEASURES RELATED TO CONSTRUCTION ACTIVITIES IMPACTS	RESPONSIBILITY
<ul style="list-style-type: none"> <li>❏ If small volumes of concrete are to be mixed (manually), mixing is to be undertaken on a hard surface covered in plastic sheeting so that concrete waste and runoff can be contained.</li> <li>❏ All concrete waste is to be collected, recycled if possible, and removed from the site for disposal at an appropriate disposal site.</li> <li>❏ On completion of construction, all leftover construction materials are to be removed from the working area.</li> <li>❏ The materials must be disposed of at an appropriate site, sold / donated.</li> <li>❏ Materials should be prepared and stored away from watercourses.</li> <li>❏ Implement measures to prevent seepage of liquid materials into ground where it could contaminate groundwater.</li> <li>❏ Ensure prompt cleaning up of accidental spillages.</li> <li>❏ Ensure that the machinery / equipment is maintained in a good operating condition to prevent the contamination of hydrological features by diesel, grease, oil, etc. derived from the working area.</li> <li>❏ Create specially designated areas for vehicle maintenance.</li> <li>❏ Cleaned up accidental spillages promptly.</li> </ul>	<p>Project Contractor &amp; Service Contractors</p>



MITIGATION MEASURES RELATED TO STORAGE FACILITIES IMPACTS	RESPONSIBILITY
<ul style="list-style-type: none"> <li>❏ Choice of location for storage areas must take into account prevailing winds, distance from water bodies and general on-site topography.</li> <li>❏ Storage areas must be designated, demarcated and adequately fenced if necessary.</li> <li>❏ All fuel required on site is to be stored within an adequately sized bund wall that has an impermeable base. The capacity of the bund wall is adequate to cope with a spill / leak of the fuel storage container.</li> <li>❏ A designated working area must be made available and must be underlain by an impermeable surface (e.g. a concrete slab or plastic lining).</li> <li>❏ All handling of potentially toxic or hazardous material, and the repair, maintenance and storage of vehicles and equipment must be undertaken on the impermeable working surface in accordance with the Materials Safety Data Sheets (MSDS).</li> <li>❏ Fire prevention facilities must be present and easily accessible at all storage facilities.</li> </ul>	Project Contractor & Service Contractors
MITIGATION MEASURES RELATED TO SAFETY	RESPONSIBILITY
<ul style="list-style-type: none"> <li>❏ Material stockpiles must be stable and well secured to avoid collapse and possible injury to workers / local residents.</li> <li>❏ Flammable materials should be stored as far as possible from any sensitive receptors.</li> <li>❏ Fire-fighting equipment is to be present on site at all times.</li> <li>❏ No materials are to be stored in unsuitable or high-risk areas.</li> <li>❏ All trenches should be demarcated.</li> </ul>	Project Contractor & Service Contractors
<ul style="list-style-type: none"> <li>❏ Material Safety Data Sheets (MSDS's) shall be readily available on site for all chemicals and hazardous substances to be used on site. Where possible and available MSDS's should include additional information on ecological impacts and measures to minimize and mitigate against any negative environmental impacts in the result of an accidental spill.</li> <li>❏ Hazardous storage and refuelling areas must be bounded with an impermeable liner to protect groundwater quality.</li> <li>❏ Storage areas containing hazardous substances / materials must be clearly signed.</li> <li>❏ Staff handling hazardous substances / materials must be aware of their potential impacts and follow appropriate safety measures.</li> </ul>	Project Contractor, Service Contractors, MET & CoW Safety, Health, Environment and Quality Officers



MITIGATION MEASURES RELATED TO THE EDUCATION OF SITE STAFF ON GENERAL AND ENVIRONMENTAL CONDUCT	RESPONSIBILITY
<ul style="list-style-type: none"> <li>❏ Ensure that all site personnel have a basic level of environmental awareness training. Translators are to be used if necessary.</li> <li>❏ No alcohol / drugs to be allowed on site and driving under the influence of alcohol is prohibited.</li> <li>❏ No firearms allowed on site or in vehicles transporting staff to / from the site (unless used by security personnel).</li> <li>❏ Prevent excessive noise.</li> <li>❏ Construction staff is to make use of the facilities provided for them, as opposed to ad hoc alternatives.</li> <li>❏ Trespassing on private / commercial properties adjoining the site is forbidden and should be displayed as such.</li> </ul>	<p>Project Contractor, Service Contractors, MET &amp; CoW Safety, Health, Environment and Quality Officers</p>

MITIGATION MEASURES RELATED TO POLLUTION MANAGEMENT AND CONTROL IMPACTS	RESPONSIBILITY
<ul style="list-style-type: none"> <li>❏ Excavation, handling and transport of materials must be avoided under high wind conditions or when a visible dust plume is present.</li> <li>❏ During high wind conditions, dust suppression measures will be required.</li> <li>❏ Soils stockpiles are to be located in sheltered areas where they will not be exposed to the erosive effects of the wind.</li> <li>❏ Appropriate dust suppression measures must be used when dust generation is unavoidable (dampening with water).</li> <li>❏ Disturbance of the residents in the vicinity of the construction areas will have to be taken into account during the construction period.</li> <li>❏ The siting of areas for delivery of equipment and materials must take into account the noise generated by the vehicle as well as noise generated by off-loading equipment.</li> <li>❏ Jackhammers and their associated compressors exhibit continuous noise that could impact on nearby residents. Acoustic treatment of the jackhammers must include silencers on the exhausts.</li> <li>❏ Concrete mixers must be sited to minimize the impact on nearby residents.</li> <li>❏ All vehicles and equipment must be properly maintained to reduce unnecessary noise.</li> <li>❏ Factors to take into account are; arriving and departing traffic, loading and unloading of equipment and materials; and day-to-day operations.</li> <li>❏ All soil that is contaminated must be removed and stored in a skip until it can be disposed of at an appropriate disposal site.</li> <li>❏ All wastewater and polluted runoff from contaminated areas must be channeled into</li> </ul>	<p>Project Contractor &amp; Service Contractors</p>



<p>appropriately sized, designed and located collection sump.</p> <ul style="list-style-type: none"> <li>❏ All equipment that may leak on an impermeable surface should be stored with watertight drip trays to catch any pollutants.</li> <li>❏ The drip trays must be cleaned regularly, and must not be allowed to overflow.</li> <li>❏ Chemicals collected in the drip trays must be collected and disposed of in an appropriate manner (MSDS).</li> </ul>	
<ul style="list-style-type: none"> <li>❏ All wastewater and contaminated runoff from the storage and working areas of the site must be channeled into existing wastewater management system.</li> <li>❏ Contaminated liquids and sediments from the wastewater management system must be disposed of at an appropriate permitted disposal site.</li> <li>❏ All liquid fuels (e.g. diesel and petrol) which are stored in tanks or drums must have a bund wall around the tanks to prevent liquids from escaping in the event of a spill or leak.</li> <li>❏ The volume of the bund must be 110% of the volume of the storage tanks.</li> <li>❏ Any person delivering fuels or other chemicals to the site must be aware of the appropriate storage / drop-off locations and the environmental controls that apply.</li> <li>❏ The handling and storage of hazardous materials must be in accordance with the MSDS and must be restricted to designated areas. If additional areas / sites are required for the storage or handling of hazardous substances, they must be assessed.</li> <li>❏ An inventory of all fuels and hazardous substances to be used and stored on the site, and must ensure that they know the effects of these substances on their staff and the environment.</li> <li>❏ Quantities of fuels and chemicals stored on site must be appropriately stored and handled so as to minimize the risk of spills.</li> <li>❏ All fuels and chemicals must be confined to specific and secured areas Chemicals must be stored in a bounded area with an impermeable base (e.g. concrete or plastic lining).</li> <li>❏ The accidental or negligent spillage of any fuels or potentially hazardous substances must be cleaned up immediately using the most appropriate methodologies, equipment and materials.</li> <li>❏ Necessary materials and equipment and chemicals are available on the site to deal with spills of any of the hazardous materials present.</li> <li>❏ A procedure must be put in place to distinguish between those spills that can be cleaned up by the Contractor and those that will require specialist input. The name and contact numbers of various clean up companies must be posted and visible at the camp office.</li> <li>❏ Any contaminated soil or water must be removed and stored in a skip until it can be disposed of at an appropriate disposal site.</li> <li>❏ CEMP standard forms must be available on site to record the details of any environmental incidents (date, time, cause, action taken).</li> </ul>	<p>Project Contractor, Service Contractors, MET &amp; CoW Safety, Health, Environment and Quality Officers</p>



MITIGATION MEASURES RELATED TO SOCIO-ECONOMIC ENVIRONMENTAL IMPACTS	RESPONSIBILITY
<ul style="list-style-type: none"> <li>✚ Local labour (male and female, skilled and unskilled) should be employed as a priority.</li> <li>✚ Workers are to be made aware that employment is only temporary and will cease at the end of the contract period. Where possible, employment of local persons should be used for capacity building.</li> </ul>	<p>Project Contractor &amp; Service Contractors</p>
<ul style="list-style-type: none"> <li>✚ Surrounding communities are to be informed of any inconveniences caused by the construction activities.</li> <li>✚ A complaints line is to be made available and incidents are to be addressed and recorded.</li> <li>✚ I&amp;AP's need to be made aware of the existence of the complaints register and the methods of communication available to them.</li> </ul>	<p>Project Contractor, Service Contractors, MET &amp; CoW Safety, Health, Environment and Quality Officers</p>



## 7. OVERALL CONCLUSIONS AND RECOMMENDATIONS

The national socio-economic benefits and contributions that will be derived from the construction of water, sewerage, electricity, stormwater and roads services in the informal settlements of HAVANA EXTENSION 6 & 7 in Windhoek far outweigh any negative environmental impacts as this is an already disturbed and occupied site.

The consultants' experiences are that it is common for details of a proposal to alter through the construction phase. In many cases alterations are not environmentally significant and/or have positive effects on the environmental performance of the project. The consultant believes that such non-substantial changes, and especially those which improve environmental performance and protection, should be encouraged and provided for.

In order for the general provisions of this CEMP to be fully implemented SED Consultancy proposes that the following general conditions be enforced by the CoW and MET:

- ❑ The CEMP to be binding on all the parties involved in the construction phase and be enforceable at all levels of the contract operational management within the project;

- ❑ The CEMP to be deemed a binding commitment by the parties to act within the intent and spirit of sound environmental management and to cooperate and enforce the specifications contained therein, as and where necessary, and

- ❑ In order to ensure strict adherence to this CEMP the CoW, with the assistance of the Project Manager/Construction Contractor, will bear the ultimate responsibility of implementation.

The consultant concludes that the project, as described in this Scoping EIA & CEMP Report, is environmentally acceptable and recommends that the construction of water, sewerage, electricity, stormwater and roads services could proceed subject to strict adherence to Safety, Health, Environmental and Quality (SHEQ) requirements. Strict adherence to the CEMP recommendations made in this report as well as compliance to all relevant legislation should be the daily management and operation norms during construction in the informal settlements of HAVANA EXTENSION 6 & 7. It is thus further recommended that the CoW and MET assign an environmental officer each to monitor the site throughout construction to ensure compliance to legislation and that the required environmental controls are in place and are working effectively.



## 8. REFERENCES

**Barnard, P. 1998**, *Biological Diversity in Namibia: A Country Study*. Namibian National Biodiversity Task. Windhoek, Namibia.

**Christelis, G. & Struckmeier, W. 2001**, *Groundwater in Namibia: An Explanation to the Hydrogeological Map*. Department of Water Affairs, Windhoek, Namibia.

**Curtis, B. A. & Mannheimer, C.A. 2005**, *Tree Atlas of Namibia*. National Botanical Research Institute. Windhoek, Namibia.

**Enviro Dynamics. 2009**, *Windhoek Biodiversity Inventory/Baseline Report*. Windhoek, Namibia.

**Mendelsohn, J., Jarvis, A., Roberts, C. & Robertson, T. 2002**, *Atlas of Namibia: A Portrait of the Land and its People*. David Philip Publishers, Cape Town, RSA.

**Namibia Environmental Directorate of Environmental Affairs, Ministry of Environment and Tourism, 1996**, *Namibia Environment: Volume 1*. Gamsberg Macmillan Publishers, Windhoek, Namibia.

**Ruppel, O.C. & Ruppel-Schlichting, K. 2013**, *Environmental Law and Policy in Namibia*. OrumbondePress.na & Welwitschia Verlag Dr. A. Eckl, Essen, Windhoek, Namibia.

**SED Consultancy. 2011**, *Environmental Impact Assessment for Services Provision in the OTJOMUISE EXTENSION 10 Settlement Area in Windhoek*. Swakopmund, Namibia.

**SED Consultancy. 2011**, *Construction Environmental Management Plan for Services Provision in the ONGULUMBASHE Informal Settlement Area in the Windhoek*. Swakopmund, Namibia.

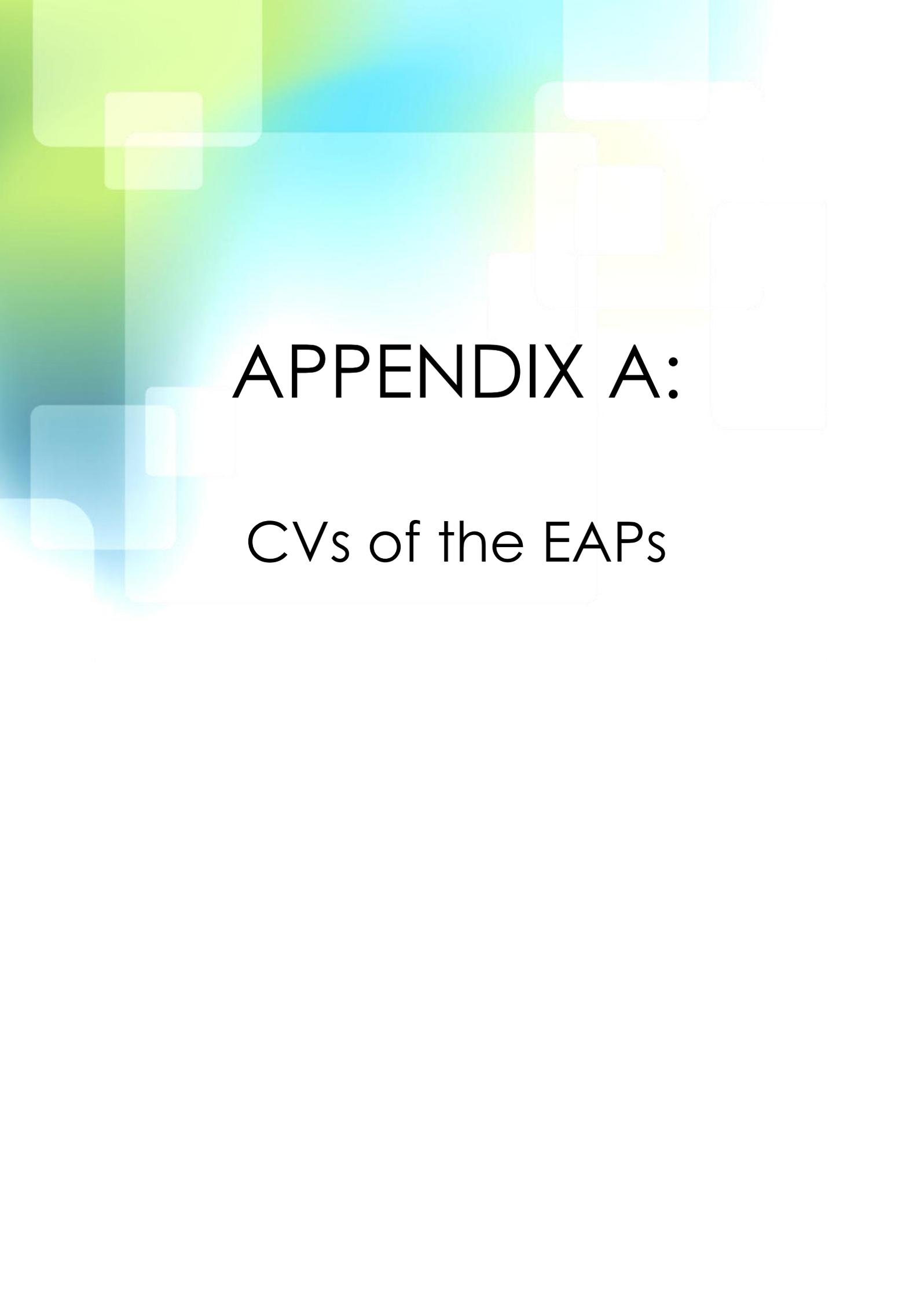
**Sven-Olof Ryding. 1992**, *Environmental Management Handbook*. Stockholm, Sweden.

**Wardell-Johnson, G. 2000**, *Biodiversity and Conservation in Namibia into the 21st Century*. Pages 17-45 in B. Fuller and I. Prommer, *Population-Development-Environment in Namibia: Background Readings*. Laxenburg, Austria: IIASA, IR-00-031.

**Urban Dynamics. 2005**, *Feasibility Study for the Development of the Broader Havana North Area*. Windhoek, Namibia.

**Urban Dynamics & Enviro Dynamics. 2008**, *City of Windhoek State of the Environmental Report: Volume 1 – Baseline Report*. Windhoek, Namibia.





# APPENDIX A:

CVs of the EAPs

# David Daddy Hishikushitja UUSHONA

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## Personal Details

Nationality: Namibian  
Age: 50 years  
Specializations: Analytical & Water Chemistry; Scientific Research; Mining & Urban Waste and Environmental Planning and Management; Implementation & Auditing of EMS, and Institutional Development & Administration.

## Education

- **NDip.**  
Analytical Chemistry, Technikon Witwatersrand, South Africa, 1989.
- **BTech.** Water Care, Technikon Pretoria, South Africa, 1999.
- **International Certificate:** Mining and the Environment, Centek-Luleå University, Sweden, 2000.
- **Certificates:** Implementation & Auditing of Environmental Management Systems (SABS/ISO 14001), Centre for Environmental Management, University of Potchefstroom, South Africa, 2001/2
- **Certificate:** Management Development Programme, University of Stellenbosch, South Africa, 2003.
- **International Certificate:** Solid Waste Management and Engineering, UNESCO- IHE (Institute for Water Education), Netherlands, 2004.
- **MBA:** (Specialization in Environmental Management), University of Southern Queensland, Australia, 2008.
- **National Certificate** in Local Government Studies, NAMCOL, Namibia, 2010

## Key Qualifications

David Daddy Hishikushitja Uushona (DDHU) has a solid educational background within the field of Analytical Chemistry; Water and Solid Waste Engineering; Environmental, General and Administration Management studies comprising the subjects of organic, inorganic and analytical chemistry, mathematics, physical science, environmental management, organisational behaviour, financial and human resource management, and etc. He holds a broad basic understanding of the political, economic, social, technological, ecological, and legislative factors that are needed for creating an environment conducive to sustainable development in a developing country, such as Namibia.

