KUDU INTEGRATION PROJECT FOR TRANSMISSION LINES AND SUBSTATIONS

PLAN OF STUDY FOR SCOPING PHASE

DATE: 3 MAY 2005
SEF Ref No. 6041

SUBMITTED TO:

Department of Environmental Affairs and Tourism
Private Bag X447
Pretoria 0001

DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND TOURISM

PREPARED FOR:

ESKOM TRANSMISSION

PO Box 1091
Johannesburg
2157

Tel: (011) 800 2465
Fax: (011) 800 3917
E-mail: john.geeringh@eskom.co.za

COMPILED BY:

Strategic Environmental Focus (Pty) Ltd

PO Box 74785
Lynnwood Ridge 0040
Pretoria

Tel: (012) 349 - 1307
Fax: (012) 349 - 1229
E-mail: sef@sefsa.co.za

S.E.F.
STRATEGIC ENVIRONMENTAL FOCUS

ESKOM KUDU INTEGRATION PROJECT FOR TRANSMISSION LINES AND SUBSTATIONS

PLAN OF STUDY FOR SCOPING

TABLE OF CONTENTS

SECTION 1: INTRODUCTION

Eskom Transmission is proposing to construct a transmission power line originating from Oranjemund in the Northern Cape to supply electricity to in the Western Cape by 2009. The proposed 400kV powerline will transport electricity from the Kudu Gas-Fired power station, which is being constructed at Oranjemund by Nampower, to the existing the Juno Substation near Vredendal. The affected substations are to be upgraded accordingly.

The area which the power line will traverse has been established, but the precise route of the powerline has not been determined at this stage (See the locality map attached as **Appendix 1**). Therefore the environmental process is expected to make a meaningful contribution in the route determination process, and thereby minimise environmentally significant impacts. Pertinent aspects of the project and study area requiring specialist's input have been identified and a meeting with the specialists has been held. There are two distinct sections of the powerline: in the northern portion between Alexander Bay and the existing Gromis Substation near Kleinzee and the southern section: between Gromis Substation and Juno Substation.

Strategic Environmental Focus (SEF) has been appointed by the Eskom Transmission to undertake the environmental process for the project as required by Regulation 1182 and 1183 and Sections 21, 22 and 26 of the Environmental Conservation Act, 1989 (Act No 73 of 1989).

1.1 SCOPE OF THE STUDY

Based on SEF's past experience and knowledge base with regards to Environmental Impact Assessment of power lines as well as the specialists' knowledge of the study area potential environmental issues have been identified. The study team is acutely aware of specific issues that are associated with the construction and operation of transmission lines from an environmental perspective. A list of the entire project team working has been attached as **Appendix 2.** All the specialists' investigations will be done at a high level of detail so as to enhance the chances of not needing to proceed to the EIA phase, as depicted in Figure 1. Therefore, the approach may be described as that of an Extended Scoping Exercise that seeks to provide sufficient information to the approving authorities, thereby enabling them to reach a decision at the end of this scoping phase.

An intensive Communication Strategy has also been developed to facilitate Public Participation Process throughout the scoping phase. This should also serve to pre-empt the need to follow a full EIA process.

The scope of the study will include the physical route of the powerline (biophysical footprint) as well as the broader environment, as determined by the various specialist disciplines. The boundaries chosen by these specialists will vary, as they are dependent on the respective disciplines (e.g. social, vegetation, noise, air quality, etc.). The specialists should be in a position to motivate and defend their decision about the size and extent of the study areas they demarcate.

