

**ENVIRONMENTAL SCOPING ASSESSMENT AND ENVIRONMENTAL  
MANAGEMENT PLAN FOR THE AGRICULTURAL ACTIVITIES AND  
ENVIRONMENTAL RELEASE OF GENETICALLY MODIFIED MAIZE AND  
COTTON ON FARM BALTIMORE, OSHIKOTO REGION**

**BACKGROUND INFORMATION DOCUMENT**



**Prepared by:**



**Prepared for:**

**RH van Eeden**

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## 1 INTRODUCTION

Geo Pollution Technologies (Pty) Ltd was appointed by RH van Eeden (the Proponent) to undertake an environmental assessment for the environmental release of genetically modified (GM) maize and cotton on farm Baltimore (FMB/00666) in the Oshikoto Region (Figure 1-1). The total area currently under cultivation by the Proponent is 150 ha of which 40 ha is irrigated and 110 ha is used for dry land crop cultivation. Irrigation is from boreholes with centre pivot irrigation systems. The main crops cultivated are maize, wheat and cotton. In order to improve productivity, the Proponent wishes to replace the traditional maize and cotton cultivars with insect and/or roundup resistant GM strains.

An environmental clearance certificate (ECC) for the environmental release (cultivation) of genetically modified organisms (GMO) is required as per the Environmental Management Act No. 7 of 2007 (EMA). A scoping environmental assessment report (SR) and an environmental management plan (EMP) are proposed to be submitted to the Ministry of Environment, Forestry and Tourism's Department of Environmental Affairs (DEA) in consideration of an application for an ECC. The environmental assessment will include all operational aspects related to the cultivation of GM maize and cotton by the Proponent and will also include water abstraction and additional farming related activities such as fuel storage and bush clearing.

