

Stakeholder Engagement in Strategic Environmental Assessment Study: Case of Olkaria Geothermal Energy Expansion Programme

Philip J. Barasa

Kenya Electricity Generating Company Limited (KenGen)

Pbaraza@kengen.co.ke

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ABSTRACT

Kenya Electricity Generating Company Limited (KenGen) currently generates 533.8MWe of geothermal energy at Olkaria and Eburru Geothermal Fields. The Company has an ambitious strategy of increasing its installed geothermal energy capacity, in its concession areas, by over 900 MWe by the year 2025. KenGen commissioned Strategic Environmental Assessment (SEA) study for Olkaria geothermal energy expansion programme in the year 2014. SEA is an environmental management tool that aims at anticipating and mitigating potential cumulative impacts associated with a policy, plan or programme as well as ensuring optimization of the positive impacts. However, for the SEA study to yield positive results, there is need for an elaborate stakeholder engagement from the initial planning stage to implementation of the recommendations. The aim of this paper will be to discuss how the stakeholder engagement for the Olkaria geothermal expansion programme was achieved during the SEA study. The paper will also endeavor to highlight some of the milestones that KenGen has achieved following effective stakeholder engagement during the SEA study. The findings will contribute towards promoting effective stakeholder management when developing geothermal resources in Africa and the world as a whole.

1. Introduction

KenGen commissioned SEA study for the geothermal energy expansion programme at the Olkaria Geothermal Field in the year 2014. A programme is a combination of activities intended to contribute to an identifiable set of government objectives with a clearly defined budget and a timeframe for achieving these objectives (OECD, 2007). In practice, programmes are implemented through specific projects. The Olkaria geothermal energy

expansion programme was for the period 2012 to 2020. The details of the projects under the programme were as indicated in table 1.

Table 1: Projects under the Olkaria Geothermal Energy Expansion Programme

Geothermal Power Plant	Capacity (MWe)	Due Date
Olkaria I (units 4 & 5)	140	2014
Olkaria IV (units 1 & 2)	140	2014
Olkaria I Unit 6	70	2016
Olkaria V	140	2017
Olkaria VI	140	2017
Olkaria VII	140	2019
Olkaria VIII	140	2020
Olkaria IX	140	2020
Wellheads	75	2015
Total	1025	2020

Prior to commissioning of the SEA study, KenGen had already implemented Olkaria I units 1, 2 and 3 (45 MWe) and Olkaria II units 1, 2 and 3 (105 MWe) geothermal power plants between 1981 and 2010 respectively. According to the Kenya Vision 2030, energy is a key foundation and one of the infrastructural “enablers” upon which the economic, social and political pillars of the Vision are to be built (UNDP, 2012). It is against this background that KenGen, in consultation with the Ministry of Energy and Petroleum, developed the Olkaria geothermal energy expansion programme for implementation.

SEA was carried out to ensure environmental and sustainability integration that would address the interrelationships of the biophysical, social, and economic aspects related to the geothermal energy expansion programme (Asian Development Bank, 2012). The SEA consultant submitted the programme brief and Terms of Reference for conducting the SEA to NEMA for review and approval. The consultant further prepared the scoping, the draft and final reports which were submitted to NEMA.

2. Location of Olkaria Geothermal Field

Olkaria Geothermal Field (OGF) is located within Hells’ Gate location in Naivasha Sub-county, Nakuru County. KenGens’ Olkaria geothermal licensed area measures 204 km². Part of the concession area lies within Hell’s Gate National Park which measures approximately 68.25 km². Figure 1 shows the location of Hell’s Gate National park within the geothermal licensed area. The neighbourhood of OGF also features Lake Naivasha, which is a Ramsar site, various flower farms and some villages inhabited by a pastoralist community (the Maasais).

