

**Expansion, Operation, Maintenance and Decommissioning of  
the Aquaculture (Fish Farming) Project at Okashaningwa  
Village in the Omusati Region.**

## **Environmental Scoping Report**

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**July 2021**

# DOCUMENT DESCRIPTION

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**PROJECT NAME:** Expansion, Operation, Maintenance and Decommissioning of the Aquaculture (Fish Farming) Project at Okashaningwa Village in the Omusati Region.

**DOCUMENT TYPE:** Environmental Scoping Report

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**COMPILED:** July 2021

# Table of Contents

I.	PROJECT APPLICANT .....	7
II.	ENVIRONMENTAL ASSESSMENT PRACTITIONERS (EAPs) .....	7
<b>EXECUTIVE SUMMARY .....</b>		<b>8</b>
<b>1.</b>	<b>INTRODUCTION AND BACKGROUND .....</b>	<b>9</b>
1.1	OVERVIEW .....	9
1.2	ENVIRONMENTAL ASSESSMENT METHODOLOGY .....	9
1.3	NEED AND DESIRABILITY .....	11
1.3.1	<i>Aquaculture potential</i> .....	11
1.3.2	<i>Food availability</i> .....	11
1.3.3	<i>Healthy food</i> .....	12
1.3.4	<i>Experience of farm owner (proponent)</i> .....	12
<b>2.</b>	<b>PROJECT DESCRIPTION .....</b>	<b>13</b>
2.1	PROJECT LOCATION .....	13
2.2	FACTOR CONSIDERED IN THE SELECTION OF PROJECT SITE .....	14
2.2.1	<i>Source of water to supply the ponds</i> .....	14
2.2.2	<i>The landscape</i> .....	14
2.2.3	<i>Type of soil</i> .....	14
2.3	PROJECT SITE .....	15
2.4	ESTABLISHMENT OF AQUACULTURE .....	16
2.5	AQUACULTURE FISH FARMING .....	16
2.5.1	<i>Definition of Aquaculture</i> .....	16
2.5.2	<i>Operation of the Aquaculture system</i> .....	17
2.5.3	<i>Species Selection</i> .....	19
2.5.4	<i>Socio-economic benefits of Aquaculture project</i> .....	20
2.6	PROJECT ALTERNATIVE ASSESSMENT .....	20
2.7	ACCESS TO THE SITE .....	20
2.8	SEWAGE AND WASTEWATER .....	21
<b>3.</b>	<b>PUBLIC PARTICIPATION .....</b>	<b>22</b>
3.1	OVERVIEW .....	22
3.2	NOTIFICATION AND INVITATIONS .....	22
3.3	PUBLIC MEETING .....	23
<b>4.</b>	<b>POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK .....</b>	<b>24</b>
4.1	OVERVIEW .....	24
4.2	LEGAL INSTRUMENTS .....	25
<b>5.</b>	<b>DESCRIPTION OF THE ENVIRONMENT .....</b>	<b>28</b>
5.1	SOCIAL ENVIRONMENT .....	28
5.1.1	<i>About the town</i> .....	28
5.1.2	<i>Economic activities</i> .....	29
5.2	BIOPHYSICAL ENVIRONMENT .....	31
5.2.1	<i>Climate conditions</i> .....	31
5.2.2	<i>Topography and Landscape</i> .....	31
5.2.3	<i>Hydrogeology and Geology</i> .....	31
5.2.4	<i>Soil and water supply</i> .....	32
5.2.5	<i>Fauna and Flora</i> .....	33
<b>6.</b>	<b>IMPACTS ASSESSMENT .....</b>	<b>34</b>

6.1	OVERVIEW.....	34
6.2	ASSESSMENT OF IMPACTS.....	34
6.3	MITIGATION MEASURES .....	38
<b>7.</b>	<b>CONCLUSION AND RECOMMENDATIONS.....</b>	<b>41</b>
7.1	CONCLUSION.....	41
7.2	RECOMMENDATIONS.....	41
<b>8.</b>	<b>LIST OF REFERENCES .....</b>	<b>42</b>
	<b>APPENDICES.....</b>	<b>43</b>
8.1	APPENDIX A: PROOF OF CONSULTATION .....	43
8.2	APPENDIX B: CONSENT LETTER FROM MFMR .....	43
8.3	APPENDIX C: EMP .....	43

## LIST OF FIGURES

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FIGURE 1: FISH HARVESTING .....	11
FIGURE 2: HEALTH BENEFITS OF FISH .....	12
FIGURE 3: PROJECT LOCALITY .....	13
FIGURE 4: AERIAL PHOTOGRAPH OF THE PROJECT SITE .....	15
FIGURE 5: CLOSE- UP PHOTOGRAPH OF THE PROJECT SITE .....	15
FIGURE 6: PHOTOGRAPH OF THE EXISTING FISH POND .....	17
FIGURE 7: THE OPEN WATER POND SYSTEM DESIGN .....	18
FIGURE 8: PHOTOGRAPH TAKEN DURING THE PUBLIC MEETING .....	23
FIGURE 9: OVERVIEW OF THE OKASHANINGWA VILLAGE AND SURROUNDING.....	29
FIGURE 10: HYDROLOGICAL FEATURES OF CUVELAI BASIN.....	32
FIGURE 11: LOCAL OCCURRING SOIL TYPE.....	33
FIGURE 12: <i>LOCAL OCCURRING FAUNA</i> .....	33

## List of Tables

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TABLE 1: DETAILS OF THE PROJECT APPLICANT .....	7
TABLE 2: DETAILS OF THE EAPS .....	7
TABLE 3: CHARACTERISTICS OF THE SPECIES.....	19
TABLE 4: LISTED ACTIVITY TRIGGERED BY THE PROJECT .....	24
TABLE 5: LEGISLATIVE, POLICY AND ADMINISTRATIVE FRAMEWORK .....	25
TABLE 6: ASSESSMENT CRITERIA .....	34
TABLE 7: IMPACT SIGNIFICANCE.....	35
TABLE 8: ENVIRONMENTAL IMPACTS AND ASPECTS ASSESSMENT: CONSTRUCTION PHASE OF THE NEW FISH PONDS .....	36
TABLE 9: ENVIRONMENTAL IMPACTS AND ASPECTS ASSESSMENT: OPERATION PHASE .....	37

## List of Acronyms

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BID	Background Information Document
dB	decibels
DEAF	Directorate of Environmental Affairs and Forestry
EA	Environmental Assessment
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
I&APs	Interested and Affected Parties
MEFT	Ministry of Environment, Forestry and Tourism
MFMR	Ministry of Fisheries and Marine Resources
NamWater	Namibia Water Corporation
NORED	Northern Regional Electricity Distributor
PPE	Personal Protective Equipment
ToR	Terms of Reference

## i. Project Applicant

The proponent, Cubia Green Fields cc intends to apply for an Environmental Clearance Certificate (ECC) for the expansion, operation, maintenance and decommissioning of the Aquaculture (Fish Farming) Project at Okashaningwa Village in the Omusati Region.

**Table 1: Details of the project applicant**

<b>Applicant</b>	<b>Cubia Green Fields cc</b>
Contact Person	Mr. Ismael Nalitye Kapuka
Postal Address	P O Box 16083 Oshihole
Contact Number	081 262 1111 / 085 262 1111

## ii. Environmental Assessment Practitioners (EAPs)

Green Gain Consultants cc was appointed by Cubia Green Fields cc to facilitate the Environmental Impact Assessment (EIA) process and subsequently apply for an Environmental Clearance Certificate (ECC), in accordance with the requirements of the Environmental Management Act (Act No. 7 of 2007). The Environmental consulting firm boast of professional practitioners in the environmental field, thus offering cross cutting solutions to environmental issues.

**Table 2: Details of the EAPs**

<b>Name of Firm</b>	<b>Green Gain Consultants cc</b>	
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<b>Environmental Assessment Practitioners</b>		
<b>Name</b>	<b>Qualifications &amp; Experience</b>	<b>Responsibility</b>
<b>Mr. Joseph K. Amushila</b>	Master Environmental Management	Lead EAP
<b>Ms. Lovisa Hailaula</b>	Honours Degree: Fisheries and Aquatic Sciences	EAP

# EXECUTIVE SUMMARY

Cubia Green Fields cc (herein after referred to as “the proponent”), has been operating a fish farm and a small-scale vegetable garden at Okashaningwa village near the town of Ruacana in the Omusati Region since 2016. The fish farm currently has one open pond approximately 2800 m<sup>2</sup> on average in size and it is stocked with 1000 North African Catfish (*Clarias gariepinus*) and 15000 Three Spotted Tilapia (*Oreochromis andersonii*). The proponent intends to construct an additional seven 7 open ponds with 2800 m<sup>2</sup> on average, hence the open ponds will be eight (8) in total. The existing activity and proposed additions will be developed on a 2-hectare parcel of land which was previously used as a Pearl millet (Mahangu) field and is owned by the proponent. No new land will be sourced nor cleared.

