

Comments and Responses Trail for the public review of the Draft Integrated Environmental Management Plan (IEMP) for the South African mid-frequency array of SKA Phase 1 (SKA1_MID) after publication in Government Notice 213 in Government Gazette 41498 of 16 March 2018

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Purpose:

This document provides comments from interested and affected parties received by the Department of Environmental Affairs during the public review period of the Government Notice 213 in Government Gazette 41498 of 16 March 2018, for the notice of intention to adopt the Integrated Environmental Management Plan (IEMP) of the Square Kilometre Array project (SKA Phase 1) as an environmental management instrument, in terms of section 24(2)(e) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA"). Responses provided by the Department of Environmental Affairs are provided in this document.



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

SKA INTEGRATED ENVIRONMENTAL MANAGEMENT PLAN AS ENVIRONMENTAL MANAGEMENT (GoN 213 of 16 March 2018)

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COMMENTS AND RESPONSE REPORT

No.	ORGANISATION (STAKEHOLDER NAME)	STATEMENT/ COMMENT	RESPONSE/ ACTION TAKEN
COMMENTS SUBMITTED TO THE DEPARTMENT			
GENERAL COMMENTS			
1	University of Free state (Prof. HO de Waal)	Comment: As stated previously (ALPRU's input; 17 March 2017), the development of the SKA Project will have unintended consequences for a traditional farming community. The SKA Project (which is already partly implemented) is being established on a large tract of rural South African landscape; in an area still predominantly engaged in traditional sheep farming.	Comprehensive agricultural impact assessment study which considered the impacts of SKA on livestock farming including sheep farming, was undertaken through the SEA process. Specialist study report available online at: http://www.skaphase1.csir.co.za/?page_id=984
2		Comment: The SKA Project must engage the farming community with the necessary sensitivity in the short to longer term. The potential for an escalation in human-	<u>Agreed.</u>

APPENDIX B: Comments and Responses Trails for the public review of the Draft Integrated Environmental Management Plan (IEMP)

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		wildlife conflict must have been pre-empted and, therefore, have been managed from a much earlier stage in the initiation of the development.	The University of Cape Town, is underway with a research on human and wildlife interaction within the SKA area. In addition, Chapter 6 page 40 indicates that the fences must be maintained with inspections for damage including the frequency.
3		Comment: It is essential to establish and foster good neighbourly relations between the NRF/SKA property and neighbouring farms. It is widely perceived that the SKA Project is the “invader” in a traditional sheep farming community, therefore having good neighbourly relations should have been a very high priority because the expected lifetime of the SKA Project is about 50 years.	<u>Agreed.</u> <i>Please see response to comment 2 above.</i> Furthermore the – - <i>neighborhood farm forum has been established to address issues of concern.</i> - <i>Integrated Environmental Management Plan (IEMP) document (Chapter 5: EMP) includes the SKA stakeholder consultation programme.</i>
4		Comment: Given the vast area claimed by the NRF/SKA property and the large number of neighbouring farms, a joint committee is needed to enable effective liaison and coordination, specifically to manage predation and address other issues of common interest to both groups of neighbours.	<u>Agreed.</u> <i>Please see response to comment 2 above.</i> Furthermore the – - <i>neighborhood farm forum has been established to address issues of concern; and</i> - <i>IEMP document (Chapter 5: EMP) includes the SKA stakeholder engagement programme.</i>
5		Comment: This advice seems to have been accommodated. However, it may already be a case of too little, too late in addressing major farmer and community concerns. If left unattended or addressed too late during further implementation of NRF/SKA operations, the lack of important aspects of social cohesion will definitely lead to unintended but escalating social conflict.	The SEA included a socio-economic assessment and consultation in which all issues were discussed and there is a stakeholder engagement programme that must be implemented. Specialist study report available online at: http://www.skaphase1.csir.co.za/?page_id=984

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6		<p>Comment: A process has been started to engage with stakeholders (Workshops arranged for 24, 25 and 26 April 2018 in Williston, Brandvlei and Carnarvon respectively) to develop the SARAO National Park Management Plan during the 2018/19 financial year [SARAO; South African Radio Astronomy Observatory]. Once established, the SARAO National Park will be managed by SANParks.</p>	<p><u>Noted.</u></p>
7	<p>AGRI SA (Janse Rabie)</p>	<p>Comment: Agri SA supports all initiatives by the Department of Environmental Affairs (“the Department”) towards the effective management of South Africa’s natural resources. Agri SA is pleased to submit its comments on the Notice of Intention to adopt the Integrated Environmental Management Plan of the Square Kilometre Array (Phase 1) (the “Project”) as Environmental Management Instrument and to Exclude, in terms of section 24(2)(e) of the National Environmental Management Act, 1998, activities in terms of section 24(2)(a) or (b) of the Act from the Requirement to obtain Environmental Authorisation in terms of the Act (the “Draft IEMP”).</p>	<p><u>Noted.</u></p>
8		<p>Comment: Regulation 13 of the Environmental Impact Assessment Regulations, 2014 require foremost that an environmental impact assessment practitioner (“EAP”) be independent. Agri SA is concerned about the independence of the EAP appointed by the National Research Foundation (“NRF”) to conduct the</p>	<p>The CSIR was appointed by the Department of Environmental Affairs to undertake a Strategic Environmental Assessment for the SKA1_MID for the Strategic Integrated Projects (SIPs), established in support of the 2030 National Development Plan. The Department of Environmental Affairs (DEA) has committed to contribute to the implementation of the National Development Plan and National Infrastructure Plan by undertaking Strategic Environmental Assessments (SEAs) to identify adaptive processes that integrate the</p>