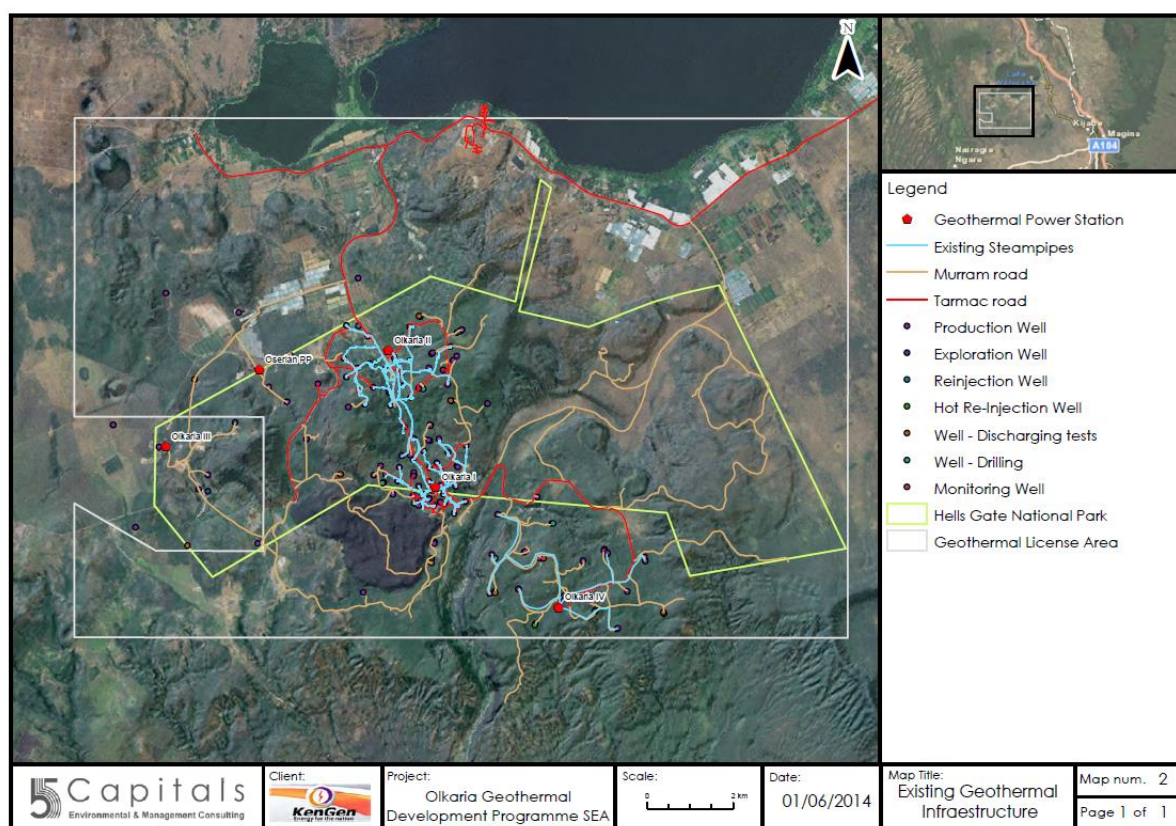


Figure 1: Olkaria Geothermal Licensed Area (Five Capitals, 2015)

3. Stakeholder Engagement in SEA

SEA implementation procedure might significantly vary from country to country (UNDP, 2005). In Kenya, SEA has been recognized as a participatory process. It allows lead agencies, civil society, private sector and relevant stakeholders that are likely to be affected by the proposed policy, plan or programme to provide input to the strategic decision making (NEMA, 2011). It is recommended that for projects that have environmental and social impacts, consultation should not be a single conversation but a series of opportunities to create understanding about the project among those it will likely affect or interest, and to learn how these external parties view the project and its attendant risks, impacts, opportunities, and mitigation measures (IFC, 2007). According to World Bank (2016), the process of stakeholder engagement should involve the following: (i) stakeholder identification and analysis; (ii) planning how the engagement with stakeholders will take place; (iii) disclosure of information; (iv) consultation with stakeholders; (v) addressing and responding to grievances; and (vi) reporting to stakeholders. Consultations with stakeholders should be meaningful in the sense that it would involve a two-way communication between the programme developer and the affected communities and stakeholders, and active participation of the affected communities and stakeholders at various stages in the project design and implementation (Asian Development Bank, 2012).