DDHU has demonstrated an excellent ability in coordinating and managing projects during his entire employment history. Furthermore, he has considerable experience in developing and co-ordinating human resource development programmes. He has an eye for details and at the same time a good sense of the broader lines.

He has obtained vast exposure on the coordination of analytical chemistry, safety, health & coastal and urban environmental issues during his time span within the mining and public service sector (Tsumeb Corporation limited & Rössing Uranium Mine & Municipality of Walvis Bay). Worthwhile mentioning is the valuable practical experience gained from his involvement in project planning, implementation and evaluation and more specifically with the Rössing Uranium Mine, the Municipality of Walvis Bay and as a consultant with the Danish Hydrological Institute (DHI) for Water & Environment, with the Town & Environmental Planning and with SED Consultants cc.

## Present Employment

Municipality of Walvis Bay, Namibia

Jul 03 – Present

### Manager: Solid Waste & Environmental Management.

Strategic planning and execution of urban environmental management. Managing human, financial & physical resources with regard to the generation, collection, transportation, separation, storage, treatment and disposal of the entire town's domestic, industrial and hazardous waste.

## Summary of Work Experience

- 18 years in the Copper & Uranium Mining Sector (Mining & Processing - Know How).
- 16 years of Supervisory Experience (Health, Safety & Leadership Skills).
- 11 years Mining Laboratories Experience (Analytical Chemistry).
- 18 years Urban & Coastal Environmental (Environmental Management & LA 21).
- 14 years of Basic Computer Exposure (Computer Literal).
- 14 years of Scientific and Technical Research Projects (Project Management).
- 12 years of Strategic Planning & Management (Organisational Development).
- 4 years of Implementation & Maintenance of EMS (SABS / ISO 14001 Experience).
- 12 years of Local Authority Management Activities (Municipal Administration).
- 10 years of Managing Solid Waste Personnel & Equipment (Solid Waste Management)
- Innovative, Self-motivated, Human & Production Concern (Management Skills).

## Selected Assignments

- |                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>January - June 2013</b><br><b>City of Windhoek</b>              | Upgrading and formalization of the HAVANA EXTENSION 6& 7 informal settlement in Windhoek. Lead Environmental Consultant for the conducting and development of a Socio-Economic & Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP).                                                                                                                                                                                 |
| <b>October 2009 - December 2013</b>                                | Cities for Climate Change Initiatives (CCCI). Acting as Councils' resource and coordinator on UN-Habitat, ICLEI and MRLGHRD climate change projects. These projects aim to address the knowledge, resource, capacity and networking gaps of eleven Southern African cities by strengthening their ability to plan for, and adapt to impacts associated with climate change. Municipality of Walvis Bay and other eight Southern African Cities. |
| <b>October 2011 - November 2011</b><br><b>City of Windhoek</b>     | Construction of water, sewerage, electricity and roads services in the informal settlements of OTJOMUISE EXTENSION 10 and ONGULUMBASHE in Windhoek. Lead Environmental Consultant for the conducting and development of Environmental Impact Assessments (EIAs) and Environmental Management Plans (EMPs).                                                                                                                                      |
| <b>December 2009 - July 2010</b><br><b>Municipality of Omaruru</b> | Landfill sighting and Environmental Impact Assessment. Project Leading Expert for the investigation and recommendation of solid waste streams optimization and disposal options and the conducting of an associated Environmental Impact Assessment (EIA).                                                                                                                                                                                      |

- October 2010 - February 2011** Chicken Rearing & Feedmill Farm. Sub-Consulting as an Environmental Impact Assessment (EIA) Expert for the establishment of a chicken rearing farm and a feedmill at farm Okapuke & Otjihavera. Namibia Poultry Industries (Pty) Ltd, Windhoek.
- August 2009 – July 2010** Honorary Coastodian Award. A ministerial token of appreciation for invaluable and esteemed contribution towards the conservation and sustainable use of natural resources along Namibia's coast in the interest of the country and its natural heritage. Hon. Netumbo Nandi-Ndaitwah: Minister of Environment and Tourism.
- August 2008 - January 2009  
Hardap and Karas Region** Development of a user friendly, decision guiding and policy relevant Strategic Environmental Assessment (SEA) of the Hardap and Karas regions' coastal zones. Sub-consulting as a Government Organisational Expert to the Danish Hydrological Institute (DHI) for Water & Environment. DHI is an international Danish water, environment and health consultancy company, which has been contracted again by the Namibian Coast Conservation and Management (NACOMA) Project to develop a SEA and DST for the Hardap and Karas region's coastal zones. NACOMA is a Namibian government and World Bank co-funded project on coastal biodiversity management.
- September 2007 - January 2008  
The City of Windhoek** Review of the Windhoek Integrated Environmental Policy. The overall objectives was review and draft the Integrated Environmental Policy, the Environmental Structure Plan and designing an Environmental Education Strategy in order to improve the use of the City's environmental management and planning tools for guiding sustainable development of the City of Windhoek.
- June 2006 - June 2009  
Entire jurisdiction of Walvis Bay** Coordinating the Walvis Bay Local Action for Biodiversity (WB LAB) Project. The overall objective of the LAB Project is to bring together cities around the globe with experience and good recognized track record from a range of global contexts, to explore the best ways for local governments to engage in effective biodiversity protection, utilization and management with particular focus on issues such as contribution to poverty alleviation; economic benefits of maintaining biodiversity; impacts of climate change and adaptation needs; renewable energy sources and biodiversity, and biodiversity and its influence on quality of life.
- November 2006 - October 2007  
Kunene and Erongo Region** Development of a user friendly, decision guiding and policy relevant Strategic Environmental Assessment (SEA) of the Erongo and Kunene regions' coastal zones. Sub-consulting as a Government Organisational Expert to the Danish Hydrological Institute (DHI) for Water & Environment. DHI is an international Danish water, environment and health consultancy company, which has been contracted by the Namibian Coast Conservation and Management (NACOMA) Project to develop a SEA and DST for the Kunene and Erongo region's coastal zones NACOMA is a Namibian government and World Bank co-funded project on coastal biodiversity management.
- May 2004 - November 2004  
Entire Namibia** Dissemination of Information on Local Agenda 21 Experiences Gained in Walvis Bay to Local Authorities in Namibia. During the 2003 bilateral consultations between Namibia and Denmark on Environmental Cooperation, the need was expressed to disseminate, with the assistance of Danida, information about the Walvis Bay LA21 Project to other Local Authorities in Namibia. The aim of such an intervention was to raise awareness on environmental issues at the local level, and to assist Local Authorities, as well as the communities they serve, in finding ways of addressing these issues with local resources..

**July 2003 - August 2004**  
**Municipality of Walvis Bay, Namibia**

Re-organizing the operational processes of the waste management facilities. The Municipality of Walvis Bay built an N\$ 8.3 million refuse site, which needed to be managed for efficiency and effectively. The Municipality has now a well-functioning weighbridge, incinerator, hazardous waste site, public transfer station, landfill site and recycling stalls.

**May 2001 - May 2005**  
**Danida & Municipality of Walvis Bay, Namibia**

Overseeing the implementation of the Walvis Bay Local Agenda 21 Project. Danida and the Municipality of Walvis Bay embarked upon a three-year N\$ 18 million urban environmental project. The project ended as a "Best Practice" recognised locally and international.

**May 2001 - July 2001**  
**Municipality of Walvis Bay, Namibia**

Establishing an Environmental Section. The Municipality of Walvis Bay can claim as one of the Local Authorities in Namibia with a well-integrated environmental entity within its organizational structure.

**April 2000 - July 2000**  
**Rössing Uranium Mine**

Serving on the Rössing Beyond 2000 (RB2000) Project as an Analyst. The Rössing Uranium Mine faced closure; however the RB2000 Project team raised the mine beyond the market challenges and ensured a long-term future for Rössing.

**February 2000 - February 2001**  
**Rössing Uranium Mine**

Implementation and ISO 14001 Certification of Rössing Mine. Rössing started with the implementation of an Environmental Management System as per the ISO 14001 guidelines, and became the second organization in Namibia to be certified as SABS ISO 14001: EMS compliance.

**November 1999 - May 2001**  
**Rössing Uranium Mine**

Serving on the Affirmative Action / Employment Equity (AA/EE) Panel. The Namibian Government promulgated an Affirmative Action legislation and Rössing responded to the call by producing an Affirmative Action Policy and a "first-time" government approved AA Plan.

## References

### **Dr. Robin Bloch**

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## Personal Details

Nationality: Namibian

Age: 39 years

Specializations: An Environment / Natural Resources Scientist with a wide range of knowledge, experience and skills in Namibian and regional environmental systems (including social components of environment) and natural resources planning and management, EIAs & EMPs.

An Expertise with educational and professional experience in land use planning and management; coastal zone management; Environmental Management Systems (EMS); Geographic Information Systems (GIS) Remote Sensing as well as Project Management. Able to work on own initiatives and as part of the team. Possesses excellent interpersonal skills and the ability to communicate and negotiate concisely and articulately at all levels.

Project and Organisational Manager with professional and personal attentive drive to details with a practical approach to problem solving and the organisation required to ensure that deadlines, budgets and objectives are achieved.

A tested team leader with proven skills to maintain high quality standards who also enjoys being part of a successful and productive team and thrives in highly pressurised and challenging working environments.

## Education

- 2006 – 2011 The University of Southern Queensland, Toowoomba Queensland 4350, Australia  
Masters Degree of Business Administration (MBA) with specialisation in Environmental Management

### *Modules completed:*

Corporate Environmental Management; Global Issues in Environmental Management; Tools and Techniques for Sustainable Development and Environmental Politics and Policy; information Systems for Managers; Economics for Managers; Marketing Management; Management and Organisational Behaviour; Comparative Law and Business Law and Accounting; Statistics for Managers.

- 1998 – 2000 International Institute for Geoinformation Science and Earth Observation, Enschede, The Netherlands  
Masters of Science Degree (MSc) (Environmental Systems Analysis and Monitoring)

### *Modules Completed:*

Natural resource management; Land Ecology; Maps and Geographic Databases; Remote Sensing; Mapping Land Cover; Survey and Hypothesis Statistics; Mapping Cover Related Aspects; Spatial Analysis and Modelling; Land Evaluation; Land Use Planning; Environmental Impact Assessment (EIA) using Geographic Information Systems (GIS) and Multi Criteria Evaluation; Remote Sensing/GIS Hyperspectral Advanced Remote Sensing and GIS.

- *Dissertation:* 'Modelling agricultural land expansion in forested areas – a case study of communal areas in Eastern Caprivi, Namibia'.

- 1993 – 1995 University of Namibia, Windhoek, Namibia  
Bachelors of Science Degree (B.Sc.)

*Major subjects:* Botany and Zoology

*Other Subjects:* Chemistry, Physics and Geography

- 1990 – 1992 Oshigambo High School, Private Bag 2026, Ondangwa  
Namibia Senior Certificate (Standard 10) with Matriculation Exemption

Cape Education Department Examination was written Subjects: English, Ndonga, Mathematics, Physical Science, Biology and History

## Other Training

- October 2010, Millennium Challenge Corporation (MCC) of United States of America, Windhoek, Namibia  
*Two days Intensive MCC Anti-Fraud and Corruption Training Course*
- May 2010, BCA Training (engineering & construction contract consultants and trainers), South Africa  
*Two days course on "Contract Law", and "The Principal Agent: Roles & Responsibilities"*
- Jan 2005, World Bank, Windhoek, Namibia  
*One week course on World Bank policies; guidelines and requirements on financial management, disbursement and procurements*
- July 2003, University of Cape Town, The Environmental Evaluation Unit, South Africa  
*One-week course on Integrated Coastal Management*
- June 2003, Regenesys School of Public Management, South Africa  
*One-week intensive course on Project Management*
- November 2002, University of Potchefstroom, South Africa  
*One week course on Air Quality Management*
- June 2002/December 2002, Kristiansand Municipality (Norway), Walvis Bay, Namibia  
*A three week training course on Dialogue and Communication skills,*
- October 2001, Municipality of Walvis Bay, Namibia  
*A two week course on Namibian legal systems and Criminal laws.  
Appointed as a Peace Officer by the Municipality of Walvis Bay in conjunction with Namibian Police.*
- September 2001, Denmark  
*A two week study tour to Denmark on environmental issues and the implementation of Local Agenda 21 Projects in Denmark.*
- January 2001, Digital Solutions Company, Windhoek, Namibia.  
*Attended a one-week short course on Visual Basic programming by Digital Solutions Company, Windhoek, Namibia.*
- February 2001, People in tune Namibia cc, Windhoek, Namibia  
*A one-week training on the Basic and Interpersonal Management Training Course, by the People in tune Namibia cc, Windhoek, Namibia.*
- November 2000, Digital Solutions Company, Windhoek, Namibia.  
*A one week course on Database Development and Management using the Microsoft Access software, by Digital Solutions Company, Windhoek, Namibia.*
- April 2000, Etosha Ecological Institute Windhoek, Namibia.  
*A one-week short training course on the Detection and Mapping of Vegetation Fire and Fire Scars using NOAA AVHRR Satellite data,*
- August 1997, Geodatec cc, Grahamstown, South Africa  
*Attended a one-week course on the Remote Sensing applications for environmental change detection studies as well as Vegetation and land degradation monitoring in arid to semi-arid environments.*
- November 1997, Universidad de Chile & Universidad de Concepcion, Chile, South America  
*Participated in a two weeks INTENSIVE COURSE ON REMOTE SENSING OF THE OCEAN: Applications for ocean colour, temperature, wind stress and altimetry.*
- November 1996, University of Fort Hare, South Africa  
*Participated on a three weeks Commonwealth Science Council's Regional Remote Sensing training workshop for Southern and Eastern Africa: NATURAL VEGETATION AS RESOURCE II.*
- August 1996, National Remote Sensing Centre & University of Namibia, Windhoek, Namibia  
*Three weeks training on Aerial Photography interpretation and land cover mapping from*

*aerial photographs, Windhoek, Namibia.*

- June/July 1996, CadCam & GIMS, Johannesburg, South Africa  
*Attended the following courses on UNIX operating software and GIS for two weeks*

- February 1996 – August 1998, National Remote Sensing Centre, Directorate of Forestry, Windhoek, Namibia  
*On-job training on environmental management issues and GIS and Remote Sensing application.*

## **Present Employment**

Millennium Challenge Account Namibia (MCA – Namibia)

*Feb 2009 – present*

### **Director: Environmental & Social Assessment (ESA)**

#### **Responsibilities:**

- Overall accountability and responsibility for ensuring that all environmental and social aspects are considered and integrated into the MCA-Namibia programme, as well as ensuring that all MCA-Namibia activities are implemented in most environmentally and socially sound manners.
- Overall accountability and responsibility for ensuring that all MCA-Namibia activities are designed and are implemented in accordance and compliance with all applicable regulatory requirements.
- Overall accountability and responsibility for professional and effective design, implementation, supervision, monitoring and evaluation of Environmental Impact Assessments (EIA), Environmental Management Plans (EMPs), Gender and Social Integration Plans, Public Health and Safety Plans, HIV / AIDS Awareness and Prevention Plans, Stakeholders Communication & Consultation Plans.
- Carry out field works to all project sites to collect data, assess and verify compliance, enforce compliances and provide necessary support and trainings.
- On daily bases, manage and lead the Environmental & Social Assessments Directorate, particularly the staff and MCA-Namibia contracted contractors and consultants.
- Overall accountable for the cost-effective allocation of work and resources in the ESA Directorate, making the best use of available financial, physical and human resources.
- Coordinate the collection, processing and presentation of all the required information and data related to ESA in support of all MCA-

## **Summary of Work Experience**

- Oct 2005 – Jan 2009, World Bank / GEF NACOMA Project  
*Project Coordinator for the implementation of World Bank / GEF (Global Environmental Fund) funded Namibian Coast Conservation & Management (NACOMA) Project for Ministries of Environment and Tourism, and Regional and Local Government and Housing*
- Feb 2004 – Sep 2005, World Bank / GEF NACOMA Project  
*Project Coordinator for the preparation of NACOMA Project (Namibian Coast Conservation & Management Project - a World Bank / GEF (Global Environmental Fund) funded Project for Ministries of Environment and Tourism, and Regional and Local Government and Housing and Rural Development*
- 02 July 2001 – Feb 2004, Municipality of Walvis Bay  
*Environmental Officer: Implementation of 3 years DANIDA funded Walvis Bay Local Agenda 21 (WBLA 21) Project. The project aims at achieving a workable balance between protecting the environment and promoting economic and social development through establishment and implementation of environmental policies.*
- January 1996 – June 2001, National Remote Sensing Centre (NRSC), Directorate of Forestry, Ministry of Environment and Tourism.  
*Forester (GIS and Remote Sensing Specialist) : Natural Resources Management, GIS & Remote Sensing*

## Selected Assignments

	Provided several training courses at indicated institutions. The courses are as follows:
<b>2000 - 2001</b> <b>Polytechnic of Namibia</b>	<ul style="list-style-type: none"><li>■ 2 weeks course on Geographic Information System (GIS) and Remote Sensing as Tools and Techniques of Urban Land Use Management (2001)</li><li>■ Land Use Management Students, Polytechnic of Namibia, Windhoek</li></ul>
<b>Namibian Police</b> <b>Windhoek</b>	<ul style="list-style-type: none"><li>■ 1 week course on Maps, Map Reading, and Global Positioning System (GPS) (2000 – 2001)</li><li>■ Namibian Police, Windhoek</li><li>■ Forestry Lecturers, Ogongo Agricultural College</li><li>■ Agriculture Lecturers, Ogongo Agricultural College</li></ul>
<b>Ogongo Agricultural College</b>	<ul style="list-style-type: none"><li>■ 3 days course on Ilwis 2.23: GIS Modeling (2000)</li><li>■ Land Use Management Students, Polytechnic of Namibia, Windhoek.</li></ul>
<b>Ogongo - Oshakati</b>	<ul style="list-style-type: none"><li>■ 1 week course on Wildlife Survey Techniques and GIS (2000)</li><li>■ Land Use Management Students, Polytechnic of Namibia, Windhoek</li></ul>
<b>February – December 1995</b> <b>University of Namibia</b>	Worked as a Practical Demonstrator during the Botany first-year practical and examinations at Faculty of Science.
<b>December 1994</b> <b>Ohangwena region,</b> <b>Ongenga constituency</b> <b>Namibia</b>	Worked as a Polling Officer during the Namibia's second National Assembly and Presidential elections.
<b>November 1993 – January 1994</b> <b>Ongandjera District</b> <b>Omusati region</b> <b>Namibia</b>	Worked as an enumerator during the UNICEF survey for "Knowledge, Attitude and Practice" about Malaria in Ongandjera District in Northern Namibia
<b>1991-1992</b> <b>Giff Shopping Centre</b> <b>Ohangwena</b>	Worked during school holidays at Giff Shopping Stores at Ohangwena as an Assistant Manager.