Aquaculture development has recently become a priority topic in many Southern African countries, as the traditional supplies of fish (capture fisheries) is declining and aquaculture has various potential positive economic gains that it can generate such as food security, employment creation, poverty alleviation, improved national economies and other associated socio-economic gains. Fish farming has been taken to satisfy the world’s ever-growing appetite for healthy food and as a means of sparing wild fish and giving them a chance to multiply. The main aim of the project is to enhance food security at the local and regional level through high quality freshwater fish production. The project recognised the abundance of manpower in the north central regions that can easily be trained in the fish farming industry which can be a mitigation in the unemployment dilemma in our country.

In accordance with the Environmental Management Act (EMA No. 07 of 2007) and its Regulations (GN No.03 of 2012), the proposed activities cannot take place without an Environmental Impact Assessment (EIA) being carried out. Cubia Green Fields cc appointed Green Gain Consultants cc to undertake the Environmental Impact Assessment (EIA) process and apply for an Environmental Clearance Certificate (ECC) for the proposed fish farming activities. The use of an EIA as a management tool in this project would ensure that the proponent complies with local, national, regional, and international environmental laws, standard design codes, promote consultation, and reduce future liabilities, consequently assisting with environmental protection.

This is a systematic study of impacts of the proposed project activities on the bio-physical and the socio-economic components of the environment. The Environmental Assessment Practitioners undertook this Environmental Impact Assessment (EIA) study, to envisage the impacts of the proposed development on the environment and propose mitigation measures that will be incorporated into the project’s Environmental Management Plan (EMP). The EMP should be used as an on-site reference document for the operations of the facility. Parties transgressing the EMP should be held responsible for any rehabilitation that may need to be undertaken.



# 1. INTRODUCTION AND BACKGROUND

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## 1.1 Overview

Namibia, as a country with one of the best fishing industries in the world, has the demand of its fish escalating daily throughout the world, yet the need for fish protein in the country is also rapidly increasing. Modern technology has led to overfishing problems to meet the demand standards. Fresh water fish farming is a mitigating measure, as it becomes a substitute during wild fish breeding periods.

Cubia Green Fields cc owns a small-scale fish farm in Omusati Region. It is located about 50 km west of Outapi Town, Okashaningwa village in Ruacana constituency. The farm is located about 200m east of the Etunda irrigation scheme. It is situated at approximately 16km from the main road (C46) from Ruacana to Outapi. The aquaculture (fish farming) project is already in existence and the proponent intends to construct seven (7) additional open ponds.

In accordance with the Environmental Management Act (EMA No. 07 of 2007) and its Regulations (GN No.03 of 2012) all “construction of facilities for aquaculture production, including mariculture and algae farms where structures are not situated within aquaculture development zone declared in terms of the Aquaculture Act, 2002” cannot be undertaken without an Environmental Impact Assessment (EIA) being undertaken and an Environmental Clearance Certificate being obtained. Hence, Green Gain Consultants cc was appointed to undertake the EIA process and apply for an ECC from the Ministry of Environment, Forestry and Tourism for the proposed expansion, operation, maintenance and decommissioning of the aquaculture (fish farming) project.

## 1.2 Environmental Assessment Methodology

In compliance with the Environmental Management Act No.7 of 2007 and the Environmental Impact Assessment Regulations (GN 30 in GG 4878 of 6 February 2012), this EIA study will address environmental, social, and economic issues and concerns associated with the proposed expansion, operations, maintenance and decommissioning. The EIA is undertaken in a holistic approach encompassing of all different aspects of the EIA process. The methodologies adopted for conducting this EIA process are as follows:

### 1. Desktop Research

Desktop research was used to establish an environmental information database for the EIA process. Accessed materials include books, articles, maps, internet sources, photographs, GIS datasets, and past EIA reports and baseline reports of the area.

## **2. Scoping**

This was done to determine which aspects to focus on during the assessment as well as impacts to focus on. The scoping procedure was as follows:

- Identification of key assessments to be done based on project type and scope.
- Identify Interested and Affected Parties (I&APs).
- Publicizing the EIA process and registration of I&APs.
- Distribution of the BID to the I&APs and key stakeholders.
- Public and stakeholder consultation through the various modes of communication, and focal meetings.

## **3. Consultation with Stakeholders**

Experts in relevant fields, leaders of thought in environmental matters, organs of the state and community members have been consulted for their opinions on issues relating to the potential ecological and socio-economic impacts of the proposed project.

This provided an opportunity for stakeholders and the public to engage in the process and to give comments and express their concerns regarding the proposed project. The public participation process component is fundamental to the impact assessment process and is an important informant to the decision-making process. An EMP, will be developed that will address environmental management statements for all the project elements and this forms an integral part of the EIA Report.

## **4. Site screening**

Site screening activities were done prior to the EIA Scoping period to verify and complement information gathered from desktop studies. The fieldwork covered all relevant components of ecological, socio-economic and health components of the environment.

## **5. Impact Assessment and Evaluation**

The assessment of all associated and potential impacts of the proposed project were carried out using the checklist method. The assessment reviews all environmental, social, and economic aspects in relation to applicable policies and regulations were also done and formed the basis upon which the EMP was formulated.

## **6. Assessment of Impacts**

An Impact Assessment matrix was utilized to establish the environmental risk of the overall project, its alternatives, and various components. Mitigation protocols were also established.

## **7. Final Scoping Report and EMP**

The final report will be submitted to MEFT: DEA for review and the decision will be communicated to all I&APs.

## 1.3 Need and Desirability

The need and desirability of the above-mentioned project is based on the following aspects.

### 1.3.1 Aquaculture potential

Aquaculture is a global sector with the potential to contribute greatly to the diversification of the agricultural economy, create skills, broaden economic participation, reduce poverty, enhance food security and increase employment and business opportunities for all sectors of society. Below are various underlying drivers of aquaculture development:

- Fish farmed in aquaculture convert feed resources more efficiently than traditionally farmed terrestrial animals because the fish are cold blooded and do not waste any energy on temperature regulation.
- The spatial requirement for high density aquaculture is relatively small, therefore land use is minimal.
- There is a marked increase in demand for freshwater fish and high value protein in Namibia and neighboring countries.
- There is immense pressure on current aquaculture farmers to supply a growing demand for freshwater fish in Namibia.

### 1.3.2 Food availability

Subsistence aquaculture farming in the sub-Saharan countries plays a major role in contributing towards household food and nutritional security, improved nutrition and rural employment. Income from aquaculture contributes towards general household costs and living expenditures. The desirable rise in the Namibian population has seen an increased demand for food production and coupled with a lowered life expectancy of Namibians due to malnutrition at childhood. There is a dire need for a balanced high-quality diet in every Namibian household.



Figure 1: Fish harvesting

### 1.3.3 Healthy food

Fish is known to be a high value protein containing omega-3 fatty acids and vitamins such as D and B2 (riboflavin), which are good for human health. Fish is generally fast growing compared to counterparts such as goat, lamb, and beef. Fish is rich in calcium and phosphorus and is a great source of minerals, such as iron, zinc, iodine, magnesium, and potassium. The American Heart Association recommends eating fish at least two times per week as part of a healthy diet.

