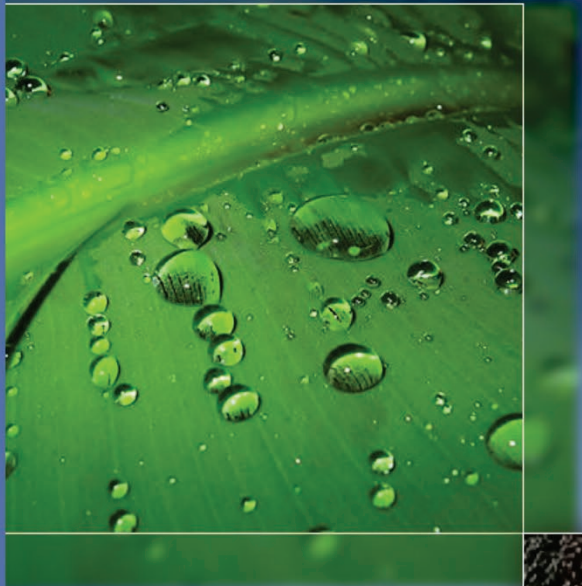


chapter 6

plan of study for eia



contents

6.	PLAN OF STUDY FOR EIA	6-2
6.1	IDENTIFICATION OF ISSUES	6-2
6.2	OVERVIEW OF APPROACH TO PREPARING THE EIA REPORT AND EMP	6-2
6.3	PUBLIC PARTICIPATION PROCESS	6-2
6.4	AUTHORITY CONSULTATION DURING THE EIA PHASE	6-4
6.5	APPROACH TO SPECIALIST STUDIES AND IMPACT ASSESSMENT	6-5
6.6	SPECIFIC ISSUES TO BE ADDRESSED IN SPECIALIST STUDIES	6-9
6.6.1	Air Quality Assessment	6-9
6.6.2	Botany & Salt Marsh Biology Assessment	6-10
6.6.3	Noise Impact Assessment	6-11
6.6.4	Waste Management Study	6-12
6.6.5	Heritage Impacts	6-13

figures

Table 6-1 Authority consultation schedule for the EIA phase	6-5
Table 6-2 Table for rating of impacts	6-8
Table 6-3 Specialist team	6-9



6. PLAN OF STUDY FOR EIA

This chapter presents the EIA process to be conducted for the proposed development and gives particular attention to the steps in the EIA phase and associated public participation process.

6.1 IDENTIFICATION OF ISSUES

The Plan of Study for EIA (PSEIA) sets out the process to be followed in the EIA phase and is shaped by the findings of the Scoping process. The EIA phase consists of three parallel and overlapping processes:

- Central assessment process involving the authorities where inputs are integrated and presented in documents that are submitted for approval by authorities (Sections 6.2 and 6.4)
- Public participation process whereby findings of the EIA phase are communicated and discussed with I&APs and responses are documented (Section 6.3)
- Specialist studies that provide additional information required to address the issues raised in the Scoping phase (Sections 6.5 and 6.6).

6.2 OVERVIEW OF APPROACH TO PREPARING THE EIA REPORT AND EMP

The results of the specialist studies and other relevant project information will be summarized and integrated into the Draft EIA Report. The Draft EIA Report will be released for a 40 day I&AP and authority review period, as outlined in Sections 6.3 and 6.4. All I&APs on the project database will be notified in writing of the release of the Draft EIA Report for review. It is proposed that during this review period a public meeting is held as well as focus group meetings with key I&APs. The purpose of these meetings will be to provide an overview of the outcome and recommendations from the specialist studies, as well as provide opportunity for comment. Comments raised, through written correspondence (emails, comments, forms) and at meetings (public meeting and focus group meetings) will be captured in a Comments and Responses Trail for inclusion in the Final EIA Report. Comments raised will be responded to by the EIA team and/or the applicant. These responses will indicate how the issue has been dealt within the EIA process. Should the comment received fall beyond the scope of this EIA, clear reasoning will be provided. All comments received will be attached as an appendix to the Final EIA Report.