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		Draft IEMP on its behalf i.e. the Council for Scientific and Industrial Research (CSIR). The CSIR's shareholder is the South African Parliament, held in proxy by the Minister of Science and Technology. The NRF equally falls under the purview of the Department of Science and Technology. As such, the issue of independence of the CSIR in preparing the Draft IEMP is immediately questionable.	regulatory environmental requirements for Strategic Integrated Projects (SIPs) while safeguarding the environment. The Council for Scientific and Industrial Research, or CSIR, is a world-class African research and development organisation established through an Act of Parliament in 1945. The CSIR's shareholder is the South African Parliament, which is held in proxy by the Minister of Science and Technology. Specialists were appointed to undertake surveys and assessment of environmental sensitivities on the site during the SEA. Furthermore the independency of the assessment was ensured by the peer-review of external experts of the content of the IEMP.
9		<p>Comment: The Government Notice (GoN 213 of 16 March 2018) in terms of which the Draft IEMP is proposed to be adopted for the Project contains as schedule which stipulates, amongst other things, conditions to the exclusion contained in the Notice. The Notice itself, as signed by the Minister, contains no reference to the Schedule.</p> <p>Should the Department wish that the Schedule (which contains material information which is pertinent to the adoption of the Draft IEMP for the Project) to form part of the Notice, it is submitted that the Notice itself is deficient by virtue of the fact that it nowhere refers to nor includes the contents of the Schedule as forming part of the Notice. This omission of the inclusion of the Schedule in terms of the Notice itself renders the Notice materially defective.</p>	<p><u>Agreed.</u></p> <p>This will be amended and will reflect in the final government notice.</p>
10		<p>Comment: In terms of condition 4.1.2 of the Schedule to GoN 213 of 16 March 2018, the NRF may: "amend the environmental management actions contained in the Environmental Management Programme, if</p>	<p>In accordance to the current EIA regulations, the principle is that the amendment to:</p> <ul style="list-style-type: none"> - <i>Impact management actions can be effected immediately without consultation in line with regulation 36; and</i>

APPENDIX B: Comments and Responses Trails for the public review of the Draft Integrated Environmental Management Plan (IEMP)

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		<p>required in order to achieve the management outcomes, by:</p> <p>(4.1.2.1) effecting such amendments immediately;</p> <p>(4.1.2.2) reflecting such amendments in the annual external environmental audit report as contemplated in the Environmental Management Programme.”</p> <p>It is submitted that the provisions of clause 4.1 of the Schedule to the Notice has the effect of allowing for the NRF to amend the provisions of the Draft IEMP at any time and in any way it deems fit so long as such an amendment is aimed generally at achieving the management outcomes of the Environmental Management Programme.</p> <p>This provision creates wholesale uncertainty as to the environmental management of Phase 1 of the Square Kilometre Array. There appears to be no point in submitting comments to the Draft IEMP if the NRF is permitted to amend the Environmental Management Programme at any time in any manner it may deem fit with immediate effect. This provision creates significant mistrust in the process conducted in respect of the Project.</p>	<p>- <i>Impact management outcomes must be consulted and approved as per regulation 37.</i></p> <p>The scope of amendments will also be clarified in the Notice itself and will be limited similar to the requirements of the regulations</p>
11	University of Free state (Prof. HO de Waal)	Comment: In conclusion, it is suggested that all citations/references in the text are double checked before publishing the final version of the IEMP.	<u>Agreed.</u> The IEMP document will be checked before final publication.
DEFINITIONS			

APPENDIX B: Comments and Responses Trails for the public review of the Draft Integrated Environmental Management Plan (IEMP)

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12	AGRI SA (Janse Rabie)	<p>Comment: The definitions section of the Draft IEMP contain various terms that are defined under a variety of specific environmental management acts. However, such definitions are inaccurately captured. For example, the definition of “waste” entails a definition of that term as is was recorded in a previous version of the National Environmental Management: Waste Act, 59 of 2008, but which is no longer used.</p> <p>The use of redundant definitions for purposes of the Draft IEMP renders such defined terms meaningless.</p>	The definitions were removed from the IEMP in order to avoid confusion.
13	Gauteng department of agriculture and rural development (GDARD)	<p>Comment: no definition provided for on what integration means in the context of this document.</p>	<p>The word integration has been used as a noun in Chapter 1: Page 8. <i>i.e. pedestal integration shed has been defined as where all antenna components are integrated.</i></p> <p>Further the word integration was used as a verb in all other cases.</p>
CHAPTER 1: INTRODUCTION			
II. The MeerKAT telescope			
14	GDARD	<p>Comment: please indicate the independent environmental assessment practitioners (EAP's) that conducted the geotechnical and hydrogeological studies.</p>	The details of the specialists who have undertaken the specialist assessment during the SEA are included in Table 1 of Chapter 3 of the IEMP.
CHAPTER 2: PROJECT SCOPE			
III. Establishment of a Protected Area in the SKA telescope core			

