BACKGROUND INFORMATION DOCUMENT

Environmental Impact Assessment for the Proposed Construction and Operation of the Solar Power Plant and its Associated Infrastructure to Support the Production of Green Hydrogen at the Remainder of Farm Geluk No. 116, Erongo Region

For: Elof Hansson Hydrogen Namibia (Pty)

ECT
ENVIRONAM CONSULTANTS TRADING

TABLE OF CONTENTS

List of Figures

List of Tables

1. INTRODUCTION

1.1 Purpose of this Document

The purpose of this Background Information Document (BID) is to brief Interested & Affected Parties (I&AP's) and Stakeholders about the Environmental Impact Assessment (EIA) being undertaken for the proposed construction and operation of a Photovoltaic Solar Farm and its associated infrastructure to support the production of green hydrogen and green ammonia at Walvis Bay, Erongo Region. The BID explains the environmental assessment process, it also provides an opportunity for I&APs to register for the EIA process and to submit any initial comments or issues regarding the proposed project from a social, economic, and environmental perspective.

1.2 The Proponent

Elof Hansson Hydrogen Namibia (Pty) Ltd focuses on becoming one of the first Green Hydrogen manufacturers in Namibia. The investors/proprietaries intend to manufacture Green Hydrogen and Green Ammonia at Walvis Bay/Namibia as Namibia offers globally leading low-cost hydrogen production possibilities.

1.3 Project Description

1.3.1 Solar Farm

The production of green hydrogen will be achieved through an alkaline electrolysis process where hydrogen and oxygen in the water is split by electrical energy.

The electrolysis requires a significant amount of energy which will be produced by solar energy. A solar farm producing about 2.1 Gigawatt (GW) will be constructed. About 83% of the generated electricity will be used to power the electrolysis plant while 17% will be used to power the desalination and ammonia synthesis plants.

Separate environmental impact assessments for the desalination, electrolysis and ammonia synthesis plants are being undertaken.

1.3.2 Powerlines

The project will construct a 70km powerline from the solar farm to Farm 58, an industrial area in the town of Walvis Bay to supply electricity to the Ammonia Synthesis and desalination plants. About 17% of the total electricity generated will be transported by the powerline to Farm 58.

A desktop study complemented by site assessment to assess feasible servitudes for linear infrastructure was undertaken. The study considered environmentally sensitive areas (Welwitschia fields), topography and economic viability.

A reference line from the proposed solar farm to Farm 58 at the Ammonia Synthesis and Desalination plant was drawn as a baseline to inform other alternative routes. Any alternative that performs poorly against the reference line was automatically disregarded.