The Draft EIA Report will include a draft Environmental Management Plan (EMP), which will be prepared in compliance with the relevant regulations. This EMP will be based broadly on the environmental management philosophy presented in the ISO 14001 standard, which embodies an approach of continual improvement. Actions in the EMP will be drawn primarily from the management actions in the specialist studies for the construction and operational phases of the project. If the project components are decommissioned or re-developed, this will need to be done in accordance with the relevant environmental standards and clean-up/remediation requirements applicable at the time.

6.3 PUBLIC PARTICIPATION PROCESS

The key steps in the public participation process for the EIA phase are described below. As mentioned in Chapter 4, the newspaper advertisements and letters to I&APs will also contain information about the AEL and waste license applications for the proposed project. This approach has been confirmed with NMBM and DEDEAT. The participation process for the Scoping Process is described in Chapter 4 of this report.

Task 1: Review of Draft EIA Report and EMP

The first stage in the process will entail the release of a Draft EIA Report for a 40 day public and authority review period. Relevant organs of state and I&APs will be informed of the review process in the following manner:

- Advertisements placed in one local and one regional newspaper;
- Letter 4 to all I&APs (including authorities), with notification of the 40 day public review period for the Draft EIA and invitation to attend the public meeting (this letter will include the summary of the Draft EIA Report and a Comment Form);
- Public Meeting on the Draft EIA Report, where key findings of the EIA report will be communicated and I&APs will have the opportunity to provide comments and engage with the EIA team and project proponent;
- Focus Group Meeting(s) with I&APs, if requested; and
- Meeting(s) with key authorities involved in decision-making for this EIA.

The Draft EIA Report and EMP will be made available and distributed through the following mechanisms to ensure access to information on the project and to communicate the outcome of specialist studies:

- Copies of the report will be placed at the main library in Port Elizabeth (Govan Mbeki Ave) and in the Motherwell library;
- Relevant organs of state and key I&APs will be provided with a hard copy or CD version of the report; and
- Report to be placed on the project website: www.publicprocess.co.za

Task 2: Comments and Responses Trail

A key component of the EIA process is documenting and responding to the comments received from I&APs and the authorities. The following comments on the Draft EIA Report and EMP will be documented:

- Written and email comments (e.g. letters and completed comment forms);
- Comments made at public meetings;
- Comments made at focus group meetings;
- Telephonic communication with CSIR contact person;
- One on one meetings with key authorities and/or I&APs; and
- Comments from/issues raised at ELC meetings.

The comments received will be compiled into a Comments and Responses Trail for inclusion in the Final EIA Report. The Comments and Responses trail will indicate the nature of the comment, when and who raised the comment. The comments received will be considered by the EIA team and appropriate responses provided by the relevant member of the team and/or specialist. The response provided will indicate how the comment received has been considered in the Final EIA Report, in the project design or EMP for the project.

Task 3: Compilation of Final EIA Report for submission to Authorities

The Final EIA Report, including the Comments and Responses Trail and EMP, will be submitted to the authorities for decision making. Letter 5 will be sent to all I&APs on the project database notifying them of the submission of the final report. I&APs will be given a reasonable period to comment on the changes to the EIA Report. These comments will be sent directly to the competent authority.

The Final EIA Report will be distributed as follows:

- Copies of the report will be placed at the main library in Port Elizabeth (Govan Mbeki Ave) and in the Motherwell library;
- Relevant organs of state and key I&APs will be provided with a hard copy or CD version of the report; and
- Report to be placed on the project website: www.publicprocess.co.za

Task 4: Environmental Authorisation and Appeal Period

All I&APs on the project database will be notified of the issuing of the Environmental Authorisation and the Appeal period. The following process will be followed for the distribution of Environmental Authorisation and notification of appeal period:

- Copies of the Environmental Authorisation will be placed at the main library in Port Elizabeth (Govan Mbeki Ave) and in the Motherwell library;
- Letter 6 to be sent to all I&APs (including organs of state), with a copy of the Environmental Authorisation and information on the Appeal Period; and
- Environmental Authorisation to be placed on the project website: www.publicprocess.co.za

All I&APs on the project database will be notified of the outcome of the appeal period, this notification will be included in Letter 7 to I&APs.