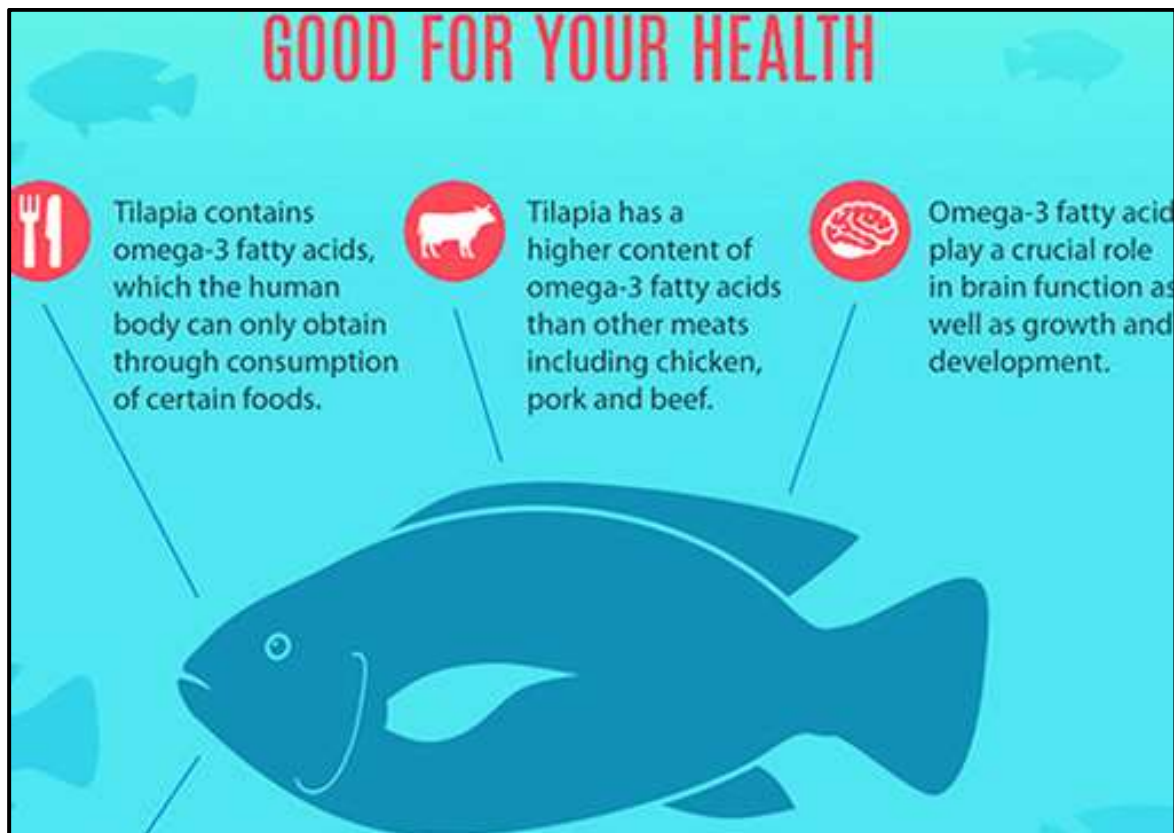


Figure 2: Health benefits of fish

### 1.3.4 Experience of farm owner (proponent)

The success of this project is highly anticipated given the that the proponent has several years of experience in freshwater aquaculture, feed production and freshwater aquaculture farmer training.

## 2. PROJECT DESCRIPTION

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### 2.1 Project Location

Cubia Green Fields cc (herein after referred to as “the proponent”) has been operating a small-scale fish farm at Okashaningwa village in the Ruacana constituency of Omusati Region since 2016. The 2.2-hectare sized plot lies 16km from the Outapi Ruacana (C46) and it is approximately 200 meters east of the Etunda Irrigation Project, on the **-17.485862” S, 14.53993” E** coordinates. The plot was previously used as a mahangu field and was found suitable for the project activities.



**Figure 3: Project Locality**

The project is accessible from the existing gravel road to the Etunda irrigation project (south) and to Etunda village. Water will be sourced from the existing freshwater canal (approximately 200 meters away) which also supply water to the Etunda irrigation project. The intention is to integrate the aquaculture project with the vegetable production by recycling water from the fishpond and used it for watering the small-scale garden project.

## **2.2 Factor considered in the selection of project site**

There are several factors which determined the selection of the ponds site. These factors are:

- source of water to fill the ponds,
- the landscape, and
- the type of soil.

### **2.2.1 Source of water to supply the ponds**

The project site is in proximity to the canal that brings water from Ruacana to supply Etunda Irrigation Project and the surrounding agricultural projects. For backup purposes, the proponent plans to drill a borehole close to the ponds. The supply of water to the ponds can easily be rated as 100% reliable. There will be no need of water pumping.

### **2.2.2 The landscape**

The size, shape and depths of the ponds depend on the gradient of the land. The project site has a gentle sloping landscape. The gradient allows the water to flow freely to the ponds. The depth of the ponds shall be within the stipulated measurements, with the shallow end being 0.5m. The slope shall be as per the recommended gradient of 2cm every 10m. it is important to note that the shallower the pond the more productive it becomes.

### **2.2.3 Type of soil**

Studies suggests that the best soil for farming fish is one that can retain water above one (1) meter for more than 6 months. The project site consists of clay soil which is good in water retention.

## 2.3 Project Site

The 2.2-hectare sized plot where the activities are being conducted was previously used as a Pearl millet (Mahangu) field and is adjacent to the small vegetable garden. No new land will be sourced nor cleared.



Figure 4: Aerial photograph of the project site



Figure 5: Close- up photograph of the project site

## **2.4 Establishment of Aquaculture**

The main purpose of the project is to enhance food security for the local market and cross border markets. Currently, the market is under supplied and the demand of freshwater fish continues to rise on daily basis. The aquaculture project is mainly focusing on culturing two (2) species, namely North African Catfish (*Clarias gariepinus*) and the Three Spotted Tilapia (*Oreochromis andersonii*). With one (1) existing fish pond on site, there will be seven (7) additional fish ponds to be constructed. The wastewater from the ponds will be used for irrigation purposes and thus no water will be released into the public environment beyond the project site. The proponent currently procures fingerlings from the Onavivi Inland Hatchery.

The proponent has determined through extensive market research there is a demand for freshwater fish and fish products in the country. Most of the supplies are currently from Zambezi and Kavango Regions. Freshwater fish farming is a straightforward activity and there is no reason for local farmers to fail to produce the fish and fish products in different regions. As a commercial activity, freshwater fish production is viable by any standards. Manpower is in abundance and locals can easily be trained for various activities in the farm. The demand for fish has been prompted by population growth and other aspects such as an increase in urban development. Modern technology has led to overfishing issues to meet the demands. Freshwater fish farming has come out to be a mitigating measure, as it becomes a substitute during wild fish breeding periods. The project will be novel to the Okashaningwa village in Ruacana constituency and it is anticipated to be the main economic driver in the village and its surroundings. The existing project currently employs 25 employees, and the figure will increase exponentially with the expansion of seven (7) additional fish ponds. The success of this project is highly anticipated given that the proponent has several years of experience in freshwater aquaculture, feed production and freshwater aquaculture farmer training. All required permits will be secured through the relevant authorities.

## **2.5 Aquaculture Fish Farming**

### **2.5.1 Definition of Aquaculture**

Aquaculture can be described as farming of aquatic organisms such as fish, crustaceans, mollusks and aquatic plants, cultivating them in freshwater and saltwater under controlled conditions. Aquaculture is categorised into mariculture and inland aquaculture. Mariculture commonly known as marine farming refers to aquaculture practiced, such as in trays, pens, enclosures, net, etc., in marine environments and in underwater habitats, as opposed to in freshwater. Whereas inland aquaculture refers to farming or culturing fish in freshwater course such as canals, ponds, tanks, and enclosures that are dependent upon the culturist for maintenance of water quality, food supply, and waste removal. Aquaculture in this case will only involve the inland component and includes hatcheries and an open pond culture.