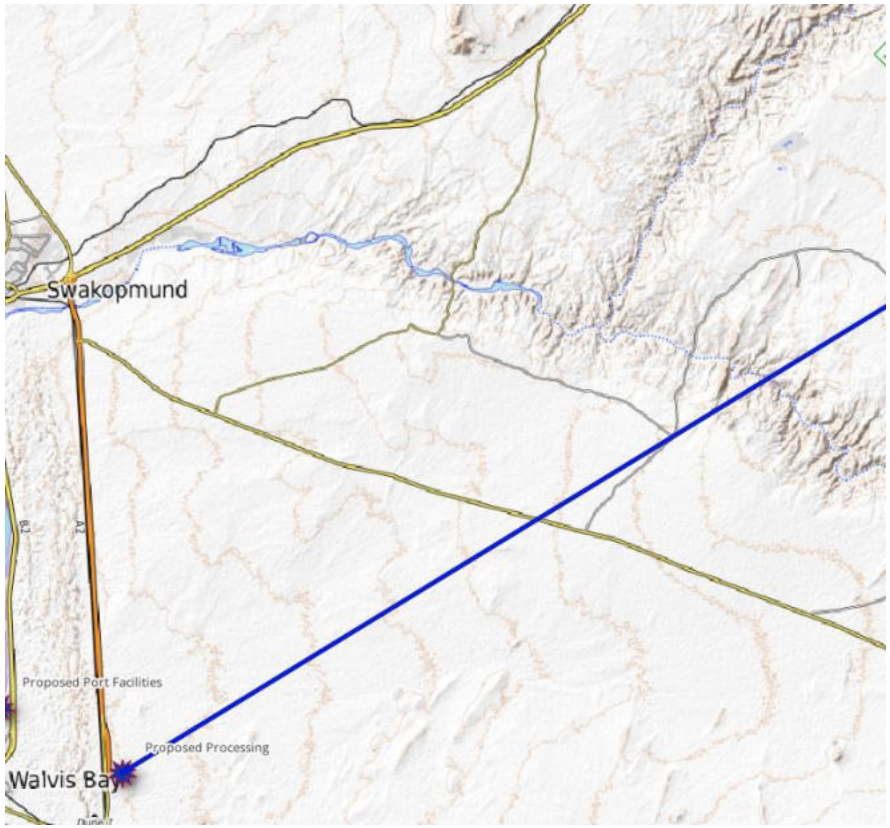

Figure 1. Reference line / Baseline between Farm 58 the solar farm.

With the available vegetation data of the Welwitschia fields, boundaries for the linear infrastructures were determined. Eventually, the topography and Swakop river crossings were the determining factors for the routes of linear infrastructure.

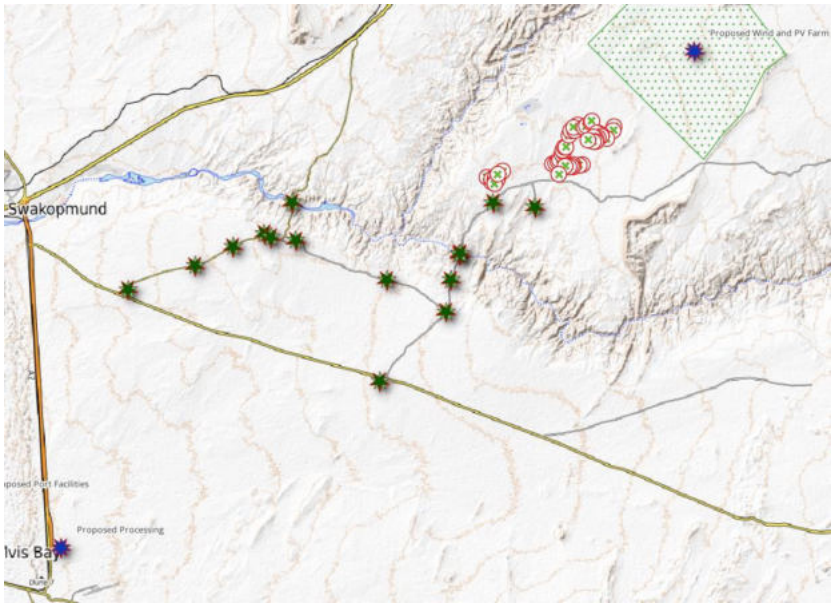

Figure 2. Map indicating the occurrence of the *Welwitschia mirabilis*

The routes were overlaid over the *Welwitschia* field and other constraints such as topography to determine their feasibility as shown in Figure **3** below. The area terrain and topography with green colours in the map below were undesirable.

