

SKA is ruining the Karoo's future

Written by savethekaroo group, 2016-02-23

A message to the world

Most South Africans have been keen and excited about the radio astronomy, Square Kilometer Array (SKA) project. Marketing strategies and the [SKA website](#) present a convincing and impressive picture of SKA South Africa. There is no need to argue the scientific merits of the project.

But unfortunately the other side of the coin needs to be looked at now, before SKA expands and further costs are incurred. The affected communities in the immediate SKA vicinity have experienced a traumatic time over the past years, and we ask that our story may now reach world audiences.

The site in the Karoo where SKA owns two farms (Losberg and Meysdam) of 13,406 ha, have pathfinder and precursor radio telescope dishes on a small section of the land. Most of the land is vacant and unused. The Kat-7 project, a test bed of seven dishes, has been completed. The MeerKAT project, a technology demonstrator for South Africa's bid to host the Square Kilometer Array, is not completed. SKA now intends buying more land (118 000 ha) in the immediate area to expand and allow for SKA phase 1 construction.

Precious agricultural land is under threat and the stability of immediate communities could be irreversibly compromised forever. Why was such a productive area chosen for this project? There are many other areas in the Northern Cape with less vegetation, less agricultural activities and fewer people. There are areas with desert-like conditions where a far smaller amount of people will be affected. There are true deserts not far away.

The current SKA site is not a desert, despite SKA claims of it being one. This information is misleading and perhaps intended to manipulate world opinion, hiding the high cost and discomfort inflicted upon so many inhabitants.

The people living in the Karoo would like to know how the SKA SA site was described in the bid application South Africa submitted in order to host the project. This might explain why the Karoo area was accepted as the chosen site, and why South Africa won the bid.

SKA phase 1 consists of a core area and three long arm-like spiralling corridors leading out from the core, and has land requirements of 268 000 ha in total. SKA phases 2 and 3 allow for eight long arm-like spiralling corridors and cover 14,000,000 ha. in total! Surely a great deal of attention must be given to sites chosen for such developments.

The impressive project will involve a massive amount of money. Roughly speaking, the international community is providing Euro 650 000 000 for scientific purposes related to SKA phase 1, and the South African

government is providing the land, infrastructure and many other resources. If this project is to succeed, the chosen site for SKA phase 1 is of vital importance.

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It is not too late to relocate

SKA phase 1 is due to commence in 2018, and will take years to complete. It is still being planned and the exact routes of the spiralling corridors have not yet been confirmed. They will have to be moved according to geological conditions on the ground which have not been investigated yet. The current plans are a mere "desk top study" according to an official from SKA. Land has not yet been bought, and no construction has occurred for phase 1. Now is a good time for South African citizens, the International Partner States and the world community to be informed. All considerations must be put on the table now, allowing for appropriate and timely decisions.

This document has been created to communicate in detail the negative facts which have been withheld from people living further away. It outlines the problems faced by those affected by the project to date, and the situations that they are grappling with on a daily basis.

Tough realities

People were quite shocked when regulations protecting the Astronomically Advantaged Area (AAA) became known in the Karoo and the Northern Cape. The Government Gazette, no 1166, distributed late November 2015, revealed restrictions and regulations which would affect human activity in the entire AAA, and protect astronomy interests desired for SKA phases 1, 2 and 3. The AAA affects all Northern Cape municipal areas, excluding one only, the Sol

Plaatje municipality.

In March 2014 a government newspaper referred to "draft regulations concerning certain limitations". The "limitations" referred to give no indication of the restrictive regulations which followed in late 2015. According to these regulations, a person who contravenes these restrictions will face up to a R 1 000 000 (one million rand) fine or imprisonment, or both.

Why was the public so shocked?

Only one month prior to the publication of the above mentioned regulations and the large map attached to it, a smaller map had been presented to the public. It had a core area but only three spiralling corridors, each 150 km in length. This smaller map was described as completely satisfying all future SKA land requirements, according to an official from SKA. This official also explained that future expansion by SKA would only imply that satellite dishes would be more densely distributed within the "three corridor" area. This person also indicated that SKA phases 2 and 3 were unlikely, but that should they occur, the smaller map area would suffice.

Reactions from the people in the affected area

"This is a disgrace", and "I am disillusioned" are just some of the responses coming from ordinary citizens. The map dilemma is very disturbing, and has, as is so often the case with other SKA activities, undermined public trust. The regulations intended to be applied in the area have upset people enormously. It is not always clear to ordinary minds how a science project, requiring such stringent restrictions, was planned in the midst of well-established and successful agricultural communities.

People from Carnarvon, Williston, Brandvlei, Vanwyksvlei and even farther afield are getting together with the aim of protecting their livelihoods, their own public interests and in order to ensure an acceptable future for their communities, the central Karoo area and the children of the Northern Cape.

Comments from local farmers

"SKA is the cause of much confusion at the moment, as established farming concerns are now under great pressure to sell under uncertain and enforced conditions. Owners need to seek help elsewhere. Many of the farmers are now in the later phases of their productive life, working farms that have been built up and cared for, over generations. Younger landowners, solely qualified as agriculturalists, are forced to buy land elsewhere in order to survive. This puts an enormous strain on landowners, as market price will not cover the expected expensive change over. Farming land is often bought at a premium price farther away. Added to this, capital gains tax, sales tax and personal income taxes will diminish considerably the amount a farmer receives. Many other costs will erode the remaining capital and landowners also face the uncertainty of perhaps not finding an appropriate alternative".