3.1 Stakeholder Engagement for Olkaria Geothermal Energy Expansion Programme

Stakeholder engagement for Olkaria geothermal energy expansion programme was carried out to aid in the preparation of the scoping, the draft and final reports which were submitted to NEMA. The stakeholder engagement process was as summarized below (Five Capitals, 2015).

3.1.1 Stakeholder Identification

Stakeholders were identified during scoping stage. Stakeholder mapping was undertaken by the consultant in conjunction with KenGen's environmental scientists and community liaison officers based at Olkaria Geothermal Field. Mapping is an important step to understanding who your key stakeholders are, where they come from, and what they are looking for in relationship to your business (Morris and Baddache, 2012). The stakeholders were identified based on their geographical location and interest in the programme. Details of the stakeholders consulted are presented in table 2.

Table 2: Stakeholders Consulted during SEA study

Item	Stakeholder Category	Type of Interests	Stakeholder Description
1.	Local Communities	Primary	Maasai pastoralist community and other neighbouring communities from Olo sinyat, Olo nongot, Maasai cultural centre, Olo mayiana ndogo, Olo mayiana kubwa, Narasha, Ng'ati farm, Suswa, Iseneto, Kamere, Kongoni, Nkaampani, Maiella and Inkorienito villages.
2.	Community Based Organizations	Secondary	i. Women for Peace ii. Chemichemi Women Group
3.	Government Agency	Primary	i. Kenya Wildlife Service (KWS) ii. Hell's Gate Management Committee
4.	Energy Sector Players in Kenya	Secondary	i. Kenya Electricity Transmission Company (KETRACO) Limited ii. Geothermal Development Company (GDC) Limited iii. Energy Regulatory Commission iv. Kenya Power Company v. Independent Power Producers at Olkaria (Orpower IV Inc. and Akira Geothermal Company Limited).
5.	Government Agency/Ministry	Secondary	i. Kenya Marine and Fisheries Research Institute (KMFRRI) ii. Kenya Wildlife Service Training Institute (KWSTI) iii. Kenya Forestry Service (KFS) iv. Imarisha Naivasha v. Water Resources Management Authority (WRMA) vi. Ministry of Interior and National Coordination (Deputy County Commissioner, Assistant County Commissioners, Chiefs and Assistant Chiefs in Naivasha sub-county) vii. Relevant Ministries (Livestock,

Item	Stakeholder Category	Type of Interests	Stakeholder Description
			Agriculture, Physical Planning, Health, Fisheries, Social Development, Energy and Petroleum)
6.	Associations	Secondary	<ul style="list-style-type: none"> i. Lake Naivasha Fishermen Association ii. Lake Naivasha Beach Management Units iii. Lake Naivasha Riparian Association (LNRA) iv. Water Resource Users Associations (WRUAs) including Mariba, Karati-Longonot and Lake Naivasha Water Resource Users Association (LANAWRUA). v. Ecofriends of Naivasha (tour guides).
7.	Nongovernmental organizations (NGOs)	Secondary	<ul style="list-style-type: none"> i. WWF – Lake Naivasha Landscape Project ii. Nakuru Wildlife Conservancy iii. Lake Naivasha Tourism Group (LNTG) iv. World Vision – Kongoni v. Uhotani Conservation Group vi. Olkaria Muungano Environmental Community Project vii. Ndabibi Environmental Conservation Centre viii. Elsamere Conservation Centre ix. Nature Kenya
8.	Private Organizations	Secondary	<ul style="list-style-type: none"> i. Oserian Development Company Limited ii. Longonot Gate Development Limited (property developer) iii. Lake Naivasha Growers Group (LNGG)
9.	County Government of Nakuru	Secondary	<ul style="list-style-type: none"> i. Naivasha Water, Sewerage and Sanitation Company Limited ii. Office of the Governor
10	Ranch owners	Secondary	Kedong Ranch
11	Business Community	Secondary	Naivasha Chamber of Commerce
12	International Financing Institutions	Secondary	World Bank, Agence Francaise de Development (AFD), European Investment Bank (EIB) and KfW Development Bank
13	Politicians	Secondary	Members of County Assembly (MCAs) – Naivasha sub-county