6.4 AUTHORITY CONSULTATION DURING THE EIA PHASE

Authority consultation is integrated into the public consultation process, with additional one-on-one meetings held with the lead authorities where necessary. It is proposed that the competent authority (DEA) as well as other lead authorities be consulted at various stages during the EIA process. This consultation will primarily take place through the quarterly meetings of the Coega Environmental Liaison Committee (ELC), which includes the lead authorities mandated to issue environmental authorisations and licenses/permits. The authority consultation process for the Scoping Process is outlined in Chapter 4 of this report. Table 6-1 indicates the proposed consultation schedule for the EIA phase.

Table 6-1 Authority consultation schedule for the EIA phase

Stage in EIA Phase	Form of Consultation (including provisional dates)
SCOPING PHASE	CSIR to present FSR to authorities at the Coega ELC meeting in August 2012 for decision-making.
SPECIALIST STUDIES PHASE	CSIR to present draft findings from the specialist studies to the Coega ELC meeting in November 2012 for comment.
REVIEW OF DRAFT EIA REPORT AND DRAFT EMP	<p>Review of draft reports: Authorities, together with other stakeholders, will have the opportunity to review the Draft EIA and EMP reports during the 40 day review period and to attend the public meeting. If requested, CSIR can present the Draft EIA and EMP reports to the authorities at a dedicated authority meeting during this review period.</p> <p>Site visit: Offer a site visit for authorities, as and when required. We suggest that, if required, this take place at the same time of the public meeting for the Draft EIA and EMP reports.</p>
FINAL EIA REPORT PHASE	Meetings with dedicated departments, if requested by authorities with jurisdiction over particular aspects of the project (e.g. Local Authority) and potentially including relevant specialists will be undertaken once the final EIA report has been submitted.

6.5 APPROACH TO SPECIALIST STUDIES AND IMPACT ASSESSMENT

The identification of potential impacts should include impacts that may occur during the construction and operational phases of the activity. The assessment of impacts is to include direct, indirect as well as cumulative impacts.

In order to identify potential impacts (both positive and negative) it is important that the nature of the proposed activity is well understood so that the impacts associated with the activity can be understood. The process of identification and assessment of impacts will include:

- Determine the current environmental conditions in sufficient detail so that there is a baseline against which impacts can be identified and measured;
- Determine future changes to the environment that will occur if the activity does not proceed;
- An understanding of the activity in sufficient detail to understand its consequences; and
- The identification of significant impacts which are likely to occur if the activity is undertaken.

As per *DEA Guideline 5: Assessment of Alternatives and Impacts* the following methodology is to be applied to the prediction and assessment of impacts. Potential impacts should be rated in terms of the direct, indirect and cumulative:

- **Direct impacts** are impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity. These impacts are usually associated with the construction, operation or maintenance of an activity and are generally obvious and quantifiable.
- **Indirect impacts** of an activity are indirect or induced changes that may occur as a result of the activity. These types of impacts include all the potential impacts that do not manifest immediately when the activity is undertaken or which occur at a different place as a result of the activity.
- **Cumulative impacts** are impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities. Cumulative impacts can occur from the collective impacts of individual minor actions over a period of time and can include both direct and indirect impacts.
- **Spatial extent** – The size of the area that will be affected by the impact:
 - Site specific;

- Local (<2 km from site);
 - Regional (within 30 km of site); or
 - National.
- **Intensity** –The anticipated severity of the impact:
 - High (severe alteration of natural systems, patterns or processes);
 - Medium (notable alteration of natural systems, patterns or processes; or
 - Low (negligible alteration of natural systems, patterns or processes).
 - **Duration** –The timeframe during which the impact will be experienced:
 - Temporary (less than 1 year);
 - Short term (1 to 6 years);
 - Medium term (6 to 15 years);
 - Long term (the impact will only cease after the operational life of the activity); or
 - Permanent (mitigation will not occur in such a way or in such a time span that the impact can be considered transient).
 - **Reversibility of impacts** -
 - High reversibility of impacts (impact is highly reversible at end of project life);
 - Moderate reversibility of impacts;
 - Low reversibility of impacts; or
 - Impacts are non- reversible (impact is permanent).
 - **Irreplaceability of resource loss caused by impacts** –
 - High irreplaceability of resources (project will destroy unique resources that cannot be replaced);
 - Moderate irreplaceability of resources;
 - Low irreplaceability of resources; or
 - Resources are replaceable (the affected resource is easy to replace/ rehabilitate).

