

Stakeholder Engagement Through Participatory Research: A Case Study of Eburru Geothermal Wellhead Generator in Nakuru County, Kenya

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ABSTRACT

Stakeholder engagement should be at the heart of any “sustainable development” agenda. Engaging with stakeholders is acknowledging that a business is an interdependent entity, which is impacted by and has an impact on many different groups. Stakeholder engagement can hence be used as a means to improve communications, obtain wider community support or buy-in for projects, gather useful data and ideas enhance public sector or corporate reputation, and provide for more sustainable decision-making. Stakeholder engagement has recently been increasingly identified as key to business success both within private and government sectors. This paper highlights how Kenya Electricity Generating Company Limited (KenGen) has effectively engaged stakeholders at Eburru Geothermal Field located in Gilgil Subcounty, Nakuru County in Kenya. Emphasis will be placed on how stakeholders concerns, regarding operation of a 2.4MW wellhead power plant, are being addressed through participatory research involving KenGen, local community members and Ministry of Agriculture and Livestock (MAL). In the research, farmers were involved from the conceptualization, planning, execution, data collection and monitoring of the research parameters. This was geared to ensure that the research findings were socially accepted.

During the research roll out, a number of challenges were encountered, namely social unrest and historical mistrust between the community and the Government bodies. These challenges were largely surmounted and the research progressed as envisaged. So far, the benefits accrued by KenGen include minimal negative publicity by the public in regard to the company operations in Eburru area. Second, gradually the community has gained trust in KenGen. On the part of community, the benefits include training of farmers on best agronomic practices mainly in terms of fertilizer application, disease control and use of certified seeds. Second, some farmers have adopted some of the new crops advocated by the MAL because the research confirmed that they are suitable for the area. Third, farmers embraced the recommended type of fertilizer as opposed to the type of the fertilizers they were previously using which had resulted in their soil being acidic as per the soil baseline analysis findings. KenGen met the full cost of carrying out the research.

Introduction

KenGen is the leading power producer in Kenya. The company is 70% public and 30% privately owned. KenGen's experience in power generation has proved that early engagement of the local communities residing close to power projects can yield positive results. KenGen conducts Environmental and Social Impact Assessments (ESIA) for individual power projects. It is during the ESIA studies that stakeholder engagement is initiated. The company uses various methods to engage stakeholders. These include: stakeholder workshops, stakeholder consultative meetings, public meetings, use of questionnaires, information exchange visits and participatory research. The ultimate objective is to ensure greater support for the projects by the identified stakeholders.

Early identification of potential impacts and establishment of an effective stakeholder engagement plan are critical components of successful implementation of geothermal power projects especially in developing nations like Kenya. Appreciating the knowledge and expertise of relevant stakeholders, through dialogue and solution-oriented approach, is likely to win their support for the projects (INSEAD, 2011). KenGen has established stakeholder committees in the areas where the power projects are located. It is through these committees that the potential environmental and social impacts related to the power projects are addressed in a democratic manner. Representatives of the local communities are elected members and the company organizes public meetings to establish whether they are truly representatives of the respective communities and can be relied upon to relay feedback after every stakeholders meeting. Other key stakeholders like the local administration and government officers from respective ministries are co-opted in order to enhance knowledge sharing, confidence and transparency in the entire process. It is both good practice and common courtesy to follow up with stakeholders whom the organization consulted, to let them know what has happened and what the next steps in the process will be, if these meetings are to succeed (IFC, 2007). Regular stakeholder committee meetings held at planned intervals ensures that the stakeholders are constantly updated on the resolutions arrived at as well as the next steps.

This paper will explore the various approaches that KenGen has used to engage stakeholders at Eburru area where it operates a 2.4MW wellhead power plant. Better insights will be given to participatory research conducted jointly with some affected farmers, MAL and KenGen.

Location of Eburru Geothermal Field

Eburru geothermal field lies in Eburru sub-location, Eburru location, Gilgil Division, Gilgil Sub County in Nakuru County as shown in figure 1. In Gilgil sub county, Eburru area has the highest potential in agricultural productivity since it falls under UH2/3 agro ecological zones i.e. pyrethrum, dairy, maize and wheat agro-ecological zone. The area is very productive and it's considered one of the food baskets of Gilgil Sub County.