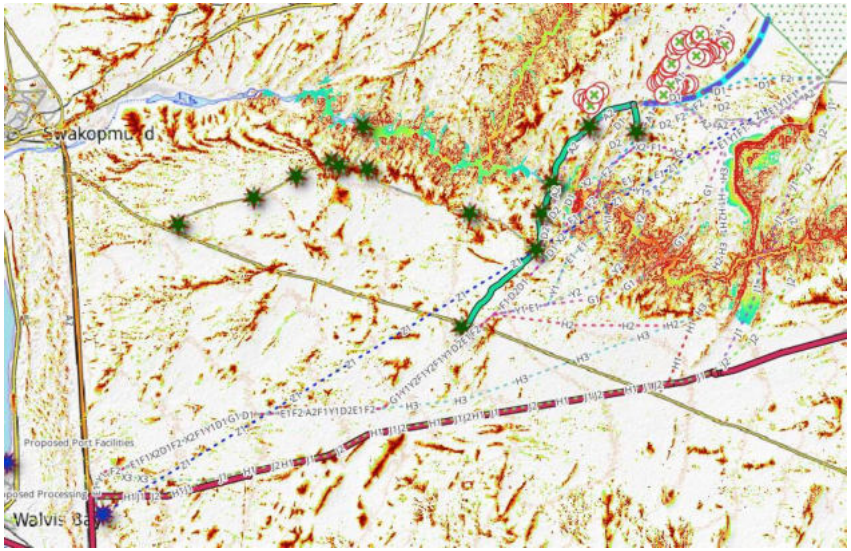

Figure 3. Map indicating constraints and routes considered

It was then concluded that, routes C & D depicted in Figure 4 below were the most feasible for the powerlines.

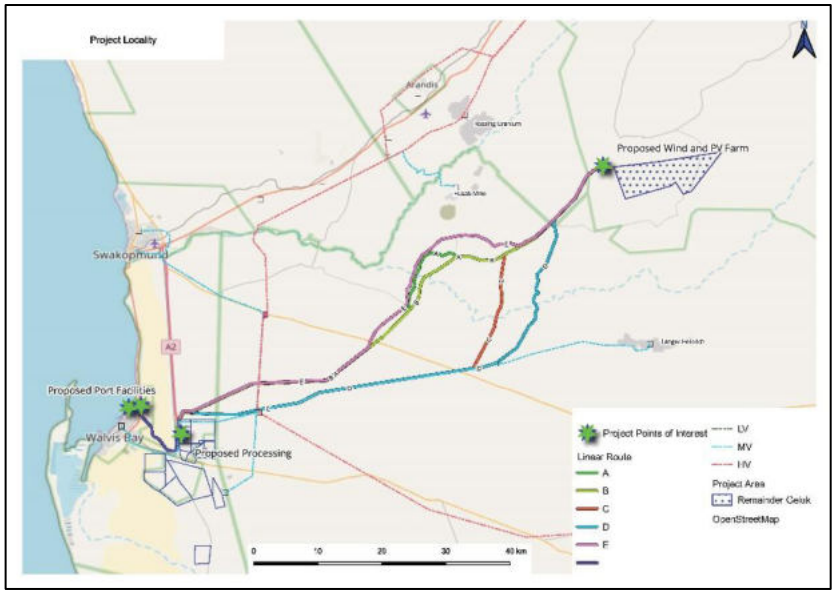

Figure 4. Map showing the project site and the proposed linear routes

Determining the preliminary routes was necessary to inform a compressive field assessment. With various uncertainty, these routes may change.

The project will have one transmission line and a neighbouring project of same size will have one transmission line as well. Thus, resulting in two transmission lines that will have a servitude of 120m wide separated by a distance of 40m and an outside reserve boundary of 40m on each transmission in line with the NamPower

requirements. A service road will be placed in between the transmission lines.

1.3.3 Substation and Battery Energy Storage System

A substation is a primary feature within any electrical grid. It enables electricity to be transmitted at different voltages, safely and effectively. Besides the substation at the solar farm, another substation will be constructed at Farm 58 about 70km from the solar farm which will feed the Battery Energy Storage System (BESS) as well as power the ammonia synthesis and desalination plants. The BESS is necessary to provide electricity during the night / when solar energy is weak. Alternatively, a hydrogen fuel cell concept is considered for supply of electricity overnight.

1.4 Project Location

1.4.1 Solar farm

The solar farm is located on a 7, 100 ha desert land on the remainder of Farm Geluk No.116, about 70km north-east of Walvis Bay (-22.551793°S, 15.349920°E) (Figure 5). To ensure energy efficiency, the proposed alkaline electrolysis plant will also be located on the remainder of Farm Geluk, as well as the distilled water storage facility.

The surrounding environment is known as Central Namib Uranium Province as it is home to some of the world's largest Uranium-producing mines namely; Husab and Rossing mines.