## Significant Projects

**Feb 2009 – present**  
**Millennium Challenge Account**  
**Namibia Programme (MCA-N)**

Responsible for all Environmental and Social aspects of MCA-N Programme. The following are some of my achievements to date.

- Ongoing and continues thorough review of all MCA-N activities across its three project areas of Agriculture, Education and Tourism to ensure compliance with national and international regulations and guidelines
- Develop, design and review EIA studies and EMP's for some of MCA-N activities with significant environmental and social impacts, e.g. the ESIA Study for the two villages inside the Etosha National Park.
- Develop, design and review environmental assessments, Public Health and Safety Plans, HIV/AIDS Awareness and Prevention Plans for all MCA-N construction activities and contracts (MCA-N has over 60 Construction Contracts / sites
- Carried out field verifications and environmental edits on all our activities
- Responsible for gender, public and community aspects of our programme, such as addressing the vulnerable and marginalised groups such as San People.
- Being part of the management team

**Oct 2005 – Jan 2009**  
**Namibian Coast Conservation and**  
**Management (NACOMA) Project**  
**Erongo Regional Council**

Coordinated and led the implementation of the NACOMA Project since its effectiveness (Oct 2005) to date. the following are amongst many achievements achieved during this period

- recruitment, maintenance of sound financial management of project resources in accordance with the World Bank requirements and in accordance with GEF Grant Agreement
- Implementation of project activities including completion of many key consultancies by many consultants in accordance with 2005/2006 and 2006/2007 project work plans. these include amongst others: successful launching of Namibian Coast White Paper Policy development process; many reviews and assessments studies contributing to White Paper process; urgent training and capacity building of key stakeholders in key fields related to sustainable coastal zone management; support several on ground initiative; declaration of Marine Protected Areas in Namibia;
- establishment of good collaboration, communication between all project stakeholders
- embarked upon intensive awareness raising
- undertook successful donor supervision missions and workshops

**Feb 2004 – Sept 2005**  
**Namibian Coast Conservation and**  
**Management (NACOMA) Project**  
**Erongo Regional Council**

Successfully coordinated and implemented the preparation activities for the NACOMA Project under the GEF PDF B Grant during Feb 2004 – Oct 2005. The project was approved by GEF and signed off on October 2005. The project is focusing on the following three main objectives:

- A National level Policy and action plan for sustainable coastal zone conservation and development.
- Capacity building for Coastal Regional Councils and Line Ministry to undertake functional and strategic environmental planning and management, through upgrading of staffing and skill levels for implementing strategic environmental planning
- Targeted Investments in Biodiversity Conservation and Sustainable Use of prioritised ecosystems initiated and implemented

**July 2001 – Feb 2004**  
**Walvis Bay Local Agenda 21 Project**  
**Municipality of Walvis Bay**

The DANIDA (Danish Government Agency) and Municipality of Walvis Bay co-funded **Walvis Bay Local Agenda 21 Project** which among other things achieved the following:

- Development of the Environmental Policy & Strategies for Walvis Bay
- Conducting of Scientific Research and Monitoring for Coastal Area and the development of Walvis Bay Coastal Area Strategy and Action plan to guide the area's development and management
- Raising Environmental awareness in Walvis Bay through several micro projects.

**November 1996 – August 1997**  
**NAPCOD (Namibia Program to**  
**Combat Desertification)**  
**Namibia**

A colleague and I conducted a study entitled "A Preliminary Assessment of the Land Cover and Biomass Variation in the Huab Catchment, North-western Namibia" for NAPCOD (Namibia Program to Combat Desertification). Environmental aspects looked at are such as: natural resources, land cover change, land use management, land degradation and their interactions.

**April 1996 - November 1996**  
**Caprivi Environmental Profile Project**  
**Caprivi, Namibia**

Member of the technical team that conducted the land cover mapping of Caprivi Region for Caprivi Environmental Profile Project. The Dutch government funded the project.

**January 1996 - June 2001**  
**National Remote Sensing Centre**  
**Windhoek, Namibia**

Involved in a number of projects at National Remote Sensing Centre in which GIS and remote sensing was applied. These projects ranged from simple mapping small projects to bigger projects that involved fieldwork, for instance the National Forest Fire and Fire scares mapping and monitoring project, Bush encroachment mapping and monitoring project, Okashana project (training of local people in natural resources management and monitoring), etc.

## References

**Mr. David Uushona**

Walvis Bay Municipality  
Tel.: +264 64 2013303  
Mobile 0811220814  
duushona@walvisbaycc.org.na

**Mrs Penny Akwenye**

CEO  
MCA Namibia  
Tel: 061-410400  
pakwenye@mcanamibia.org

# Diganta Sarma

Tel: +264 61 220400

Fax: +264 61 220400

Email: diganta@geonamibia.com

## Personal Details

Nationality: Indian

Marital status: Married, two children

## Education

- Master of Technology - Applied Geology [1989-1992]  
Department of Earth Sciences, University of Roorkee (now IIT Roorkee), Roorkee, India
- Bachelor of Science - Geology Major [1985-1988]  
Cotton College, Gauhati University, Assam, India

## Professional Experience

- Senior Hydrogeologist [2002 to present]  
Namib Hydrosearch CC, Windhoek, Namibia
- Senior Hydrogeologist [1996-2002],  
Water Resources Consultants (Pty.) Ltd., Gaborone, Botswana
- Hydrogeologist [1995-1996],  
Water Resources Consultants (Pty.) Ltd., Gaborone, Botswana
- Junior Research Fellow [1992-1994]  
Regional Research Laboratory - Jorhat, Council of Scientific and Industrial Research, Govt. of India.

## Representative Projects

- Numerical flow modelling of the Oanob Aquifer to optimise dam releases for managed aquifer recharge. Client: Department of Water Affairs and Forestry, MAWF, Namibia. [2011]
- Assessment of hydrogeology and selection of boreholes for water quality sampling, Kavango Region. Client: Department of Water Affairs and Forestry, MAWF, Namibia. [2011]
- Consulting services for quantification of the groundwater resources in Namibia (as part of joint venture). Client: Department of Water Affairs and Forestry, MAWF, Namibia. [2011]
- Hydrogeological component of the Regional Rural Water Supply Development Plan, Otjozondjupa Region, Namibia. Client: Department of Water Affairs and Forestry, MAWF, Namibia. [2010]
- Hydrocensus, compilation and re-evaluation of available data on the Oanob and Thermal basement aquifers, Rehoboth. Client: Department of Water Affairs and Forestry, MAWF, Namibia. [2009]
- Preliminary Groundwater Investigation for the Ghanzi Copper-Silver Project. Client: Hana Mining, Vancouver, Canada. [2008]
- Preliminary Groundwater Investigation for the Omitomire Copper Project. Client: Craton Mining, Windhoek, Namibia. [2008]

- Tsabong Groundwater Resources Investigation Assessment and Development Project. Client: Department of Water Affairs, Govt. of Botswana. [2002]

## **Publications**

- Sarma, D., Xu, Y., Christelis, G. and Church, J. (2010) Optimisation of water release from a dam to recharge a downstream unconfined alluvial aquifer. ISMAR7 Conference, Abu Dhabi, United Arab Emirates.
- Sarma, D., Simmonds, A.L.E., Talma, A.S., Tredoux, G., and Moehadu, O.M. (2006) Hydrochemical Evolution and Recharge of Groundwater in the Olifantshoek Supergroup Quartzite Aquifer near Tsabong, Southwestern Botswana. Proceedings Hydrogeological Association of Namibia Conference - "Recent groundwater research in Southern Africa". Windhoek, Namibia.
- Kumar, H., Sarma, D., Carlsson, L. (2000) A Geophysical Perspective in Siting High Yielding Boreholes in The Lower Karoo Aquifer on Western Botswana. In Proceedings of the XXX IAH Congress on Groundwater: Past Achievements and Future Challenges, A.A.Balkema Publishers, pp 193 - 198.

# Margaret Ndapewa Angula

## Personal Details

Nationality: Namibian  
Date of Birth: 03.September.1975

## Education

- 1999-2001, University of Stellenbosch, MSc. In Geography and Environmental Studies
- 1998, University of Namibia, Non-Degree courses: Environmental Planning I, II & III
- 1993-1996, University of Namibia, BSc. Degree: Zoology, Botany and Geography

## Membership

- National Climate Change Committee
- Namibia National Climate Change Adaptation Ambassador

## Present Employment

University of Namibia (UNAM), Department of Geography, History and Environmental Studies

07. 2003 – to date

### Lecturer

Supervise four (4) Fourth Year students every year on selected topics: Honours level Research Project in Geography and Environmental Studies.

## Employment Record

[Long Service Award: 10 years of service to the University of Namibia. 1 December 2011.]

- 01.2012 – 12.2011 : Section Head, Geography and Environmental Studies
- 01.2010-12.2011 : Member of UNAM Senate
- 2010 – 12.2011 : Head of Department, Department of Geography, History and Environmental Studies
- 03.2001 – 06. 2003: University of Namibia (UNAM), Multi-Disciplinary Research Centre (MRC) as Researcher
- 1997 – 12.1998: University of Namibia (UNAM) as Junior Researcher

## Special Projects

<b>Oct 2011 – June 2012</b> <b>UNDP</b>	Gender and Climate Change Vulnerability Assessment for Namibia
<b>August 2011 – November 2012</b> <b>City of Windhoek</b>	Otjomuise Environmental Impact Assessment: Flora and Fauna Study (Sub-contracted – SED)
<b>Feb-May 2011</b> <b>NACOMA/MET</b>	NACOMA Capacity Building and Training: Sustainable Development Tools
<b>Nov 2009-Nov 2011</b> <b>NGOMA Consulting Services</b>	NACOMA Technical support for the implementation of approved specific conservation and sustainable use investment proposals at site and landscape levels (Sub-contracted - NGOMA Technical Manager)
<b>August 2009- 2011</b> <b>National Planning Commission (NPC)</b> <b>and UNAM</b>	NDP3 Capacity building project: Etosha National Park study: Tourism management, vegetation dynamics and human wildlife conflict. Researcher for the human wildlife conflict theme.

**July 2008 – June 2009**  
**Heinrich Boll Foundation**  
**Southern Africa, Cape Town, RSA.**

Gender Differentiated Impacts of Climate Change in Southern Africa:  
Namibian Case Study.

**June – Dec 2007**  
**UNDP Namibia**

Millennium Development Goal 7 and Climate Change in Namibia:  
Challenges and Opportunities.

## Workshops

Workshops and Courses attended in the last five years

- Namibian Delegation to the 17th Conference of Parties (COP 17) of the United Nations Framework Convention on Climate Change (UNFCCC) and the 7th Conference Members Parties (CMP) of the Kyoto Protocol. 28 November – 8 December 2011. Durban, South Africa.
- Facilitator for the Training for Journalists on Climate Change Adaptation Reporting: Gender and Climate Change Sessions. November 22 – 24, 2011. Safari Hotel, Windhoek, Namibia.
- Chaired a summit "Women in Agriculture" and presented a paper "investigating the role of women in facilitating climate change programmes" 26-27 October 2011. Amabubhesi Conferencing and Training, Johannesburg, South Africa.
- Presented a paper at the Faculty of Humanities and Social Sciences Annual Research Conference, "Gender and Climate Change: Namibia's Case study. 30-31 August 2010. Polytechnic of Namibia, Windhoek.
- Presented a paper at the APEDIA Conference, "Gender and Climate Change: Namibia's Case study. 30-31 August 2010. Polytechnic of Namibia, Windhoek.
- Delivered a Presentation at the MESA/UNEP Education for Sustainability Workshop. Environmental Variability and Change and Education for Sustainability. 27-18 May 2010. University of Namibia, Windhoek.
- Co-organiser of a National workshop "Identification of Climate Change Research priorities for Namibia" University of Namibia 11 March 2010, held at the Safari Court and Hotel, Windhoek Namibia
- Presenter at a side-event workshop, Copenhagen Climate Change Summit, "Climate Change in Southern Africa, who take the most burden?" 11-19 December 2009, Copenhagen, Denmark.
- Served as a discussant at the "Changing the climate of African Development" Africa Workshop, 26-27th March 2009, Cape Town, RSA.
- Presented a Poster and Participated in one of the Working Group sessions at the International Symposium "Coping with Global Change in Marine Socio-ecological Systems", 06 – 12 July 2008, FAO Headquarters, Rome, Italy
- Presented a paper at the Southern African Marine Science Symposium, 'Our Changing Seas', 29 June – 3 July 2008 Cape Town, South Africa;
- Attended a Decision support tools for implementation of an Ecosystem based Approach to Fisheries management (EAF) in the southern Benguela workshop, Pringle Bay, Cape Town, South Africa, 6-7 November 2007.
- Presented a paper at the Student Graduate Network Symposium, South African Environmental Observation Network (SAEON), 11-13 September 2007, University of Cape Town, RSA.
- Presented a paper at the Human and Wildlife Conflict workshop. Hosted by Strengthening Protected Areas Networks Project (SPAN), Directorate of Scientific Services, Ministry of Environment and Tourism, Republic of Namibia. 15 March 2006, Kalahari Sands Hotel,, Windhoek, Namibia.

## Publications

- Kaundjua M, Angula M and Angombe S. 2011. Community Perceptions of climate variability and change in the Ohangwena and Oshana Regions. In print. Journal of Humanities and Social Science, University of Namibia.
- Angula MN. 2010. Gender and Climate Change: Namibia Case Study. Heinrich Boell Foundation, Southern Africa, Cape Town.
- Karuaihe S, Mfune J.K., Kakujaha\_Matundu O, Naimwhaka E & Angula M.N. 2008. Millennium Development Goal 7 and Climate Change: Challenges and Opportunities. UNDP Namibia.
- Angula M.N., Mfune J.K., Mosimane A.W. & Hamukuaja H. 2005. Preliminary survey of human wildlife conflict on the northern border of Etosha National Park. Windhoek: Ministry of Environment and Tourism, Republic of Namibia
- Angula M.N, Nangulah S.N & Smit P, 2005. National Level: National Capacity Needs Self Assessment for Global Environmental Management. Vol. 3. Windhoek: Ministry of Environment and Tourism.

## References:

### **Mrs Selma Lendelvo**

University of Namibia/Multi-Disciplinary Research Centre  
Head: Life Sciences Division, Private Bag 13301  
Windhoek  
NAMIBIA  
Tel: 264-61-206 3051/2, Fax: 264-61-206 3050

E-Mail: slendelvo@unam.na

# Samuel Ndapewa Uushona

Tel: +264 61 213890

Cell: +264 81 2507405/ +264 81 2538796

Email: Samuel@etoshatransport.com.na

## Personal Details

Nationality: Namibian  
Date of Birth: 03 November 1964

## Education

High School Education, Augustineum Secondary School

Qualification: Grade 11

Subjects Passed: Afrikaans, English, Mathematics, Physical Science, Technical Drawing, Motor Mechanics

## Present Employment

Etosha Transport 2011 - till to date

**FLEET CONTROLLER** - 2011

**PAYROLL ADMINISTRATOR** - 2012

Duties

- Process salary payments on D – BIT payroll system
- Handle all other HR related issues

## Experience

**Old Mutual** 1989 - 2001

Branch Clerk : Tsumeb - 1989

Portfolio Clerk : Windhoek - 1991

Senior Clerk : - 1996

Administrative Head of Customer Care : - 1997

Head of Department – Claims and Benefits : - 1998

Duties

- Payment of Death, Disability, Funeral, Maturity, Loans, Surrender and Retirement claims.
- Underwriting Authorization of Claims
- Monitoring and controlling processes

**NAMLIFE** 2002 - 2004

Senior Supervisor: Customer Service - 2002

Head of Department: Customer Service - 2004

Duties

- Management of Department Budget
- Internal Auditing

**PURITY MANGANESE** 2008 - 2010

Payroll officer

Duties

- Compile excel spreadsheets with clocking hours of employees and import into VIP payroll
- Confirm bank accounts of employees before importing into system
- Process overtime sheets and advance on salary deductions
- Explain and sort out any problem relating to salary to the employees
- Issue manual cheques to employees
- Payments of casual
- Process and forward deductions to third parties
- Payments of casual
- Process and forward deductions to third parties

## References

**Mr. C Mbekele**

Old Mutual

Tel: (061) 2993999

**Mr. L Haukushika**

Namlife

Tel: (061) 2023000

**Mr. F Beukes**

Purity Manganese

Tel: (062) 518026

# Metha n. Uushona

Tell-0814457779

Email- methapewa@gmail.com

## Personal Details

Date of Birth: 12 August 1990  
Nationality: Namibian

## Education

- 2010-2013: University of Namibia  
Higher Diploma: Fashion Studies, Desktop Publishing, Business, Textiles and English for Academic Purpose.
- 2009- GRAD E 12: West Side High school  
NSSC: English First Language, Physical Science, Biology, Afrikaans Second Language, Geography and Mathematics.