3.1.2 Stakeholder Engagement Approach

Upon identification of the relevant stakeholders, a detailed stakeholder consultation plan was developed. The plan comprised details of the persons that were to be consulted, the communication channels, dates for carrying out the consultations and venues for the meetings. The communication channels used during the stakeholder consultation exercise were as follows:

- i. Telephone calls
Telephone calls were made to inform stakeholder representatives of the scheduled meetings. In addition, a contact person was identified to facilitate stakeholders to channel their enquiries and comments through him.
- ii. One-on-one meetings
One-on-one meetings were held with government agencies prior to the scheduled workshops to disclose the programme brief and obtain relevant sector-specific information that would aid in preparation of the draft SEA report.
- iii. Use of the regulator's website
The draft SEA report, submitted to NEMA for review and approval, was uploaded on NEMA website (www.nema.go.ke) to disclose the findings to the wider stakeholder categories.
- iv. Print media
Notices to invite the public to submit comments on the draft SEA report were published in the nation and standard newspapers of 7th and 14th October, 2014 respectively. In addition, the notice was published in the Kenya Gazette for two consecutive weeks on 31st October 2014 and 7th November 2014 respectively. The notices provided summarized information on the Olkaria energy expansion programme, objectives of the SEA study and the potential negative environmental and social impacts and recommended mitigation measures. The stakeholders were given 30 working days, from the date of publishing the notice, to submit comments to NEMA. The notice contained a clause advising the stakeholders to obtain a copy of the report from the NEMA website or offices in Nairobi and Nakuru county.
- v. Public meetings/barazas
Public meetings targeted the local communities categorized as primary stakeholders. For each of the villages identified, a public meeting was held at a venue accessible to the locals. Notices were issued out at least seven days prior to the meeting so as to give the stakeholders adequate time to prepare. All the public meetings were chaired by the chief of the respective locations or one of the assistant chiefs. Photo in plate 1 shows one of the public meetings in progress.



Plate 1: Public meeting at Olo Sinyat village

vi. Stakeholder workshops

Four stakeholder workshops were carried out as described in table 3.

Table 3: Details of the stakeholder workshops

Workshop	Stakeholders Consulted	Objective
1 st	Representatives of Civil Societies (CBOs and NGOs). associations and business community.	To obtain comments, on the geothermal expansion programme, for incorporation in the draft SEA report.
2 nd	Representatives of stakeholders listed in table 2.	To obtain comments on the geothermal expansion programme, for incorporation in the draft SEA report.
3 rd	Representatives of the biodiversity conservation groups and Kenya Wildlife Service (KWS).	To obtain comments on the geothermal expansion programme with respect to Hell's Gate National Park
4 th	To obtain comments on the geothermal expansion programme. Photo of the workshop is shown in plate 2.	Validation workshop held to present the draft SEA report and obtain comments from the stakeholders for incorporating in the final SEA report.



Plate 2: Photo showing validation workshop in progress

The representatives of the stakeholders that participated in the above workshops were invited through letters which were sent out at least seven days prior to the workshop date. A summary of the programme brief accompanied the invitation letters. All the four workshops were chaired by the Deputy County Commissioner, Naivasha sub-county or his appointee to promote transparency in the entire consultation process. In the unforeseen circumstances where the stakeholder was likely not to take part in the workshop, an email address and telephone contact of one of the KenGen Environmental Scientists was provided. Such stakeholders were advised to send their written comments through the email address that had been provided.