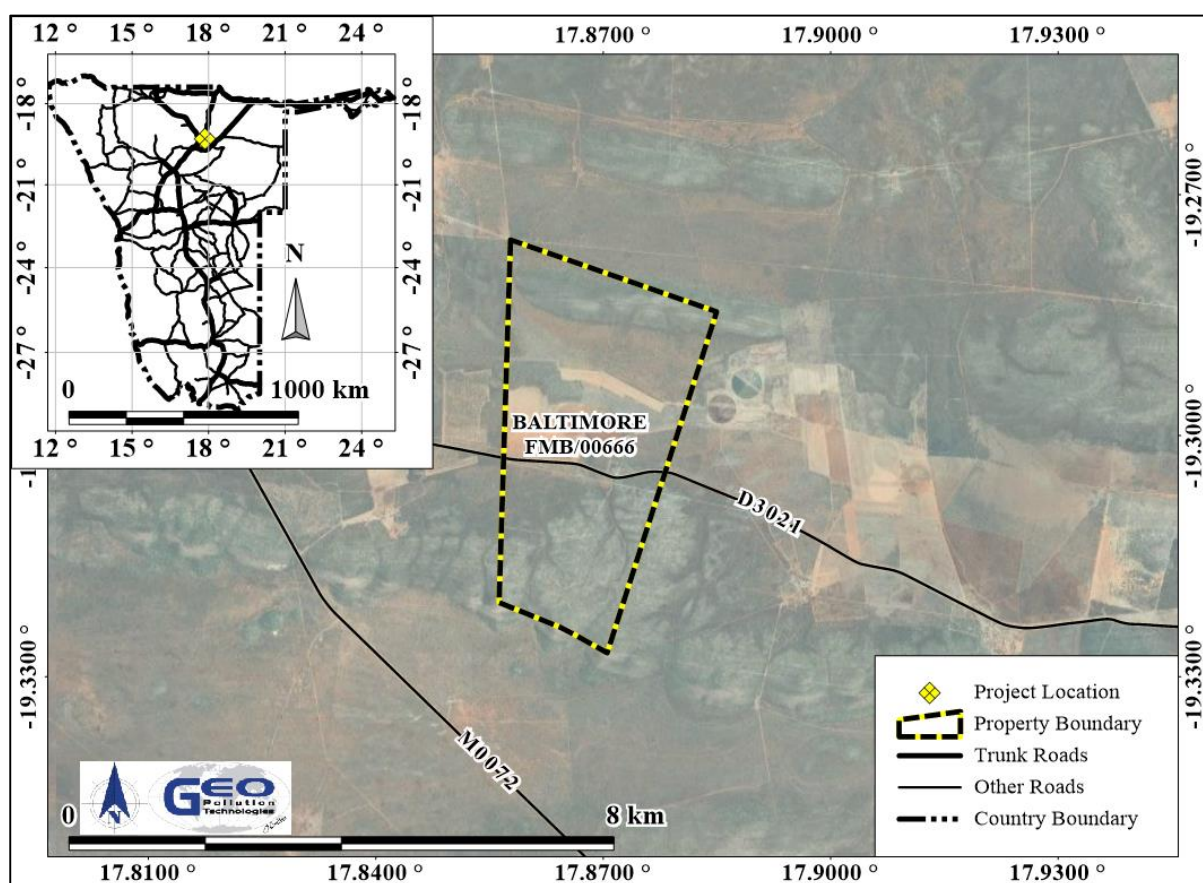


Figure 1-1 Project location

## 2 PURPOSE OF THE BID

With this background information document (BID), GPT aims to provide interested and affected parties (IAPs) with information about the project and interact with them regarding it. All IAPs are therefore invited to register with GPT for the project in order to:

- ◆ Provide GPT with additional information which should be taken into account in the assessment of impacts;
- ◆ Share any comments, issues or concerns related to the project; and
- ◆ Review and comment on the reports (SR and EMP).

### 3 PROJECT DESCRIPTION

The Proponent owns the farm with all infrastructure required for the cultivation of GM maize and cotton, already in place, since the farm has traditionally been a crop cultivation unit for many years. Activities associated with the project have been divided into the following phases: planning, operational and the decommissioning phase. A brief outline of expected activities for each phase is detailed below.

#### 3.1 PLANNING PHASE

Planning is an ongoing process in preparation of the planting of GM maize and cotton as well as during and after the planting of such crops. As part of planning, it is the responsibility of the Proponent to ensure they are and remain compliant with all legal requirements. The Proponent must also ensure that all required management measures are in place prior to and during all phases, to ensure potential impacts and risks are minimised. Typical planning activities include:

- ◆ Obtain permits and approvals from local and national authorities including approval for environmental release of GMOs from the National Commission on Research, Science and Technology, a water abstraction permit from the Ministry of Agriculture, Water and Land Reform and a consumer installation certificate from the Ministry of Mines and Energy.
- ◆ Make provisions to have a health, safety and environmental coordinator to implement the EMP.
- ◆ Ensure provisions for a fund to cater for environmental incidents if ever required.
- ◆ Ensure all appointed contractors and employees enter into agreements which include the EMP.
- ◆ Establish and/or maintain a reporting system to report on aspects of operations and decommissioning as outlined in the EMP.

#### 3.2 OPERATIONAL PHASE

Genetically modified crops have the potential to increase profitability by mainly reducing input costs related to pest control. The two main traits in the GM maize and cotton cultivars proposed to be planted are insect and RoundUp resistance.

Insect resistance is achieved by the insertion of certain gene segments of the *Bacillus thuringiensis* bacterium which produces a protein that is toxic to target pests of the insect order Lepidoptera (moths and butterflies). Specifically the larvae stages (caterpillars) are targeted as they die when eating the crops, therefore breaking the life cycle of the pest species.

RoundUp is the trade name of a systemic herbicide containing the active ingredient glyphosate. RoundUp resistance in crops has, among others, the advantage of a reduced need for mechanical weed control in fields. Also, often fields are prepared for planting by first allowing the weeds to germinate and grow, then spraying such weeds with herbicides, and once dead, planting of crops can commence. During short growing seasons, this is not always possible and by planting RoundUp resistant crops, you can immediately start planting and then spray while both the weeds and crops are on the field. RoundUp resistance is achieved by inserting gene segments from the bacteria *Agrobacterium* sp. strain CP4. It produces an enzyme that is tolerant to glyphosate, thus allowing the GM crop to grow in the presence of glyphosate.

The following is a list of the GM maize and cotton cultivars (or events) proposed for environmental release.