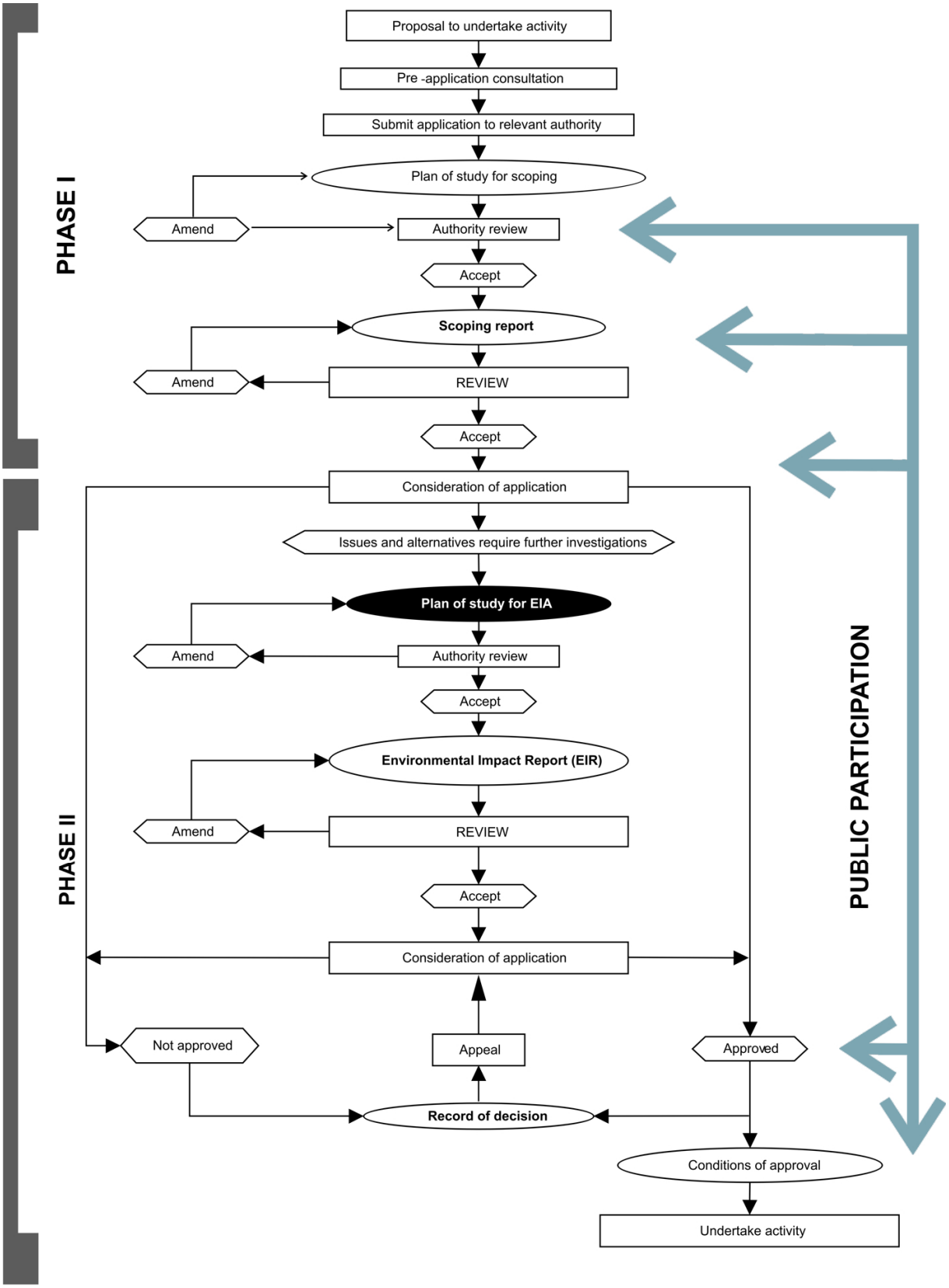

Figure 1: Application Procedure as prescribed by the Department of Environmental Affairs and Tourism, showing full EIA process. The scoping phase is replaced by an Extended-scoping study.

1.2 PURPOSE OF THE PLAN OF STUDY FOR SCOPING

The Plan of Study for the outlines the methods and techniques that will be utilised in the Extended Scoping Process. The level of detail of the study in this phase will be very high so as to enhance the likelihood of not having to go into a full EIA. A Communication Strategy has been developed to incorporate issues raised by I&APs, and key stakeholders into the study as part of the Plan of Study (see **Appendix 3**).

1.3 RELEVANT AUTHORITIES

As the project spans across two provinces, it is the prerogative of the Western Cape Department of Environmental Affairs and Development Planning, Northern Cape Department of Environmental Affairs and Tourism, as well as the National Department of Environmental Affairs and Tourism (DEAT), although the ultimate approving authority is DEAT. There has already been formal and constructive interaction between the Proponent, the Consultant as well as the National authorities. This approach of information sharing and interaction will be followed throughout the project. For the duration of the project there will be monthly management meetings between Eskom and SEF to bridge information gaps, as shown in the project programme. There will also be a pre-application meeting, as well as follow-up meetings with the Relevant Authorities, to enhance information sharing and timely decision-making. **Appendix 4** contains a proposed programme of activities, and it provides and indication of the intended period of interaction with the relevant authorities.