"There is also the uncertainty and difficulty that farmers and farm employees face when they have to find alternative work for which they are not qualified".

"In general, the entire SKA scheme is causing great anxiety and distrust by the manner in which it is being implemented, and there is great concern over the impact the project will have on the entire community".

"Great heartache is suffered due to the loss of family owned land which has been treasured and passed down for many generations. There is a feeling of guilt towards the coming generations, who will be denied their birthright of landownership".

"There is also a real concern about the effects on food production in South Africa. The destruction of valuable agricultural land and ecological systems is frightening.

" Above all, the emotional impact will be huge and far-reaching".

"I agree" added another farmer, "the emotional impact will be far-reaching. SKA have an unfortunate track record in the area. SKA is currently being contested in many aspects related to the project, and its future in the area is not looking good. The communities are not going to accept SKA's presence and activities, and tolerance levels grow less by the day".

"I am very disappointed about SKA developments, and the irresponsible attitudes from those representing the SKA foundation and the government. The Karoo and its hard working, productive and "salt of the earth people" are recognised and appreciated nationally and internationally. It is a place many love, and now its values, traditions and aesthetics will be altered, diminished forever, lost to mankind. The land SKA would like to possess represents some of the most valuable and productive agricultural Karoo land. And the lack of consideration shown towards the environment is deeply disturbing. This is regression at best, even food security will be jeopardised in the long run with such ill-considered plans ".

SKA wants land!

August 2015

On the 11 th August 2015 a document informed 22 individual landowners of the governments intention to buy their land. This land would be used as the core area of SKA phase 1.

Expropriations...

Shortly afterwards, documents explaining expropriation followed. The expropriation documents were distributed among all landowners in the region, also those not affected by the land buy-out scheme. SKA flexed its muscle even before the intended program was explained to the affected

people, or negotiations had begun.

October 2015

On the 21 st October 2015 a meeting was held at which the manager of the SKA land acquisition program presented an aggressive land buy-out scheme which pressurised local landowners to sell 36 farms (a total of 118 000 ha) and move off their land by the end of 2017. She presented a tightly woven plan which would immediately diminish landowner's rights and place them within rigid time frame obligations. A confidentiality clause was included preventing landowners from joint negotiations. This programs disclosure left individuals feeling steamrollered and powerless. Most of the affected parties did join forces, and have been supported by many community members. The initial document has been removed from the table successfully.

SKA's budget

The above mentioned meeting revealed that the budget for the land acquisition had already been allocated in advance. Therefore the money available with which to compensate landowners had been fixed well before negotiations and a realistic price could be agreed upon. Farmers were warned that farm houses and buildings would not be valued as highly as they might expect, and that sentiment would be respected but not receive much consideration in monetary terms.

Land value can differ hugely from farm to farm due to factors such as vegetation coverage (grazing), improvements, existing infrastructures, water, and compensation for many subjective factors. Additional costs such as relocation of an entire farming concern could obviously be enormous. Transporting stock like sheep is not really problematic, but capturing and transporting game is an enormous task and very costly. It is highly unlikely that SKA's desk top studies included such factors as SKA had done zero research on the ground prior to their land acquisition program.

Alarm signals sounded, as suspicions rose that negotiations with SKA would amount to a formality, and landowners would be the ultimate losers...

Alternatives

Landowners could request alternate land. But the state cannot provide alternate land because there is no comparable land for sale in the surrounding areas. If land does come onto the market, land prices are expected to soar to new heights, since so many farmers will be looking for new farming land to relocate to.

Tax

The required capital gains tax, general sale tax and personal income tax will diminish each individual's capital and only allow for re-establishment on smaller or less productive farming units. Businesses will be compromised

and this would result in real capital loss for individuals, and diminished productivity.

No legal or other aid

No legal aid or counselling will be provided for by the state. Legal advice would be at the expense of the landowners. The farmers, their families, employees and their families need to deal with their own uncertainties, find alternatives and seek counselling on their own accord. Sentiment, heartache and attachment to the land after 5 or 6 generations is also considered of little or no consequence. Questions to SKA concerning support for the aged, the traumatised and the financially weaker members of society have to date remained unanswered.

Map discrepancies

Small map

The 13 406 ha, which SKA owns, has apparently been rezoned for scientific purposes, but most of it is unused and lies vacant. We ask SKA clarify the zoning issue and remain transparent in all further actions. Should SKA own the further 118 000 ha (36 farms) the core area will increase to 132 000 ha. Three corridors, each 150 km in length, are intended to spiral out of the enlarged core area. The total footprint on this map is 268 000 ha, and this map affects three municipal districts, where 46, 000 people live.

Land requirements?

Understandably the local inhabitants wanted clarity about SKA's expansion and the resulting effects. SKA's land acquisition manager assured an uncertain public that SKA's aim was to deliberately negotiate only once for land, due to the sensitive nature of such an undertaking. This manager described SKA phase 2 as something that might never happen. "A mere dream, and we all have our dreams...."