Figure 5. Solar Farm location and surrounding area

1.4.2 Transmission powerline

See section 1.3.2 on powerline sub-section above.

1.4.3 Substation and BESS

See section 1.3.3 on substation and Battery Energy Storage System above.

1.4.4 Overall plant concept

Figure 6 below provides an overview of the plant concept for the entire Green Hydrogen and Green Ammonia production project components.

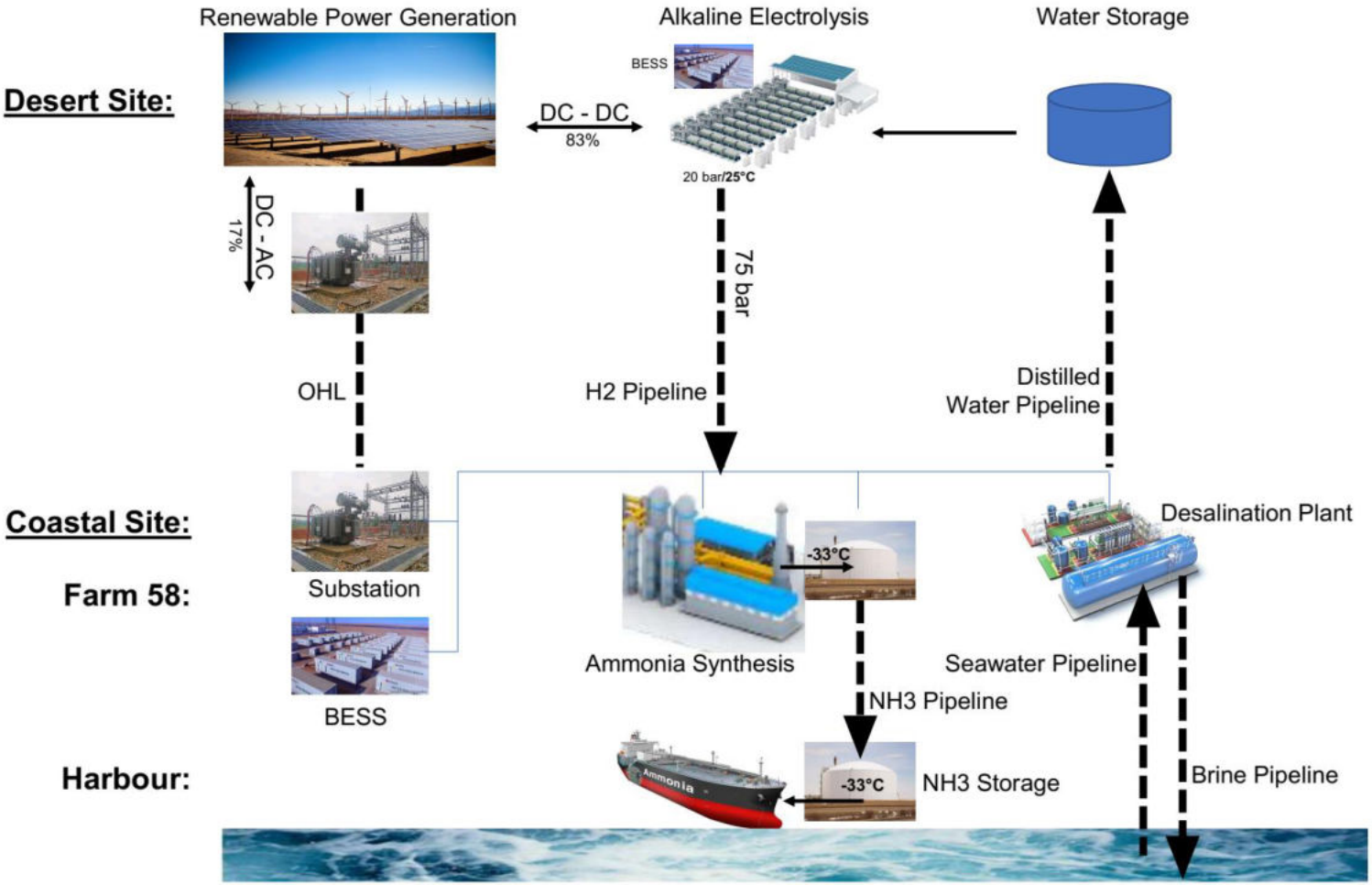

Figure 6: Overall Green Hydrogen and Green Ammonia Production Plant Concept

2 STATUTORY REQUIREMENTS

The protection of the Namibian environment is enshrined in the Namibian constitution under article 95(l)[1]. This constitutional provision provided for the enactment of the Environmental Management Act 2007 (Act No. 7 of 2007) (EMA) and its Environmental Impact Assessment Regulation, Government Gazette 6 February 2012 No. 4878.

The EMA promotes the sustainable management of the environment and the use of natural resources by establishing principles for decision making on matters affecting the environment. Government institutions, private persons, companies, institutions and organisations when planning for activities that may have significant impacts on the environment. The EMA provides for a process of assessment and control of activities which may have significant effects on the environment; and to provide for incidental matters.

Section 27(2)(b) of EMA provides a list of activities that may not be undertaken without and Environmental Clearance Certificate (ECC). The proposed generation of energy by solar is a listed activity that may not be undertaken without an ECC as indicated in Table 1 below.

Table 1. Identified listed activities for the proposed solar farm.

Environmental Impact Assessment Regulation 2012 GRN Gazette No. 4878	
Activity	**Applicability to the project**
1 (a) The construction of facilities for: the generation of electricity;	The proposed solar farm will generate 2.1GW electricity
1. b) the transmission and supply of electricity	The proposed solar farm will be supported by the transmission lines and supply electricity to different components of the green hydrogen and green ammonia production

3 OVERVIEW OF THE AFFECTED ENVIRONMENT

3.1 Solar Farm

The solar farm at Farm Geluk is located near Uranium mines and various other mining activities. The Strategic Environmental Assessment (SEA) for the central Namib indicates that the area is suitable for mining and other industries. The area is flat desert barren land.