## Present Employment

**SED Consultancy, Swakopmund** , January 2013 – current  
Admin and secretarial functions

## Experience

- August 2012 - October 2012  
Designer & Pattern Maker with Sparkle Studio cc, Windhoek
- November 2010 - December 2010  
Assistant Cutter & Pattern Maker - Layering and cutting fabric, pattern making for bags and garments with Ndinapama Manufactures, Windhoek
- July 2008-2010  
Assistant Hair Dresser - Attending to clients, wash, braid and weaving with KCT Hair Salon, Tsumeb

## Achievements and Awards

- 2008: Merit in English First Language (West Side High School)
- 2008: Award for Good Behavior (West Side High School)
- 2011: Assisting Fashion Show - Blanch Khumalo (Blanchero Fashion Show at the Safari Hotel)
- 2012: Standard Bank Material Award
- 2012: Namibian Fashion Show - Dresses (Safari Hotel)

## Exhibitions and Workshops

- 2012: Indonesian Wireworks Workshop
- 2012: Erick Schnack Instillation - Solo Exhibition, FNCC
- 2011: UNAM Students Fashion Show, FNCC

## **References**

### **Rachel Uushona**

Owner: KCT Hair salon  
0813199231

### **Mrs. Chakira Classen**

Lecturer Textiles: UNAM  
0813377880

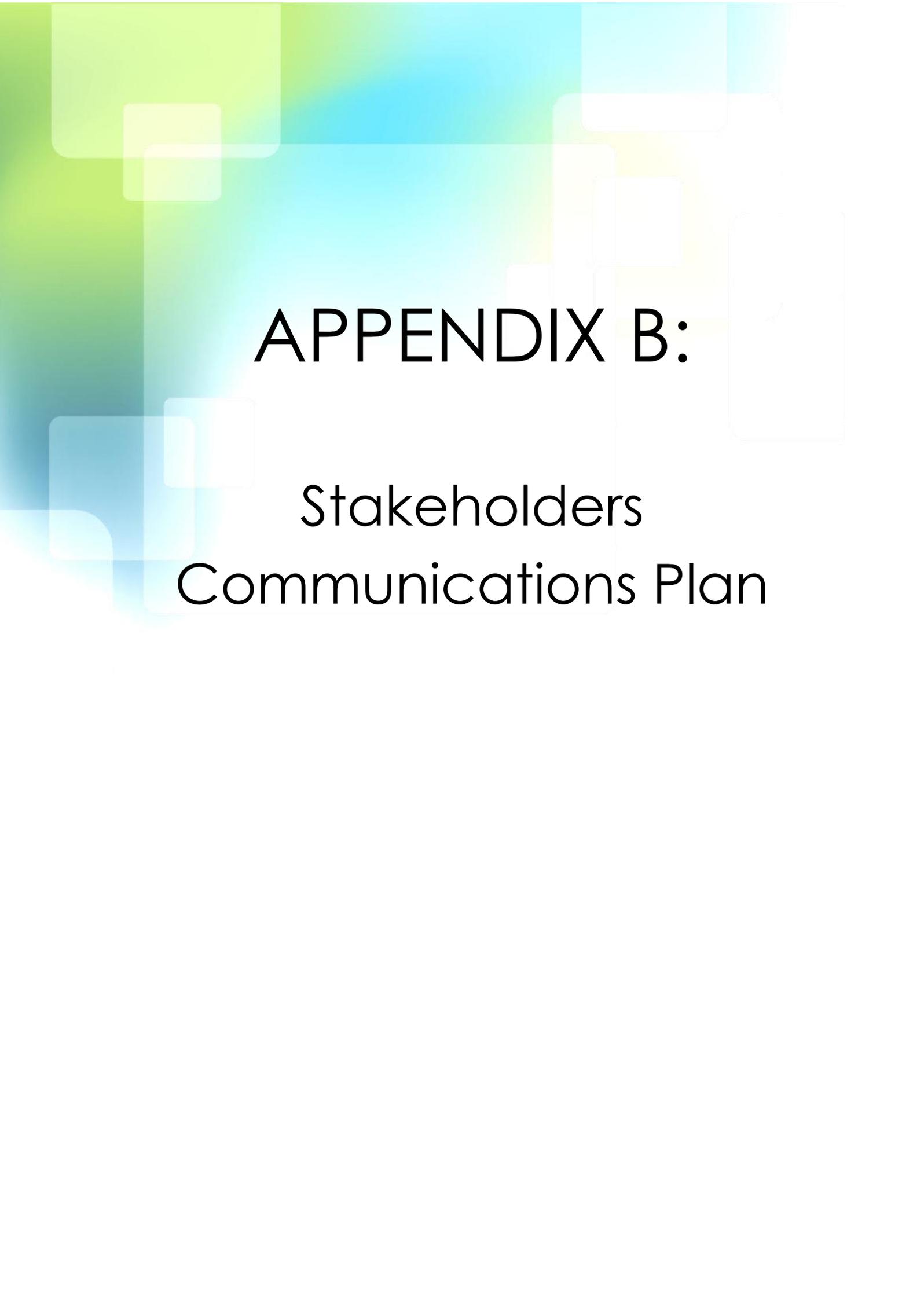
### **Augustine Raphael H. Sauti**

Managing Director: Sparkle Studios cc.  
0814066672 and admin@sparklestudios.com.na

### **Mr. David Uushona**

MD: SED Consultancy  
0811220814 and daviduushona@yahoo.com





# APPENDIX B:

## Stakeholders Communications Plan



04 February 2013

The Chief Development Planner  
Ministry of Environment and Tourism  
The Environmental Commission Office  
Department of Environmental Affairs – EIA Unit  
Private Bag 13306  
Windhoek, Namibia

Attention: Ms. Lely Saima Angula

**APPLICATION FOR AN ENVIRONMENTAL CLEARANCE CERTIFICATE FOR THE FORMALIZATION OF HAVANA EXTENSION 6 & 7**

This application follows on our recent "Project Introduction Meeting" with your office on Tuesday, the 28 January 2013.

The City of Windhoek plans to upgrade and formalize an unproclaimed (but inhabited or existing) township, namely Havana Extension 6 & 7. These extensions stretch along Monte Cristo road and lies to the south west of existing Havana Township. The zoning of the proposed Havana Extension 6 & 7 is mainly general residential, institutional, business and public open space. The services and infrastructure that will be installed include sewage, water, electricity, storm water management and roads. This project is aimed at addressing serviced land shortages that is currently been experienced in the City of Windhoek.

In terms of Section 27 of the Environmental Management Act, 2007 (Act No. 7 of 2007) and the Annexure to the Schedule, the formalization of a new township development or extensions falls under the list of activities that may not be undertaken without an environmental clearance certificate. Thus, the proposed Havana Extension 6 & 7 requires an environmental clearance certificate in order to finalize the formalization process.

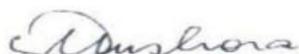
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P.O. Box 4291  
Vineta, Swakopmund, Namibia  
Cell: (+264) 811220814  
E-mail: daviduushona@yahoo.com

A consortium of *SED Consultancy* and *AFROMACH Investment (PTY) LTD* has been appointed to conduct an EIA Study and Construction Environmental Management Plan (CEMP) in accordance with the Environmental Management Act, 2007 (Act No. 7 of 2007) and its Regulations as well as other prescribed legislative requirements. However, due to the fact that the area is fully inhabited, the primary focus of the assessment will be placed more on the CEMP. Notwithstanding that, the environmental assessment study should be conducted in full compliance with environmental assessment procedures as specified in the Environmental Management Act, 2007 and the Environment Impact Assessment Regulations.

This memo thus serves as formal notification/ registration of this listed activity by the City of Windhoek and as a cover letter to Form 1 of Annexure 1 of the EIA Regulations.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Dushona'.

**David Uushona**  
MD:SED Consultancy & Project Coordinator

ANNEXURE 1  
FORMS

Form 1

REPUBLIC OF NAMIBIA  
ENVIRONMENTAL MANAGEMENT ACT, 2007

(Section 32)

## APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE



## PART A: DETAILS OF APPLICANT

1. Name: (person or business):	SED CONSULTANCY CC
2. Business Registration/Identity No.: (if applicable)	cc/2010/4123
3. Correspondence Address:	PO Box 4291, Vineta, Swakopmund, Namibia
4. Name of Contact Person:	David DH Uushona
5. Position of Contact Person:	Managing Director
6. Telephone No:	+264 (0) 81 122 0814
7. Fax No:	
8. E-mail Address: (if any)	<a href="mailto:dauiduushona@yahoo.com">dauiduushona@yahoo.com</a>

Tick (  ) the appropriate box

**PART B: SCOPE OF THE ENVIRONMENTAL CLEARANCE CERTIFICATE**

1. The environmental clearance certificate is for:

LAND USE AND DEVELOPMENT ACTIVITIES

INFRASTRUCTURE

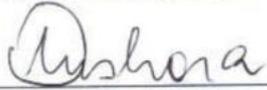
2. Details of the activity (ies) covered by the environmental clearance certificate:

Note: Please attach plans to show the location and scope of the designated activity(s), and use additional sheets if necessary:

Title of Activity:	EIA and CEMP for Havana Extension 6 & 7
Nature of Activity:	Formalizing an unproclaimed (but inhabited) township through the installation of sewage, water, electricity and roads services
Location of Activity:	Along Monte Christo road and to the southwest of the existing Havana Township
Scale and Scope of Activity:	Note attached layout plan

**PART C: DECLARATION BY APPLICANT**

I hereby certify that the particulars given above are correct and true to the best of my knowledge and belief. I understand the environmental clearance certificate may be suspended, amended or cancelled if any information given above is false, misleading, wrong or incomplete.



Signature of Applicant

David DH Uushona  
Full Name in Block Letters

Project Coordinator  
Position

on behalf of The City of Windhoek

04February 2013  
Date

# HAVANNA EXTENSION 6 & 7

## ENVIRONMENTAL IMPACT ASSESSMENT

### STAKEHOLDERS COMMUNICATIONS PLAN

PREPARED FOR:



PREPARED BY:



# 1. INTRODUCTION

## 1.1 Purpose of this Document

This Communications Plan outlines the overall approach for communicating with stakeholders about the *Havana Extension 6 & 7 Environmental Impact Assessment* process. It outlines key messages, describes key stakeholders, and describes communication activities and how their success will be evaluated. It also provides a communications schedule.

## 1.2 Scope of the Communication Plan

This Communications Plan contains communication activities for all internal and external stakeholders throughout all the three phases of the assessment and it does not include communications with the Ministry of Environment and Tourism after the submission of the EIA Report for the issuing of the environmental clearance certificate.

## 1.3 Project Background

The City of Windhoek plans to upgrade and formalize Havana Extension 6 & 7. These extensions stretch along Monte Cristo road and lies to the south west of existing Havana Township. The zoning of the proposed Havana Extension 6 & 7 is mainly general residential, institutional, business and public open space. The services and infrastructure that will be installed include sewage, water, electricity, storm water management and roads.

Havana Extension 6 & 7 is an unproclaimed (but inhabited or existing) township. In terms of Section 27 of the Environmental Management Act, 2007 the formalization of a new township development or extensions falls under the list of activities that may not be undertaken without an environmental clearance certificate. Thus, the proposed Havana Extension 6 & 7 requires an environmental clearance certificate in order to finalize the formalization process. However, the issuing out of an environmental clearance certificate is presided and informed by an Environmental Impact Assessment (EIA) study including an Environmental Management Plan (EMP). The EIA study should be conducted in full compliance with environmental assessment procedures specified in the Environmental Management Act, 2007 and the Environment Impact Assessment Regulations, which require stakeholders' notifications and consultations.

## 1.4 Communications Objectives

The overall objective of this Communications Plan is to meet the requirements set out in Section 2(a) and Section 3(2)(c) of the Environmental Management Act, 2007 and Sections 21 - 24 of Environmental Impact Assessment Regulations: Environmental Management Act, 2007 as well as the City of Windhoek Public Participation Guidelines for Environmental Impact Assessment.

Furthermore, the Communications Plan aims at:

- Introducing, building awareness and understanding of the Havana Extension 6 & 7 project.
- Encouraging and promoting stakeholders full involvement and participation in the project.
- Encouraging stakeholders to be enthusiastic about the changes the project will bring about.
- Positioning the City of Windhoek as an efficient, effective, world class organization with the general public.
- Sharing the envisaged EIA process, methodology, concerns, comments interest, needs, values and recommendations.

## 1.5 Assumptions and Constraints

List of the possible assumptions and constraints specific to communications which can affect this plan success are:

- All communications materials will only be available in English. The Namibian and New Era are the two preferred newspapers to be use for announcement and meetings invitations.
- Other languages will be use during radio announcements and public or individual meetings.
- A project website will not be launched before June 2013. However the CoW & AFRMACH's sites will be utilized.
- Media relations support will not be provided by CoW's Public Relations Department. Rather coordinate of public meetings should be done with the CoW Community Department.
- Development of a project brand/ visual identity will not be outsourced to a marketing firm. However the logos of SED Consultancy, AFRMACH Investment and the City of Windhoek will be used.
- Minimum budget for communication. The Informate newspaper can be used if funds allow.
- Poor public meetings attendance in spite of maximum advertising efforts.
- Public may become completely consumed by some details or issues of relatively lesser importance.



- Disinformation can be spread causing damaging delays.
- Project can be misused by politicians, businessmen & others.

## 2. COMMUNICATIONS PLAN

This Communications Plans outlines key messages, identified stakeholders and planed communications activities all of which are summarized in a *Communications Schedule* below.

Extensive public as well as targeted and focused consultations will be undertaken with all affected stakeholders regarding this project throughout this consultancy as a continuous exercise. Public meetings will be advertised as per the EMA Regulations requirements and the Terms of Reference. In addition, personal and individual invitations and consultations of all I&APs will be the order of the process. Posters and leaflets will be posted and distributed at strategic locations and National radio stations will be utilized to encouraged maximum public participation throughout the entire or all assignment phases. This will include the following key tasks:

- Liaise on continuous and monthly basis with relevant CoW departments to update them on the progress, discuss our preliminary findings and solicit their inputs on ongoing bases;
- Arrange, organize and undertake two public consultation events with all key stakeholders to first discuss all relevant issues related to the project and to solicit inputs. Written briefs and other documentation shall be encouraged and accepted by the consultants, and then
- Provide feedback on the findings (EIA) and recommendations (EMP).

Notices for public participation shall be advertised at least twice in the local newspapers and will ran for at least two or three weeks prior to the public meetings/sessions. In addition, individual meetings will be held with key stakeholders, including municipal staff, municipal Advisory Committees (if any), public agencies, the business community and community interest groups. Other key stakeholders include, but are not limited to: Public; surround communities; relevant departments, divisions and committees of CoW; relevant Government Departments, Local and Regional Governments, etc.

Stakeholder	Power/Interest	Key Interest & Issues	Communication Vehicle	Frequency	Comments
CoW: EMUP	Client	Progress feedback & advisory input	Team Meetings and Reports	Monthly	
Regional Planners	Links between RA & LA development plans	Project introduction & progress feedback	Targeted Invitations & Meetings	Monthly	
Relevant CoW Departments	LA development synergies	Data and information; progress feedback & advisory input	Telephonic and E-mailing	Ad-hoc	
MET	National Environmental Custodian	Project notification & regulatory applications	Application Forms and Letters	Once	
Surrounding Communities	Beneficiaries	Project introduction; needs & concerns assessments; progress feedback	Posters, Notices, Newspapers adverts & Public Meetings	Bi-Monthly	
I&APs	Development or project interest and or affected	Project introduction; needs & concerns assessments; progress feedback & advisory input	Posters, Notices, Newspaper Adverts, I&APs and or Public Meetings	Ad-hoc & Bi-Monthly	

**MINUTES OF THE SCOPING MEETING HELD FOR HAVANA EXTENTION 6 & 7**

**Record of Meeting**

<b>Venue</b>	Soccer Field Close to the Havana Primary School
8.1. Date	23 February 2013
<b>Time</b>	09h00 – 12h00
<b>Participants</b>	Note 1 <sup>ST</sup> Meeting Attendance list
<b>Language</b>	English, Oshiwambo, Otjiherero & Damara
<b>Minutes Taker</b>	Metha & David

<b>No</b>	<b>Proceedings</b>
<b>1.</b>	<b>Opening and Welcoming</b>  The Samora Machel Constituency Councillor, Cde Angula, opened and welcomed participants to the meeting. He briefly introduced the project, the consultants and inform participants of the constituency plans to construct a clinic, high school and a gym for Havana Extension 6& 7.
<b>2.</b>	<b>Discussions</b>  The Project Coordinator, David Uushona, explained the purpose of the meeting. He provided a meeting agenda and took participants the presentation slides in more detail. NOTE 1 <sup>ST</sup> MEETING PRESENTATION SLIDES.  In conclusion, Timo Mufeti, briefly explained that some I&As will positively be affected while others negatively and that the issue of tenure-ship will be cleared by the City of Windhoek during the second meeting.
<b>3.</b>	<b>Closing</b>  The Samora Machel Constituency Councillor, Cde Angula, thanked the participants for their commitment, attendance and further encouraged all to participate to such meetings in future. He then officially closed the meeting.

**Accepted:**



**David Uushona**  
**Project Coordinator**

23 February 2013

**Date**

**MINUTES OF THE FEEDBACK MEETING HELD FOR HAVANA EXTENTION 6 & 7**

<b>Record of Meeting</b>	
<b>Venue</b>	Havana Primary School
8.2. <b>Date</b>	20 April 2013
<b>Time</b>	09h00 – 12h00
<b>Participants</b>	Note 2 <sup>nd</sup> Meeting Attendance list
<b>Language</b>	English, Oshiwambo, Otjiherero & Damara
<b>Minutes Taker</b>	Metha & David

<b>No</b>	<b>Proceedings</b>
<b>1.</b>	<b>Opening and Welcoming</b>  The Samora Machel Constituency Councillor, Cde Angula, opened and welcomed participants to the meeting. He officially opened the meeting.
<b>2.</b>	<b>Discussions</b>  Geraldine van Rooi from the City of Windhoek shared with participants on the history; the need of the development and the type of services to be constructed. She further emphasised that the completion and allocation of erven is a long process and that the City will come back to the community in due course for further consultations.  The consultants (David, Timo & Margaret) inform participants on their respective findings and recommendations as per the meeting agenda slides in more detail. NOTE 2 <sup>nd</sup> MEETING PRESENTATION SLIDES.
<b>3.</b>	<b>Closing</b>  The Samora Machel Constituency Councillor, Cde Angula, thanked the participants for their commitment, attendance and further encouraged all to expedite the process of upgrading and formalizing Havana Extension 6 & 7. He then officially closed the meeting.

**Accepted:**



**David Uushona**  
**Project Coordinator**

21 April 2013

**Date**

# APPENDIX C:

## Specialist Hydrogeology Report



**City of Windhoek**  
P.O. Box 59, Windhoek, Namibia

Assessment of the environmental impact to ground and surface water, EIA study for Havana Ext 6 & 7 development project

## **Specialist Hydrogeology Report**

Project: NHN-119  
**April 2013**

Prepared by:



**Namib Hydrosearch**, PO Box 11546 Windhoek Namibia,  
diganta@geonamibia.net

for **SED Consultancy / Afromach Investments PTY Ltd**

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## Introduction

Namib Hydrosearch was assigned to carry out the hydrogeological component of an Environmental Impact Assessment (EIA) for the construction of water, sewerage, storm water drainage, electricity and roads services project in the HAVANA Extension 6 & 7 in Windhoek by the consortium of SED Consultancy and Afromach Investments PTY Ltd who was awarded the project by the City of Windhoek. The investigation involved the following activities:

- Collation of all hydrogeological and hydrological data to carry out a GIS based assessment of the area.
- Classify the area according to the sensitivity of the hydrogeological environment and conduct an initial evaluation of the development on this basis.
- Holding various public participation meetings to identify potential impact.
- Document the findings and make appropriate recommendations to minimise possible negative impacts.
- Liaise with other specialists in identifying common issues and mitigation.

## Groundwater and Surface Water Conditions

### Geology

The central Namibian region is underlain by rocks of the Damara Supergroup. The main rock types are biotite schist, but with minor micaceous quartzite, feldspathic schist and amphibole schist. In the project area, Kuiseb Formation (Swakop Group) rocks forms the bedrock geology. The dominant lithologies are biotite schist and quartz biotite schist.

Surfacial deposits are generally thin to very thin over much of the area. Along the larger drainages, some alluvial deposits (about 1 m) have developed. Structures present are north-south and northwest-southeast faults and joint systems. To the south of the City, north-south normal faulting of the brittle Auas Formation quartzite is responsible for the development of the high yielding Windhoek aquifer. The north-south fault systems extend to this area and affect the Kuiseb Formation rocks. These faults are less developed in the micaceous schist as these lithologies undergo plastic deformation. The major faults are shown in published geology maps and are often marked by north flowing ephemeral streams.