Big map

By 23 rd November 2015, the Department of Science and Technology published Government Gazette number 1166, as mentioned earlier. Here eight corridors spiralling from the above mentioned core area of 132,000 ha reach over the central Karoo area, and spreads out over 14,000,000 ha. The Department is preparing to pass legislation to protect further SKA phases as well. The central Karoo and most of the Northern Cape will be affected. And the Northern Cape covers 30,5 percent of South Africa's total land surface. A large area of land in which many people will be adversely affected.

Not enough transparency

The map issue, and other similar actions, have continuously unsettled people, and caused mistrust. SKA officials are repeatedly asking to be trusted, and assuring the public that they are acting out of pure good will. But irregularities, confusing facts, and contradictions have cast shadows of scepticism and suspicion over the project.

Promises

Before the land buy-out scheme was initiated, an SKA official operating in the Carnarvon district, promised that the two farms owned by SKA (13 406 ha), satisfied all SKA land requirements. The official in question claimed that SKA would not buy more land. People wanting to buy land near the site had specifically enquired about this only recently. The site manager repeatedly assured landowners that they would be quite safe to purchase land in the neighbouring areas. Many other landowners in the area have further developed their properties, investing large sums in renovating structures and houses on their land as a result of these promises. These promises have pacified landowners and the public, but sadly appear to have merely misled them.

2007

As far back as 2007 SKA representatives explained at meetings that SKA's presence in the area would ensure prosperity and the local people would benefit and flourish. If and where "limitations" were to be imposed, alternatives provided would either equal or better available options. Many promises were made but SKA officials today cannot comment, since all the minutes which were taken by SKA employees at that time appear to have been lost.

SKA public relations

Impressive SKA marketing campaigns boast that SKA is uplifting the immediate communities, educating the youth, contracting local companies and enhancing local businesses. We do know that SKA contributed some computers to the Carnarvon high school and afforded bursaries to students. But there are 3 schools in Carnarvon and the other 2 have apparently not yet qualified for donations. Local businesses in Carnarvon are profiting financially during SKA construction periods, but this will stop as soon as construction is completed. All the other towns and communities, equally affected by SKA, have complained that up to date they have received no donations or advantages. Perhaps information was missing, and so recently SKA was asked to list all SKA activities which improve and uplift all the affected communities. But no answer has been given to date.

SKA brands the Karoo a "remote desert"

The Karoo area is incorrectly classified as a "remote desert" by [SKA](#). The truth is vastly different. Everybody in South Africa knows that the Karoo is a

semi-desert and has an agriculturally driven economy. Dry phases are common in the Karoo, but the area is quite drought resistant, meaning that the vegetation, comparatively speaking, has relatively good nutritional value even during drought periods. After the rains it turns green very rapidly, providing excellent grazing and substantial ground cover.

The Karoo is also referred to as an ideal site for radio astronomy because according to the SKA it is "radio quiet". This suggests that the area is either uninhabited or it has never had cell phone signals. Neither argument is valid. By 2015 there were thousands of cell phone users in each community. An SKA official has admitted that in scientific terms "modifications" take place where ideal conditions are created for radio astronomy. "Modifications" in everyday language is described by people as the loss of connectivity. Once modification allows an area to become "radio quiet", signals allowing connectivity for hand held devices, are compromised. At which point, SKA declares the area "radio quiet" and thus ideal for radio astronomy.

Currently (early 2016) more areas, further away from the core area, are being "modified".

International "awareness"

SKA's international partners contributing towards scientific aspects are apparently unaware of the size of the local population required to relocate, the unfolding of very real human tragedy and the disadvantaged group of people being created within many communities of the Northern Cape.

Public meetings with SKA, and the resulting minutes

The minutes written by an official from SKA at the October 2015 meeting were biased and contained glaring omissions. These minutes were sent out to the public without prior consent given by the legal representative of the affected landowners. Although the SKA representative agreed to writing an amendment to the minutes, correcting several points and making some additions, this has not as yet happened.

Ideal radio astronomy sites

SKA SA's location

All radio astronomy websites explain that high altitude, dryness and the absence of human activities are requirements for accurate data collection from the universe. The SKA core site is at an altitude of 1 000 meters above sea level. The average annual rainfall of the area is 250 mm. Water droplets, even the presence of fog in winter, may scatter radio signals and compromise data collection. The immediate municipal areas affected by the intended SKA phase 1 area, boast a total population of 46 000 people, according to SA statistics 2011.

SKA's classification of "remote" would suggest that a great deal of the world might be called remote. An official from SKA recently explained that excellent locations for radio astronomy also takes other aspects into account, for example cost of establishment. He continues to explain that there may be more remote locations on earth, yet establishing facilities at these locations is extremely "cost prohibitive". The official further goes on to explain that other environmental factors are also taken into consideration due to their potential impact on radio astronomy, such as altitude, weather, geology and topography".