3.1.3 Summary of Concerns Raised by Stakeholders

The concerns raised by the stakeholders, the responses given by KenGen during the meetings and SEA recommendations are shown in table 4 (Five Capitals, 2015).

Table 4: Summary of Concerns Raised and Responses from KenGen

Index	Concerns Raised by Stakeholders	Response from KenGen	Recommendation in the SEA Report
1.	The effect of hydrogen sulphide gas on the air quality and public health.	<ul style="list-style-type: none"> Air quality dispersion modelling will be undertaken for future power plants. This will inform the need for a Resettlement Action Plan for the project affected persons. KenGen has established a program for monitoring hydrogen 	<ul style="list-style-type: none"> KenGen to procure a high resolution hydrogen sulphide gas metre with capability of measuring in parts per billion. KenGen to incorporate additional points in the monitoring program.

Index	Concerns Raised by Stakeholders	Response from KenGen	Recommendation in the SEA Report
		sulphide gas levels for the existing geothermal projects. Measurements are taken by a hand held meter.	
2.	The effect of brine discharge on livestock health.	<ul style="list-style-type: none"> Olkaria I power plant was built in the early 1980s and hence uses an old technology that does not incorporate a reinjection system. Brine is contained in a pond which has the potential of overflowing to the environment. KenGen has procured services to rehabilitate Olkaria I power plant via incorporation of a reinjection system. 	The construction of reinjection system for Olkaria I power plant will prevent wastewater discharges into the environment.
3.	Blockage of wild animal migratory routes/dispersal areas by steam pipes.	KenGen and KWS will undertake joint mapping of animal migratory routes which will inform the design of the steam pipelines i.e the need to incorporate raised animal loops or bury the pipelines to allow for animal passage.	Protect the two key biodiversity corridors / dispersal areas identified in the area around Olkaria, north to south to the west of Lake Naivasha and east to west to the south of Olkaria.
4.	Impact of excessive noise emission on wildlife.	<ul style="list-style-type: none"> Significant noise levels are emitted during vertical well discharge tests. KenGen will explore and adopt appropriate technologies to muffle the resultant noise emission. 	Undertake research on the possibility of using temporary barriers to reflect the noise away from sensitive receptors during well discharge tests.
5.	Loss of habitat for wild animals.	<ul style="list-style-type: none"> There exists a Memorandum of Understanding (MoU) between 	Within the Olkaria Geothermal License Area, it is recommended to protect the High Use

Index	Concerns Raised by Stakeholders	Response from KenGen	Recommendation in the SEA Report
		<p>KenGen and KWS on the management of the park.</p> <ul style="list-style-type: none"> The existing MoU will be revised to incorporate emerging issues and other areas of wildlife conservation. 	Non Concession zone, the Closed zone and the Low Use zone of Hell's Gate National Park (HGNP).
6.	Heavy traffic on the South lake road leading to road damage and traffic accidents.	<ul style="list-style-type: none"> Installation of speed bumps along the road. The responsibility of repairing the road lies with the Kenya Rural Roads Authority (KeRRA). 	KenGen will engage Kenya Rural Roads Authority to propose and support the improvement of the South Lake Road.
7.	Upsurge of criminal activities due to influx of people looking for jobs at the Olkaria Geothermal Field and its neighbourhoods.	Security measures will be enhanced in collaboration with KWS and the Kenya Police.	Contractors will be advised to provide suitable accommodation facilities for their workers.
8.	Inadequate Corporate Social Responsibility (CSR) interventions by KenGen.	<ul style="list-style-type: none"> KenGen has a Corporate Social Responsibility (CSR) policy and a CSR committee for Olkaria business area. The local community members are required to make formal requests to the CSR committee for consideration. As part of the CSR, KenGen has a scholarship program for needy students within Olkaria area. Every year, three top students in primary and secondary schools are awarded the scholarships. 	KenGen will design a system to prioritize CSR actions and handle CSR requests presented by the various stakeholders.