KenGen currently operates a 2.4MW wellhead power plant, which is shown in plate 1, at Eburru geothermal field. KenGen drilled six (6) geothermal exploration wells in 1990s. One of these wells has a bottom hole temperature of 270°C and serves as the production well for the wellhead power plant which was commissioned in December 2012.

Environmental & Social Impact Assessment (ESIA) for Eburru Wellhead Power Plant

ESIA for Eburru wellhead power plant was carried out in 2008 by KenGen in line with the provisions for Environmental Management and Coordination Act, 1999 and international standards. Stakeholder consultations, as part of the

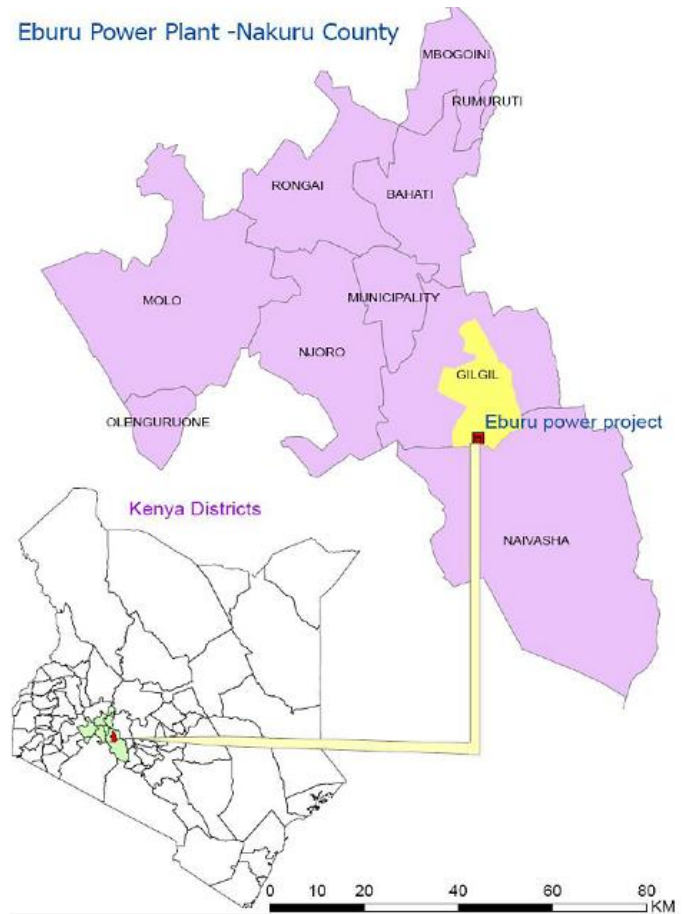


Figure 1. Location of Eburru Geothermal Field.



Plate 1. Photo of Eburru Geothermal Wellhead Power Plant.

ESIA study, were conducted through community meetings and key stakeholder workshop as required by EMCA, 1999. The stakeholders consulted comprised government ministries, the local administration, politicians and the local community. The ESIA report was approved by National Environment Management Authority (NEMA) prior to construction of the wellhead power plant.

Perceived Environmental Impacts of the Wellhead by the Local Community

The local community from Eburru and in particular from Ex-Lewis village, which lies close to the wellhead, alleged that when the power plant shut down in June 2012, geothermal fluid from the production well EW-01 was vented into the atmosphere via the rock muffler and this had a negative impact on the crops planted in the neighbouring farms. The local community forwarded their complaints to KenGen and the Ministry of Agriculture and Livestock (MAL) in Gilgil Sub County. Following this, KenGen visited the affected farmers to ascertain the claims together with the local administration (the area chief and assistant chief) as shown in plate 2.