Here the SKA official admits indirectly that the site, if it were a remote desert, would be too costly to develop. The logical conclusion is therefore that the current SKA site was chosen due to its existing infrastructure, which makes the execution of the project more practical and also cheaper. But the infrastructure only exists because the area is populated and it is economically viable. This officials comment also confirms that the area is not a remote desert.

Public roads and private farm roads enabled access from the start even while the earliest pathfinders were erected. Farm buildings have been put to use, farm houses provide office space and accommodation, the nearby towns offer the services of all types of businesses, human resources, an aeroplane landing strip, and recreation facilities.

SKA Australia

Australia's chosen site is situated in the Murchison Shire. According to [SKA Australia](#), the site covers an area almost the size of the Netherlands, but only one hundred people live there. The population density of the Australian site is a mere fraction of the population density of the South Africa site.

ALMA, a good example

The radio astronomy project ALMA, in Chile, is situated in a true desert, at an altitude of 5000 meters above sea level where the rainfall is below 100 mm annually. The advantages of high altitude and dry climatic conditions for radio astronomy are highlighted on [ALMA's website](#).

Population statistics

SKA phase 1

Should SKA phase 1 commence, it would directly affect three municipal areas, with a total population of 46 000 inhabitants, according to SA statistics 2011.

AAA

The Astronomically Advantaged Area indeed affects all the municipal areas of

the Northern Cape, excluding only one, the Sol Plaatje municipality. The Northern Cape has a population of 1 200 000. And 250 000 people reside in the Sol Plaatje municipality, according to SA statistics 2015.

Communication

At the early stages in 2007 the public were promised good communication systems to equal, if not better, systems of that time. It was known then already that cell phone signals (radio signals) would interfere with SKA activities. But, in 2007 nobody, including SKA, realised the technological advances which hand held devices would undergo by 2016, and how problematic the issue of communication and connectivity would become. Many people had land lines or cell phone connections or both. Cell phone signal coverage (radio signals) in the Karoo in 2007 was not nearly as good as it became later on. And by 2015 the number of people using mobile connectivity had grown enormously. For most people it is their only available form of connectivity.

Cell phone signals are only "modified"

Around 2012, parts of the community started to lose cell phone signals in areas close to the original SKA site. The signals weakened gradually and were finally lost completely. Then SKA declared the area ideal for radio astronomy, because it was "beautifully quiet", meaning it was free of radio signals. A large sector of the community was left without any telephones for up to one to two years before substitutes were offered. Outcries went unheard, and the urgent request for impact studies and public participation to occur before signals were cut off, were ignored. An SKA scientist explained that the cell phone signals were not cut off, but that scientists refer to signals being "modified", a term which refers to creating the desired radio quiet space for radio astronomy. Ordinary citizens, however, simply notice that they have "lost" connectivity and talk about signals being "cut off".

Substitute phones

Substitute satellite phones had already been promised to the public in 2007, and the government describes these alternative means of communication as follows; "Satellite phones are likely to improve the quality of life and business of farmers and other inhabitants of the Central AAA's", (Government Gazette 37434, 12 March 2014). These satellite phones also include a connection to the Internet. Around 2013, a satellite system named Spacestream was installed on many farms. It provided a speed of up to 10 kilobytes per second. This connection cuts off when weather conditions are bad. In 2015, a faster connection was offered via the Vox system, with a speed limited to 200 kilobytes per second, dropping to 1.1 kilobytes per second once a 2 gigabyte volume limit (the subsidised monthly limit) is exceeded. A limit of 2 gigabytes, is easily exhausted when doing research work or studies, well before the month is over. The Vox phones were installed in 2015, but by the time these installations occurred the phones were considered outdated, and

mobile connectivity remained the preferred option.

January 2016 More signals going, going, gone

More and more people are currently complaining about cell phone signals becoming weaker in areas further away, as SKA is preparing for phase 1. Much of the 268 000 ha must become "radio quiet" in order to be declared ideal for radio astronomy. "It is particularly aggravating that people are not notified ahead of time, but that their cell phone signals just suddenly fade. All objections and questions about it have been ignored", a young man recently said at a meeting. Inhabitants, especially the younger citizens, intending to make a future for themselves and their families in the area, feel powerless and frustrated. Many businesses depend on mobile connectivity. To date no solutions have been offered.

Creating a backward region

The fear of "missing-out" on up to the minute connectivity and being cut off from information, news, education and communication, sets the public back in time by decades, and all despite growing globalisation. Worse still is the reality that the central Karoo area will become stigmatised as a cut-off and backward region. This stigma will exist for generations to come, and a disadvantaged group of people will be created. Is history in South Africa repeating itself?

No cell, no phone

The financially weaker members of society will be hardest hit when cell phone reception is compromised. Social and economic impact due to the loss of mobile communications systems is obvious. People across all levels of society will be hurt, but the most needy will lose the only form of connectivity available to them. These people make up the largest sector of the local population, and these people do not seem to be taken into consideration by the South African government.

Mobile technology continues to advance at an increased pace. Global connectivity is being taken for granted today, and it remains the best form of communication across vast areas like the Karoo.