Using the criteria above, the impacts will further be assessed in terms of the following:

- **Probability** – The probability of the impact occurring:
 - Improbable (little or no chance of occurring);
 - Probable (<50% chance of occurring);
 - Highly probable (50 – 90% chance of occurring); or
 - Definite (>90% chance of occurring).
- **Significance** – Will the impact cause a notable alteration of the environment?
 - Low to very low (the impact may result in minor alterations of the environment and can be easily avoided by implementing appropriate mitigation measures, and will not have an influence on decision-making);
 - Medium (the impact will result in moderate alteration of the environment and can be reduced or avoided by implementing the appropriate mitigation measures, and will only have an influence on the decision-making if not mitigated); or
 - High (the impacts will result in major alteration to the environment even with the implementation on the appropriate mitigation measures and will have an influence on decision-making).
- **Status** - Whether the impact on the overall environment (social, biophysical and economic) will be:
 - Positive - environment overall will benefit from the impact;
 - Negative - environment overall will be adversely affected by the impact; or
 - Neutral - environment overall will not be affected.
- **Confidence** – The degree of confidence in predictions based on available information and specialist knowledge:
 - Low;

- o Medium; or
- o High.

Impacts will then be collated into an EMP and these will include the following:

- Management actions and monitoring of the impacts;
- Identifying negative impacts and prescribing mitigation measures to avoid or reduce negative impacts; and
- Positive impacts will be identified and enhanced where possible.

Table 6-2 below is to be used by specialists for the rating of impacts.

Other aspects to be taken into consideration in the assessment of impact significance are:

- Impacts will be evaluated for the construction and operation phases of the development. The assessment of impacts for the decommissioning phase will be brief, as there is limited understanding at this stage of what this might entail. The relevant rehabilitation guidelines and legal requirements applicable at the time will need to be applied;
- The impact evaluation will, where possible, take into consideration the cumulative effects associated with this and other facilities/projects which are either developed or in the process of being developed in the local area; and
- The impact assessment will attempt to quantify the magnitude of potential impacts (direct and cumulative effects) and outline the rationale used. Where appropriate, national standards are to be used as a measure of the level of impact.

Table 6-2 Table for rating of impacts

CONSTRUCTION PHASE										
DIRECT IMPACTS										
Impact Description	Mitigation	Spatial Extent	Intensity	Duration	Reversibility	Irreplaceability	Probability	Significance & Status		Confidence
								Without Mitigation	With Mitigation	

6.6 SPECIFIC ISSUES TO BE ADDRESSED IN SPECIALIST STUDIES

Based on an evaluation of issues to date, the following Specialist Studies are proposed as part of the EIA phase:

Table 6-3 Specialist team

SPECIALIST		Specialist Study
Dr Mark Zunckel	Umoya-Nilu Consulting	Air Quality Assessment
Prof Eileen Campbell	Nelson Mandela Metropolitan University	Botany & Salt Marsh Biology Assessment
Brett Williams	Safetech	Noise Assessment
Ronelle Claassen	Poltech EC	Waste Management Study
PUBLIC PARTICIPATION PROCESS		
Sandy Wren	Public Process Consultants	Public Participation Process

The Terms of Reference (TOR) for the specialist studies will essentially consist of the generic assessment requirements and the specific issues identified for each study. These issues have been identified through the baseline studies, I&AP and authority consultation, as well as input from the proposed specialists based on their experience. As part of the review of the Draft Scoping Report, specialists are to propose any additional issues for inclusion in the specialist studies. Additional issues, identified through public and authority consultation during the Scoping phase, as well as specialist inputs, will be included in the final Terms of Reference for specialists (i.e. in the PSEIA of the Final Scoping Report).