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1. Legal Framework to declare a Protected Area			
15	GDARD	<p>Comment: South Africa is an international signatory to international environmental legislation governing protected areas therefore it is imperative to highlight this in the legal framework to declare a protected area. It is only fitting that such should be highlighted since the project has an international significance.</p>	<p>Noted. Reference to Article 8 of the Convention on Biological Diversity which advocates for establishment of a system of protected areas to conserve important aspects of biological diversity and which partly informed the formulation of both NEMBA and NEMPAA at the domestic level will be added. As indicated in Chapter 2, the declaration of the SKA Core Area as a Protected Area has been initiated in terms of Chapter 3 of the National Environmental Management (NEM): Protected Areas Act, 2003 (Act No 57 of 2003) (NEMPAA).</p>
2. Declaration of the SKA telescope core as Protected Area and land management			
16	AGRI SA (Janse Rabie)	<p>Statement: Paragraph 2 of Chapter 2 of the Draft IEMP records that the SKA telescope core area is proposed to be a Protected Area in terms of the National Environmental Management: Protected Areas Act (Act No 57 of 2003). The South African SKA Office (NRF) is recorded to be investigating the options available to enter into a Memorandum of Understanding with SANParks or other similar conservation agency.</p> <p>Comment: In the absence of any detail as to the kind of protected area to be declared or confirmation of the role of SANParks in the management of such area, there appears to be no assurance as to who will be managing the environmental impacts associated with the Project. Specific details are required to inform this critical aspect of the Draft IEMP.</p>	<p>The Land Management Authority is appointed by the Minister of Environmental Affairs in terms of the NEM: Protected Areas Act. Certain requirements are placed on the Land Management Authority and in the case of the SKA, the land management authority will be responsible for the development and implementation of the Land Management Plan for the SKA telescope core during all phases of the development. The process of appointing SANParks as the land management authority is in an advanced state.</p>
17	GDARD	<p>Comment: The Nama Karoo biome also provides significant ecological services to other biomes. The impact of the biophysical and biodiversity of this area</p>	<p>SAEON will monitor changes in plant productivity and ground cover, rainfall and temperature, as well as other characteristics of the biophysical and biodiversity of the area during the long term monitoring programmes described in Chapter 6 of the IEMP. Where necessary,</p>

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		to other areas should be investigated. This will add a deeper rationale to conserve the area.	management actions will be included in the Land Management Plan to be implemented within the SKA telescope core.
18	GDARD	Comment: When drafting a memorandum of understanding (MOU) to ensure that the protection and management of heritage resources is adequately considered as part of the management of the protected area the local community should also be consulted not only the South African Heritage Resources Agency (SAHRA) and the Northern Cape Heritage Resources Authority (NCHRA).	Agreed. Once the land management authority has been appointed, the SAHRA, the NCHRA and the local community will be consulted to provide inputs in drafting the memorandum of understanding (MOU) to ensure that the protection and management of heritage resources is adequately considered as part of the management of the protected area.
IV. Existing SKA infrastructure			
9. Farm Buildings			
19	GDARD	Comment: The long-term heritage sites maintenance plan should also focus on the impact of the accessibility to general public has on the preservation efforts for such heritage sites.	Once the land management authority has been appointed, a Heritage Conservation Management Plan will be prepared according to the National Heritage Resources Act 25 of 1999 for the ongoing management of heritage resources including maintenance of significant structures and maintenance and access to burial grounds and graves including record (coordinates, description and maps). Historical structures and graves that are older than 60 years old are automatically protected under section 34, 35 and 36 of the National Heritage Resources Act (NHRA Act no 25 of 1999) as they form part of the national estate (section 3 of the NHRA) and must be preserved with the establishment of a long-term heritage sites maintenance plan that also takes in to account the challenges that are brought by accessibility to the public. It should however be noted that the nature of the SKA activities will exclude the general public from the area.
10. Man-made dams			

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20	GDARD	Comment: The comparative study should not only focus on how animals use water supplies on the farms neighbouring the SKA telescope.	Chapter 2 of the IEMP does specify that the comparative study of animals using water supplies on the farms neighboring the SKA telescope core and within the core area will be conducted during the long term research and monitoring programmes and the results of this study will be included in the review of the IEMP. See chapter 2 of the IEMP.
12. Fencing			
21	AGRI SA (Janse Rabie)	<u>Page 36</u> Comment: The provisions regarding the construction and maintenance of the fences along the boundary of National Research Foundation-owned land requires further detail. This issue is of fundamental importance to surrounding farmers. It is anticipated that the creation of a protected area within the core area of the Project may create an environment that is conducive to predator (including jackals and caracals) propagating. It is therefore vitally important that any fencing off of such an area be described in detail, including the effects of such a fence on the environment as well as measures that will be applied to ensure that neighboring properties are not negatively effected by a protected area adjacent to their properties.	As indicated in Section 12 of Chapter 2 all fences between separate farms within the boundary of National Research Foundation-owned land will be removed to allow wildlife to move freely across the land. Fencing around the boundary of National Research Foundation-owned land will be retained and upgraded in the interim. Once appointed the Land Management Authority will be responsible for determining suitable specifications of the fences, as well as construction and maintenance of the fences, in consultation with the SKAEON committee.
22	University of Free state (Prof. HO de Waal)	<u>Page 36</u> Comment: The Fencing Act [Act 31 of 1963], as amended, is applicable to all relevant citations in the text; it provides a definition for a “jackal-proof fence” without providing specifications. Therefore, “Section	As indicated in Chapter 2 the fencing around the boundary of National Research Foundation-owned land will be retained and upgraded and be jackal-proof.