"Limitations"

Landowners who stand to lose land and who will thus be forced to relocate, are feeling traumatised but they might in the long run face the lesser evil. Those remaining behind, forced to live in close proximity to the SKA core area or along the corridors (each 10 km wide) containing satellite dishes will face a life of restrictions. Restrictions may affect human activities up to 16 km away from each satellite dish, depending on regulations. SKA is afforded more protection and advantages than human beings in these areas.

In the Government Gazette no 37434, dated 12 th March 2014, on page 17, in point no 8, mention is made of the phrase "certain limitations". The word "limitations" is misleading and does not explain that the regulations which follow much later (Government Gazette 1166, 23 rd November 2015) deny many people the right to normal life and the freedoms they are accustomed to.

The process of objecting

A SKA representative sent an email to the Daily Maverick and an article was published on the 5 th July 2011 named , in which the exact prohibitive regulations published in November 2015 were already described. The SKA project was obviously planned well in advance, but the actual reality only became clear to the public years later. The public was then offered three months in which to do their in-depth research, in order to be able to present educated objections. The frustration experienced by many eventually lead to most people losing hope, and this is perhaps what the process intended. The regulations are complicated and need to be studied. The regulation documents often only reach a few registered individuals and questions or concerns are simply not answered. Governmental departments offer different information and explanations and laws seem to directly oppose each other in certain cases. The public has been left in a vacuum.

Regulations

The article in the Daily Maverick mentioned above, already in 2011 indicated some of the restrictions affecting optical and radio astronomy areas. It stated "You may not enter or reside in this region without permission from the management authority. You may not do most things compatible with civilised life - such as erect lights, fly an aeroplane, drive a truck, construct a road, build a house, or broadcast a radio signal in this region without permission. Even such farm-like activities as combine harvesting and arc-welding will be severely restricted or prohibited".

More restrictions

At the October 2015 public meeting several more restrictions were presented. Generating power, including wind energy, electric fencing, spark plugs (petrol driven vehicles included) and certain machines are either restricted or completely prohibited. Traffic restrictions and public access would also be controlled or prohibited in certain areas.

Compensating for negative effects of regulations?

Of course, the SKA and the Department of Science and Technology teams have assured the public that "alternatives" will be available and the costs involved will be compensated for. All affected parties must ask for this in writing! Because Government Gazette 37434, page 18, number 11 states that "parties must not be overly optimistic, compensation for losses, where

permitted by the Constitution, will follow...cost increases will...not automatically be subsidised". As so often, the authority seems to be keeping the backdoor open, just in case.

Irony...

There have been suggestions from farmers and certain experts that agricultural activities and the SKA project could co-exist, especially in the "silent Zone". This zone lies outside the areas where satellite dishes are planned in the core area. And it provides a buffer zone from human activity occurring outside the core area. Farmers have also requested to stay on in their homes which fall in this zone, should they comply to the stipulations set down by SKA. But SKA are insisting that all land be completely free of human activity and insists that the landowners must move...

Ironically, the buildings on the farms in question are to be utilised by SKA. The farm homes are to be used as offices and the phone systems are to remain in place for continued usage. Sheds are to be used for welding purposes and other mechanical activities SKA might require. The identical activities which SKA are objecting to, and are prohibited by regulations, will continue on the site, to serve the SKA project.

It is very apparent that the infrastructure, well established farms, and the convenience of existing facilities offer a practical and cheap solution to SKA and the South African Government. A remote desert would not offer any of these advantages and would therefore be more expensive to develop. More funding would be required and this seems to be the most restrictive aspect of the project.

Impact studies

Documentation showing early research work, impact studies, recommendations and evidence of public participation have been requested by the public. But most of these documents have not been produced to date. The public have also requested to see South Africa's bid application, in the hope of understanding why the central Karoo area was chosen as a site, and what South Africa promised the SKA partner states. But this document has also not been made available to the public.

Public participation, impact studies or lack thereof

The public have asked for information or clarification about the following;

- The impact on peoples well-being as described in the NEMA legislation document, which was not done in time.
- Impact studies to be done along all 8 corridors spiralling across the AAA, and why this has not been commissioned to date.
- The public's formal written questions sent to various authorities, which have not been answered to date.
- Documentation regarding the economic impact, as assessed by the

Department of Finance, before the onset of the project.

- Proof of adequate impact studies and their resulting recommendations before each stage of SKA's development.
- Why certain impact studies never even occurred?
- Public participation often consisted of audio presentations, allowing for questions to be forwarded to various departments. There have been no answers or solutions offered to these questions.
- An impact study to be completed before cell phone signals were cut off, was completely ignored.
- SKA programs are initiated but impact studies are either delayed or never occur.

CSIR

The Council for Scientific and Industrial Research has been commissioned to do a Strategic Environmental Assessment (SEA), but only in connection with SKA phase 1. The research will cover social, economic, environmental, heritage and cultural aspects. This impact study is running concurrently with the aggressive land acquisition program.

Obviously, the public would like the SEA to be completed before SKA is permitted to buy land. But irrespective of the outcome of CSIR's research work, SKA intends to own all 36 farms as soon as possible. And CSIR have stated that much more time is required to complete the SEA due to the mammoth task at hand.