SECTION 2: ENVIRONMENTAL ISSUES

Environmental issues will be identified in the extended scoping phase through consultation with stakeholders, interested and affected parties and through specialists' studies. A three-day intensive site visit has been planned to carefully investigate issues pertaining specifically to the study area and to determine a route that is environmentally acceptable. The scoping phase will verify the potential risks, impacts and their significance to the elements of concern identified from previous experience in the construction of other transmission lines. These elements include amongst others the Namaqualand National Park, the mountainous regions in the Northern Cape and need to stay at least 10km away from the coastline, to avoid the corrosive impacts of sea salt. All specialists will recommend the most suitable route for the development. Specialist investigations will be carried in the following disciplines:

- Avifauna;
- Socio-Economic and Tourism;
- Geotechnical Study;
- Visual Impact Assessment;

- Impact on Vegetation and Habitats;
- Soil and Agricultural Impact; and
- Archaeology.

The environmental team will thus focus on discipline-specific problems, seeking to examine each significant issue in further detail through the relevant specialist studies. These studies will focus mainly on identifying potential preferred routes, with alternatives identified as well.

The Scoping Report will examine each issue and, based on the findings of the specialist studies, quantify the likely impacts of the development. Suitable mitigation measures for all identified impacts will provided by all specialist studies.

SECTION 3: FEASIBLE ALTERNATIVES AND ADDITIONAL STUDIES

Eskom Transmission has carried out studies to determine the most appropriate method to convey electricity to the Western Cape in order to counteract the envisaged energy shortages in the future. A study carried out in November 2004, by Eskom engineers, namely Pre-Engineering Transmission Integration Study: Steady State Analysis, examined possible transmission options of supplying electricity to the Western by integrating the Kudu power line into their existing network. These analyses revealed that the Kudu integration option is the most preferred option. The main findings from this study will be reviewed and presented in detail as part of the Scoping Report.

SECTION 4: METHODS OF IDENTIFYING IMPACTS

The methods used to identify the most likely impacts from the project on the environment include:

- SEF's professional knowledge base and past experience;
- Specialist studies, covering various technical aspects of the construction of the transmission line and the potentially significant impacts;
- A Public Participation Programme, involving various forms of public consultation;
- GIS Mapping and Overlays will be used to identify and map the alternative routes of the transmission line deemed to have fewer environmental impacts;
- Eskom is in possession of a database of all the affected landowners and their contact details that will be consulted in a transparent manner.

These methods, combined with a literature review of the relevant issues and impacts pertaining to the development will assist in identifying and assessing impacts.

SECTION 5: METHOD OF ASSESSING THE SIGNIFICANCE OF THE IMPACTS

The assessment will concentrate on addressing key issues. The methodology employed in the study will involve a circular route, which will allow for the evaluation of the efficiency of the process itself. The project will be divided into four phases in order to assess impacts related to Pre-construction, Construction, Operational, and Decommissioning phase. Assessment of activities in each phase will be undertaken in the following order:

a) Identification of key issues;

b) Analysis of the activities relating to the proposed development;

c) Assessment of the potential impacts arising from the activities, without mitigation;

d) Investigation of the relevant mitigation measures, as well as an assessment of their effectiveness in alleviating impacts. Mitigation measures are to be proposed by all the specialists involved in the project. The specialist studies will be based on the assessment procedure outlined below.

5.1 APPROACH TO THE STUDY

The specialists are to provide an outline of the approach used in the study. Assumptions and sources of information must also be clearly identified. The knowledge of local people should be incorporated in the study.

The description of the study approach shall include a short discussion of the appropriateness of the methods used in the specialist study in terms of local and international trends and specific practice.

5.1.1 Description of the affected environment

A description of the affected environment will be provided. The focus of this description must be relevant to the specialist's field of expertise.

The specialist must provide an indication of the sensitivity of the affected environment. Sensitivity, in this context, refers to the "inability" of an affected environment to tolerate disturbance, for example, if disturbance of the natural habitat results in the permanent loss of its biodiversity. The affected environment could be categorised as having a "low tolerance" to disturbance and is, therefore, termed a highly sensitive habitat. If, on the other hand, a habitat is able to withstand significant disturbance without a marked impact on its biodiversity, the affected environment could be categorised as having a high tolerance to disturbance (i. e. "low sensitivity" habitat).

5.1.2 Identification of Possible Risk Sources

The specialist must identify the potential sources of risk to the environment posed by the construction, operation and maintenance of the proposed pipeline. Risks are to be identified for the construction and operational phases of the project.

5.1.3 Impact Identification and Assessment

The specialist must make a clear statement, identifying the environmental impacts of the construction, operation and maintenance of the proposed pipeline. As far as possible, the specialist must quantify to suit of potential environmental impacts identified in the study and assess the significance of the impacts according to the criteria set out below. Each impact will be assessed and rated.

The assessment of the data must, where possible, be based on accepted scientific techniques, failing which the specialist is to make judgements based on his/her professional expertise and experience.