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		7 Notice in respect of erection of a boundary fence” is of particular interest. The First Schedule: Notice of Intention to Fence (First Schedule amended by s. 3 of Act 3 of 1971) provides a set format for specific arrangements between landowners.	
V. Proposed SKA activities and Infrastructure			
10. Access roads to the dish-antennas			
23	University of Free state (Prof. HO de Waal)	<u>Page 72</u> Comment: Special attention is drawn to the construction or upgrading of access roads traversing private land and giving access to dish-antennas in the spiral arms; these gates and cattle grids in the perimeter fences must also be predator-proof	<u>Agreed.</u> Predator proof cattle grids and gates have been included in the infrastructure design in consultation with the local farming unions.
III. Monitoring and Auditing			
26	GDARD	Comment: When investigating climatic issues also consult the “lets respond toolkit” for climate change.	<u>Noted.</u> The “lets respond toolkit” for climate change will be consulted during the long term research and monitoring programmes which are planned to study the impacts of climate change and study animal movements within the core area as well as eco hydrological and biogeochemical cycling in relation to vegetation dynamics under climate change.
27		Comment: the register shouldn't only focus on the corrective action but also highlight the responsible authority for such corrective actions.	<u>Agreed.</u> The responsible authority for such corrective actions will be identified in terms of the EMPr roles and responsibilities.

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28		<p><u>Page 3 paragraph 3</u></p> <p>Statement: All environmental incidents regardless of severity must be reported to the SKA Environmental Manager during all phases of the SKA project for inclusion into the Environmental Incident Log.</p> <p>Comment: the project is expansive, chance for environmental non-compliance are huge, which could render compliance monitoring ineffective if not properly catered for from the authorities point of view.</p>	<p>Compliance with the requirements of the EMPr will be regularly audited by SKA environmental manager as well as by an independent environmental control officer (ECO). Regular site inspection and punitive measures must be implemented where necessary in line with the EMPr. Reporting on the findings of the audits including any issues of non-compliance will be submitted to the relevant authorities.</p>
5. Visual Impacts			
29	GDARD	<p><u>Page 25</u></p> <p>Comment: the large antennas and light will change the local ambiance of the area.</p>	<p>A visual assessment was conducted during the SEA to assess any impact at landscape level, focusing on the sense of place and potential impacts on receptors in the area (including impacts on tourism and character of the Karoo). All necessary mitigation measures and management actions to avoid or mitigate visual and lighting impacts of the SKA activities are included in the EMPr.</p> <p>Specialist study report available online at: http://www.skaphase1.csir.co.za/?page_id=984</p>
7. Alien invasive plant species control			
30	GDARD	<p>Comment: no mention of how the identified alien invasive plants will be controlled within the SKA area to mitigate the spread and the environmental impacts such as water.</p> <p>There is also no mention of a programme to replace alien invasive plants with indigenous plants to mitigate</p>	<p>An alien invasive monitoring programme is included in Chapter 6 of the IEMP. This programme describes how identified alien invasive plants will be controlled within the SKA area to mitigate the spread and the environmental impacts such as water. Mitigation measures and management actions for the control and eradication of alien invasive plants are included in Chapter 5 the IEMP document.</p> <p>Furthermore a programme for the rehabilitation of alien vegetation clearing sites is included in section 7 of Chapter 6. This programme aims to ensure the re-vegetation and habitat</p>

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		soil erosion and support sustainability of the local ecosystem. Alien plants occurring on-site have been identified, please provide clarity on what controls will be put in place to curb the spread.	restoration (rehabilitation) of alien vegetation clearing sites within the proposed development area, including the replacement of alien invasive plants with indigenous plants to mitigate soil erosion and support sustainability of the local ecosystem.
	GDARD	<p><u>Page 51 last sentence</u></p> <p>Statement: <i>potential declaration of the SKA telescope core as a protected area in terms of the National Environmental Management: Protected Areas Act, 2003 are potential positive impacts of the project.</i></p> <p>Comment: if the site is protected in terms of NEMBA, what will be the impact of development activities proposed in the area, looking at the number of licenses issued for the same vicinity. Sustainable development approach that is preventative and mitigatory in its approach must be adopted.</p>	It is the intention to declare the SKA telescope core area as a Protected Area in terms of the National Environmental Management (NEM): Protected Areas Act (Act No 57 of 2003). The South African Environmental Observation Network (SAEON) conducted an assessment of the SKA telescope core and confirmed that the formal recognition of the SKA telescope core as a protected area is considered appropriate and warranted. The appointed Land Management Authority will be responsible for the development and implementation of the Land Management Plan for the SKA telescope core during all phases of the SKA1_MID development which will include all necessary mitigation measures and management actions to ensure sustainable development in the protected area.
9. Flora and Fauna			
31	University of Free state (Prof. HO de Waal)	<p>Comment: However, given the frequent statement “Poaching/hunting/intentional killing of any animal is not tolerated under any circumstances” [Chapter 4], it may be very difficult to reconcile this with the concept of coordinated predation management, which include control (that is hunting or intentional killing) of predators, on the NRF/SKA property.</p>	As described in Chapter 6 Section VII, the National Research Foundation together with research and monitoring partners will develop strategies to contribute to improving management of impacts related to predators such as jackal and caracal throughout the lifetime of SKA1_MID (at least 50 years). Such strategies will be developed together with the local farmers and based on expert knowledge that may be presented to the local community to improve knowledge on the current situation.
32		<p><u>Page 12, 15, 61 & 125</u></p>	Details on the predator research and monitoring programme is included in Chapter 6 of the IEMP. The appointed Land Management Authority will be responsible for the development