SKA phases 1, 2 and 3

The current research study done by CSIR does not include phases 2 and 3. No official information has been given to the public with regard to these phases. Therefore the long term impact on affected landowners and communities is still a guessing game. This way SKA "engulfs" the Karoo slowly, only parting with fragments of information at each stage. This is one reason why the affected communities have zero trust and are so suspicious.

To date SKA have not invited all the landowners affected by the three spiralling corridors forming part of SKA phase 1, to an information session. Therefore most of the people are not informed but are expected to allow SEA studies to commence on their land. Most of these people have not been registered with authorities to receive documents and have therefore not been included in the public participation process or objection activities to date. Many deadlines have come and gone without their participation. And those affected by the larger eight corridor spirals, allowing SKA phases 2 and 3, have no idea about their future fate... and could face a negative impact without ever having a single opportunity for public participation or objecting to regulations.

Referendum

Many voices are increasingly demanding a referendum in the Northern Cape,

and feel it is odd that this was not considered previously, despite our country's democracy.

Social impact

CSIR

The Council for Science and Industrial Research is committed to do an in-depth study of the social impact which SKA phase 1 will impose on the affected communities. These reports and recommendations are only due to be published much later in the year. Community members are expressing their own concerns.

The loss of mobile communications has direct consequences on all social structures. Communication between human beings will be compromised as fewer and less flexible options of keeping in touch with family and dear ones will be available. Much of the Northern Cape will be thrown back to an era before mobile technology. Families are expected to be torn apart as the younger generation might choose to move away from the area due to such an archaic life-style.

Shamed people

The central Karoo has been described as a "remote desert", called "the middle of nowhere" and "beyond civilisation", by individuals speaking out of turn. These comments were most likely made to justify the chosen SKA site. Affected communities feel hurt and shamed by such utterances, especially since they are unfair and incorrect.

Traumatised public

When the news about the land acquisition program broke and the expropriation papers circulated, whole communities were traumatised. Those most affected faced losing everything they know, own and love. Their inheritance, after 5 or 6 generations in some cases, their traditions and their hard work, could simply go down the drain with a single enforced signature. Those facing relocation now face the fear of the unknown, the stigma of being unemployed and sleepless nights considering personal risks. The farms affected by the buy-out scheme fall in an area with a higher population density than for instance some other farming areas in the Northern Cape, therefore a relatively large number of people are affected.

Those remaining in the area, face uncertainty too. A vicious circle is expected, where communities shrink, more businesses close, the towns become derelict and the poorest have no choice but to remain there, thus creating more poverty within the South African society. This option cannot be overlooked. But one thing is clear, the region will not prosper or flourish with SKA and the regulations prohibiting development.

A destroyed community in the area

The town Vanwyksvlei has lost its vibrancy, as its social structures were destroyed years ago, when farmers were forced to sell their land and move away. Its population shrunk and those remaining now have to either do without or drive to neighbouring towns for basic services. It is in this region that some farmland, 86 000 ha called "Alkantpan", fell in the hands of [Armscor](#), for a ballistic weapon test site.

This weapon testing site brought no advantages to the community, many farms had been sacrificed and consequently the local people became impoverished. Public objections before the project was developed, were ignored, and the disastrous result is clear proof of governmental carelessness when choosing locations and disregarding the voice and needs of its own citizens.

Once the social structures in Vanwyksvlei were destroyed, it became an irreversible problem, and citizens are still suffering decades later. Alkantpan now faces the restrictive regulations protecting the AAA as well. Was the land for Alkantpan therefore "taken" and destroyed in the long run for nothing? The government clearly needs to explain itself to the public on this matter as well, and also inform concerned citizens about Alkantpan's future alongside SKA.

Too few homes in towns

Municipalities are struggling nationally with chronic housing shortages, according to research work done by the International Labour Organisations (ILO) in 2015. Parts of the report were broadcast on "SA Parliament TV" on the 30-1-2016. Karoo towns are no exception, and the problem will worsen should people need to relocate from farms into towns.

By late 2015 there were 630 applications in Carnarvon for houses provided for by the state. Only 81 homes have been built by the state in Carnarvon over the last 20 years. Currently there are no plans to build more houses, as stated by a municipal officer based in Carnarvon, tel 0027 53 382 3012. This is a common problem facing all rural communities. Apparently it is largely due to administrative issues and monetary funding which has gone missing.

Homeless people

The number of registered homeless people in Carnarvon is 61, but according to the same municipal employee, this figure is incomplete and could be much higher. There are several areas with shacks, people who sleep under the open sky, and overcrowded homes where large extended families are crammed into a small space. The housing facilities and especially sanitation pose a massive problem, and will only worsen with more unemployment in the area. The South African government is spending astronomical amounts on SKA while many of its people living in the SKA area, and elsewhere, are in dire need of basic facilities.

Local organisations

Churches, recreational facilities, clubs and farmers unions will lose members and financial contributions should farmers be pushed out of the area. Cultural activities and annual traditions will fall away due to radio signal restrictions, such as the annual "fly-in" where pilots "jet" in to Carnarvon for a weekend of flying and fun. All activities, especially in rural towns, depend on the participation and contributions of all its people! Often farmers are the main source of charity and contribute to the well being of many people and organisations. As many farmers fall away, one wonders about the future and continuation of these organisations. It is unlikely SKA is considering to step in and support all events and organisations.