5.1.4 Assessment Procedure

The terms of reference for the specialist study include criteria for the description and assessment of environmental impacts. These criteria are drawn from the EIA Regulations, published by the Department of Environmental Affairs and Tourism (April 1998) in terms of the Environmental Conservation Act, 1989 (No. 73 of 1989). These criteria include:

5.1.4.1 Nature of the impact

This description should include what is to be affected and how.

5.1.4.2 Extent of the impact

The specialist will describe whether the impact will be: local - extending only as far as the line servitude; or limited to the site and its immediate surroundings; or will have an impact on the region; or will have an impact on a national scale.

5.1.4.3 Duration of the impact

The specialist must indicate whether the lifespan of the impact would be short-term (0-5 years), medium-term (6-10 years), long-term (>10 years) or permanent.

5.1.4.4 Intensity

The specialist should establish whether the impact is destructive or benign and should be qualified as low, medium or high. The specialist study must attempt to quantify the magnitude of the impacts and outline the rationale used.

5.1.4.5 Probability of occurrence

The specialist should describe the probability of the impact actually occurring and should be described as improbable (low likelihood), probable (distinct possibility), highly probable (most likely) or definite (impact will occur regardless of any prevention measures).

5.1.4.6 Legal requirements

The specialist should identify and list the relevant South African legislation and permit requirements pertaining to the development proposals. He/she should provide reference to the procedures required to obtain permits and describe whether the development proposals contravene the applicable legislation.

5.1.4.7 Status of the impact

The specialist should determine whether the impacts are negative, positive or neutral ("cost – benefit" analysis). The impacts are to be assessed in terms of their effect on the project and the environment.

5.1.4.8 Degree of confidence in predictions

The specialist should state what degree of confidence (low, medium or high) there is in the predictions, based on the available information and level of knowledge and expertise.

Based on a synthesis of the information contained in the foregoing procedure, the specialist is required to assess the potential impacts in terms of the following significance criteria:

- No significance – the impact does not have an influence on the environment in any way;
- Low significance – the impacts will have a minor influence on the environment. These impacts do not require modification of the project design or alternatives
- Moderate significance – the impacts will have a moderate influence on the environment. The impacts can be ameliorated by modification in the project design or implementation of effective mitigation measures.

- High significance – the impacts will have a major influence on the environment. These impacts could have the "No-go" implication on portions of the proposed development regardless of any mitigation measures that could be implemented.

In order to assess impacts that relate to more than one element of the environment (e.g. visual quality and land use), certain specialists may require information obtained from other specialists. A study team workshop may be held to ensure that all specialists and the client have a common understanding of the receiving environment and issues related to the project are addressed in a holistic manner.

For each of the two main project phases (construction and operation), the existing and potential future impacts and benefits (associated only with the proposed development) should be described using the criteria listed above – for example: extent (spatial scale), duration, intensity, etc. The impacts must then be assessed in terms of their significance (low, medium, or high) etc., and the degree of assessment confidence stated.

In order to maintain consistency in the impact assessment it is suggested that all potential impacts to the environment (or component of the environment under review) should be listed in a table similar to the example (Table 1) shown below.

Table 2: Impacts on STUDY SUBJECT without management / mitigation actions

	Activity	Nature of Impact	Extent of impact	Duration of impact	Intensity of impact	Probability of impact	Significance	
							WOM)	WM*
Construction Phases								
Operational Phase								

* With Mitigation
) Without Mitigation

5.1.5 Mitigation Measures

Mitigation measures should be recommended in order to enhance benefits and minimise negative impacts and they should address the following:

5.1.5.1 Mitigation objectives: what level of mitigation must be aimed at?

For each identified impact, the specialist must provide mitigation objectives (tolerance limits) which would result in a measurable reduction in impact. Where limited knowledge or expertise exists on such tolerance limits, the specialist must make an "educated guess" based on his/her professional experience.

5.1.5.2 Recommended mitigation measures

For each impact the specialist must recommend practicable mitigation actions that can measurably affect the significance rating. The specialist must also identify management actions, which could enhance the condition of the environment. Where no mitigation is considered feasible, this must be stated and reasons provided.

5.1.5.3 Effectiveness of mitigation measures

The specialist must provide quantifiable standards (performance criteria) for reviewing or tracking the effectiveness of the proposed mitigation actions.

5.1.5.4 Recommended monitoring and evaluation programme

The specialist is required to recommend an appropriate monitoring and review programme, which can track the efficacy of the mitigation objectives.

Each environmental impact is to be assessed before and after mitigation measures have been implemented.