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		<p>Comment: Frequent references are made in the text to “Ensure that the Predator Control and Monitoring programme is implemented as part of the Land Management plan” [Chapter 4, pp 12, 15, 61 & 125]; but without providing specific detail on this important aspect of predation management or when it will happen. This may be intentional, as suggested below.</p>	<p>and implementation of the Land Management Plan for the SKA telescope core during all phases of the SKA1_MID development which will include predator control and management strategy.</p>
33	GDARD	<p><u>Page 57 last bullet</u> Statement: <i>The declaration of a protected area within the SKA telescope core and the presence of a major scientific presence must be leveraged as much as possible to create awareness and appreciation of science and the environment and to foster “green economy” opportunities for the local community.</i> Comment: development of local communities to enable the access to benefits of having a project of this magnitude in their area.</p>	<p>Different strategies must be applied to the different stakeholders groups in order to manage the various expectations and reach the best outcomes when engaging with stakeholders. Since the inception of the SKA project, the South African SKA Office has been partaking in stakeholder management on different levels through stakeholder forums, feedback sessions with the public, schools programs, media events, and community development.</p> <p>A socio-economic assessment was conducted during the SEA to assess any impact on local communities and propose initiatives and activities for the development of local communities. A stakeholder engagement programme is included in Section X of the chapter 4. Furthermore mitigation measures and management actions are included in the EMPr.</p> <p>Specialist study report available online at: http://www.skaphase1.csir.co.za/?page_id=984</p>
34		<p>Statement: <i>The declaration of a protected area within the SKA telescope core and the presence of a major scientific presence must be leveraged as much as possible to create awareness and appreciation of science and the environment and to foster “green economy” opportunities for the local community.</i> Comment: focus on improving education and instilling an attitude that embraces maths science.</p>	<p>Within SKA there are different community engagement programs including Science Engagement programs (Schools outreach) and Human Capital Development activities (Artisan program and identification of talent).</p> <p>Furthermore the socio-economic specialist report describes the various Human Capacity Development Programmes that have been established by the SKA South Africa in an effort to uplift the local area, develop the astronomy and astrophysics teaching at South African universities, and create new skills and training opportunities. Amongst the various SKA SA Human Capacity Development Programmes, the local outreach programme, Further Education and Training (FET) programme, the Maths/Science Teacher programme, the SKA</p>

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			SA Human Capacity Development (HCD) Programme Bursary programme, and the University partnership and school exchange programme. Specialist study report available online at: http://www.skaphase1.csir.co.za/?page_id=984
	GDARD	Page 70 Comment: generation of dust from development activities is an issue that will have to be managed closely. How will it be mitigated? The area is largely sandy and prone to dust generation.	Generation of dust from development activities has been addressed in the IEMP and required mitigation measures and management actions for the suppression of dust generated by the SKA activities are included in the Chapter 5 of the IEMP (EMPr).
VIII. Construction phase EMPr requirements			
10. Water use, Water Quality and Soil Contamination			
35	GDARD	Page 92 Comment: storage of hazardous materials, fuel and lubricants. Soil contamination by fuels and other toxic materials.	Hazardous material management has been addressed in the IEMP and required mitigation measures and management actions are included in the Chapter 5 of the IEMP (EMPr).
IX. Operation phase EMPr requirements			
8. Solid and hazardous waste management			
36	GDARD	Comment: disposal of electrical and electronic waste, disposal of scrap metal waste and nuclear based waste.	Management and disposal of all hazardous waste has been addressed in the IEMP and required mitigation measures and management actions are included in the Chapter 5 of the IEMP (EMPr).
37		Comment: this being a greenfield development, there is an ample opportunity to integrate energy efficiency, water efficiency, zero waste – recycling and generation of electricity from waste into the development planning.	The following efficiency measures will be adopted within the SKA area: - <i>Recycling of grey water;</i> - <i>Use of renewable energy; and</i>

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			- <i>Removal of alien invasive species which will improve the water table.</i>
9. Archaeological, paleontological and other cultural resources			
38	GDARD	Comment: this will be a tourist destination, preservation of culturally, archeologically and environmentally sensitive/ appealing features must be integrated into the development plan.	The preservation of culturally, archeologically and environmentally sensitive/ appealing features has been addressed in the IEMP and required mitigation measures and management actions are included in the Chapter 5 of the IEMP (EMPr). Furthermore, once the land management authority has been appointed, a Heritage Conservation Management Plan will be prepared according to the National Heritage Resources Act 25 of 1999 for the ongoing management of heritage resources.
X. SKA Stakeholder Engagement Programme			
39	GDARD	Comment: exchange of local knowledge in the SEA study area and the review of the draft Integrated Management Plan.	<u>Agreed.</u> The SKA Stakeholder Engagement Programme included in Chapter 4 of the IEMP represents South African SKA Office's commitment to work effectively with local community and the wider public on a long term basis throughout the lifetime of the SKA project.
40		Comment: the following 5-point strategic approach will guide all engagement activities: <ul style="list-style-type: none">- Investing in the youth- Supporting community upliftment programmes- Developing small to medium enterprises- Nurturing learners' talent; and- Ensuring that communication connectivity is not compromised.	The proposed strategic approach is in line with the objectives and proposed activities of the SKA Stakeholder Engagement Programme included in Chapter 4 of the IEMP.
Land Management			