### Groundwater Resource

In the area, borehole information is scarce and only two (2) partial borehole records were located from the Department of Water Affairs and Forestry database (GROWAS). From adjacent areas it is known that the fractured Kuiseb Formation mica schist form low potential aquifers often with poor quality water. Yielding boreholes appear to be associated with the north-south structures with associated drainage channels. The fractured mica schist do not form aquifers of the same potential as in the fractured quartzite Windhoek aquifer to the south and the area is classified as having low potential in the Hydrogeological Map of Namibia. Isolated low yielding boreholes north of study area supply farms and other establishments. In general, ground water flow direction is northwards.

The study area has undulating terrain with elevation differences of 20-30m being common. The depth to water table is thus locally variable from being deep in elevated areas to shallower in the larger valleys.

## Recharge

Comments on recharge to the underground water resources in the Windhoek area is summarised in Barbour (1997). Recharge to groundwater occurs via fault zones. Stream courses often follow the outcrop of fault zones. Barbour (1997) comments on the pollution threat as follows: *“When assessing the pollution threat to the underground water resources posed by development on surface, the danger is as a result of the production of contaminating waste substances on surface which can be mobilised by water from rainfall or from any other source, and reach the water-table.”*

Although of low groundwater potential the possibility of pollution of underlying and downstream surface and ground water is a possibility. Recent studies have shown that infiltration capacity is altered by faulting and much higher infiltration rates are possible through fracture zones in otherwise impervious lithologies (Gellasch et al. 2013).

## Topography and Surface Water Drainage

Windhoek and areas to the north are part of the ‘Windhoek Graben’ – a down faulted block bounded by north-south fault systems to the east and west (Figure 1:). The down faulted block has a northerly slope. The area north of the Auas Mountains (Windhoek City) drains northwards as a part of the Swakop River catchment and accounts for about a third of the total catchment area of the River.

The current informal settlements (project area) are located in an elevated area between northwest flowing ephemeral streams that join the Brakwater River which in turn joins the Otjiseva River, a tributary of the Swakop River. In the absence of any sanitation facilities particularly in Extension 6, it is conjectured that the effluent from the area currently enters the drainage system and is removed downstream (northwards) by surface flow. Dry toilet facility if located on drainages could also contribute to the effluent load. A set of waste water treatment ponds located immediately north of Extension 6 (approximately 50m from the northern extent) receive sewage from wet sewer systems servicing city localities south of the project area. The effluent from the treatment ponds are seen to drain into the local drainage. The quality of the effluent is not known as it is not monitored (per. comm. Scientific Services, CoW, April 2013).

## Specific Methodology

The risk of groundwater contamination from pollution sources at surface is determined by the possibility of movement through the land surface (infiltration) into the unsaturated zone and the ability to travel through the unsaturated zone to the saturated zone (aquifer). Surface water is however polluted through runoff from rainfall and washing of pollutants downstream. The investigation has therefore focused on the interpretation of the geology, structure and drainage and included the following tasks:

- i. Detailed air-photo interpretation to identify geological structure
- ii. Understanding of the geology of the area from maps and publications
- iii. Map of surface drainage system
- iv. Mapping of zones of high pollution vulnerability by combination of the above datasets and understanding gained

### 8.3. Literature Review

Data and information was obtained from the City of Windhoek (CoW), the Geological Survey of Namibia (GSN), and the Department Water Affairs and Forestry (DWAF). Findings from two relevant studies from neighbouring areas in northern Windhoek carried out for the CoW are summarised below. From the discussion below it is noted that although the thin soil cover has limited capacity to retard organic effluent, areas of thicker unsaturated zone away from the valleys and fault zones pose a limited threat from pollutants such as from sewer systems leakage or dry sanitary systems.

#### **Geotechnical Implications of Dry Sanitation, Interconsult, 1999; CoW**

Test soil pits excavated, showed that the soil is generally less than 1m thick. More commonly the bedrock outcrops, which may be covered by a very thin veneer of quartz float and regolith. Where surface drainage courses (ephemeral streams) have incised steep sided valleys, a thin layer of scree may occur on the lower slopes. Immature alluvium forms the bed of these streams. Infiltration tests gave infiltration coefficient (Kp) values ranging from 50-250 l/h while qualitative cation and anion sorption studies showed that sorbent qualities of the tested soil samples with respect to organic molecules are very poor. Therefore the soil has limited capacity to restrict organic effluent from infiltrating.

#### **Identification of areas for ultra-low-income settlement: Effect on underground water resources. Carr Barbour and Associates, 1997; City of Windhoek**

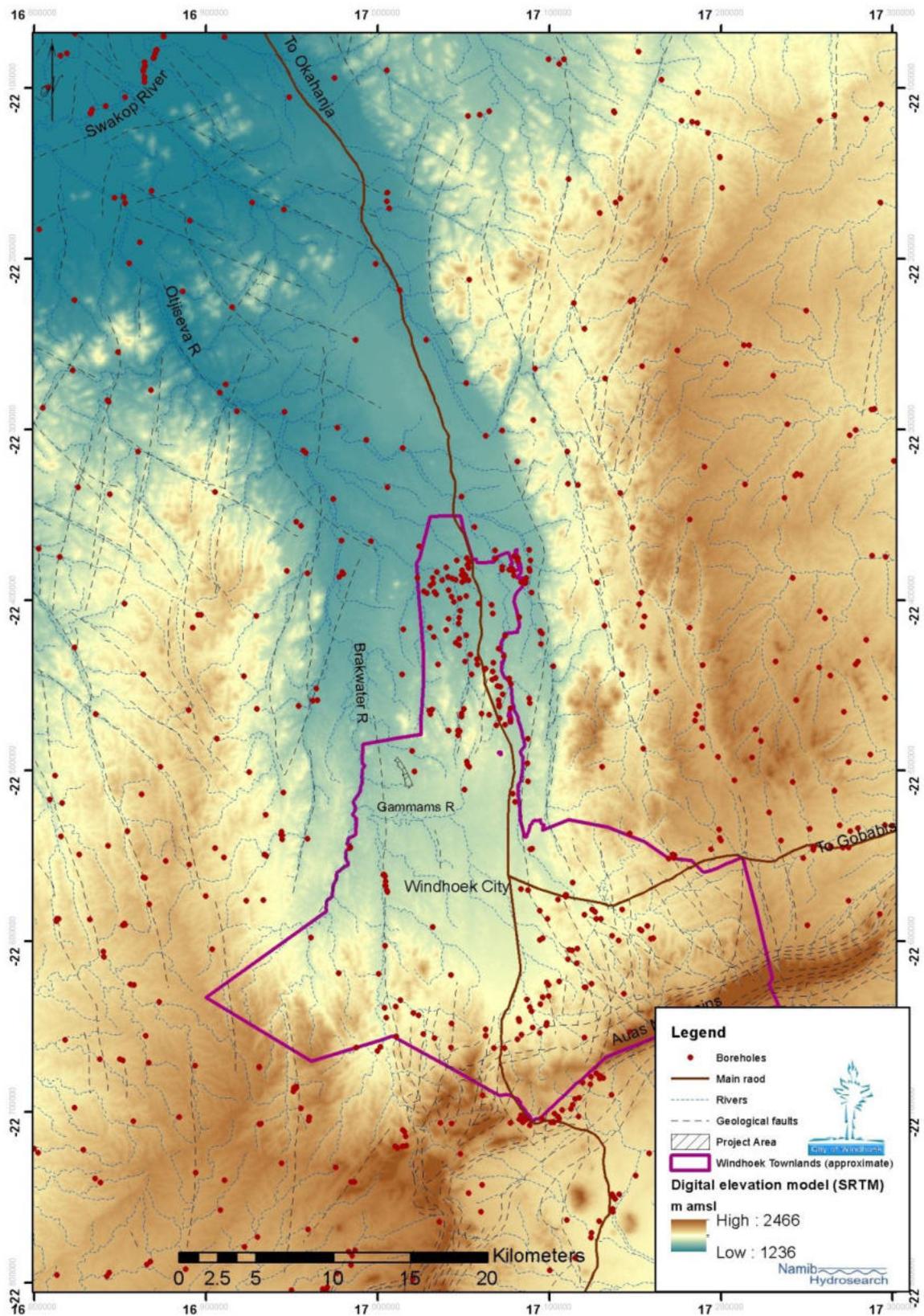
Barbour, 1997 provides an overview of the pollution potential of 8 settlements that were planned to be serviced by dry sanitation systems. It was concluded that, under the prevailing groundwater conditions in the area studied, there was little likelihood of pollution resulting from the use of the systems. This was due to the following:

- the water table is approximately 50m below surface
- hydraulic conductivity in the schistose lithologies characterising the area is generally very low, particularly below the weathered zone near surface and away from fractures
- clogging will reduce vertical hydraulic conductivity over time
- passage through the dry unsaturated zone will improve effluent quality through the die off of organisms
- the expected volume of discharge from each system is small
- It was recommended that the City Council use the systems but with certain provisos such as:
  - attention be given to improved pit design
  - foreign discharge (from sources other than the digestion tank) is to be avoided
  - pits should avoid natural drainage in the area
  - monitoring boreholes should be sunk at appropriate sites and a monitoring programme initiated.

#### **GIS Based Desk Study**

Basemaps were produced for interpretation and fieldwork. The aerial photographs provided by the City of Windhoek (CoW) proved the most useful data set for interpretation of the geology, structure and drainage. Unfortunately the natural characteristics of the built-up areas are lost to a large extent. The Shuttle Radar Topography Mission (SRTM);

<http://www2.jpl.nasa.gov/srtm/>) digital elevation model and older images were used to retrieve some information from these areas.



## **Figure 1: Map showing location of the project area and, drainage and topography around Windhoek City**

The data density in these areas however remains low. The following data sets were used in the study:

- structural interpretation of the underlying geology was conducted using high-resolution digital colour aerial photographs (CoW)
- use of the SRTM digital elevation model to capture data on slopes and drainage (internet source)
- drainage lines (CoW)
- overlay of digital geological data (1:250,000, Windhoek Sheet 2216, DGS)
- overlay of settlement areas (CoW).

### **Other Information**

Other relevant information from past projects carried out in the area and from the CoW.

- The position of north-south fault system and lineaments were verified. The north-south faults form linear valleys often with ephemeral streams.
- Soil cover in the area is minimal with sub-cropping mica schist visible in most areas. It was estimated that most areas have less than one meter of soil cover. Soil and scree cover is thicker in the base of the north-south valleys marking the location of faults.
- Currently no sewer system is present in the area, and the limit of CoW services areas lie immediately to the south. A trial dry sanitary system is under testing over a small area in Extension 6.
- No boreholes are present in the areas probably due to the limited yield from the underlying mica schist.

### **Findings**

Zones of susceptibility to pollution of groundwater have been identified. The key parameters taken into consideration were:

- lithology of the underlying bedrock
- proximity to drainage system
- proximity to faults and fractures
- thickness and nature of overburden and its sorption properties
- slope and surface drainage

Of these, the positions of fault zones (lineaments) and drainage were given the highest priority and form the basis for the zonation of the area. The underlying lithology consisting of quartz-biotite schist that has a relatively low infiltration capacity and is not necessarily capable of high groundwater yields but where dissected by faults and numerous fractures form conduits for groundwater recharge. The groundwater resource is not presently used in the area but is tapped to the north by numerous smallholders and farmers. The soil, examined in a nearby area, is known to have low capacity to retard organic pollutants (Interconsult, 1999). As such, effluent infiltrating from surface could pose a threat to users to the north or to surface water bodies. It should also be noted that the DWAF borehole database hasn't been regularly updated and that the number of boreholes down gradient of the area could be higher.

In the case of surface water, it is inferred that pollution reaching the surface ephemeral drainage would reside in the alluvium with most of the water being lost to evaporation or transpiration. During large flood events the effluent would be remobilised and flow downstream. Through this mechanism, *effluent from the Windhoek City area (including the project area) could reach the Swakop River and eventually pollute downstream surface water bodies such as the Swakoppoort Dam*. Sirunda (2011) recorded elevated levels of total phosphorus and orthophosphate in Swakoppoort Dam water which was responsible for blue green algal bloom following high runoff during 2010. It is known that phosphorus can originate from municipal waste water, specifically human waste and commercial soaps and detergents (van Loon and Duffy, 2005). More detailed studies are however required to ascertain the fate of pollutants leaving the City through surface drainage. *The above threat of pollution requires that the sewer system designed for the area should be a water borne piped sewer system where the waste is removed from the area and is treated in a waste water treatment facility minimising local waste disposal at surface.*

In order to aid design of a safe sanitation system and sewer network the area has been classified into 3 zones while the drainage system has been identified as vulnerable to surface waste and pollutants:

- **Zone 1** – where no leakage of effluent or dry toilet facilities are permitted, extends 25m on either side of areas where streams and faults (lineaments) coincide and within a 10m strip on either side of lineaments.
- **Zone 2** – where effluent discharge poses a lesser threat but could drain to Zone 1 areas. This zone extends from the boundaries of Zone 1 to 25m on either side of Zone 1.
- **Zone 3** – areas not classified as Zone 1 or 2.
- **Drainage** – the drainages and immediate surroundings are classified as vulnerable to dumping of waste, leakage from sewer systems and location of dry toilet facilities.

Areas under Zone 1 are expected to have high infiltration rates in times of surface water flow. In these areas effluent and other pollutants should not to be allowed to be discharged. In Zone 2, the ground is characterised by less infiltration potential and possibly thicker unsaturated zone but is in almost all cases immediately up slope of the higher risk Zone 1 and therefore it is important that protection measures are adhered to. The drainages require protection from waste that can potentially be mobilised downstream as discussed above.

## Conclusions

It is concluded that:

- No significant groundwater resource occurs in the study area or surroundings.
- The underlying geology consists of mica schist and in general has low infiltration potential. But, where faulted, infiltration is likely to be higher.
- Discharge of effluent that reach geological faults and drainages can lead to groundwater pollution and certain areas are demarcated for protection - Zones 1 and 2.
- The overburden is thin and made up of weathered schist and quartz float. The thickness is generally 1m or less. The soil has low sorption capacity to retard pollutants. Surface drainages therefore need to be free of waste and effluent.

- The waste water treatment ponds to the north of the project area are seen to drain into local drainage flowing northwards and could be a threat to surface water quality. No effluent quality analyses are currently available.

The conclusions are summarised in Table 1.

## Recommendations

It is recommended that:

- The restrictions on the zones delineated be adhered to, to avoid surface and groundwater pollution.
- A water borne piped sewer network and sanitary systems should be implemented to avoid potential pollution of downstream surface water that includes the Swakop River and the Swakoppoort Dam.
- The quality of the effluent from the waste water treatment ponds to the north of the project area should be monitored.
- A comprehensive study is conducted on the fate of the effluent from waste water treatment and other sources reaching surface drainage systems draining the City of Windhoek.

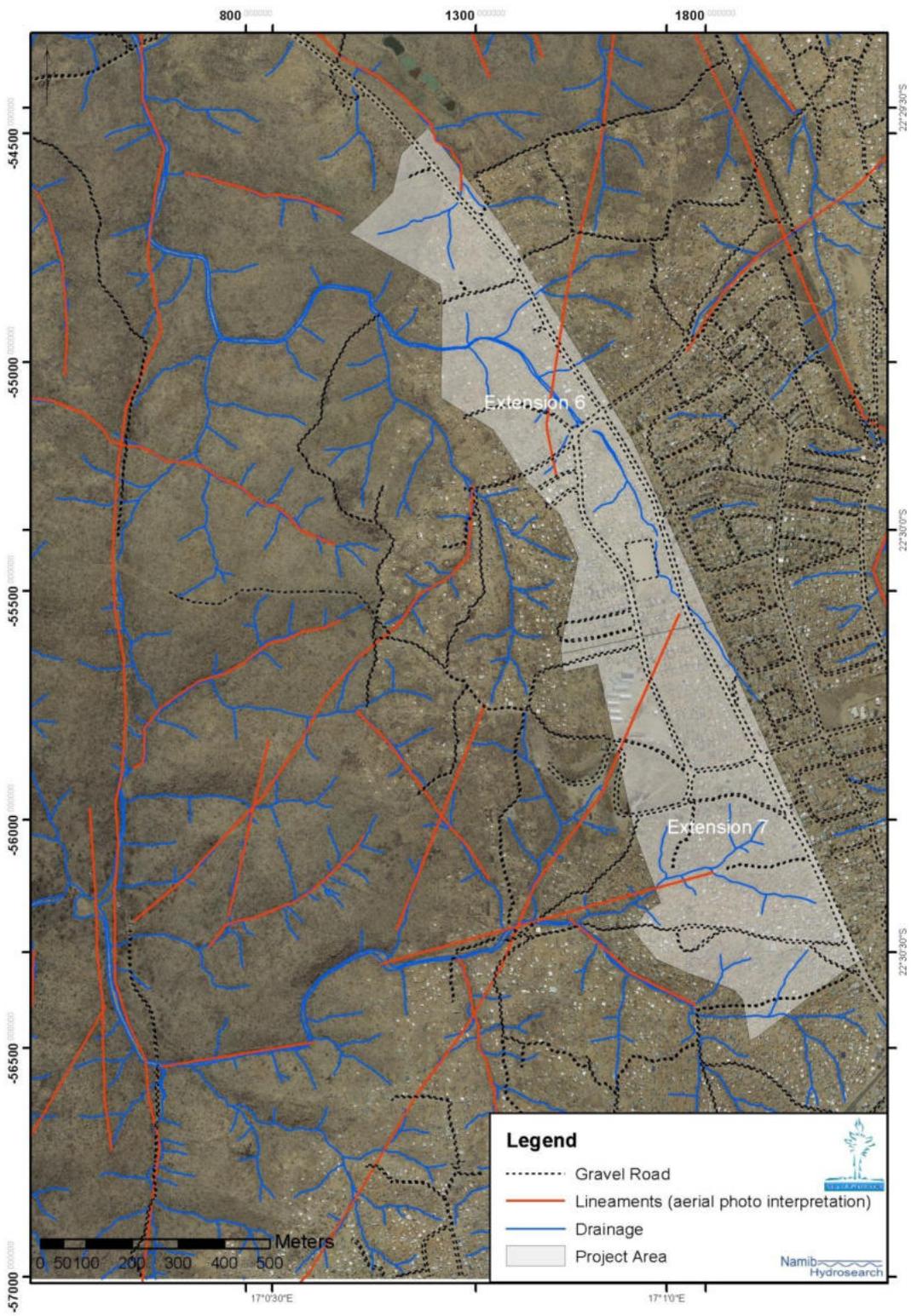
The recommendations are summarised in Table 2.