[1]The Constitution of Namibia Article 95(l) *"The State shall actively promote and maintain the welfare of the people by adopting policies aimed at … The maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future".*

3.2 Transmission lines

The powerlines will traverse through the Namib Naukluft Park. The preliminary route was carefully studied to avoid desert sensitive area, such as *Welwitschia mirabilis* fields and tourism sites.

3.3 Substation and BESS

The Substation and BESS will be located at Farm 58 which is part of Walvis Bay townlands. The proposed site is already zoned as an industrial area. The proposed project area is in desert land, which is mostly free of vegetation. The impact of the project on biodiversity and the natural environment is therefore not anticipated to be significantly detrimental.

4 POTENTIAL SOCIAL AND ENVIRONMENTAL IMPACTS

Environmental Impact Assessment (EIA) is a process that evaluates the potential impact of the project on the socio-economic, biophysical, heritage and archaeological resource environment. The EIA will identify potential impacts and propose mitigation measures to avoid, minimize or reduce the negative impacts. The potential social and environmental impact by the projects may include;

4.1 Socio-Economic Impacts

The construction and operation of a solar farm will create massive direct and indirect employment opportunities, contribute to state revenues through direct taxes and place Namibia as a global leader in renewable energy. Furthermore, local capacity will be created.

Construction projects are generally associated with increased rural-urban migration and associated risk of the increase in social ills such as petty crimes, increased alcohol abuse, and social disturbances to family structures.

4.2 Bio-Physical

The construction of the solar farm and associated transmission lines requires a large piece of land (about 7,000 ha). The development of the solar farm will change the natural aesthetic of the area. The proposed project area is in desert land, which is mostly free of vegetation. The impact of the project on biodiversity and the natural environment is therefore not anticipated to be significantly detrimental. If inevitable, projected vegetation (such as *Welwitschia Mirabilis)* will be transplanted.