## 2.5.2 Operation of the Aquaculture system

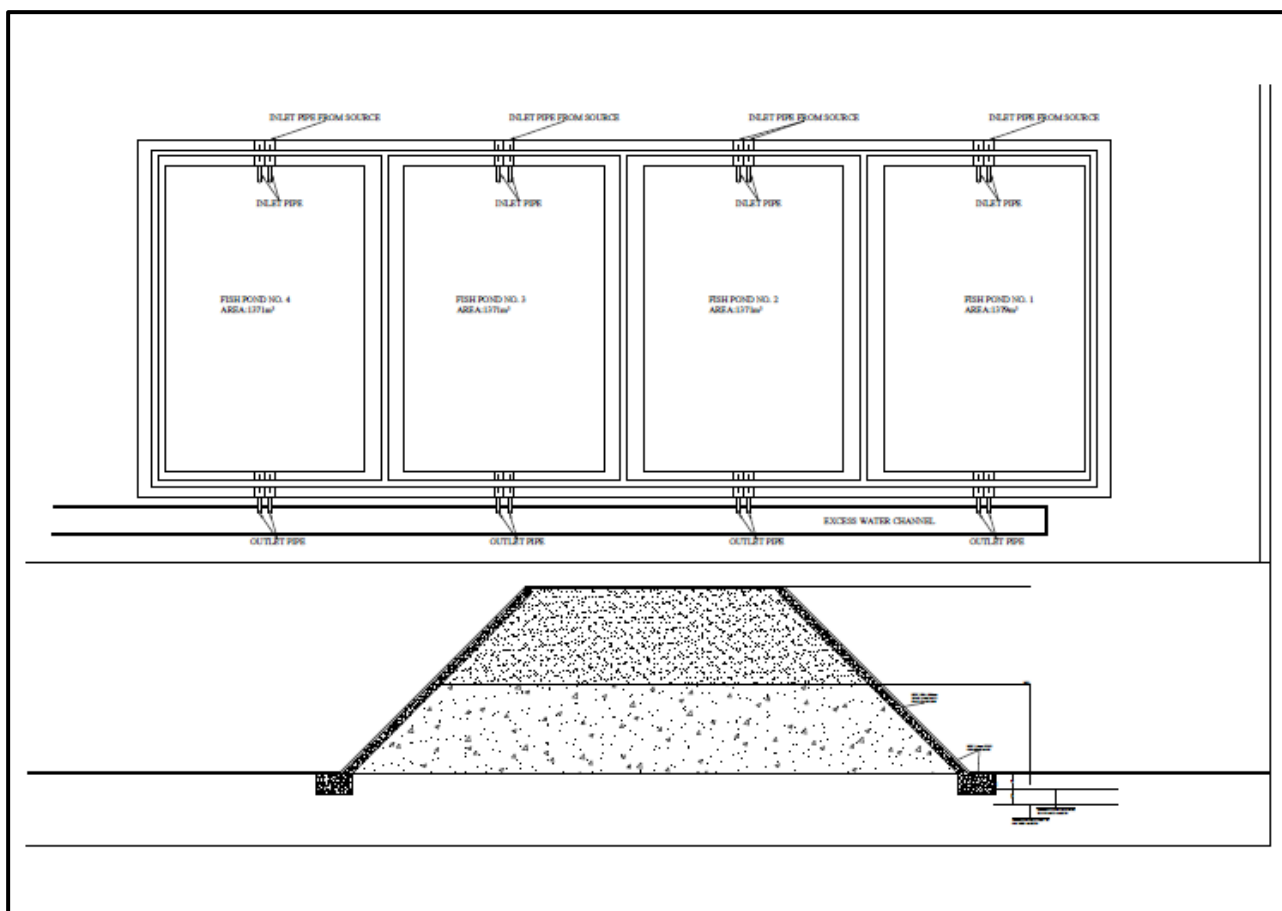
In traditional aquaculture systems, water passes through the culture water system only once and is discharged into the aquatic environment. The flow of water through the culture system provides oxygen to the fish and carries dissolved and suspended wastes out of the system. The most widely practiced form of flow through aquaculture in Namibia is Tilapia and Catfish farming. In the existing project, wastewater from the ponds will be used for irrigation purposes and thus no water will be released into the public environment beyond the project site. This practise will be exercise with the additional ponds.

Cubia Green Fields cc project is a land-based aquaculture which comprises solely of open pond culture. The freshwater species that will be cultured is the North African Catfish (*Clarias gariepinus*) and the Three Spotted Tilapia (*Oreochromis andersonii*). The fish farm currently has 1 pond measuring about 2800 m<sup>2</sup> on average and has a potential to stocked up-to 1000 Catfish or 15000 Tilapia. The plan is to have 8 ponds with measurement of 2800 m<sup>2</sup> on average for one. Hence, seven (7) more additional ponds will be constructed.



**Figure 6: Photograph of the existing fishpond**

Earth pond culture depending on local available water volumes, soil quality and water seepage rates, fish farms may use open pond, semi-intensive culture systems. The ponds may be plastic lined to prevent water seepage if the soils are highly permeable (like those in sandy deserts). Open pond culture requires large volumes of water as most are flow-through systems. The proponent is currently utilising the open water pond system (Figure 4) and the pond is not lined with plastic since the project site consists of clay soil which is good in water retention. The project site is a stone through away from the canal that brings water from Ruacana to supply Etunda Irrigation and the surrounding agricultural projects. Hence, water will be sourced from the canal. For backup purposes, the proponent plans to drill a borehole close to the fishponds. The supply of water to the ponds can easily be rated as 100 % reliable.



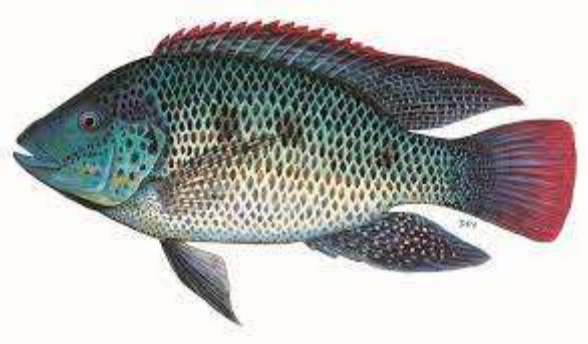

**Figure 7: The open water pond system design**

Open water pond system typically has little short-term water exchange. Microscopic algae produce dissolved oxygen in the presence of sunlight but consumes dissolved oxygen through respiration. Fish feed and waste provides pond nutrients which stimulates algae or “algae blooms.” Pond cycles nutrients – most importantly is phosphorus for algae production. Algae and fish populations must be managed at the same time.

### 2.5.3 Species Selection

In general, aquaculture policy in countries in Southern Africa favours culturing their indigenous species for environmental and biodiversity concerns. Various indigenous species that are cultured by small-scale farmers include Mozambique tilapia (*O. mossambicus*), three spotted tilapia (*O. andersonii*), red breasted tilapia (*Tilapia rendalli*), common carp (*Cyprinus carpio*) and North African catfish (*Clarias gariepinus*). For this project, only North African Catfish (*Clarias gariepinus*) and the Three Spotted Tilapia (*Oreochromis andersonii*) will be considered. These species were evaluated based on certain criteria such as climatic suitability, aquaculture method, ease of husbandry, marketability, and profitability. The fingerlings of both species will be procured from the Onavivi Hatchery. The characteristics of both species are presented in the table below.

**Table 3: Characteristics of the Species**

Three Spotted Tilapia ( <i>Oreochromis andersonii</i> )	North African Catfish ( <i>Clarias gariepinus</i> )
	
<ul style="list-style-type: none"> <li>• Fast growing.</li> <li>• Its diet is mostly vegetarian diet which makes economic to farm.</li> <li>• They quickly adapt to change of environment.</li> <li>• It has higher amount of omega 3 fatty acid than other meats including chicken, pork and beef.</li> <li>• The male tilapia grows twice faster than the female.</li> </ul>	<ul style="list-style-type: none"> <li>• It grows fast.</li> <li>• Feeds on a large variety of agriculture by-products.</li> <li>• It tolerates difficult conditions in aquaculture.</li> <li>• It is hardy and tolerates adverse water quality conditions.</li> <li>• It matures and relatively easily reproduces in captivity.</li> </ul>

## 2.5.4 Socio-economic benefits of Aquaculture project

The project will provide employment for the local people in Okashaningwa village and contribute to the local economy of the Ruacana town and beyond. The EIA evaluated the potential social, economic, and environmental impacts associated with the intended operations, maintenance, expansion and decommissioning to provide mitigation measures on potential impacts towards the natural environment. If decommissioning occurs, the land can be reclaimed for other purposes such as livestock farming, etc. Efforts of rehabilitation of the area will ensure that the ground attains the surrounding topography of contour levels after the activities have ceased as stipulated in the EMP. Thus, reducing the negative impacts.

## 2.6 Project Alternative Assessment

The EIA Regulations stipulates that the EIA process should investigate alternative development options. The following alternatives were considered.

- **No - Go Alternative:** This is a baseline against which all alternatives are assessed. This would essentially entail maintaining the current project status quo, whereby the proponent continues operating the operational fishpond with no expansion and without an EMP in place thus increasing the potential harmful impacts on the environment. Additionally, the activities may cease to exist which will have a negative economic and social impact on the Okashaningwa village, the Ruacana and the surrounding villages. The residents will also not benefit from employment opportunities created by the fish farm activities if they cease.
- **Land-use Alternative:** The proponent considers this piece of land as the most viable for expansion since the area already has an existing pond and the plot is owned by the proponent. The area measures approximately 2.2ha in size and can accommodate all the eight (8) fishponds.