APPENDIX B: Comments and Responses Trails for the public review of the Draft Integrated Environmental Management Plan (IEMP)

No.	ORGANISATION (STAKEHOLDER NAME)	STATEMENT/ COMMENT	RESPONSE/ ACTION TAKEN
COMMENTS SUBMITTED TO THE DEPARTMENT			
41	University of Free state (Prof. HO de Waal)	Comment: The absence of providing important detail on the “Predator Control and Monitoring programme”, which will form part of the envisaged “Land Management plan”, may have been intentional and in anticipation of the objective to declare the SKA core area as a Protected Area?	Details on the predator research and monitoring programme is include in Chapter 6 of the IEMP. The appointed Land Management Authority will be responsible for the development and implementation of the Land Management Plan for the SKA telescope core during all phases of the SKA1_MID development which will include predator control and management strategy.
Chapter 5: Research and Monitoring Programmes			
I. Implementation of the research and monitoring programmes			
42	University of Free state (Prof. HO de Waal)	<u>Page 1</u> Comment: As the envisaged area of NRF/SKA operations increases (Chapter 5, section 1, p 1), the existing perimeter fences must be upgraded as a high priority to comply with the minimum specifications to prevent predators from migrating to neighboring farms.	As indicated in Section 12 of Chapter 2 fencing around the boundary of National Research Foundation-owned land will be retained and upgraded to be jackal-proof fences. Once appointed the Land Management Authority will be responsible for determining suitable specifications of the fences, as well as construction and maintenance of the fences, in consultation with the SKAEON committee.
43		Comment: The perimeter fences must be accessible for vehicles and inspected regularly to detect and repair any defects (burrowing animals such as aardvark or warthog and possible damage by rainwater along waterways).	This is addressed in Chapter 6 of the IEMP.
VII. Predator Species Monitoring			
44	University of Free state (Prof. HO de Waal)	Comment: <u>Page 33</u> Comment: Drouilly et al. (2017) concluded that farmers must protect their livestock from predators,	Reference included as a footnote.

APPENDIX B: Comments and Responses Trails for the public review of the Draft Integrated Environmental Management Plan (IEMP)

No.	ORGANISATION (STAKEHOLDER NAME)	STATEMENT/ COMMENT	RESPONSE/ ACTION TAKEN
COMMENTS SUBMITTED TO THE DEPARTMENT			
		<p>even when wild prey are abundant because black-backed jackals prefer sheep and goats over similar sized wild mammals. It was further concluded that it is still likely that protected areas provide sources of dispersing predators to recolonize territories rendered vacant on farmland by culling efforts.</p> <p><i>Reference: Drouilly, Marine, Natrass, Nicoli & O’Riain, M.J., 2017. Dietary niche relationships among predators on farmland and a protected area. The Journal of Wildlife Management; DOI: 10.1002/jwmg.21407.</i></p>	
2. Predator species			
45	University of Free state (Prof. HO de Waal)	<p><u>Page 35</u></p> <p>Comment: The reference for Bergman et al. (2013), as provided in footnote38 [Chapter 5, section 2, p 35], is incomplete. It should read:</p> <p>Reference: <i>Bergman, D.L., De Waal, H.O., Avenant, N.L., Bodenchuk, M.J., Marlow, M.C. & Dale, D.L., 2013. The need to address black-backed jackal and caracal predation in South Africa. Proceedings 15th Wildlife Damage Management Conference, 25-28 March 2013, Clemson, South Carolina (J.B. Armstrong, G.R. Gallagher, Eds.).</i></p>	Reference included as a footnote.
46		<u>Page 37</u>	Reference included as a footnote.

APPENDIX B: Comments and Responses Trails for the public review of the Draft Integrated Environmental Management Plan (IEMP)

No.	ORGANISATION (STAKEHOLDER NAME)	STATEMENT/ COMMENT	RESPONSE/ ACTION TAKEN
COMMENTS SUBMITTED TO THE DEPARTMENT			
		<p>Comment: A recent study is cited without the reference being provided in a footnote, namely Du Plessis et al. (2015) [Chapter 5, section 2, p 37]; for completeness, two references are relevant for this study and should be provided as footnotes, namely:</p> <p>Reference: <u>Du Plessis, J., 2013. Towards the development of a sustainable management strategy for Canis mesomelas and Caracal caracal on rangeland. Ph.D. thesis. University of the Free State, Bloemfontein, South Africa.</u></p> <p><u>Du Plessis, J.J., Avenant, N.L. & De Waal, H.O., 2015. Quality and quantity of the scientific information available on black-backed jackals and caracals: contributing to human-predatorconflict management? African Journal of Wildlife Research 45(2): 138-157.</u></p>	
6. Predation Management Forum and ALPRU's Inputs			
47	Predation Management Forum (PMF) (Guillau du Toit)	<p><u>Chapter 5: Page 45 – The isolation (Jackal proof fence)</u></p> <p>Comment: The best possible managing strategy to control predators is by means of a good method of isolation.</p>	<p><u>Noted.</u></p> <p>As indicated in Section 12 of Chapter 2 fencing around the boundary of National Research Foundation-owned land will be retained and upgraded to be jackal-proof. Once appointed the Land Management Authority will be responsible for determining suitable specifications of the fences, as well as construction and maintenance of the fences, in consultation with the SKAEON committee.</p>
48		<p><u>Chapter 5: Page 45 – Constructing the fence</u></p>	