Index	Concerns Raised by Stakeholders	Response from KenGen	Recommendation in the SEA Report
9.	Fear of being resettled like it happened with the Olkaria IV project affected persons.	A Resettlement Action Plan (RAP) will be prepared via a participatory approach upon completing the air quality and noise modelling studies for the respective projects.	KenGen will follow the World Bank performance standard No. 4 requirements for all resettlement in Olkaria, as it was done for Olkaria IV, regardless of whether the International Financing Institutions (IFIs) are involved in the resettlement process.
10.	Limited employment opportunities offered to the local communities by KenGen.	KenGen has established a Stakeholder Coordination Committee (SCC) for Olkaria IV and Olkaria I units 4 and 5 geothermal power plants. The SCC has an employment subcommittee that handles employment opportunities resulting from the projects.	<ul style="list-style-type: none"> • KenGen will create other project specific or non-project specific stakeholder committees as necessary to address specific issues. • KenGen will provide training to members of the local communities for the jobs that will be required for the construction and operation of the geothermal power plants. The training will focus on the skills required during the construction and operational phases of the project for permanent and temporary jobs.
11.	Failure to undertake adequate consultations with the local community and resolve teething issues.	Stakeholder engagement will be enhanced.	KenGen will develop a grievance handling mechanism.

4. Conclusions and Recommendations

4.1 Conclusions

SEA for Olkaria geothermal energy expansion programme provided a framework against which Environmental and Social Impact Assessment studies for individual projects under the programme are being carried out. In addition, SEA provided an opportunity to create awareness amongst stakeholders on geothermal resource development process and its related impacts. KenGen is in the process of implementing recommendations contained in the SEA report for the geothermal energy expansion programme which came about as a result of stakeholder engagement. The following recommendations have been implemented.

- i. Procurement and use of improved silencers, to reduce noise emissions during geothermal well discharge, in wildlife sensitive areas.
- ii. High resolution hydrogen sulphide (H₂S) gas metres, for taking ambient measurements of H₂S, were procured.
- iii. Formation and official launching of the Stakeholder Coordination Committee (SCC) for Olkaria V and Olkaria I unit 6 geothermal power plant projects. The SCC has three subcommittees (the employment opportunities, economic opportunities and Environment, Safety and Health subcommittees) which meets on a monthly basis to discuss progress of the projects with respect to the three thematic areas.
- iv. A joint research between the Suswa/Iseneto community, Ministry of Livestock and KenGen was undertaken to establish the impacts of geothermal emissions on the livestock. It was established that most of the livestock were suffering from worm infestation and hence there was no correlation with the geothermal emissions.
- v. A police post has been established within Olkaria Geothermal Field to beef up security within the area. KenGen has provided offices, a vehicle and some houses for use by the police officers attached to the post.
- vi. KenGen has established partnership with the Maoris community from New Zealand. The Company's top management, the community liaison officers and some Olkaria Maasai community representatives visited New Zealand to benchmark with the Maoris on community engagement strategies. The Maoris also visited Olkaria Geothermal Project to further this partnership.

KenGen is in the process of implementing the following measures:

- i. Preparation of the community engagement strategy in conjunction with Power Africa and United States Energy Association (USEA). The strategy will pave way for the formation of a grievance management team.
- ii. Review of the existing KenGen Corporate Social Responsibility (CSR) policy to cater for emerging issues.
- iii. Review of the Hell's Gate-Mt. Longonot National Parks Ecosystem Management Plan 2017-2027 is ongoing, in collaboration with KWS. Current and future geothermal development activities have been considered.

It can therefore be concluded that stakeholder engagement process for the Olkaria geothermal energy expansion programme was meaningful.

4.2 Recommendations

KenGen should implement the pending recommendations contained in the SEA report in order to promote environmentally sustainable development of the upcoming new projects.

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