## 2.7 Access to the Site

The project's sized 2.2ha plot lies 16km from the C46 Road (Outapi – Ruacana road) and it is approximately 200 meters east of the Etunda Irrigation Project, on the **-17.485862° S, 14.53993° E** coordinates. The project site can be easily accessible from the existing gravel road to the Etunda Irrigation Project (south) and to Etunda village. The cellular network in the area is quite strong as there are satellites near the project site to boost the connectivity and communication.

## **2.8 Sewage and wastewater**

Sewage will be removed from the site toilets by the sewer removal vehicles at regular intervals for safe disposal at the Ruacana oxidation ponds or alternatively a modern septic tank unit should be installed on site to handle the sewerage such as ECO Smart Integrated Fixed Film Activated Sludge and Moving Bed Biological Reactors Wastewater Treatment System. These systems are a self-contained sewage treatment that utilizes a combination of anaerobic as well as aerobic biological processes, combined with an absorption filtration system to treat wastewater generated onsite.

## 3. PUBLIC PARTICIPATION

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### 3.1 Overview

Public Consultation forms an important component of the Environmental Assessment process. It is defined in the EIA Regulations (2012), as a “*process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to, specific matters*” (S1). Section 21 of the Regulations details steps to be taken during a given public consultation process and these have been used in guiding our process.

Formal public involvement has taken place via public consultations and focal meetings, newspaper advertisements to inform the public regarding the project. The public consultation process has been guided by the requirements of Environmental Management Act (EMA) No. 7 of 2007 and the process has been conducted in terms of regulation 7(1) as well as in terms of the EMA Regulations of GN 30 of 6 February 2012 and the World Bank EIA standards.

Its overriding goals have been to ensure transparency in decision making and to:

- ✓ Ensure stakeholder concerns are incorporated in project design and planning;
- ✓ Increase public awareness and understanding of the project and
- ✓ Enhance positive development initiatives through the direct involvement of affected people.

The objective of the public participation is to build credibility through instilling integrity and of conducting the EIA. Educate the stakeholders on the process to be undertaken and opportunities for their involvement. Build stakeholders by establishing an agreed framework accordingly. This requires accessible, fair, transparent and constructive participation at every stage of the process. Inform stakeholders on the proposed project and associated issues, impacts and mitigation and using the most effective manner to disseminate information.

### 3.2 Notification and Invitations

Potential interested and affected parties (I&APs) were notified through newspaper advertisements and public notices which provided brief information about the proposed project and the EIA process. Public notices were advertised twice in two local newspapers; New Era 28<sup>th</sup> May 2021 and 04<sup>th</sup> June 2021 and the Confidante newspaper for 27<sup>th</sup> May 2021 and 03<sup>rd</sup> of June 2021 (see Appendix C). Various public notices were also displayed at public notice boards within Oshakati and at the project site. Residents were also invited by the village headman through the local radio station.

### 3.3 Public Meeting

A public meeting was held on the 12 June 2021 at the Okashaningwa village, next to the project site at 16H00. During the meeting, the EAP and the proponent, Mr. Ismael Kapuka, gave a presentation on the intended development and the EIA study being undertaken. Attendees were requested to ask questions and give their inputs on the proposed development. These inputs were compiled and will be incorporated in the Scoping report.



Figure 8: Photograph taken during the public meeting

## 4. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

### 4.1 Overview

The pursuit of sustainability by an organization is operationalized by a sound policy and legislative framework that gives operating parameters within its sphere of operation. An important part of the EIA is identifying and reviewing the administrative, policy and legislative situation concerning the proposed activity, to inform the proponent about the requirements to be fulfilled during the operations, expansion, maintenance and decommissioning of the lifespan of the project.

This section looks at the legislative framework within which the project will operate under. The focus is on the compliance with the legislation during all phases of the project. Relevant legislations, policies and international statutes applying to the project are highlighted in the table below as specified in the Environmental Management Act, 2007 (Act No.7 of 2007) and the regulations for Environmental Impact Assessment as set out in the Schedule of Government Notice No. 30 (2012).

The proposed project will trigger activities listed under the Environmental Management Act, No. 07 of 2007 and its Regulations (No. 03 of February 2012) as stipulated in the table below.

**Table 4: Listed Activity triggered by the project**

Proposed activities	Listed activities triggered
<b>Aquaculture activities</b>	<b>No. 7. Agriculture and Aquaculture activities</b> 7.1 Construction of facilities for aquaculture production, including Mariculture and algae farms where structures are not situated within aquaculture development zone declared in terms of the Aquaculture Act, 2002



## 4.2 Legal Instruments

Table 5: Legislative, Policy and Administrative Framework

Legislation			Relevant Provisions	Relevance to the Project
<b>Namibian Constitution Amendment Act 34 of 1998</b>	<b>First</b>		<ul style="list-style-type: none"> <li>– “The State shall actively promote and maintain the welfare of the people by adopting policies that are aimed at maintaining ecosystems, essential ecological processes and the biological diversity of Namibia. It further promotes the sustainable utilisation of living natural resources basis for the benefit of all Namibians, both present and future.” (Article 95(I)).</li> </ul>	<ul style="list-style-type: none"> <li>– Sustainable development should be at the forefront of the management of the fish farm activities.</li> <li>– Through implementation of the environmental management plan, the proponent will ensure conformity to the constitution in terms of environmental management and sustainability.</li> </ul>
<b>Environmental Management Act 7 of 2007</b>			<ul style="list-style-type: none"> <li>– Requires that projects with significant environmental impacts are subject to an environmental assessment process (Section 27).</li> <li>– Requires for adequate public participation during the environmental assessment process for interested and affected parties to voice their opinions about a project (Section 2(b-c)).</li> <li>– Detail’s principles which are to guide all EIAs.</li> </ul>	<ul style="list-style-type: none"> <li>– This Act and its regulations should inform and guide this EIA process.</li> </ul>
<b>EIA Regulations GN 57/2007 (GG 3812)</b>			<ul style="list-style-type: none"> <li>– Identifies and lists activities that cannot be undertaken without an ECC being obtained (GN 29).</li> <li>– Details requirements for public consultation within a given environmental assessment process (GN No 30 S21). <sup>[1]</sup><sub>SEP</sub></li> <li>– Details the requirements for what should be included in a Scoping Report (GN No 30 S8) an EIA report (GN No 30 S15).</li> </ul>	<ul style="list-style-type: none"> <li>– This Act and its regulations should inform and guide this EIA process.</li> </ul>
<b>Aquaculture Act 18 of 2002 and the</b>			<ul style="list-style-type: none"> <li>– This Act is the primary legal framework for the aquaculture</li> </ul>	<ul style="list-style-type: none"> <li>– The management of this project should be informed</li> </ul>

<b>Aquaculture (Licensing) Regulations adopted in 2003</b>	<p>industry in Namibia and provides for the establishment, administration and conduct of aquaculture in water and on land.</p> <ul style="list-style-type: none"> <li>- The Act regulate and control aquaculture activities; to provide for the sustainable development of aquaculture resources; and to provide for related matters.</li> <li>- The Act applies to matters related to licensing, health management, disease control, access to land and water and environmental protection.</li> </ul>	<p>by the Aquaculture Act and its Regulations.</p>
<b>Pollution and Waste Management Bill (draft)</b>	<ul style="list-style-type: none"> <li>- This bill defines pollution and the different types of pollution. It also points out how the Government intends to regulate the different types of pollution to maintain a clean and safe environment.</li> <li>- The bill also describes how waste should be managed to reduce environmental pollution. Failure to comply with the requirements considered an offence and is punishable.</li> </ul>	<ul style="list-style-type: none"> <li>- The project is being executed in harmony with the requirements of the act to reduce negative impacts on the surrounding environs from waste pollution within regional boundaries.</li> </ul>
<b>Soil Conservation Act 76 of 1969</b>	<ul style="list-style-type: none"> <li>- This act makes provision for combating and for the prevention of soil erosion, it promotes the conservation, protection and improvement of the soil, vegetation, sources and resources of the Republic of Namibia.</li> </ul>	<ul style="list-style-type: none"> <li>- The soil should not be polluted or left unrehabilitated during and after the fish farm operations cease.</li> </ul>
<b>Atmospheric Pollution Prevention Ordinance, 1976</b>	<p>The Act aims at managing air quality, mineral waste, biodiversity and health and safety.</p>	<ul style="list-style-type: none"> <li>- The pollution of water resources should be avoided during the operations of the fish farms.</li> </ul>
<b>Water Act 54 of 1956</b>	<ul style="list-style-type: none"> <li>- The Water Resources Management Act 24 of 2004 is presently without regulations; therefore, the Water Act No 54 of 1956 is still in force:</li> <li>- Prohibits the pollution of underground and surface water bodies (S23(1)).</li> </ul>	<ul style="list-style-type: none"> <li>- The pollution of water resources should be avoided during the operations of the fish farms.</li> </ul>