APPENDIX B: Comments and Responses Trails for the public review of the Draft Integrated Environmental Management Plan (IEMP)

No.	ORGANISATION (STAKEHOLDER NAME)	STATEMENT/ COMMENT	RESPONSE/ ACTION TAKEN
COMMENTS SUBMITTED TO THE DEPARTMENT			
		<p>Comment: The construction of the isolation or jackal proof fence should consist of the following.</p> <ul style="list-style-type: none"> - Corner and end poles should be at least 65mm in diameter - Iron poles must be 1.85m - Droppers must be 1.4m - Bottom steel wire of fence must be 2.2mm - Remaining steel wires must be 2mm - Netting must be 1.2m (height) with 75mm gap openings and 1.8mm wire thickness. - Fence must be protected by both inner and outer anti crawlers - Crawlers must be packed with stones - All gates to the premises must have cement anti crawlers underneath gate - Total height of fence must be 1.4m - Overhang of 500mm must be constructed on top of fence 	
49	University of Free state (Prof. HO de Waal)	<p><u>Page 45</u></p> <p>Comment: The specifications for a so-called “jackal-proof fence” (as provided in detail by the PMF) should be considered a “predator-proof fence” because it must also be able to effectively prevent caracal from migrating to farms.</p>	The new fence will be predator proof deterring jackals and caracal.
50		<p>Comment: It seems inevitable that the perimeter fences of the envisaged SARAO National Park will</p>	<u>Agreed.</u>

APPENDIX B: Comments and Responses Trails for the public review of the Draft Integrated Environmental Management Plan (IEMP)

No.	ORGANISATION (STAKEHOLDER NAME)	STATEMENT/ COMMENT	RESPONSE/ ACTION TAKEN
COMMENTS SUBMITTED TO THE DEPARTMENT			
		have to comply with the SANParks Policy, relevant specifications and the wildlife species available or introduced to the SARAO National Park; such perimeter fences will differ substantially, yet comply with what has been requested by the farming community.	The Land Management Authority will be responsible for determining suitable specifications of the fences, as well as construction and maintenance of the fences, in consultation with the SKAEON committee and the community.
51		Comment: It may take some time for the SARAO National Park to become operational. Therefore, it is important that the status of the perimeter fences of the NRF/SKA property be attended to and upgraded or maintained at the level of being predator-proof.	<u>Agreed.</u> As indicated in Section 12 of Chapter 2 fencing around the boundary of National Research Foundation-owned land will be retained and upgraded to be jackal-proof. In addition, the National Research Foundation is working on strategies together with the local farmers for the control and management of predator in the area.
52		<u>Page 47: second last paragraph</u> Comment: Good perimeter fences are the first lines of defence for livestock farmers to mitigate the impact of predation (black-backed jackals and caracals). Appropriate perimeter fences are to be erected and maintained as a high priority on the perimeter of the NRF/SKA property and adjacent farmland.	Please see response to comment 47 & 48 above.
53		Comment: Be it as it may, real or perceived concerns of the local, predominantly sheep farming community regarding predation and related matters must be addressed in partnership with the affected farmer groups as a matter of very high priority.	Comment noted, see response to comment 47 & 48.
54		Comment: Predators will prey on indigenous available fauna on the NRF/SKA property, but inevitably they will try to cross the fences and predate on neighbouring livestock (Drouilly et al., 2017). As alluded to previously (ALPRU's input; 17 March 2017),	Comment noted, see response to comment 47 & 48.

APPENDIX B: Comments and Responses Trails for the public review of the Draft Integrated Environmental Management Plan (IEMP)

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COMMENTS SUBMITTED TO THE DEPARTMENT			
		<p>predating activities will reach peaks during the annual whelping of the black-backed jackals (July-October) and it coincides with lambing seasons. Young black-backed jackals will start dispersing early in the year (February/March) and put pressure on the quality and sturdiness of perimeter fences to exclude predators from farms. Caracal breed almost all year round.</p>	
55		<p><u>Page 45</u> Comment: The following three references [Chapter 5, section 5, p 45] should also be cited in footnotes:</p> <p><u>References: Badenhorst, C.G., 2014. The cost of large stock predation in the North West Province. M.Sc. Agric. dissertation. University of the Free State, Bloemfontein, South Africa.</u></p> <p><u>Schepers, Anche, 2016. The economic impact of predation in the wildlife ranching industry in Limpopo, South Africa. M.Sc. Agric. dissertation. University of the Free State, Bloemfontein, South Africa.</u></p> <p><u>Van Niekerk, H.N., 2010. The cost of predation on small-livestock in South Africa by medium-sized predators. M.Sc. Agric. dissertation. University of the Free State, Bloemfontein, South Africa.</u></p>	Reference included as a footnote.