Table 1: Summary of potential impacts

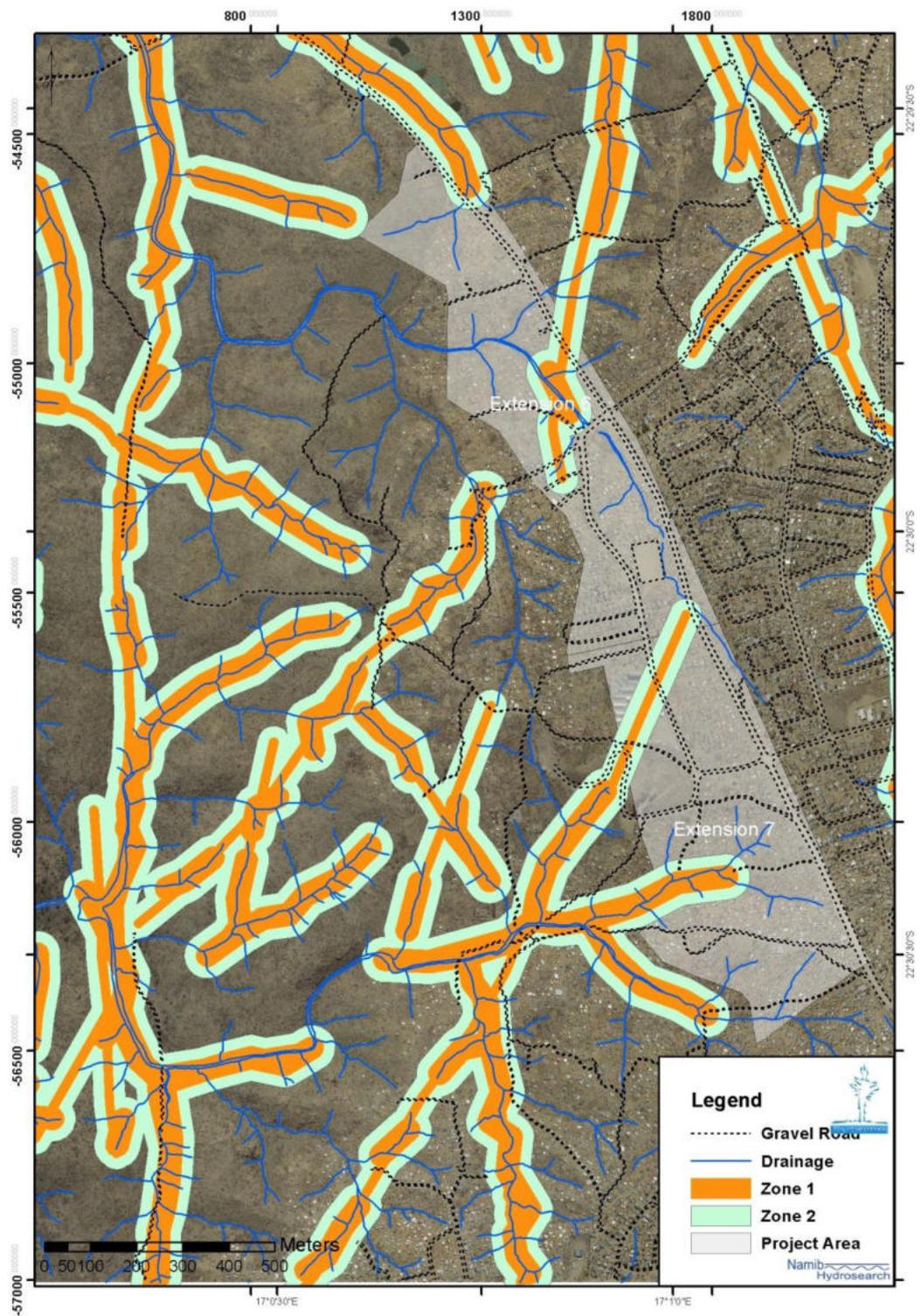
Potential Impact	Pollutant	Duration	Extend	Significance
Groundwater pollution	Sewerage spillage, dry sanitation, waste disposal, through infiltration	Long term	Localised, but can have impacts downstream	Medium
Surface water pollution	Sewerage spillage, dry sanitation, waste disposal	Long term	Cumulative, widespread impacts downstream	High

Table 2: Summary of recommendations (management of impacts)

Impact	Source of Impact	Management of Impacts
Pollution of groundwater and surface water	Informal sanitary systems (or use of surroundings), waste water, effluent and waste disposal in drainage and sensitive areas.	<ul style="list-style-type: none"> <li>– Following pollution hazard zones in planning</li> <li>– awareness of residents</li> <li>– centralised water borne sewer system installation</li> </ul>



**Figure 2: Map showing digitised lineaments from aerial photos and drainage**



**Figure 3: Map showing Zone 1 and Zone 2 areas and drainage (please see text for explanation)**

## References

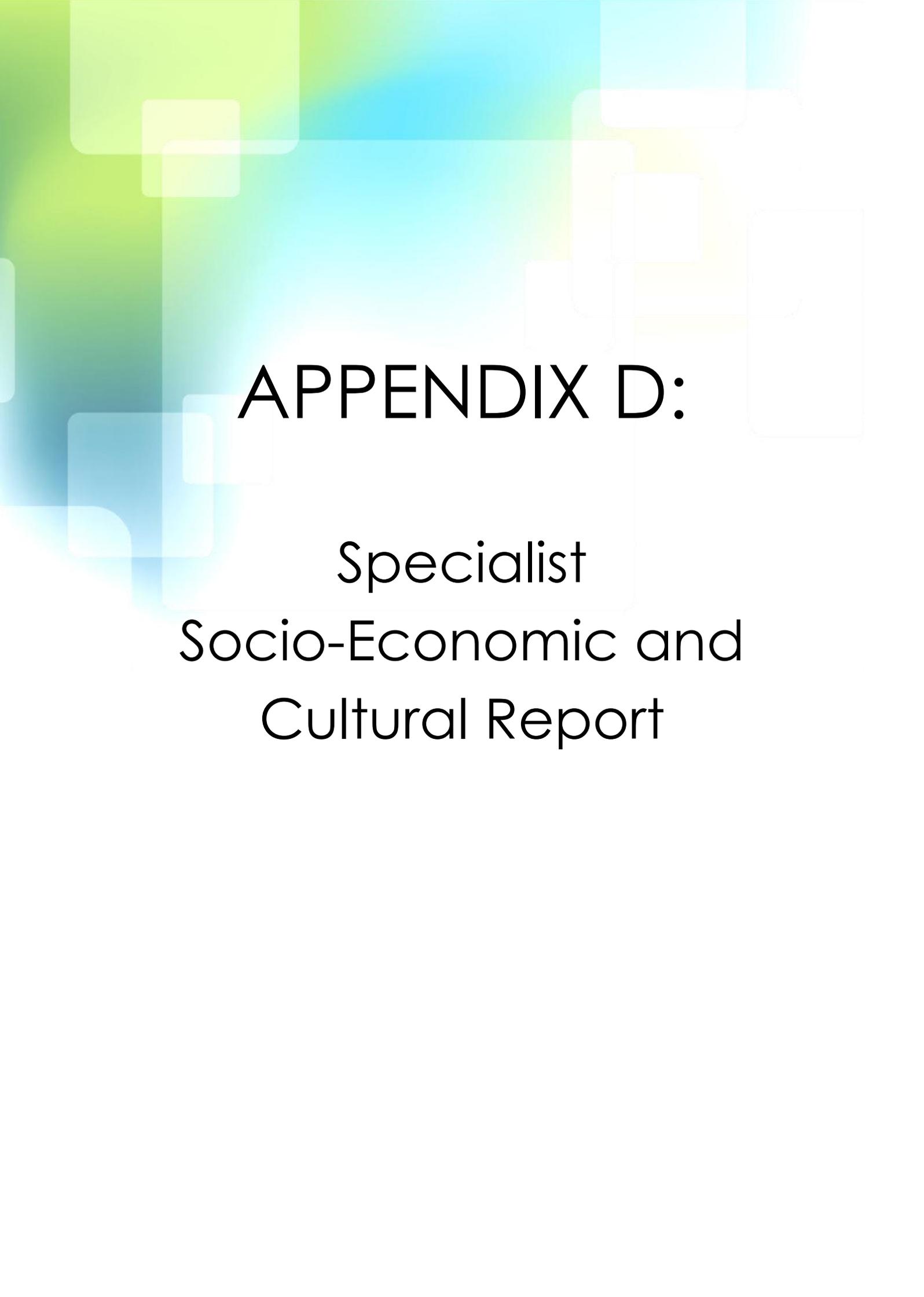
Barbour, E. A. (1997) Identification of areas for ultra-low income settlement effect on underground water resources. Unpublished report. Carr Barbour & Associates for City of Windhoek.

Gellasch CA, Bradbury KR, Hart DJ, Bahr JM (2013) Characterization of fracture connectivity in a siliciclastic bedrock aquifer near a public supply well (Wisconsin, USA). Hydrogeology Journal 21: 383-399

Interconsult Namibia (1999) Geotechnical Implications of dry sanitation. Unpublished report Interconsult (Namibia) for City of Windhoek.

Sirunda JJ (2011) The effects of water transfer from Swakoppoort and Omatako Dams on the water quality of Von Bach Dam, Namibia. Unpublished MSc Thesis, University of the Western Cape, Bellville, RSA.

vanLoon GW and Duffy SJ (2005) Environmental chemistry a global perspective, 2<sup>nd</sup> Ed. Oxford University Press.



# APPENDIX D:

## Specialist Socio-Economic and Cultural Report

**SOCIO-ECONOMIC AND CULTURAL IMPACT STUDY FOR HAVANA EXTENSION 6 & 7**  
Specialist Report for the Environmental Impact Assessment and Environmental  
Management Plan for Havana Extension 6 & 7

**Prepared By:**

Socio-Economic and Environmental Governance Consultants  
*Margaret Angula & Ewaldine Menjono*

**Prepared For:**

SED Consultancy & AFROMACH Investments (PTY) LTD

**On Behalf Of:**

City of Windhoek [Urban Planning & Community Development]



**April 2013**

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## LIST OF ABBREVIATIONS

CoW	-	City of Windhoek
DL	-	Development Level
EIA	-	Environmental Impact Assessment
EMP	-	Environmental Management Plan
NGO	-	Non Governmental Organisation
SEA	-	Strategic Environmental Assessment
SED	-	Sustainable Environmental Development Consultancy
SIA	-	Socio Impact Assessment
UN Habitat	-	United Nations Human Settlements Programme

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# 1. Introduction

The total population of Namibia has increased by 15% since 2001. Along with this increase is urbanisation which is growing at high rate in Namibia. Windhoek experiences the highest rural-urban migration rates in Namibia (Mutjinde and Eiseb, 2011). The population in informal settlements in Namibia has increased from 28 000 since independence to 48 000 in 2001 (Mutjinde and Eiseb, 2011).

The increasing population and urbanization in Namibia is exerting more pressure on local authorities to provide housing services. Of the 2.1 million people living in Namibia, 340 900 (171 100 females and 169 800 male residents) lives in the Khomas region; and it is the most populated region in the country (Republic of Namibia, 2013, Census report). The region which is 36946 km<sup>2</sup>, has a population density of 9.2 people per km<sup>2</sup> (Republic of Namibia, 2013, Census report). The population of Windhoek has increased from 96 000 in 1981 to 147 000 at independence and to 235 500 in 2001 (Republic of Namibia 2002). The City of Windhoek had an increase in urban and peri-urban population from 235 500 in 2001 to 318 700 in 2011 and is projected to reach half a million in 2020 (Pendleton, Nickanor and Pomuti, 2012).

It has been proven that the increase in the population of Windhoek is due to the high rural-urban migration (City of Windhoek, 2011, SEA report). Niikondo (2008) referred to a previous study (Tvedten and Mupotola, 1995) which found that the social and economic conditions in rural areas are difficult to many and that employment opportunities are limited. As a result, many are flocking to the city in search of what they believe will be better standards of living. To their disappointment some find life in the city not as promising as they anticipated. In these respect more than 70% of the Windhoek's population is forced to take up informal ways of living due to a lack of employment. They settle in poor living environmental conditions, sometimes without access to sanitation, potable drinking water, electricity and proper roads; exposed to a life that is riskier and uncertain than the rural one they come from (Niikondo, 2008). The life in these informal settlements is a health hazard to those living there and also a challenge to the City of Windhoek as they are losing land to informal settlers, who can barely afford to pay municipal services. As it is almost impossible to move people away or remove them from their informal locations the City of Windhoek

(CoW) is faced with a challenge of providing services and land to all its inhabitants, both formal and informal. The major challenge is providing low income houses and basic services to the big number of low income population of Windhoek for the next 10 years and over (CoW: 2011, SEA report).

Provision of services in all local authorities requires an Environmental Impact Assessment (EIA) and Socio Impact Assessment (SIA) to determine both positive and negative impacts associated with the upgrading and formalization process of informal settlements. Accordingly, the City of Windhoek has contracted the consortium of SED Consultancy and Afromach Investments PTY Ltd to conduct a detailed Environmental Impact Assessment (EIA) with a comprehensive Construction Environmental Management Plan (CEMP) for the construction of water, sewerage, electricity and roads services project in the Havana Extension 6 & 7 (Figure 1) located in Windhoek's Samora Machel Constituency. The socio-economic study component of the EIA focused on social, cultural, economic and living environmental aspects of Havana Extension 6 & 7. The socio-economic study employed both qualitative and quantitative methods of data collection. Initially, in-depth interviews with community leaders and people who lived longer in Havana Extension 6 & 7 were conducted. Finally, a quantitative non-experimental survey was carried out whereby 200 households were selected using purposive systematic sampling for interviews using a structured questionnaire.

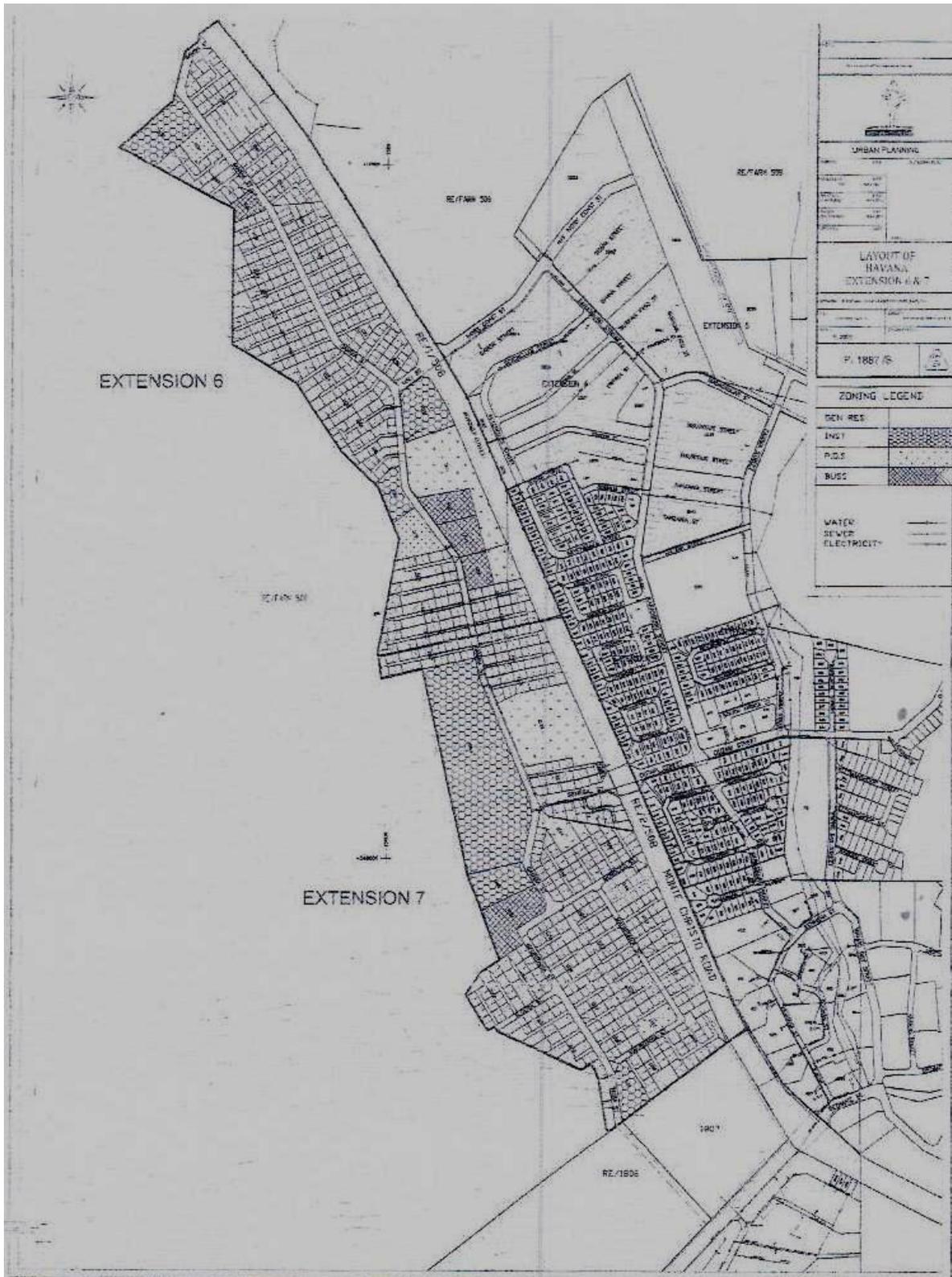


Figure 4: A Map of Havana Extension 6 & 7

## 2. Havana Extension 6 & 7: Study AREA and Socio-cultural characteristics

Extension 6 & 7 of Havana is classified as an informal settlement located in the Samora Machel constituency, Khomas Region (Figure 1). According to the 2011 population and housing census, the household characteristics for Samora Machel constituency are as follows:

**Table 1: Household Characteristics for Havana Extension 6 & 7 (Source: Republic of Namibia, 2013, Census report)**

Constituency	Total Pop	Male	Female	Population Density	Household	Average Household size
Samora Machel	49 700	24 400	25 300	2 683.7	13 200	3.8

According to key informants' interviews, the first people to settle in Havana informal settlement were brought there by City of Windhoek from Freedomland in 2006/2007. They were followed by more people settling in the area between 2008 and 2010. The key informants further reported that settlement patterns were not co-ordinated and as a result it changed the aesthetic and landscape of the area. The high number of people continued to settle in Havana Informal settlement until more extensions were established. In particular, people settled in Havana Extension 6 & 7 to a point where there is no more room for new arrivals. This has prompted the community to set-up housing committees for better regulated settlements.



**Image 1: Picture illustrating housing conditions in Havana Extension 6 & 7**

The ethnic composition of Havana Extension 6 & 7 has no borders as to which tribe lives where, because people settle at places allocated by the committee members. Despite the fact

that people are not divided according to their ethnic groups, there are some areas where Wambos are dominating and areas where Hereros are dominant. There are also foreigners in the area, especially those that have relationships with Namibians, living as husbands and wives but they are a minority.