Economic Impact

CSIR

The Council for Scientific and Industrial Research is currently conducting a broad study to try and establish the financial impact due to the SKA phase 1. An expert has been commissioned to take a close look at the reduced agricultural activities and to calculate the losses suffered by individuals, businesses and the communities. A closer look will be given to food security, land usage and the compatibility between agriculture and astronomy.

SKAphase 1 will affect the economies of Kareeberg, Hantam and Karoo Hoogland municipal areas. These areas are completely dependent on agricultural activities. And SKA has earmarked some of the best farms in a large area with high production levels. The land buy-out scheme mainly affects lamb and mutton producers but also wool production and stud breeding. It is estimated that 280 000 fewer lambs will be marketed annually relating to a loss in turnover of about R 28 000 000.

Abattoirs, fuel suppliers, agricultural co-operatives, hardware stores, supermarkets, services, tradesmen etc will all lose customers. Millions of Rand will be lost within these communities annually. A local repair and mechanical service provider in one town stated his business will lose customers owning 750 windmills collectively.

It cannot be fully estimated yet how the farming activities along the intended spiralling corridors will be inconvenienced and economically affected, especially as nearly nothing is known about this side of the project.

SKA phases 2 and 3 will affect the whole of the central Karoo area. Due to the regulations many adverse financial impacts are expected to reduce people's personal wealth and impact adversely on all businesses. In the long term family-run farms could be reduced to mere stock posts, due to the inconveniences caused by restrictions. Stock posts are typically less productive, and contribute to falling populations figures. Poverty would escalate and the province's contribution to the national economy could fall drastically.

Food security

Economics, productivity, human resources and food security cannot be separated. Currently, food security is being debated in South Africa particularly due to the 2015 drought. The International Labour Organisation's research in 2015 exposed some governmental policies as another risk factor. Food prices, incomes, and salaries are dictated by global markets, and industries which ignore these truths pay a high price. An example quoted (ILO report) was the SA Clothing Industry which took a fatal blow some years ago and has never recovered.

The Karoo being arid is naturally more drought resistant than most other areas in the country. Are contributions from the Karoo toward food security, being overlooked? Commercial farmers are fast decreasing in numbers nationally, and food security is being debated more and more often.

Currently 25 percent of South Africa's sheep are found in the Northern Cape, according to National livestock Statistics.

Lamb and mutton

The central Karoo is home to the famous "Karoo Meat of Origin", organic lamb which is produced in the area and is arguably of the very best quality in the world. Abattoirs in the area are certified to trade under this registered brand name, and have some of the most impressive meat export credentials in South Africa. Recent certification allows for export to Europe and also to Switzerland. If 28 000 fewer lambs are to be produced annually, abattoirs lose suppliers, affecting meat agents, marketing-, transport- and packing companies, retailers, the hospitality industry and finally consumers.

Wool

The Northern Cape is the fourth largest wool supplier in the country, and the industry is growing due to better wool prices and the weakening Rand. Northern Cape wool producers do well nationally, and can boast a number of well- respected breeders.

Other industries

The game industry has been steadily increasing over a number of years, with high prices making news at annual auctions. The game industry is growing at a rapid rate. And the game and tourist industries are closely linked.

Farm workers

A large number of farm workers will lose their work and remain unemployed due to the lack of alternative job opportunities. There are no known incentive programs initiated by the government to attract new business opportunities to the area. This might not be in line with the "silent reserve" that is being

created for radio astronomy purposes, and therefore the economic future of those losing their employment will remain bleak.

Unemployment, 32 percent

The future of unemployed people is dangling on a fine thread. Information obtained at the Kareeberg Municipality, telephone number + 27 53 382 3012, stated that unemployment figures during 2015 were pegged at around 32 percent in the area. Farm workers will not only lose jobs due to SKA phase 1, but they will not easily find new work opportunities in the area. Land owners are not equipped to change their professions easily. Aid or compensation benefits regarding personal career changes have not been mentioned by any governmental or state authority.

SKA economic propaganda

SKA speaks of it's policy to contract local companies and support local businesses. This is so, but this will only last during SKA construction phases. And more importantly, it would not in any way compensate for the economic losses which will result due to SKA activities.

Environmental impact

The Karoo

Wild rugged mountains and big expanses of flat plains, often stony, sandy, areas of dense vegetation, or sparsely covered pans and grassy areas, create the unique Karoo landscape. Millions of years ago this area was a swamp, and dinosaur fossils can be found here. Hardy indigenous plants and animal species of enormous diversity have developed over millions of years and adapted to heat, cold, droughts and floods. Typically, Karoo farmers respect the laws of nature, endeavour to improve ground cover, retain top soil, and maintain a balance in the natural flora and fauna, since it is within their own interest to preserve their land.

CSIR

The Council for Scientific and Industrial Research has put together a list of experts to investigate the impact SKA would pose on the natural environment. This study has not occurred yet, and in its current form, its validity is being heavily debated. It is intended to be conducted along the planned corridors running over privately owned land. Landowners are asking for the highest quality research work, and complete transparency.