	<ul style="list-style-type: none"> <li>- Liability of clean-up costs after closure/ abandonment of an activity (S23(2)).</li> <li>- Protection from surface and underground water pollution</li> </ul>	
<b>Water Resources Management Act No. 11, 2013</b>	<p>This Act provides for the management, protection, development, use and conservation of water resources and the regulation and monitoring of water services and for incidental matters.</p> <p>(Department of Water Affairs).</p>	<ul style="list-style-type: none"> <li>- The pollution of water resources should be avoided during the operations of the fish farms.</li> </ul>
<b>Labour Act (No 11 of 2007) in conjunction with Regulation 156, 'Regulations Relating to the Health and Safety of Employees at work'.</b>	<ul style="list-style-type: none"> <li>- This act emphasizes and regulates basic terms and conditions of employment, it guarantees prospective health, safety and welfare of employees and protects employees from unfair labour practices.</li> </ul>	<ul style="list-style-type: none"> <li>- The proponent will employ several people from the local and shall ensure securing a safe environment and preserving the health and welfare of employees at work.</li> </ul>
<b>Public Health and Environmental Act, 2015</b>	<ul style="list-style-type: none"> <li>- The Act provides a framework for a structured uniform public and environmental health system in Namibia.</li> <li>- Under this act, in section 119: "No person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health."</li> </ul>	<ul style="list-style-type: none"> <li>- The fish farm operations will ensure that there is adequate compliance to the Act through strict compliance to prevention of public hazard nuisance.</li> <li>- It is however imperative to note that the project itself is a positive drive towards preservation and protection of public health.</li> </ul>
<b>National Heritage Act 27 of 2004</b>	<ul style="list-style-type: none"> <li>- Section 48(1) states that "A person may apply to the Namibia Heritage Council (NHC) for a permit to carry out works or activities in relation to a protected place or protected object"</li> </ul>	<ul style="list-style-type: none"> <li>- Any heritage resources discovered would require a permit from the NHC for relocation.</li> </ul>
<b>Convention on Biological Diversity (1992)</b>	<ul style="list-style-type: none"> <li>- Article 1 lists the conservation of biological diversity amongst the objectives of the convention.</li> </ul>	<ul style="list-style-type: none"> <li>- The fish farm should consider the impact it will have on the biodiversity of the area.</li> </ul>

## 5. DESCRIPTION OF THE ENVIRONMENT

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Baseline information for the proposed project site and the Omaruru town at large was reviewed in order to assess environmental aspects of the area in relation to EIA Scoping process as required by the EMA Act No. 7 of 2007. These includes both the socio-economic aspects and biophysical aspects; these are described in detail below.

### 5.1 Social Environment

#### 5.1.1 About the town

Ruacana is a town in Omusati Region, northern Namibia and the district capital of the Ruacana electoral constituency. It is located on the border with Angola on the river Kunene. The town is known for the picturesque Ruacana Falls nearby, and for the Ruacana Power Station. The 600 hectares farm Etunda is situated near Ruacana. It is run as a government supported irrigation scheme and has been established in 1993. Half of the farm is a commercial irrigation land, the other half is allocated to 82 small-scale farmers. Etunda cultivates maize, wheat, watermelons, bananas, and other produce.

Ruacana has no formal invocations of heritage in the form of museums memorials or monuments. However, it does have a claim to natural heritage through the waterfalls, and a heritage of an ethnicity from groupings known as Zemba, Ndonguena and Himba. Ruacana remains known largely as a tourist destination and is used as a signpost to other popular tourist destinations. The road, electricity and water infrastructure services are active in the town and nearby villages. These ethnicity groups affiliate themselves with livestock trading (Kapuka, 2014; Vigne, 2001). This region is well connected to other towns by road. Telecommunication receptions are covered by Mobile Telecommunication Company and Telecom Namibia.

There are several other primary schools and secondary schools such as Ombuumbu Secondary School, Tjihozu Primary School and Ruacana Vocational High School. There is 1 health facility and 3 clinics. There are about 28,018 people out of which 8,000 of the population reside in Ruacana Town and 20,018 live in rural areas. It is situated 75 km from Outapi Town and shares borders with the Republic of Angola in the north and Kunene Region in the south. It is a semi-arid Constituency and rocky in the south with a river and waterfalls. Oshifo is the Administrative Centre of the Constituency.

The Okashaningwa village where the project is located is in the Ruacana Constituency of the Omusati Region. The Okashaningwa village is made up of mixed land uses consisting of traditional homesteads. Etunda irrigation project and the first Asparagus project are also found in the area. Due to the presence of the water canal supplying water to the Etunda irrigation project, the area is home to several privately owned vegetables gardens.



Figure 9: Overview of the Okashaningwa village and surrounding

Outapi-Ruacana Main Road serves as the means of transportation of the people, goods, and services. The Ruacana-Omakange Road connects the Constituency to the Kunene Region. There is also an airstrip which is currently under the renovation to facilitate flights between Kunene Province and the Republic of Namibia, through the Ruacana Constituency.

### 5.1.2 Economic activities

Most of the population engage in livestock farming, especially with cattle, goats and sheep. This is attributable to the fact that the area mainly consists of forestry. However, the minority of the population is involved in crop farming, particularly maize. Most of the Constituency is covered by mopani trees which are usually used for constructing traditional households. Due to its beautiful sceneries, the Region continues to attract both local and foreign tourist, especially those who wish to enjoy the beauty of Otjipahuriro Waterfront and Ruacana Waterfall. The Constituency is ever flooded by tourists during the December holiday. In addition, the Town has accommodation facilities such as Eha Lodge and Majaju Guesthouse. The wild animals such as hyenas, elephants, jackals and lions are found, to mention but a few.

Like in other Constituencies, local population is engaging in trading at both formal and informal markets. There are shops and cuca shops which provide essential goods and services to local population, including those residing in the Republic of Angola. There is a Multipurpose Centre, an airstrip, magistrate court, service station and sport facility. There are two Police Stations, two

Sub-Police Stations and an Army Base in the Constituency. There are Namwater pipelines in the Constituency. Most public Institutions and households in the radius of 10 km are connected to the NamWater pipelines. All other inhabitants and institutions are using boreholes as the only source of water. Ruacana Hydro Power Station in Ruacana Constituency produces about 341 megawatts. Its operation continues to supply the much-needed electricity to most parts of the country and thereby promoting industrialization. Currently, Ruacana Hydro Power Station operates with 4 turbines generators with the capacity to produce 340 megawatts.

## 5.2 Biophysical Environment

### 5.2.1 Climate conditions

Ruacana and the surrounding areas are located at about 1 141 metres above sea level with a semi-arid climate that receives on average 426 mm summer rainfall per annum, although in the 2010/2011 rainy season 960 millimetres were measured. The area is characterized by high temperatures. The region falls under a very flat hydro- geological Cuvelai Basin dipping from some 1150 m above sea level in the northeast to 1080 metres above sea level in Etosha Pan. The rainfall decreases from 600 mm in the northeast to 300 mm in the west.

The relatively high and reliable average rainfall allows for crop farming. After rain season, innovative irrigation systems are being utilized by locals to produce agricultural products. The ground water in the west and south of the Region is sweet and shallow i.e. 10-20 meters from surface. During droughts, pits are dug and serve as reliable sources of water. The rest of water sources in the Region is predominantly saline.

### 5.2.2 Topography and Landscape

The landscape of the Region is made up of mopane trees which is a dominant specie and spreads across the Region on shallow sand. The sandy parts of the Region bears abundant makalani palms '*omilunga*', fig trees '*omikwiyu*', baobab trees '*omikwa*' and marula trees '*omigongo*', especially in the eastern part. The topography of Omusati Region is mostly flat (with the exemption of Ruacana area towards the Angolan border that is punctuated by mountains and rolling hills). The combination of flat topography, sandy soils and the ephermal flow in the drainage channels has produced a poorly developed drainage system comprising interconnected ephermal pans and wise, shallow watercourses as oshanas. The project area is relatively flat and is overlain by relatively flat soils. The topography of Okashaningwa village and the surrounding area of Omusati region are characterized by flat plains which form part of the Etosha depression.