4.3 Glint and Glare

The solar farm may create a glare effect which could affect ocean birds while overhead powerline may electrocute the birds.

4.4 Waste Generation

During the construction phase, it is envisaged that domestic waste and construction waste will be generated. The project will be required to put in place, a solid and liquid waste management plan. The project will be required to provide adequate ablution facilities and waste drums for solid waste.

4.5 Land Degradation

Uncoordinated movement of heavy vehicles and other vehicles in undesignated areas may cause land degradation and alter the landscape.

4.6 Heritage and Archaeological Materials

The National Heritage Council Act 27 of 2004 provides for the protection and conservation of places and objects of heritage significance and the registration of such places and objects; to establish a National Heritage Register; and to provide for incidental matters.

There are currently no known heritage sites of special importance in the proposed area and hence, no negative impacts to any sites of heritage significance are expected.

Project construction may however unearth heritage or archaeological material. A comprehensive heritage resource study will be undertaken.

5 THE EIA PROCESS

The Namibia EIA process is explained in the EIA regulation 2012, GRN Gazette No. 4878. The process is summarised in figure 7 below.

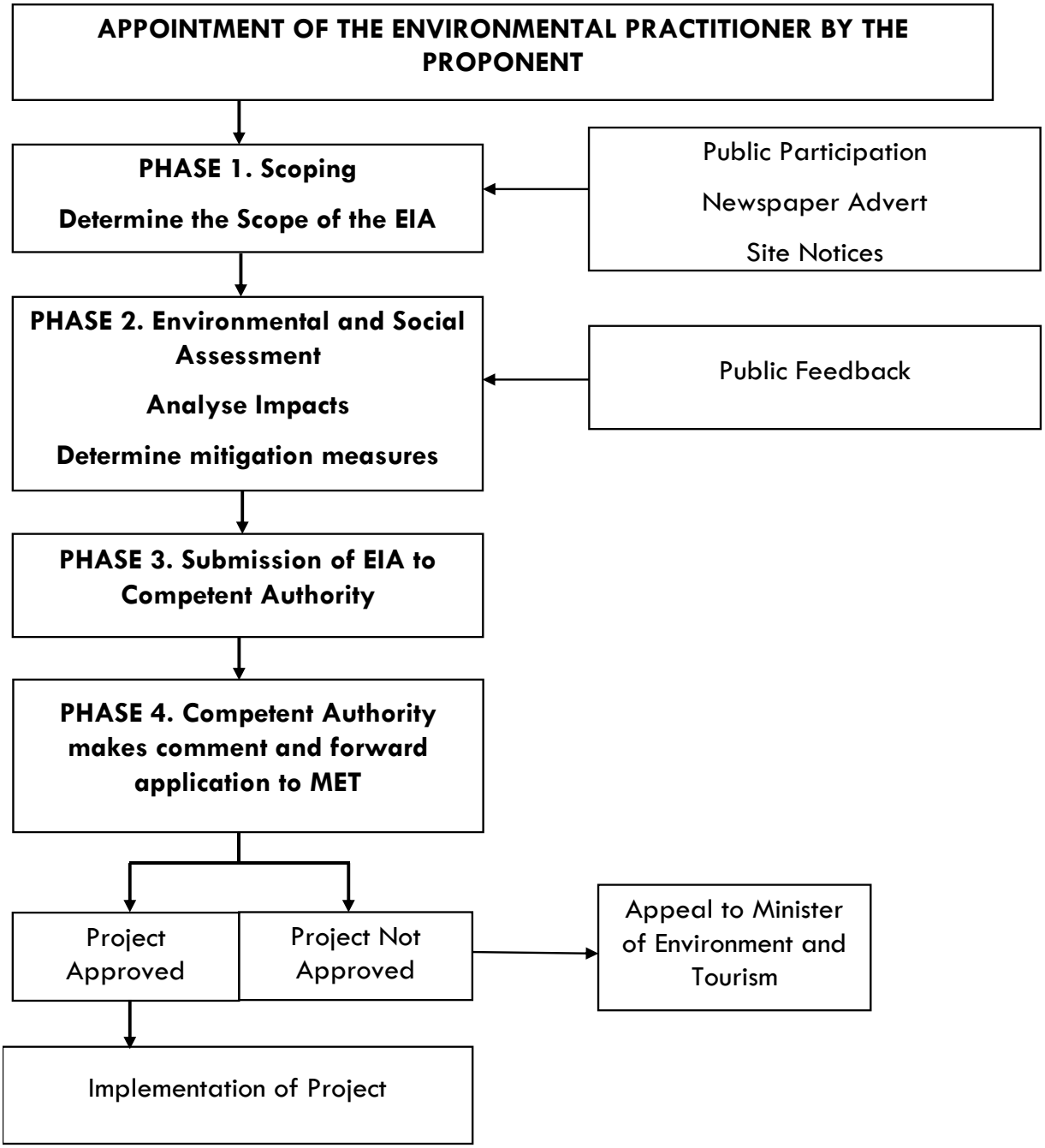

Figure 7. The EIA process in Namibia

6 TERMS OF REFERENCE FOR UNDERTAKING THE EIA

The scope of the EIA is guided by the Terms of References as provided for by the EIA Regulation 2012, Section 9 (a-b) but, not limited to the following;

- Provide a comprehensive description of the proposed Project;
- Identify relevant legislation and guidelines for the project;
- Identify potential environmental (physical, biological and social) conditions of the project location and conduct risk assessment;
- Inform Interested and Affected Parties (I&APs) and relevant authorities about the proposed project to enable their participation and contribution;
- Develop an Environmental Management (EMP) that would be a legal guideline for the environmental protection by the project

7 PUBLIC CONSULTATION