APPENDIX B: Comments and Responses Trails for the public review of the Draft Integrated Environmental Management Plan (IEMP)

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COMMENTS SUBMITTED TO THE DEPARTMENT			
56		<p><u>Page 34</u> Comment: However, it should be noted that the perimeter fences and associated predation management activities must comply with specific restrictions posed by SKA RF policy, namely “(limited electric equipment may be employed e.g. no electric fencing, limited monitoring cameras and minimal human presence on site)”</p>	<p><u>Agreed.</u></p>
57		<p><u>Page 39</u> Comment: It is advised that “leg-hold traps” be changed to read “foothold traps” (Chapter 5, section 3, p 39 and elsewhere in text).</p>	<p><u>Agreed.</u> To be amended.</p>
58		<p>Comment: Despite all best efforts to prevent predators from migrating to neighbouring farms with predator proof perimeter fences, the predator population size on the NRF/SKA property will still have to be managed. The services of specialist predator hunters (call-and-shoot, foothold traps and cage traps) will be needed to control predators on the vast NRF/SKA property; despite this input, predation management will also have to continue on livestock farms.</p>	<p><u>Noted.</u> This is addressed in the Chapter 6 of the IEMP.</p>
59		<p>Comment: Every effort should be made to ensure that all information regarding coordinated predation management activities on the vast NRF/SKA property, as well as neighbouring private properties are logged,</p>	<p><u>Noted.</u> This will be covered in the Land management plan.</p>

APPENDIX B: Comments and Responses Trails for the public review of the Draft Integrated Environmental Management Plan (IEMP)

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COMMENTS SUBMITTED TO THE DEPARTMENT			
		analysed and used to improve best predation management practices.	
60	Predation Management Forum (PMF) (Guillau du Toit)	<p><u>Managing & maintenance of the fence</u> Comment: Maintenance throughout the year is the key factor.</p> <ul style="list-style-type: none"> - Construction of roads next to fences if possible, simplify managing. - Concentrating on the following four times of the year looking specifically at managing strategies for caracal and Black back jackal: <p>1. <i>Damage caused by natural elements: Rain, wind and snow. Inspection times: Directly afterwards</i></p> <p>2. <i>February, March young jackals disperse all over nature. Inspection times: 3 times/week</i></p> <p>3. <i>May, June jackals become very vocal trying to identify possible vacant territories to occupy. Inspection times: 3 times/week</i></p> <p>4. <i>Increase in their movement with natural lambing season of small game and neighbouring livestock: Inspection times: Daily</i></p>	<p><u>Noted.</u> All these aspects of management and maintenance of the fence will be considered in the land management plan.</p>
61		<p><u>Managing program for predators</u> Comment: The correct managing program will be directly related to the progress made on the construction of the fence. Therefore the managing program will consist of two chapters;</p>	<p><u>Noted.</u></p>

APPENDIX B: Comments and Responses Trails for the public review of the Draft Integrated Environmental Management Plan (IEMP)

No.	ORGANISATION (STAKEHOLDER NAME)	STATEMENT/ COMMENT	RESPONSE/ ACTION TAKEN
COMMENTS SUBMITTED TO THE DEPARTMENT			
		1. Managing program while new isolation is under construction 2. Managing program when new isolation is completed and signed off	
62		<p><u>Chapter one – Managing program while new isolation is under construction</u></p> <p>Comment: Because of the state in which the fence is at this moment the following managing program will be of immediate effect as if the area was still run as a livestock farm</p> <ul style="list-style-type: none"> - <i>Inspection, repairs and general maintenance of existing fence on a weekly base</i> - <i>The area must be visited on a two monthly base by an accredited call and shoot DCA hunter to evaluate the population density and the removal of the predators.</i> - <i>If any losses to neighboring farms is reported and the possibility exist that predators are operating from inside the protected (SKA) area, immediate evaluation and removal of unwanted predators by an accredited DCA hunter must be done.</i> - <i>Annual removal (March/April) of unwanted predators by means of a real hunt (helicopter).</i> 	Noted.
63		<u>Chapter two - Managing program when new isolation is completed inspected and signed off.</u>	Noted.

APPENDIX B: Comments and Responses Trails for the public review of the Draft Integrated Environmental Management Plan (IEMP)

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		<p>Comment: Yearly aerial census by helicopter on small game and predators determine numbers and population density (July)</p> <ul style="list-style-type: none"> - Inspection, repairs and general maintenance of new fence on a weekly base - Removal of all antelope species (Springbuck, Blesbuck ext.)which could damage new fence - Yearly control of predators by means of accredited DCA hunter(August, September) - Yearly control of predators by means of aerial hunt. (March) - Immediate control of predators by DCA accredited hunter once neighboring farm report en identify cause of losses is from predators operating from SKA 	
64		<p><u>Cost of constructing and maintenance fees</u></p> <p>Comment: Constructing fees will be the cost of SKA determent to specific dimensions.</p> <ul style="list-style-type: none"> - Maintenance of fences will be shared with direct neighbors. - The PMF preferred a system of SKA rather paying an amount, agreed on per annum, to each direct neighbor which will be then responsible for the maintenance. 	<u>Noted.</u>

APPENDIX B: Comments and Responses Trails for the public review of the Draft Integrated Environmental Management Plan (IEMP)

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		<ul style="list-style-type: none"> - Cost to specific control methods in the area will be for the SKA account and is available on request. 	
65		<p><u>Re-evaluation of managing program</u></p> <p>Comment: Running time for the proposed predator managing program will be three years after the final completion of the suggested jackal proof fence. After the three year period the managing program could be reconsidered and changes could be made by a predator specialist depending on:</p> <ul style="list-style-type: none"> - General state of managing and maintenance ability of the jackal proof fence by both parties - The outcome of the aerial count for predators. - The outcome of aerial count for small game. - Evaluation of the stomach contains of predators removed - Input from neighboring livestock farmers on progress of SKA predator managing program <p>All personal and staff participating in this managing program must be properly trained and qualified before considerate as participants.</p>	<p><u>Noted.</u></p>