### 5.2.3 Hydrogeology and Geology

Geological analysis of the region revealed that the region is floored by mid-Proterozoic crustal rocks of the Congo Craton and contains possibly as much as 8 000 m of sedimentary rocks of the Nosib, Otavi and Mulden Groups of the lateProterozoic Damara Sequence, 360 m of Karoo rocks and a blanket of semi-consolidated to unconsolidated Cretaceous to Recent Kalahari Sequence sediments up to 600 m thick (Mafuta, 2017).

The aquifers in the northern area of the Omusati region however belong to the Kalahari sequence. The sediments of the Kalahari sequence mainly consist of sand, clay, and limestone with high subsoil sediment salinity due to the deterioration of the water quality coming from the center of the basin. The Cuvelai Basin which hosts the project area consists of thousands of drainage channels or oshanas which flow during the rainy season. These oshanas are shallow, often vegetated and poorly defined, interconnected flood channels and pans through which surface water flows slowly or may form pools depending on the intensity of the floods (“efundja”) (GCS Water and Environmental Consultants, 2019).

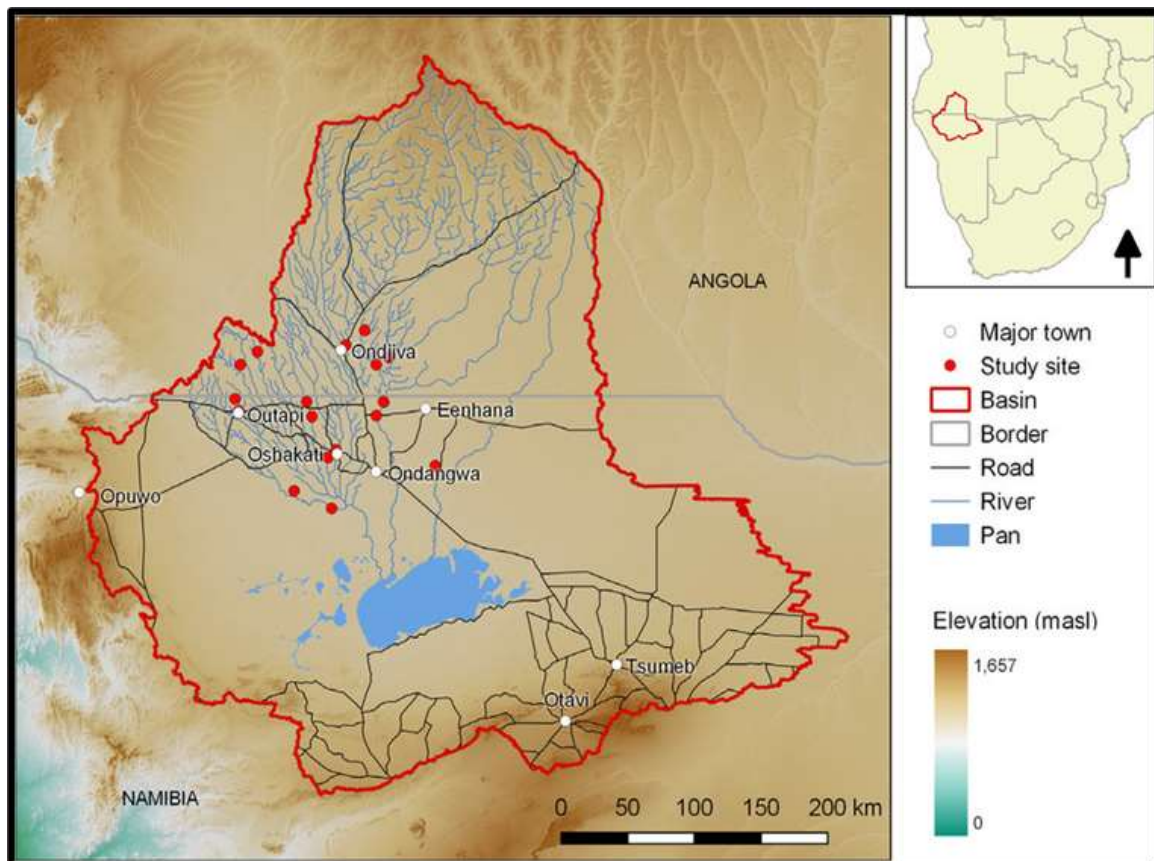


Figure 10: Hydrological features of Cuvelai Basin

## 5.2.4 Soil and water supply

The area also falls within the Cuvelai landscape which lays on silt, clay limestone and sandstone sediments. Soils in the Kunene valley alongside the river are alluvial and offer opportunities for cropping. The eastern part of the Focal Landscape is generally flat and marks the western side of the Cuvelai Basin. Soils are classified as ferralic arenosols, being very sandy, reddish and are extensively cultivated. There are Namwater pipelines in the Constituency. Most public Institutions and households in the radius of 10 km are connected to the NamWater pipelines. All other inhabitants and institutions are using boreholes as the only source of water.





Figure 11: Local occurring soil type

### 5.2.5 Fauna and Flora

The eastern Omusati Region area makes up part of the 'Western Kalahari' landscape (Mendelsohn, et al., 2013), which is an open woodland but quite intensively populated and cultivated so most of the woodland is now converted to agricultural land. This area falls in the Agro-Ecological Zone known as 'Kalahari sands plateau' and is the most productive for cropping in the landscape. The project site is a disturbed area due to previous cultivation activities. No clearing will be done on the project site. The affected vegetation of the project site is characterized by mixed trees and shrub species and noticeable plant species occurring in the area which are mainly: *Colophospermum mopane*, *Acacia hebeclada*, and *Aristida congest* and *Pechuel-Loeschea leubuitziae*.



Figure 12: Local occurring fauna

Expected animal included both domestic animals such as cattle, sheep, goats and donkeys and abundance of wildlife consisting of both large and small animals. Other fauna expected are reptiles, birds, amphibians and mammals. The proposed site is not habitant to any known threatened or endangered species.

# 6. IMPACTS ASSESSMENT

## 6.1 Overview

The EIA Regulations require “a description of the significance of any significant effects, including cumulative effects, which may occur as a result of the undertaking of the activity”. This chapter describes the assessment methodology utilised in determining the significance of the management, location and operational impacts of the fish farm. Cubia Green Fields cc will implement an Environmental Management Plan (EMP) to prevent, minimise and mitigate negative impacts. The environmental management plan is being developed to address all the identified expected impacts, the plan will be monitored and updated on a continuous basis with aim for continuous improvement to addressing impacts.

## 6.2 Assessment of Impacts

This section sets out the overall approach that was adopted to assess the potential environmental and social impacts associated with the project. To fully understand the significance of each of the potential impacts each impact must be evaluated and assessed. The definitions and explanations for each criterion are summarised in the table below.

**Table 6: Assessment Criteria**

<b>Duration – What is the length of the negative impact?</b>	
None (N)	No Effect
Short (S)	Less than one year
Moderate (M)	One to ten years
Permanent (P)	Irreversible
<b>Magnitude/Intensity – What is the effect on the resource within the study area?</b>	
None (N)	No Effect
Small (S)	Affecting less than 1% of the resource
Moderate (M)	Affecting 1-10% of the resource
High (H)	Affecting greater than 10% of the resource
<b>Spatial Extent – what is the scale of the impact in terms of area, considering cumulative impacts and international importance?</b>	
Local (L)	In the immediate area of the impact
Regional / National (R)	Having large scale impacts
International (I)	Having international importance
<b>Type – What is the impact</b>	
Direct (D)	Caused by the project and occur simultaneously with project activities
Indirect (ID)	Associated with the project and may occur at a later time or wider area
Cumulative (C)	Combined effects of the project with other existing / planned activities
<b>Probability</b>	

Low (L)	<25%
Medium (M)	25-75%
High (H)	>75%

Adopted from IFC (2012)

**Table 7: Impact Significance**

Class	Significance	Descriptions
1	Major Impact	Impacts are expected to be permanent and non- reversible on a national scale and/or have international significance or result in a legislative non- compliance.
2	Moderate Impact	Impacts are long term, but reversible and/or have regional significance.
3	Minor	Impacts are considered short term, reversible and/or localized in extent.
4	Insignificant	No impact is expected.
5	Unknown	There are insufficient data on which to assess significance.
6	Positive	Impacts are beneficial

Adopted from IFC (2012)