There are strong social relations and networking in Havana settlements as people interact with each other very well. For instance, if a child is sick and the parents are not at home, the neighbor may take the child to the hospital. People do not have trouble getting along, except for few cases of conflicts related to water which occur less frequently. There is a sense of belonging for people who have lived longer in Havana informal settlement and are proud to live there and feel it is where they belong. Whereas a few others do not feel that sense of belonging as they are afraid that the City of Windhoek will come and relocate them any time. Currently, there are no Non-Governmental Organisations (NGOs) operating in the area and local government participation is very poor. The councilor's office (Samora Machel) is situated far from Havana informal settlement and there is no awareness of its representatives among the Havana Extension 6 & 7 community.

The relationship between new arrivals and old residents depends on how the new arrival settled in the area, (i) having or not having family members in the area, (ii) their behaviour and (iii) how they adhere to rules and regulations in the area. Although there is a healthy relationship, the fact that new arrivals have no toilet facilities, they are forced to use existing communal toilets that already belong to other houses. This situation causes conflicts because new arrivals may not commit to keeping toilet facilities clean.

Havana is not immune to violence especially at household level, although the residents reported that cases of domestic violence are very low. Crime rate at Havana Extension 6 & 7 settlement is not high due to a police network that was formed by residents.

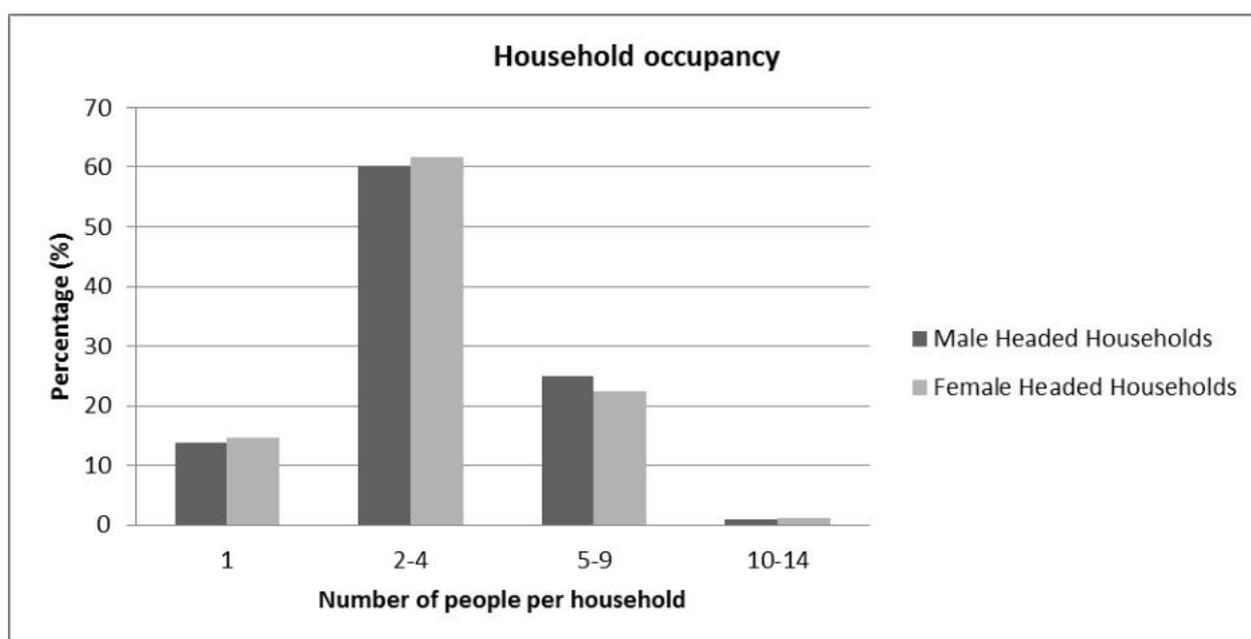
### 3. Household demographic characteristics and socio-economic determinants

This section is based on the findings of the quantitative non-experimental survey conducted in Havana Extensions 6 & 7. A total 205 households were systematically selected to participate in the study:

**Table 2: Sample selected for questionnaire survey in Havana Extension 6 & 7**

	Extension 6	Extension 7	Total
<b>Male Headed Households</b>	55	61	116
<b>Female Headed Households</b>	49	40	89
<b>TOTAL</b>	104	101	<b>205</b>

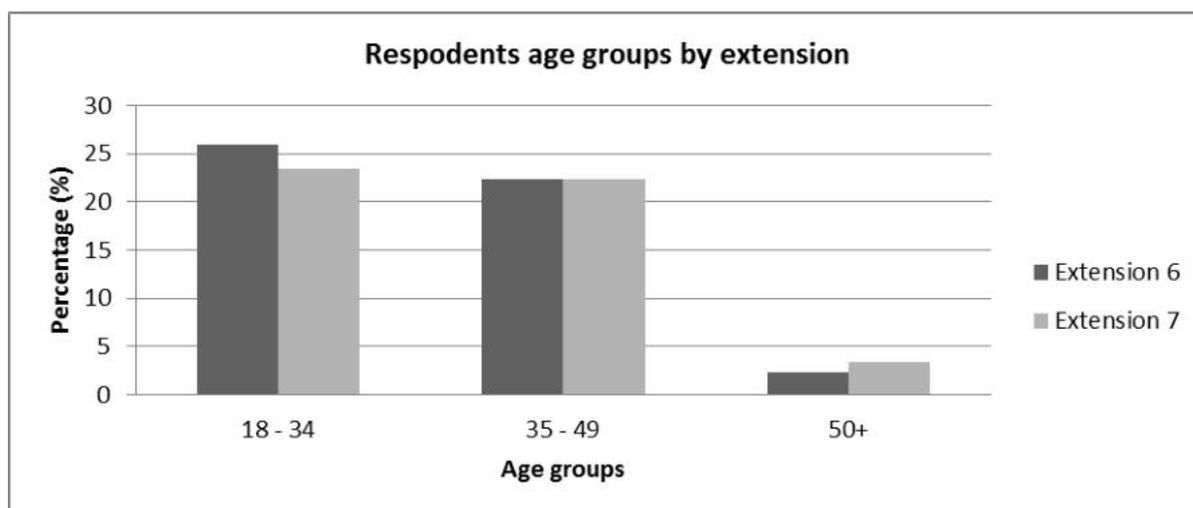
The majority of households 68% in the area are headed by one person who is either never married (63,9%), separated/divorced (0,5%) or widowed (3,4%). Only 14% of the households are headed by a married couple. On average, households are occupied by 2 to 4 persons (refer to Figure 2 below)



**Figure 2: Household occupancy of Havana Extension 6 & 7**

The age composition of residents that participated in the survey is presented in Figure 3.

Below:



**Figure 3: Respondents' age groupings**

It is not surprising to see that the majority of respondents are in the economically active age group. This is confirming the literature on migration that most people migrate to Windhoek for employment and better living standards and often settle in informal settlements. The majority of residents in Havana Extension 6 & 7 have reached Secondary education (47%) while 19% have only acquired Primary education levels. It was also interesting to note that 24% have Vocational Training and 6% have acquired Tertiary qualifications.

One of the challenges associated with urbanization in developing countries, is provision of affordable housing and municipal services. It is therefore imperative to determine the income level of people and households to determine affordability of services. Most men living in Havana Extension 6 & 7 works as labourers in the construction sector as well as drivers for Taxis and Mini Buses. Women work as domestic workers in suburbs and central Windhoek as well as bartenders in local shebeens. The rest are self-employed informally as street vendors selling *Kapana* and live chicken. Women also reported that if they had access to electricity they would engage in tailoring and dress-making businesses. A number of women are also employed by security companies and as sales persons in major supermarkets in Windhoek.

**Table 3: Household income**

Monthly (N\$)	Income	Extension 6	Extension 7	Total

<b>Less than/= 500</b>	25	17	42 (21%)
<b>501 - 1999</b>	57	39	96 (48%)
<b>2000 – 4999</b>	18	33	51 (25%)
<b>5000+</b>	4	9	13 (6%)

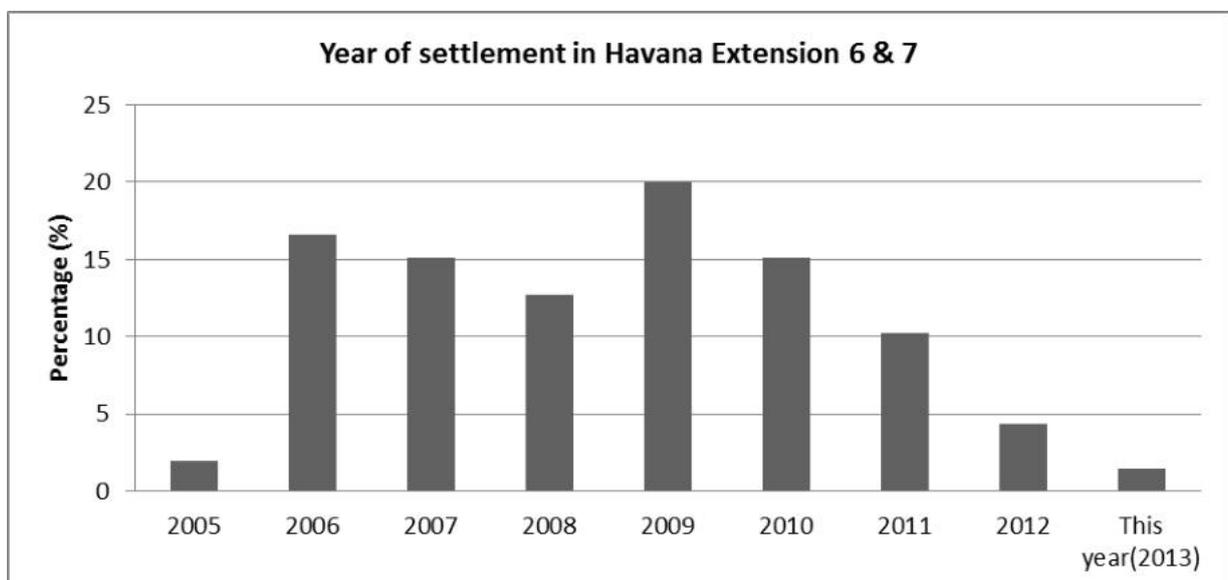
The study concluded that the majority of residents earn less than N\$ 5 000, 00 per household, a total of 96 (48%) earn between N\$ 500 – 1 999, 00 monthly and only 6% earn more than N\$ 5 000, 00 per month. The income reflects the level of education (reported earlier) and the nature of employment listed in Table 4 below:

**Table 4: Employment Status**

<b>Employment Status</b>	<b>Ext. 6</b>	<b>Ext. 7</b>	<b>Total</b>
<b>Unemployed</b>	33	27	60 (29,3%)
<b>Formal Employed</b>	55	54	109 (53,2%)
<b>Self-employed/Informal Employment</b>	16	19	35 (17,1%)
<b>Student</b>	0	1	1 (0,5%)

## 4. Migration

The quantitative survey confirms the findings from the literature and qualitative interviews that a lot of people that end up in informal settlements migrate from rural areas (CoW 2011, SEA report). The majority of people settled in Havana between 2006 and 2008 increasing more in 2009 and 2010 refer to Figure 4 below:



**Figure 4: Years of settlement in Havana Extension 6 & 7**

Respondents were also asked where they migrated from, and reasons for moving to Havana Extension 6 & 7. This is crucial to determine migration trends. The findings are consistent with existing literature that the majority migrated from communal regions of Namibia. Although the qualitative interviews indicated that there are also migrants from other countries in Africa, this survey did not interview any.

**Table 5: Regions of origin before moving to Windhoek**

REGION	MALE	FEMALE	TOTAL
Within Khomas	1	3	4 (2%)
Omusati	27	16	43 (21%)
Oshana	7	4	11 (5,4%)
Oshikoto	17	14	31 (15%)
Otjozondjupa	6	10	16 (8%)
Erongo	3	9	12 (6%)
Hardap	4	0	4 (2%)
Karas	1	1	2 (1%)
Kunene	3	1	4 (2%)
Ohangwena	13	12	25 (12%)
Omaheke	19	34	53 (26%)

The reasons why people settled in Havana varies but are also consistent with previous studies conducted among informal settlements of Windhoek (SED, 2011). The reasons for settling in Havana Extension 6 & 7 are listed below:

REASONS	MALE RESPONDENTS (%)	FEMALE RESPONDENTS (%)
Relocated from other areas (within Windhoek) due to CoW formalisation process	24 (12%)	10 (5%)
Moved from rural areas to Windhoek for employment purposes	26 (13%)	43 (21%)
Moved from other urban areas for employment purposes	4 (2%)	4 (2%)
Needed to establish my own household	46 (22%)	42 (21%)

For education purposes (E.G. Students or unemployed graduates owning own households)	0	4 (2%)
Parents passed on and I inherited the house	1 (0,5%)	0
Medical purposes (to be near hospitals in Windhoek)	1 (0,5%)	0

As discussed earlier, the major challenge is providing low income houses and basic services to the low income population of Havana Extension 6 & 7 for the next 10 years and beyond.

## 5. Existing Housing and Infrastructure

The UN-Habitat (2003) defines informal settlements as: i) residential areas where a group of housing units has been constructed on land to which the occupants have no legal claim, or which they occupy illegally; ii) unplanned settlements and areas where housing is not in compliance with current planning and building regulations (unauthorized housing).

The houses in Havana informal settlement are constructed with corrugated iron and are not in compliance with CoW planning and building regulations. A few people have two to three room houses, but the majorities have one room houses.



**Image 2: Houses constructed with corrugated iron in Havana Extension 6 & 7**

The survey probed the type of housing ownership in Havana Extension 6 & 7 and the majority of respondents (61%) are not aware of their housing or plot ownership status with CoW. Only 13% indicated that they own their plot and are allocated an Erf number with the City of Windhoek.

Respondents reported that they:

- Own the plot and allocated an Erf by CoW – 13%
- Own plot but it is not registered with CoW – 19%
- Own the plot but do not know the status with CoW – 61%
- Renting the plot from someone else – 7%

There are communal dry and water-borne toilets in some parts of Havana Extension 6 & 7. The water-borne communal toilets are poorly maintained because many households are sharing. Furthermore, communal toilets are not separated according to gender and this affect personal privacy and hygiene. In other areas especially in Extension 6 there are no toilets and people have to use the bush.

**Table 6: Existing services in Havana Extensions 6 & 7**

EXISTING SERVICES	MALE HEADED HOUSEHOLDS (n = 116)	FEMALE HEADED HOUSEHOLDS (n = 89)	TOTAL
Source of Water: <i>Communal Water Tap</i>	116	89	205 (100%)
Access to Electricity: <i>Yes</i>	1	2	3 (1.5%)
<i>No</i>	115	87	202 (98.5%)
Source of energy for lightning: <i>Electricity connection</i>	2	1	3 (1.5%)
<i>Paraffin</i>	15	10	25 (12.2%)
<i>Candles and lamps</i>	92	74	166 (81%)
<i>Torch &amp; cellphones</i>	1	4	5 (2.4%)
<i>Generator &amp; solar power</i>	6	0	6 (2.9%)
Source of energy for cooking: <i>Paraffin</i>	36	18	54 (26.3%)
<i>Gas stove</i>	59	49	108 (52.7%)
<i>Firewood</i>	20	18	38 (18.5%)
Type of toilet: <i>Communal dry toilet</i>	28	20	48 (23.4%)
<i>Household dry toilet</i>	3	2	5 (2.4%)
<i>Household water-borne toilet</i>	2	0	2 (1.0%)
<i>Communal water-borne toilet</i>	14	10	24 (11.7%)
<i>Bush</i>	69	57	126 (61.5%)
Road	Gravel		-
Sewerage	None		-

All households in Havana Extension 6 & 7 have access to communal water taps. All members of the household participate in fetching water, but the majority are adult male (52%) and female (31%) older than 15 years. They spent time travelling to fetch water from the nearest communal tap as follows:

Less than 5 minutes	79 (39%)
6 – 15 minutes	39 (19%)
16 – 25 minutes	16 (8%)
26 – 35 minutes	41 (20%)
Over 36 minutes	30 (15%)

## 6. Quality of Living Environment

Social Impact Assessment is a process for ensuring that development activities are informed by and take into account the key relevant social issues and formulate mitigative measures, and incorporate a strategy for participation of wide range of stakeholders.

One of the advantages of social impact assessments is that it ensures that developmental activities are informed and take into account key relevant social, cultural and environmental health issues. The provisions of municipal services planned for Havana Extension 6 & 7 are not an exception. As such, this study has identified baseline characteristics of the population and housing in the study area. In addition, the study describes the quality of living environment in Havana Extension 6 & 7 focusing on waste management, noise pollution and standard conditions as presented in this sub-section.

The noise level is very high in Havana as people live in poorly constructed houses that are not sound proofed. Business activities are dominated by Shebeens and Jukeboxes that play loud music throughout the day. Consultants have also observed that vehicles are driven very fast contributing to both noise and dust pollution. There are efforts in place under the leadership of Havana Extensions 6 & 7 housing committees to regulate noise levels and implement a curfew (22h00 weekdays and 00h00 during weekends). Bad smells are experienced because

Windhoek residents dump their dog's carcasses in the area and due to sewage ponds causing bad odours.

Some residents are settled in flood prone areas and their houses get flooded during wet years. Given that houses are not constructed according to CoW building standards, it increases the vulnerability to flooding and other disasters such as fire and windstorms.

This household survey probed community opinions regarding the standard conditions of housing, facilities and noise in the area refer to tables 8 and 9 below.

**Table 7: Opinions regarding household standard conditions**

Conditions	Very Good	Good	Moderately Good	Poor	Very Poor
Household	1 (0.5%)	42 (20.5%)	83 (40.5%)	43 (21%)	36 (18%)
Toilets	0	12 (6%)	24 (12%)	20 (10%)	139 (68%)

**Table 8: Opinions regarding levels of pollution in the area**

Level of Pollution	Very Severe	Severe	Moderately Severe	Low	Very Low	None
Sewage/ water	11 (5%)	19 (9%)	24 (12%)	25 (12%)	79 (39%)	43 (21%)
Air (Dust and odour)	81 (40%)	43 (21%)	18 (9%)	20 (10%)	39 (19%)	3 (2%)
Level of Pollution	Very High	High	Moderately High	Low	Very Low	None
Noise	16 (8%)	57 (28%)	65 (19%)	21 (10%)	39 (19%)	6 (3%)

Currently 30 (15%) of the households interviewed are provided with dustbins by the CoW. The remainder 175 (85%) dump their wastes either at the roadsides for collection (54%), in the riverbed (20%), or they (23%) burn their waste. Fourty Seven (47 %) of the respondents

reported that waste is mainly collected once a week, while almost 23 % of the respondents never have their waste collected.