Some questions have already been sent to CSIR and their experts. Many of these answers were not satisfactory at all. Problems were not addressed adequately or even recognised. An additional expert adviser was consulted regarding the potential for erosion, and a much improved reaction resulted. Clearly, this study must be carefully monitored, and additional advisers and

landowners will need to remain involved.

The members of the public and landowners are requesting that findings be revealed. Further interactive sessions with experts must be allowed for. If landowners are not content with the research work they would likely oppose findings.

White concave satellite dishes

Questions have been raised about the heat reflection of these dishes and the resulting micro climate changes which might occur. Since 1 500 or 2000 dishes are planned within the core area, and a further 1 500 or more along the spiralling corridors, this problem must be looked at urgently. The dishes have a diameter of up to 15 meters each and so one can imagine how large the combined surfaces would be together. All white surfaces reflect heat, even a white roof, and vastly affects the temperatures within a building. This issue was not even considered worth debating according to the CSIR expert.

What will the effects be on air currents and moisture content, and how will rainfall patterns be influenced in the immediate areas? No answers were supplied.

The reflections from the white dishes are expected to attract insects, especially mosquitoes after rains which fall during certain times of the year. The sites with telescope dishes could become breeding grounds for such insects and create many problems in the area. The CSIR chosen expert seems to be under the impression that the Karoo is only really affected by swarms of locusts, and that no other plagues could occur. Farmers were rather amused.

Further questions were put to CSIR experts regarding the SKA standard practice of closing all boreholes and drinking troughs, thus leaving no drinking facilities for wild animals. This would result in thousands of animals dehydrating and dying of thirst. Since the Karoo is a farming area there are obviously fences creating barriers which prevent natural animal migration in search of water. Here the CSIR expert stated that the game and animals found in the Karoo simply live without drinking water!

The "worlds greatest" astronomy project is being planned in the Karoo, but it seems good solutions to simpler matters are hard to find.

Cruelty

Removing water facilities from over 132 000 ha and leaving thousands of animals to suffer is one of the ugly truths surrounding SKA which must be presented to the world.

Fauna

Many species are protected and endangered in the Karoo. Particular

attention must be given to the riverine rabbit, birds of prey, in particular the Verreaux eagle, the blue crane, tortoises, steenbokkies, springbuck, porcupines and the aardvark, to give just a few examples.

Fines

There are strict laws governing protected and endangered species, and large fines are applicable once these laws are contravened. SKA SA should face the same fines for deliberately neglecting to care for endangered species.

Flora

The diversity of Karoo vegetation is enormous. There are new species continuously being discovered and added to catalogues. Medicinal and nutritional properties found in typical Karoo plants are being explored with a huge amount of research still needed to be done. All construction activities which SKA will undertake will remove and damage vegetation and top soil, potentially creating opportunities for soil erosion. Erosion spreads rapidly with each rainfall if it is not controlled, and can in time spread over vast areas, destroying vegetation.

Our communities are impressing on the CSIR the need to include the highest level of competency among the environmental experts commissioned to do research. SKA must implement excellent and sustainable land management practices, and include local expertise to maintain the natural balance on SKA land.

Heritage and Cultural Impact

The information regarding our heritage and culture is so important that we have decided to create an additional document titled "Heritage and Culture". Please find it on the homepage soon.

Funding SKA

Financial constraints

Funding the SKA project has been a major obstacle from the start, and this is internationally recognised. Newspapers in Germany published articles explaining why Germany cancelled its membership from the prestigious astronomy project. It stated that South Africa was financially too timid to host such an enormous project, and that these financial constraints hampered the chances of SKA's success. Since Germany withdrew, the South African economy has fallen further. Further information can be found in the German [Deutschland Funk](#) article.

The MeerKAT project was intended to be completed by 2012. However, according to the South African National Budget the project received no

funding from 2010 to 2012, and it was predicted in 2012 that only 15 of the 64 MeerKAT dishes would be completed by 2015

It gets worse

By December 2015 financial decisions in South Africa caused the rand to slide rapidly in a downward direction against all major currencies, and it continued to slip further early in 2016. Domestic economic predictions for 2016 are: slow growth, declining property prices, job losses and higher taxes, according to several local news channels. And by Friday the 5th February 2016, South Africa was rated as having one of the worlds "most miserable" economies, according to the evening news broadcast on radio KFM, South Africa.

Look deeper

The South African government's dream, to host the biggest and greatest astronomy project in the world, might just be too ambitious! The grandness of rubbing shoulders with the world's academics is tempting, but very costly. The following points should be considered.

- Plans to rezone over 132 000 ha of productive agricultural land for scientific purposes, and thus hurt the local economies.
- Plans to expand across a further 14,000,000 ha and restricting activities in an agriculturally productive area.
- What remains of the SKA project should a national or international recession prevent its completion?
- What if the findings do not warrant the continued expense?
- What if technology advances and there are better research options?
- What if dissatisfied communities continue to object and SKA is opposed by many forever?
- What if the South African public object to the high costs involved?

Conclusion

The Northern Cape is asking for the bad dream to end. All it wants is stability, a fair and equal chance for a better future. It pleads that the valuable Karoo, the beautiful land, may be preserved today, and preserved for our children and for their children.