**Table 8: Environmental Impacts and Aspects Assessment: Construction Phase of the new fish ponds**

ASPECT	POTENTIAL IMPACTS	Impact Assessment (before mitigation(if it does occur))					
		Duration	Intensity	Extent	Type	Probability	Significance
<b>1. Bio-physical</b>	• Landscape alteration	P	S	L	D	L	Moderate
	• Habitat fragmentation	P	S	L	D/ID	L	Moderate
	• Impact on fauna and livestock	S	M	R	D/ID	M	Moderate
	• Impact on the Soil	S	S	L	ID	L	Minor
	• Impact on groundwater	S	N	L	ID	L	Minor
	• Impact on archaeological setting	N	N	L	D	L	Minor
	• Air quality	S	M	L	D	M	Moderate
	• Noise and vibration	S	M	L	D	M	Moderate
<b>2. Socio-economic</b>	• Land use conflicts	M	S	R	ID	L	Unknown
	• Archeological impact	P	M	L	D/ID	L	Unknown
	• Traffic impacts	S	N	L	ID	L	Minor
	• Waste Management	S	S	L	D/ID	L	Minor
	• Occupational Health Risk	S	M	L	ID	L	Minor
	• Employment opportunity (+ve)	M	H	R	D/ID/C	M	Positive
	• Business prosperity	M	H	R	D/ID/C	M	Positive

**Table 9: Environmental Impacts and Aspects Assessment: Operation Phase**

ASPECT	POTENTIAL IMPACTS	Impact Assessment (before mitigation(if it does occur))					
		Duration	Intensity	Extent	Type	Probability	Significance
<b>1. Bio-physical</b>	• Damage to the landscape during maintenance and operation	P	S	L	ID	L	Minor
	• Impact on surface water resources	S	S	L	D	L	Minor
	• Impact of visual and sense of place	P	S	L	D/ID	L	Moderate
	• Waste Management	H	M	L	D	M	Moderate
	• Impact on livestock and other fauna	H	M	R	D/ID	M	Moderate
	• Soil contamination	P	H	L	D	M	Moderate
	• Risk of groundwater contamination	H	N	L	ID	L	Moderate
	• Dust generation during operation	S	M	L	D	M	Moderate
	• Noise during operation	S	M	L	D	L	Minor
<b>2. Socio-economic</b>	• Land use conflicts	M	S	R	ID	L	Unknown
	• Traffic impacts	S	N	L	ID	L	Minor
	• Occupational Health Risk	S	M	L	ID	L	Minor
	• Employment opportunity (+ve)	M	H	R	D/ID/C	M	Positive
	• Business prosperity	M	H	R	D/ID/C	M	Positive

## **6.3 Mitigation Measures**

There is a mitigation hierarchy of actions which can be undertaken to respond to any proposed project. These cover avoidance, minimization, restoration, and compensation. When negative impacts occur then the recommended potential mitigation measures be followed.

### **a) Impact on Fauna and Flora**

Prevent contractors from collecting wood, veld food during the construction phase. Keep individual trees/shrubs not directly affecting the project. Fencing should allow the for smaller animals to enter and move freely into and out of the periphery of the site.

### **b) Surface Water Impact**

It is recommended that construction takes place before or after the rainy season to limit flooding on site and surface water pollution. No dumping of waste products in and in proximity to the surface water bodies. Heavy construction vehicles should be kept limited to the existing roads and tracks. Drip trays must be placed underneath all construction vehicles when not in use to contain all oil that might be leaking from these vehicles. During operation, contaminated runoff from the various activities should not allowed to enter any surface water bodies and should be properly managed. Ensure that surface water accumulating on site is channeled and captured through a storm water management system to be treated in an appropriate manner before disposal into the environment.

### **c) Ground Water Impacts**

Contaminated runoff from the construction sites should be prevented from entering the ground water bodies. Disposal of waste from the sites should be properly managed and disposed off properly. There should be ablution facilities available for construction workers and should not allow any possible contact with ground water resources. Washing of personnel or equipment should not be permitted on site. Ensure regular inspections and maintenance of equipment.

### **d) Soil Impacts**

It is recommended that construction takes place before and after rainy season to limit possible flooding and the runoff loose soil possibly causing erosion. Appropriate erosion control structure must be put in place where soil may be prone to erosion. Any evidence of erosion, investigations must be carried out at regular intervals to identify areas when it is occurring.

### **e) Heritage Impacts**

There is no major historical activity known to have taken place in proximity to the project site. The proponent should however contact the National Heritage Council of Namibia in events of finding archaeological items.

#### **f) Health, Safety and Security Impacts**

No personnel should overnight on site, except the security personnel. Ensure that all personnel are trained depending on the nature of their work. Provide first aid kit and properly train personnel to apply when necessary. Restrict unauthorized access to the site and implement access control measures. The contractor must comply with all application occupational health and safety requirements. The personnel should be provided with all necessary Personnel Protective Equipment. Health programs should be initiated to raise awareness on health issues such as sexually transmitted diseases and Covid-19. No go areas should be clearly demarcated. Visitors and personnel on site must be fully aware of all health safety measures and emergency procedures.

#### **g) Traffic Impacts**

Limit and control the number of access roads to the site during construction. All road users should adhere to the speed limit. Traffic control measures and signage should be implemented where necessary. Construction vehicles should be in a road worthy condition and maintained throughout the construction phase.

#### **h) Noise Impacts**

No loud music should be allowed on site and all areas where noise levels are above 85 dB should be managed and controlled in accordance with the Labour Act. Limit construction work time to acceptable daylight hours e.g., 08H00 – 17H00. Immediate neighbours should be informed regarding the construction activities before commencement. Install technology such as silencers on construction machinery. Monitoring of noise levels should be conducted to make sure noise levels do not exceed acceptable limits.

#### **i) Dust and Emission Impact**

Construction vehicles should only use the demarcated roads and tracks. No construction work should be done when there are high wind conditions. Cover any stockpiles with plastics to minimize windblown dust. Provide personnel with appropriate Personnel Protective Equipment such as dust masks. The air quality in the area is good, nonetheless during operations emissions may result from the movement of vehicles. These are however expected to have insignificant impacts when properly managed.

#### **j) Land Use Impact**

Maintain the grass and small shrubs found on site to blend in the existing subsistence farming activities ongoing in the area.

### **k) Visual Impact**

It is recommended that if residential developments in future, consideration should be given to create a buffer zone between the aquaculture and agricultural activities and the neighborhood.

### **l) Existing Services Infrastructure**

The project will make use of existing infrastructure regarding water and electricity. Electricity demand for the expansion activities will be provided by the Northern Regional Electricity Distributer (NORED). Water will be abstracted from the existing NamWater canal. All required permits will be secured from the relevant authorities.

### **m) Social Impact**

The project is expected to be the main economic driver in the village and surroundings. It is expected to provide job opportunities during the construction and operational phases targeting the locals. The operational lifespan of the project is not yet determined provided that the demand for fish will prevail. The project will also harness business opportunities, skills development and on the training.

### **n) Cumulative Impact**

If all proposed mitigation measures brought forward are considered, this can minimize the overall impacts. Hence, the cumulative impacts can be expected as minor for the operations, expansion, maintenance and decommissioning of the aquaculture (fish farm).



# 7. CONCLUSION AND RECOMMENDATIONS

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## 7.1 Conclusion

Arising from the analysis by the consultants, the proposed project is going to create permanent land use change on the proposed project site. Land development should take place, but there should not be environmental degradation, thus the EMP provides for the sustainable land development. All identified impacts were assessed and deemed to have a moderate significance impact on the environment and can be minimised with the recommended mitigation measures. There were social impacts directly and indirectly associated with increasing job opportunities and the social upliftment accompanied by economic development in the Okashaningwa village and the Ruacana Constituency.

## 7.2 Recommendations

To ensure a healthy and safe environment during the operations of the project and its environs, a plan for environmental management must be instituted through monitoring. Recommendations are stipulated below, as follows:

- Health & Security provision for personnel.
- The guidelines outlined in the EMP should be abided to during the operations and possible decommissioning of the project.
- An Environmental Control Officer (ECO) should be integrated in all phases of the project on site.
- The positive impacts associated with the project activities out way the negative impacts and
- Prepare Quarterly reports and submit to the Ministry of Environment, Forestry and Tourism.

Thus, it is recommended that the Environmental Commissioner considers issuing the Environmental Clearance Certificate for the proposed **“existing operation, expansion, maintenance and decommissioning of the Aquaculture (Fish Farming) Project at Okashaningwa Village in the Omusati Region**

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# APPENDICES

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**8.1 Appendix A: Proof of Consultation**

**8.2 Appendix B: Consent Letter from MFMR**

**8.3 Appendix C: EMP**