**Image 3: Solid household waste dumped at roadside in Havana Extension 6 & 7**



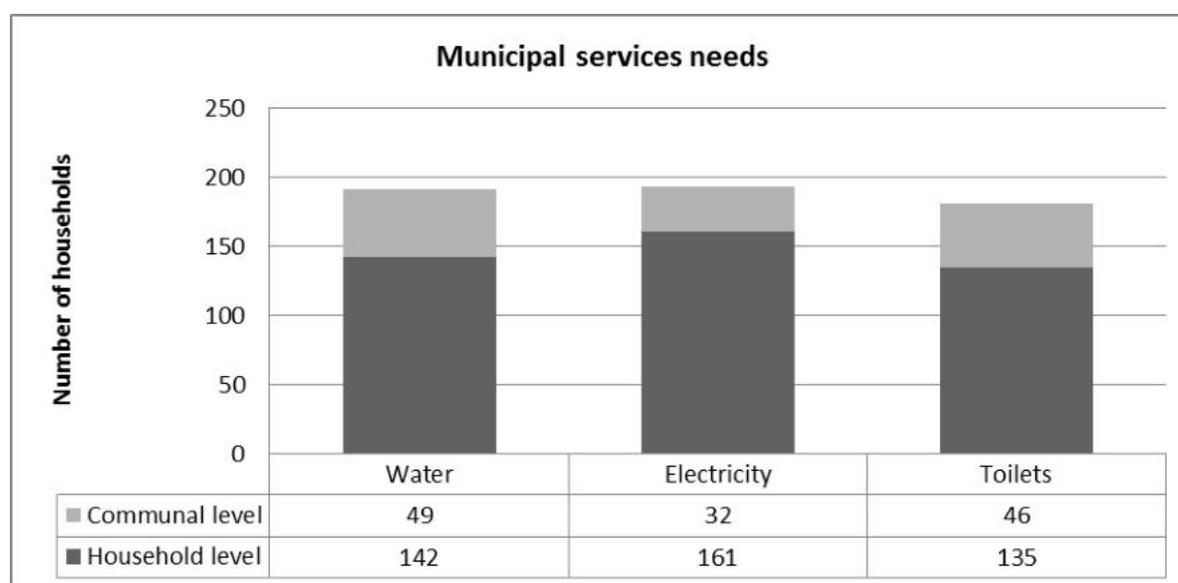
**Figure 5: Frequency of waste collection in Havana Extension 6 & 7**

Overall, the community rated that their location is moderately (33%) to poor (44%) in cleanliness.

## 7. Socio-economic needs and values regarding municipal services and housing

The informal settlement of Havana Extension 6 & 7 does not have any municipality office, police station, clinic, or post office. There is only one primary schools offering Grade 1 – 7.

The community feels that Havana Extension 6 & 7 should be provided with basic human needs, such as sewer, water, electricity and decent roads as well as proper housing. The study assessed municipal services and housing needs of each household interviewed. Figure 6, below illustrate water, electricity and toilet needs:



**Figure 6: Municipal services needs identification**

It is clear in Figure 6, above that respondents prefers water, electricity and sewerage services at household level. Furthermore, these needs were ranked to see what are the main important services prioritised by Havana Extension 6 & 7 residents. Water and waste management are identified as the most important services needed in the Havana Extension 6 & 7 settlement. Table 9 below presents services as rated by respondents:

**Table 9: Municipal service needs assessment (n = 205)**

Services	Most important	More important	Least important
Water	<b>199</b>	5	0
Sewage and toilets	1	3	1
Waste management at household level	1	<b>23</b>	<b>16</b>

Electricity	4	2	2
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Other services needed in Havana Extensions 6 & 7 are identified as:

**Table 10: Other municipal service needs identified** (n = 205)

Other Services	Most important	More important	Least important
<b>Health facility (health centre/clinic)</b>	<b>202</b>	1	1
<b>Crèche (Kindergarten)</b>	0	<b>16</b>	<b>73</b>
<b>Secondary School</b>	1	<b>29</b>	<b>33</b>
<b>Church</b>	0	<b>11</b>	<b>37</b>
<b>Entertainment facilities</b>	0	2	<b>43</b>
Taxi rank	1	1	0
Primary School	0	8	<b>18</b>
Shopping Centre and services	0	<b>11</b>	5
Bus Stop	0	<b>14</b>	1
Recreational facilities	0	3	4
Satellite Police Station	0	2	4
Street lights	0	4	0

Affordable housing is one of the most significant services that local authorities have to provide to informal settlement communities. This is one of the most challenges facing the CoW and other major local authorities in Namibia. The housing needs of this study are consistent with a study conducted in Ongulumbashe (SED, 2011); in that Havana Extensions 6 & 7 residents prefer the following housing conditions:

- Land acquisition and ownership
  - Buy a plot and build a house (50%)
  - Acquire a plot through pre-purchase saving scheme (41%)
  - Buy an existing house (8%)
  - Rent a subsidized house (0,5%)
- Size of house (number of bedrooms)
  - One bedroom house (2%)
  - Two bedroom house (35%)
  - Three or more bedrooms house (63%)

It is important to understand the residents' needs and views regarding services provisions. Community recommendations regarding municipal services provision for Havana Extension 6 & 7 are as follows:

- The main thing that CoW can do to improve the current situation of water supply and services
  - Increase communal taps and allocate only few houses per tap (23%)
  - Provide pre-paid household water connections (17%)
  - Provide pre-paid communal water points (8%)
  - Provide post-paid household water connections (51%)
  - No improvement needed, it is fine the way it is (2%)
- The main thing that CoW can do to improve the current situation of electricity supply
  - Provide per-paid electricity at every household (90%)
  - Provide street lights (2%)
- The main thing that CoW can do to improve the current situation of toilets and sewerage system
  - Provide water-borne toilets for each household (56%)
  - Provide water-borne communal toilets and allocate only a few houses per toilet (23%)
  - Increase the number of existing communal toilets and allocate only a few houses per toilet (14%)
  - Provide dry toilets for each household (5%)
  - Provide cleaning detergents and materials to clean the toilets (2%)
- The main thing that CoW can do to improve roads and transport networks
  - Tarred main roads and upgrade existing roads (78%)
  - Provide Street names (15%)
  - Erect Bus stops and Taxi ranks (5%)
  - Erect speed bumps and road signs (0.5%)

One of the impacts of the provision of service during construction and post-construction is re-allocation of houses that are settled on plots marked for institutions, open spaces and recreational areas. It is imperative that CoW understand community needs, views and expectations regarding relocation. Although the residents are happy about the provision of services, some of them are aware that they may have to make way for services. This movement or relocation is not welcomed by all as some of the residents have school children at Havana Primary and relocation may disrupt their children's education and social network and life stability.

The qualitative household survey probed community opinions regarding relocation if a particular household has to be moved to make way for services. They provide the following recommendations:

- Provide transport for relocation
- Give financial compensation to buy new housing materials
- Give sufficient notice in months
- Provide new place with services or allocate Erf in a new place
- Clear land and construct our houses
- Relocate within Havana
- No problem with relocation

The residents in Havana Extension 6 & 7 stressed that they can only accept being relocated to another part within Havana informal settlement which is already serviced and properly housed, with affordable services.

## 8. Conclusion

In conclusion, people started settling in the Havana informal settlement between 2005 and 2008 as they could not find employment and could not afford living in the townships and suburbs. According to the City of Windhoek's service and standards of development, about 73% of households interviewed qualify for Development Level 2 (DL 2) to Development Level 6 (DL 6). One can therefore recommend that CoW provide Development Level 4 (DL 4) services that are based on acceptable health and environmental standards and are also in line with Millennium Developmental Goal 7. Providing services at that level will be affordable and also meet health and environmental standards. Furthermore, it will also be congruent with recommended and identified services needs by households in this study.

## 9. Social Impact Assessment Framework

**Table 11: The CoW specifications for DL4 and DL5** (31% household interviewed fall into this category) services are as follows:

SERVICES	Low income individual connections (2007)	
	Development Level 4 Income Category N\$ 2185 - 3436	Development Level 5 Income Category N\$3437 -4505
• <b>Water</b>	<ul style="list-style-type: none"> <li>• Full water reticulation designed and installed.</li> <li>• Diameter of external lines (lines serving blocks): 110 mm</li> <li>• Diameter of internal lines (within blocks) with fire hydrants: 90 mm</li> <li>• Diameter of lines requiring no fire hydrants may be less than 90 mm, depending on the anticipated consumption.</li> <li>• Water meters at each water point.</li> <li>• Fire hydrants on water mains, at intervals of 250 m street distance.</li> </ul>	<ul style="list-style-type: none"> <li>• Full water reticulation designed and installed.</li> <li>• Diameter of external lines (lines serving blocks): 110 mm</li> <li>• Diameter of internal lines (within blocks) with fire hydrants: 90 mm</li> <li>• Diameter of lines requiring no fire hydrants may be less than 90 mm, depending on the anticipated consumption.</li> <li>• Water meters at each water point.</li> <li>• Fire hydrants on water mains, at intervals of 250 m street distance.</li> </ul>
<b>Sanitation</b>	<ul style="list-style-type: none"> <li>• Full sewer reticulation</li> <li>• Individual sewer connections</li> </ul>	<ul style="list-style-type: none"> <li>• Individual connections for flush toilets (full waterborne sewer)</li> </ul>
<b>Electricity</b>	<ul style="list-style-type: none"> <li>• Street lights in access and collector roads electricity to business and institutional erven which are immediately serviceable.</li> </ul>	<ul style="list-style-type: none"> <li>• Street lights to entire township</li> <li>• Individual electricity connections to all erven with design ADMD = 1kVA (Provision is not made for geyser).</li> </ul>
<b>Refuse removal</b>	Individual collection by bin system	Individual collection by bin system
<b>Roads</b>	<ul style="list-style-type: none"> <li>• Cul-de-sacs to serve a maximum of 10 erven; other</li> </ul>	<ul style="list-style-type: none"> <li>• Cul-de-sacs to serve a maximum of 10 erven;</li> </ul>



	<p>lanes of 6m width and less to serve a maximum of 20 erven.</p> <ul style="list-style-type: none"> <li>• Alter design in accordance with ground conditions and traffic volumes</li> <li>• Surface stormwater as far as possible</li> <li>• Channel in roads</li> <li>• Drifts</li> <li>• Open/lined drains</li> <li>• Retain roads on natural levels as far as possible</li> <li>• Decision of gravelled vs. graded and tarred surfaces depending on environmental conditions e.g. topography, etc.</li> <li>• Same width guidelines as for levels 1-3</li> <li>• Access collectors: surfaced</li> <li>• Other roads: gravelled</li> </ul>	<p>other lanes of 6m width and less to serve a maximum of 20 erven</p> <ul style="list-style-type: none"> <li>• Alter design in accordance with ground conditions and traffic volumes</li> <li>• Surface stormwater as far as possible</li> <li>• Channel in roads</li> <li>• Drifts</li> <li>• Open/lined drains</li> <li>• Retain roads on natural levels as far as possible</li> <li>• Decision of gravelled vs. graded and tarred surfaces depending on environmental conditions e.g. topography, etc.</li> <li>• Same width guidelines as for levels 1-3</li> <li>• Access collectors: surfaced</li> <li>• Other roads: gravelled</li> </ul>
<b>Target Group</b>	<ul style="list-style-type: none"> <li>• To provide an upgradeable township with individual “wet” services and street lights for the low income group</li> </ul>	<ul style="list-style-type: none"> <li>• To provide an upgradeable area with individual connections, to those who can afford individual electricity connections.</li> </ul>
<b>Tenureship/Payment</b>	<ul style="list-style-type: none"> <li>• Sale</li> <li>• Pre-purchase saving scheme encouraged</li> </ul>	<ul style="list-style-type: none"> <li>• For sale</li> <li>• pre-purchase saving scheme encouraged</li> </ul>

These specifications are considered in this section. If implemented successfully they will meet community needs as well as addressing the risks and impacts identified in Table 11 below.

**Table 12: Social, cultural and economic impact, risks and interventions identified for Havana Extension 6 & 7.**

SOCIAL IMPACT	IDENTIFIED RISKS	INTERVENTION
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Limited access to safe drinking water	All households in Havana Extension 6 & 7 have only access to communal water points. The distance and time spent on collecting water is long	Provide water services to enable each household to have water inside the house
Inadequate sanitation	The majority of households do not have access to sanitation Existing communal dry-toilets allocated are shared by a lot of households No accountability for maintenance and cleaning of communal toilets	Provide sewer and reticulation systems to improve current sanitation conditions  Provide water efficient sewerage system Promote water-borne household toilet systems
Limited or no access to electricity	Risks of food contamination Compromised safety and security at night School learners do not have access to reliable sources of energy for lighting	Provide electricity grid connections in the area Promote pre-paid electricity supply for households in the area
Poor road infrastructure	Main roads are busy but are not tarred Absence of roads signs, speed limits and speed bumps increases risks for personal safety	Upgrade current roads Provide tarred road for main road Erect road signs in Havana Extension 6 & 7 Introduce speed limits
Poor housing infrastructure	Houses constructed with corrugated iron sheets and other materials that do not comply with building standards Illegal settlements and no legal ownership to land	Provide plots for each household settling in Havana Extension 6 & 7 Provide affordable housing Improve land ownership status

	Houses constructed on un-serviced lands that is not yet surveyed	
Severe indoor air pollution	Indoor pollution resulting from using paraffin and firewood	Provide grid and/or solar energy for lighting and cooking
Severe outdoor air pollution	Severe bad smells and dust	Reduce speed limit Improve solid waste collection and disposal
High noise pollution	Noise resulting from speeding vehicles, loud music in Shebeens and Jukeboxes	Implement CoW rules and regulations as per Shebeen licence conditions
Poor waste management	Majority of houses lack dustbins Waste is not collected frequently Waste is dumped or burned in the surrounding environment and river beds Waste dumped at road sides for collection giving an unpleasant sight	Improve solid waste collection and disposal Collect waste more frequently Increase community awareness regarding cleanliness of the area Discourage dumping of wastes in river beds and open environments
Vulnerability to natural disasters (flood, strong winds and fire)	Most houses are constructed with poor housing structures and are not resilient to flooding, strong winds and fire	Improve housing by providing affordable land for housing
Inadequate recreational facilities	Limited sport facilities Limited open space and recreational facilities	Plan and allocate land for open spaces and recreation (play grounds and parks)
Moderate safety and security	Domestic violence Crime and poor safety due to high population density and absence of street lights	Provide street lights in all streets of Havana Extension 6 & 7

Limited access to public transportation	No Bus stops No Taxi Ranks Long distance from Taxi ranks for children and pregnant women	Provide Bus stops and Taxi ranks in the area
Poor health conditions	Poor waste and sanitation conditions as well as severe pollution have a negative impact on human and environmental health	Provide water efficient sewerage system Prevent air, noise and land pollution by implementing CoW solid waste management strategies in Havana Extension 6 & 7

## 10. References

- City of Windhoek (2011). Strategic Environmental Assessment report. Windhoek
- Mutjinde, K. and Eiseb, G. (2011). Environmental Impact Assessment for the upgrade of informal settlements. City of Windhoek. Windhoek
- Niikondo, A. (2008). *Migrants to Cities and Towns in Namibia: What their interests are?* Polytechnic of Namibia, Windhoek.
- Pendleton, W., Nickanor, N., and Pomuti, A. (2012). *The state of Food insecurity in Windhoek, Namibia*. Urban Food Security Series No.14. African Food Security Urban Network, Queens University
- Republic of Namibia. (2002). *Namibia 2001 population and housing census*. National Planning Commission, Windhoek
- Republic of Namibia. (2013). *Namibia 2011 population and housing census*. Namibia Statistics Agency, Windhoek.
- Sustainable Environmental Development. (2011). Ongulumbashe Environmental Impact Assessment Study. City of Windhoek. Windhoek
- Tvedten, I., and Mupotola, M. (1995). Urbanisation and urban policies in Namibia. A discussion paper prepared for Annual Meeting of the Association of Local Authorities in Namibia July 1995. Windhoek: UNAM.
- UN-HABITAT, (2003): *The Challenge of Slums - Global Report on Human Settlements*. Earthscan Publication Ltd: London

# APPENDIX E:

## CEMP Standard Forms

<b>PROJECT CONTACT DETAILS</b>		<b>SEDC01</b>
	<b>Contact Name</b>	<b>Contact Number</b>
<b>Construction/Project Manager (*):</b>		
<b>Site Supervisors (*):</b>		
<b>SHREQ Representatives:</b>		
<b>CoW Essential Emergency Services:</b>		
Ambulance		
Fire Brigade		
Police		
<b>First Aiders:</b>		
<b>Utilities for:</b>		
Water		
Electricity		
Sewage		
Roads		
Solid waste		
<b>MET Representatives:</b>		
<b>City of Windhoek Representatives:</b>		
<b>Samora Machel Constituency Representatives:</b>		
<b>Khomas Regional Council Representatives:</b>		
<b>Other contacts:</b>		

(\* ) These contacts are available on a 24-hour basis and they have the authority to halt the progress of the works if required.

**CORRECTIVE ACTION REQUEST**

**SEDC02**

Company:

Job No:  Area Dept Funct:  Car No:

Assessor:  Procedure No:  Standard Ref:

Assessment Date:  Company Rep:  Legislative Ref:

**Details of Non-conformance/Non-compliance:**

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Company Rep:  Signature:

Major:  Minor:  Proposed close-out date:

**Corrective Action Taken to Rectify and Prevent:**

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Action taken by:  Date:

**Acceptance of Corrective Action and Comments:**

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Signed off:  Date:

Surveillance		Assessment		Re-assessment	
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	<b>CONSTRUCTOR / PROJECT MANAGER</b>	<b>SEDC03</b>
	Environmental Incident Report	

**Part A: Details of complaint/incident (to be completed by Site Supervisor)**

Date of incident:		Time of incident:	AM/PM	Incident Report No.	
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Name and phone number of complainant:

Description of incident/concern:

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Immediate actions/control measures to rectify the incident/complaint:

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Was Essential Emergency Services notified? Yes/No on \_\_\_/\_\_\_/\_\_\_ by: \_\_\_\_\_ (Phone/letter)

Was Proponent/Developer notified? Yes/No on \_\_\_/\_\_\_/\_\_\_ by: \_\_\_\_\_ (Phone/letter)

Any other authorities notified? \_\_\_\_\_ (e.g. water authorities)

Print Name: \_\_\_\_\_ Signature: \_\_\_\_\_ Date: \_\_\_/\_\_\_/\_\_\_

**Part B: Follow up details: (to be completed by Project Manager)**

Action:

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Print Name: \_\_\_\_\_ Signature: \_\_\_\_\_ Date: \_\_\_/\_\_\_/\_\_\_

Was the complainant/other authorities informed of the actions taken? Yes/No