6.6.1 Air Quality Assessment

The activities at the proposed PhytoAmandla biofuel plant include the construction and operation of two biodiesel plant trains, the construction of on-site canola storage silos, the construction of an onsite pelletized meal storage facility, the construction and operation of an on-site biogas plant to convert organic by-products to process heat and electricity. The power generator will be approximately 10 MW and will be used to operate the processing plant in order to decrease reliance and demand on the national grid. Included will be the storage and handling of more than 100 tons of hexane and methanol per annum. Both of these hydrocarbons are classified as hazardous air pollutants and the storage and handling of more than 100 tons per annum is a Listed Activity in terms of the National Environmental Management: Air Quality Act (Act No. 39 of 2004) and will require an Atmospheric Emission License. Both products are volatile and emissions to the atmosphere will occur from flanges and pumps, with a potential impact on ambient air quality.

Hexane and methanol are associated with potential acute and chronic health effects. Inhalation of hexane can cause respiratory tract irritation, dizziness or suffocation. For hexane most existing air quality guidelines are based on either the U.S. EPA Reference concentration (RfC) of 0.2 mg/m³, or the American Conference of Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) of 176 mg/m³. The odour threshold for n-hexane is about 120 mg/m³. Methanol is toxic and inhalation is the most common route of occupational exposure. Exposure to methanol may cause CNS depression with nausea, headache, vomiting, dizziness and incoordination. Prolonged or repeated skin contact may cause dermatitis. The risk of exposure in the ambient environment is generally low and although ambient guidelines are not readily available the hourly ambient guideline of 2.6 mg/m³ for Alberta provides an indication that there is a risk only at high concentrations. The odour threshold for methanol is about 130 mg/m³.

The potential air quality issues related to construction of the PhytoAmandla Biofuel plant and the handling and storage of hexane and methanol include:

- Levels of dust fallout in the area exceeding the national standard as a result of construction activities;
- Concentrations of PM₁₀ exceeding the national ambient standard beyond the plant boundaries as a result of construction activities; and
- Concentrations of hexane and methanol exceeding international health based ambient guideline values beyond the plant boundaries as a result of storage and handling.

Dispersion modelling will be used to estimate the ambient concentrations of hexane, methanol from the storage and handling of these products, and PM₁₀ from the construction activities. The key inputs for dispersion modelling are meteorology and emission rates. Hourly data from the monitoring stations in the Coega IDZ will be used to characterise the meteorology of the area with meteorological data from the South African Weather Service. The emission of hexane and methanol will be estimated based on the proposed handling and storage processes with the characteristics of these compounds. As there are no South African ambient standards for these compounds the predicted ambient concentrations will be compared with international ambient guidelines to assess the risk to exposure beyond the plant boundary.

The specialist study will include the following:

- Describe the baseline air quality.
- Describe the sources of emissions and compile an emissions inventory for the proposed Biofuel Processing Plant.
- Undertake dispersion modelling for the key pollutants identified during the compilation of the emissions inventory. The modelling will include predictions of annual average, 24-hour or 1-hour concentrations, according to the time averaging periods in which the standards and guidelines are set.
- Create a map to present the predicted ambient concentrations, illustrating the isopleths on a base map of the Coega IDZ.
- Discuss the predictions in terms of existing South African air quality standards or international guidelines, such as the World Health Organisation (WHO).
- Assess the air quality impacts (direct, indirect, and cumulative) during construction, operation and decommissioning phases of the project.
- Acquire the necessary information required for the AEL Application Form.
- Complete and submit the AEL Application form to the AEL Authority, NMBM. Facilitate the AEL application process in order to fulfil the requirements of NEM: AQA, including correspondence with the AEL Authority to ensure that the application is granted.

6.6.2 Botany & Salt Marsh Biology Assessment

The vegetation of the study area will be assessed in its present, as well as its likely historical composition. It will be described in context of major phytogeographic classifications, with emphasis on most recent ones and in the context of available regional conservation plans.