Section 21 of the EIA Regulation requires the undertaking of an Environmental Impact Assessment (EIA) to follow a robust and comprehensive public consultation. This is an important process because it gives members of the public, especially the Interested and Affected Parties the opportunity to comment or raise concerns on issues that may affect their socio-economic or general environment because of the project. Further, it solicits crucial local knowledge that the Environmental Assessment Practitioner may not have. The process will be undertaken as follows;

I. **Notice board:** In accordance with Section 21 (a) a notice board will be placed at the project site and other public places to inform and create public awareness about the project and the application of ECC.
II. **Written notice**: In accordance with Section 21 (b) written notices will be given to the public, particularly in the surrounding areas to inform them and create awareness about the project and the application of ECC.
III. **Newspaper advertisement:** In accordance with Section 21 (c), the project must be advertised once a week for two consecutive weeks in two newspapers that are widely circulated in Namibia.
IV. **Public Meeting** In accordance with Section 21 (5,6) a public meeting will be undertaken in Walvis Bay on Wednesday, **13 December 2023** at the Walvis Bay Side Hall at 14:00.

8 REGISTRATION AS AN INTERESTED AND AFFECTED PARTY

The public, individuals, scholars, community leaders, and organizations are urged to register as Interested and Affected Parties (I&AP) and provide and input using the comment form in Annex 1 to the following address;

Name of Consultant:	Colin P Namene
Email Address:	colin@environam.com/ spike@environam.com
Postal Address:	P.O. Box 24213 Windhoek
Cell phone:	+264 81 458 4297/ +264 81 240 5365
Deadline for submission of comment:	20th December 2023

9 ANNEX 1. COMMENT FORM

ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED CONSTRUCTION AND OPERATION OF THE SOLAR POWER PLANT AND ITS ASSOCIATED INFRASTRUCTURE TO SUPPORT THE PRODUCTION OF GREEN HYDROGEN AND GREEN AMMONIA AT FARM GELUK AND FARM 58, ERONGO REGION

Date		**Time**	
Particulars of I&APs			
Surname		**Initials**	
First Name (s)		**Tel/Cell**	
Organisation		**Postal Address**	
Email		**Postal Code**	
Town			

What is your area of interest in the Project?

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Kindly write your comment, Concerns, Recommendations and or Questions below.

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Thank you for your comments ☺