GM Event	Crop Type	Trait
MON 810	Maize	Insect Resistance
MON 89034	Maize	Insect Resistance
NK 603	Maize	RoundUp Resistance
MON 89034 × NK 603	Maize	Insect Resistance and RoundUp Resistance
NK 603 × MON 810	Maize	Insect Resistance and RoundUp Resistance
MON 88913	Cotton	RoundUp Resistance
MON89913 × MON15985	Cotton	Insect Resistance and RoundUp Resistance

The main operational activities that will be addressed in the SR pertain to the transport, storage and planting of GM maize and cotton seeds, the management of the crops during the growing period, the application of pesticides to the crops, harvesting of the crops, and the handling and transport of the harvested maize and cotton to the markets. Groundwater is abstracted from production boreholes for irrigation purposes via centre pivot irrigation systems. Fuel for farm vehicles is stored in aboveground diesel tanks. General operations also include activities such as electricity supply, waste handling and sewage disposal.

### **3.3 DECOMMISSIONING PHASE**

In the context of GM crop cultivation, decommissioning refers to the termination of cultivation of any GM crop. Such decommissioning is not foreseen during the validity of the ECC. Decommissioning will however be assessed. Should decommissioning occur at any stage, aftercare will be required to ensure no GM maize and cotton remain on the cultivated fields and that regrowth be controlled by chemical and/or mechanical means.

Decommissioning of selected infrastructure may occur and will also be assessed. Should decommissioning occur at any stage, rehabilitation of the area may be required. Decommissioning will entail the complete removal of all infrastructure including buildings and underground infrastructure. Pollution present on the site, if any, must then be remediated.

### **3.4 PRELIMINARY IDENTIFIED IMPACTS**

During the environmental assessment all components of the environment will be considered, however only those components which are being impacted on significantly, or are deemed to be sensitive, will be assessed. These include the following:

- ◆ Socio-economic contributions
- ◆ Health and safety risks
- ◆ Ecosystem and biodiversity impacts
- ◆ Cross pollination of GM and non-GM crops
- ◆ Soil and groundwater pollution
- ◆ Groundwater over-abstraction
- ◆ Fire risks
- ◆ Waste and effluent generation and disposal
- ◆ Traffic
- ◆ Noise

## **4 PUBLIC CONSULTATION**

GPT invites all IAPs to provide in writing, any issues and suggestions regarding the development. This correspondence must include:

- ◆ Name and surname
- ◆ Organization represented or private interest
- ◆ Position in the organization
- ◆ Contact details
- ◆ Any direct business, financial, personal or other interest which you may have in the approval or refusal of the application

All contributions become public knowledge and will be circulated along with the reports as per the EMA requirements. The comments, inputs and suggestions will also be submitted to the DEA along with how any issues have been addressed in the SR. The public participation process will remain ongoing during the environmental assessment.

The project team may be contacted on the contact details below



**Geo Pollution Technologies (Pty) Ltd.**

Telephone: (+264-61) 257411

Fax: (+264) 88626368

E-mail: baltimore@thenamib.com

**Your Rights as an IAP according to the Environmental Management Act, No7 of 2007, Government Notice No 30 (Environmental Impact Assessment Regulations)**

*Section 23. (1) A registered interested or affected party is entitled to comment in writing, on all written submissions made to the Environmental Commissioner by the applicant responsible for the application, and to bring to the attention of the Environmental Commissioner any issues which that party, believes may be of significance to the consideration of the application, as long as -*

- (a) comments are submitted within 7 days of notification of an application or receiving access to a scoping report or an assessment report;*
  - (b) the interested and affected party discloses any direct business, financial, personal or other interest which that party may have in the approval or refusal of the application.*
- (2) Before the applicant submits a report compiled in terms of these regulations to the Environmental Commissioner, the applicant must give registered interested and affected parties access to, and an opportunity to comment in writing on the report.*
- (3) Reports referred to in sub regulation (2) include (a) scoping reports; (b) scoping reports amended and resubmitted; (c) assessment reports; and (d) assessment reports amended and resubmitted.*
- (4) Any written comments received by the applicant from a registered interested or affected party must accompany the report when the report is submitted to the Environmental Commissioner.*
- (5) A registered interested or affected party may comment on any final report that is submitted by a specialist reviewer for the purposes of these regulations where the report contains substantive information which has not previously been made available to a registered interested or affected party.*

*Section 24: The applicant responsible for an application must ensure that the comments of interested and affected parties are recorded in reports submitted to the Environmental Commissioner in terms of these regulations, and comments by interested and affected parties on a report which is to be submitted to the Environmental Commissioner may be attached to the report without recording those comments in the report itself.*