The management objectives, design standards etc., which, if achieved, can eliminate, minimise or enhance potential impacts or benefits must, wherever possible, be expressed as measurable targets. National standards or criteria are examples, which can be stated as mitigation objectives.

Once the above objectives have been stated, feasible management actions, which can be applied as mitigation, must be provided.

A duplicate column on the impact assessment tables described above should indicate how the application of the proposed mitigation or management actions has reduced the impact. If the proposed mitigation is to be of any consequence, it should result in a measurable reduction in impacts (or, where relevant, a measurable benefit).

5.2 PROJECT PHASING

The impact assessment will provide an evaluation of the significance of each key impact in terms of the nature, probability, duration, extent and intensity. This will be done for each of the four phases of the project, Pre construction, Construction, Operational and Decommissioning.

5.2.1 Mitigation measures

Mitigation measures should be recommended in order to enhance benefits and minimise negative impacts and they should address the following:

5.2.1.1 Mitigation objectives: what level of mitigation must be aimed at?

For each identified impact, the specialist must provide mitigation objectives (tolerance limits) which would result in a measurable reduction in impact. Where limited knowledge or expertise exists on such tolerance limits, the specialist must make an "educated guess" based on his/her professional experience.

5.2.1.2 Recommended mitigation measures

For each impact the specialist must recommend practicable mitigation actions that can measurably affect the significance rating. The specialist must also identify management actions, which could enhance the condition of the environment. Where no mitigation is considered feasible, this must be stated and reasons provided.

5.2.1.3 Effectiveness of mitigation measures

The specialist must provide quantifiable standards (performance criteria) for reviewing or tracking the effectiveness of the proposed mitigation actions.

5.2.1.4 Recommended monitoring and evaluation programme

The specialist is required to recommend an appropriate monitoring and review programme, which can track the efficacy of the mitigation objectives.

Each environmental impact is to be assessed before and after mitigation measures have been implemented.

The management objectives, design standards etc., which, if achieved, can eliminate, minimise or enhance potential impacts or benefits must, wherever possible, be expressed as measurable targets. National standards or criteria are examples, which can be stated as mitigation objectives.

Once the above objectives have been stated, feasible management actions, which can be applied as mitigation, must be provided.

A duplicate column on the impact assessment tables described above should indicate how the application of the proposed mitigation or management actions has reduced the impact. If the proposed mitigation is to be of any consequence, it should result in a measurable reduction in impacts (or, where relevant, a measurable benefit).

5.3 PROJECT PHASING

The impact assessment will provide an evaluation of the significance of each key impact in terms of the nature, probability, duration, extent and intensity. This will be done for each of the four phases of the project: pre-construction, construction, operational and decommissioning phases.

SECTION 6: STUDY TEAM

The professional team responsible for carrying out the study will be as attached in **Appendix 2**, which provides the roles and responsibilities of each member of the team.

APPENDIX 1: LOCALITY MAP

APPENDIX 2: PROFESSIONAL TEAM

ORGANIZATION	NAME	SPECIALISATION	TEL	CELL	E-MAIL	FAX
Strategic Environmental Focus (SEF)	Andrew Woghiren	Project Manager	(012) 349 1307	083 450 0628	reuben@sefsa.co.za	(012) 349 1229
SEF	Guillaume Nel	Project Manager	(021) 418 2929	082 874 1910	guillaume@sefsa.co.za	(021) 418 6440
SEF	Lukas Niemand	Vegetation Assessment	(012) 349 1307	083 978 0817	lukas@sefsa.co.za	(012) 349 1229
SEF	Stefan du Toit	Visual Impact Assessment	(012) 349 1307	083 226 0828	stefan@sefsa.co.za	(012) 349 1229
University of Cape Town	Tim Hart	Archaeology	(021) 650 2357	073 141 8618	tjg@age.uct.ac.za	(021) 650 2352
Endangered Wildlife Trust	Chris van Rooyen	Avifauna	(011) 486 1102	082 454 9570	chrisv@ewt.org.za	(011) 486 1506
MSJ Consulting	Nino Welland	Geo-Technical	(011) 326 2558	082 567 1561	msjjhb@ifrica.com	(011) 326 2568
N/A	Damien Terlien	Social Impact and Tourism	(021) 531 1406	083 521 9404	damien.terlien@ananzi.co.za	086 650 8187
University of Stellenbosch	Freddie Ellis	Soil and Agriculture Impact Assessment	(021) 808 3659		fe@sun.ac.za	(021) 808 4791

APPENDIX 3: COMMUNICATION STRATEGY FOR THE EXTENDED SCOPING PROCESS

APPENDIX 4: PROPOSED PROGRAMME OF ACTIVITIES