Site-specific investigations of the flora will be conducted but studies of the vegetation of the area have been underway since 1998. Spatial data obtained in the field will be transferred to ArcGIS® version 10.0 and combined with available vegetation maps

The vegetation will be assessed using the following components of conservation value:

- Species richness (number of species) recorded in each phytogeographic unit is considered to be the fundamental component of conservation value (Given, 1994) as it is a measure of diversity in the absence of abundance data.
- Endemic species are those that are unique to a defined geographical area. In this report plant endemism is used in three contexts: South African and Eastern Cape were used as indicated in Germishuizen *et al.* (2006) and the vegetation type endemics taken from Mucina and Rutherford (2006). A high proportion of endemism in each of these categories contributes to a high conservation value.
- The World Conservation Union (IUCN) has developed Red Data Book categories based on the need for conservation of species of special concern. The latest Red Data List of South African

plants was downloaded from the South African National Biodiversity Institute website and was dated 2009. The categories are described as follows (taken from IUCN version 8.1 of 2010):

- o **Threatened species** are critically endangered, endangered, vulnerable or data deficient.
 - o **Critically endangered species** are when the best available evidence is that the species is considered to be facing an extremely high risk of extinction in the wild.
 - o **Endangered species** are when the best available evidence is that the species is considered to be facing a very high risk of extinction in the wild.
 - o **Vulnerable species** are when the best available evidence is that the species is considered to be facing a high risk of extinction in the wild.
 - o **Near threatened species** are those that are close to qualifying for threatened status or those likely to qualify for a threatened category in the near future.
 - o **Data deficient (uncertain) species** possibly fall in one of the above categories, but this is uncertain because of lack of information. Data Deficient is therefore not a category of threat but threatened status may well be justified. These are included as conservation worthy using the precautionary principle.
- Rare species have small world populations, but are not at present Threatened. They are, however, at risk because some unexpected threat could easily cause a critical decline. Rare species may be highly localised (populations cover a small geographic area) or sparsely distributed (individuals widely spread over a large geographic area). Rare species may be Critically Rare, Rare, Sparse or Declining. The latest Red Data List from the South African National Biodiversity Institute includes this category (download dated 2009).
 - Protected species are species recognised by law as worthy of conservation. These include the Red Data list species, but also species considered to be worthy of protection because of economic, aesthetic or historical value. These species also contribute to the conservation value of the vegetation. The National Environmental Management Biodiversity Act No 10 of 2004, the Forestry Law, Government Gazette, 6 August 1976 with amendments of 1998 and the Eastern Cape Environmental Conservation Bill (dated 23 November 2003) were used to assess protection status of species other than Red Data Book ones.
 - A component of the vegetation that decreases its conservation value is the degree of invasion by exotic species. Exotic species were taken from (Germishuizen *et al.*, 2006). The presence of exotic species per se does little to decrease conservation value. However, if these species are invasive or are declared weeds, this strongly detracts from the conservation value of the vegetation. Declared weeds were taken from Conservation of Agricultural Resources Act 43 of 1983 with amendment R280 of 30 March 2001.

Conservation plans that exist for the region will be considered where they provide identified opportunities and constraints in order to indicate potential conflict zones or areas where development should be avoided or may be recommended.

The specialist study will include the following:

- Identifying the vegetation occurring on the study site and surrounds;
- Determine the conservation importance of each vegetation unit;
- Identify degraded areas and determine the potential for realistic rehabilitation of these;
- Evaluate the ecological processes that operate at the site;
- Contextualise the vegetation with respect to existing conservation plans and initiatives.

6.6.3 Noise Impact Assessment

The potential noise impacts from the construction and operation of the PhytoAmandla Biofuel Plant in the Coega IDZ will include the following:

- Noise from the establishment of site construction areas and temporary workshops / storage areas;
- Construction equipment and vehicle noise;
- Noise from the operation of the plant; and

- Delivery and staff vehicles

The above noise sources could impact on the local residents outside the study area, tenants within the Coega Industrial Zone as well as persons within the facility. The noise will include audible, low frequency and infra sound.

The specialist study will include the following:

- Conduct a desktop study of available information that can support and inform the specialist noise study. The information to address the health impacts of noise;
- Identify all noise sensitive receptors within the study area. These include the receptors within 1km of the site boundary (external to the site);
- Measure the existing ambient noise at the proposed site during both the day and night time;
- Conduct a noise modelling study of the future impact during construction and operation of the facility taking into account sensitive receptors; and
- Propose mitigatory measures.

6.6.4 Waste Management Study

Several types of waste will be generated at the proposed biofuel facility.

During the construction phase normal construction waste, such as building waste, cement waste, chemical and paint containers, and waste water, may be generated. In addition any spills of chemicals, oils, diesel, and petrol to soil may generate contaminated soil as a waste. Sewerage waste will be generated from the contractors on site.

Process water from the biogas facility will be generated as a waste type at an anticipated volume of 240 000 tons per year. It will be treated at the municipal treatment plant at Coega. The water will need to conform to the NMBM municipal standard for discharging of water to a municipal sewer. The quality of the water from a similar facility will be obtained to determine if the discharge will be acceptable.

Ash and sludge wastes will be produced from the biogas plant (about 5 000 tons per year). Onsite storage of the sludge may exceed 100 m² per day, and as such a waste license may be required. Excess water from the sludge will be removed by a mechanical unit with a throughput of possibly more than 10 tons of waste per day. This process will also require a waste license. The possible use of the ash and sludge wastes as fertilizers will be investigated during this study.

The potential waste issues related to the PhytoAmandla Biofuel plant include:

1. Direct Impacts during the construction phase of the proposed development
 - Water and soil pollution from poor waste management practices, such as spills and leaks from waste containers;
 - Water, soil and groundwater pollution from incorrect disposal of hazardous waste, where hazardous waste is disposed to soil or sewerage system;
 - Water pollution from increase in sewerage waste;
 - Attraction of vermin to the site due to waste accumulation and infrequent disposals; and
 - Odour generation from waste storage activities due to waste accumulation and infrequent disposals
2. Impacts during the operational phase of the proposed development:
 - Water and soil pollution from poor waste management practices, i.e. spills and leaks from containers and waste storage areas;
 - Water, soil and groundwater pollution from incorrect disposal of hazardous waste;
 - Pollution of effluent and downstream municipal sewerage treatment works;
 - Occurrence of organic compounds in the biological sludge;
 - Reduction of hazardous waste to landfill site to minimize landfill space;
 - Odour generation from waste storage activities where waste (specifically biological sludge) is left to degrade and infrequently disposed;

- Pollution from windblown litter can result in a visual impact; and
 - Attraction of vermin to the site where general waste is accumulating.
3. Cumulative impacts for the proposed development
- Discharge of effluent to the municipal sewerage system will increase the loading to the municipal treatment plant; and
 - Disposal of general and hazardous to landfill site fill result in usage of landfill space

The specialist study will include the following:

- The identification of the statutory requirements for waste management at the proposed biofuel plant and associated facilities;
- The generation of construction waste and its management including interim storage, transportation and final disposal;
- The identification and classification of solid and liquid waste types generated during the operation phase of the proposed development through the compilation of a waste inventory. This includes, but is not limited to, process water from the biogas facility, ash from the wood pellet burning facility and biological sludge from the biogas facility;
- The area and method of the onsite storage of the process water, ash and biological sludge will be identified;
- The mechanical waste treatment facility for de-watering of the biological sludge will be described;
- Opportunities for minimization of waste will be assessed for both general and hazardous wastes, during construction and operations phases;
- The proposed discharge of water from the biogas facility to the municipal sewer will be evaluated against the permit requirements;
- The identification of any disposal constraints pertaining to solid waste during the operational phase of the proposed development. Permit requirements relating to waste disposal will be identified;
- The identification of waste activities to determine if an application for a waste license will be required in terms of the National Environmental Management: Waste Act;
- An assessment of the potential impact that the proposed waste management system is likely to have on the receiving environment;
- Mitigatory measures to reduce negative environmental impacts that may arise from the waste management during construction and operational phases of the proposed project will be evaluated; and
- The identification of opportunities for registration of some of the waste types as a fertilizer; and
- Specify the potential impact as well as potential cumulative impact of the development.

6.6.5 Heritage Impacts

According to the archaeological specialist that was part of the original Coega IDZ heritage impact assessment, Dr Johan Binneman, (pers. Comm. 06 June 2012) the entire footprint of the proposed project is disturbed and an Archaeological survey is not necessary. If required by the South African Heritage Resources Agency (SAHRA), archaeological and paleontological specialists could be commissioned to issue letters confirming the disturbance of the affected area.