The preliminary investigation of the incident by KenGen indicated that some crops might have been affected by silica deposition, which clogged their stomatas. Following stakeholder consultative meetings, it was agreed that there was need to form a multi-disciplinary team consisting of KenGen, MAL Officers and Community representatives to undertake a crop damage assessment of the affected crops for purposes of ascertaining the allegations, which was to guide the decision making process. Subsequently, the multidisciplinary team in the presence of aggrieved farmers undertook crop damage assessment for the affected farms between 18th-22nd December, 2012. The report with the findings was forwarded to KenGen and Gilgil sub county Assistant Commissioner and later disseminated to the farmers through a public meeting. The report concluded that the crop damage was as a result of mix of issues, mainly poor agronomic practices on the part of the farmers and geothermal emissions from the wellhead power plant on the part of KenGen particularly for the farms in the vicinity of production well EW-01. Hence the multidisciplinary team recommended KenGen to compensate the affected farmers and explore ways to undertake a participatory research on impacts of geothermal operations on agricultural activities in Eburru.



Plate 2. Some affected farmers, KenGen staff and local administration leaders at Eburru.

Root Cause of the Problem

Well EW-01 reservoir, which serves the wellhead power plant, is characterized by a high proportion of water compared to steam component. The characteristic of the reservoir, coupled with frequent trip on the line evacuating power from Eburru Power Plant as a result of overload, necessitated periodic venting to the atmosphere for optimum operation of the well. Since the well was drilled more than twenty years ago, venting to the atmosphere is associated with silica deposition, which is perceived to be the major cause of crop damage when it is blown to the neighbouring farms by wind.

Stakeholder Engagement Approach

Prior to commissioning of the wellhead generator, KenGen had established a stakeholder committee that was comprised of the local administration (the area Chief and assistant chief), elected chairpersons and representatives from the five villages located within Eburru location. The committee was a forum through which community concerns were presented to KenGen for discussion and mutual agreement. KenGen appointed a liaison officer to be the contact person between the committee and the company. After the first incident, KenGen invited the committee to Olkaria Geothermal Field (where the company operates another



Plate 3. Stakeholders from Eburru during the visit to Olkaria drilling sites.

4.5MW wellhead and other conventional power plants) for an information exchange visit that provided an opportunity for the committee members to understand how a wellhead works. The members paid a visit to Oserian Development Company and KenGen wellhead generators at Olkaria. They also visited a drilling rig site as shown in plate 3.

The visit helped in removing fears that the local community had developed towards the wellhead power plant as a result of the perceived negative impacts. However, when the second incident happened, the farmers demonstrated by blocking the road heading to the wellhead power plant demanding compensation of the damaged crops. KenGen organized for a public meeting with the local community next to the power plant as shown in plate 4.

The meeting was chaired by the Gilgil sub county assistant commissioner and was attended by KenGen’s environmental experts and the Geothermal Development Manager based at Olkaria. It was agreed that KenGen in collaboration with the affected farmers and the MAL were to launch a joint participatory research to ascertain the allegations of crop damage and determine the geographical extent of the impact. It was also agreed that KenGen was to compensate the farmers who were affected by the first incident as per the report prepared by MAL. KenGen fulfilled this agreement by compensating the affected farmers in 2014. The farmers also demanded that there was need for the existing stakeholders committee to be reconstituted and the Gilgil sub county commissioner gave them a go ahead to carry out elections and forward the names of the elected members to her office.



Plate 4. A public meeting organized by KenGen at Eburru.

Engagement Through Participatory Research

The research was dubbed “Joint Research on Impacts of Geothermal Operations to Agricultural Activities and Live-stock Production in Eburru Area”. The research set up and activities were agreed upon by KenGen and MAL. KenGen agreed to fund the research while Ministry of Agriculture and Livestock (MAL) was to provide the technical expertise. The community was involved throughout the research to ensure results were socially accepted. Upon adoption of the proposal, the research commenced with a baseline study which was carried out in 2013 to collect information on soil baseline data (fertility test), socio-economic profile of the affected farmers, type of crops commonly grown in the area and production trends. The study was carried out through administration of questionnaires to some sampled farmers carrying out farming close to the wellhead and also analysis of the soil for both macro and micronutrients. Later on in 2013, KenGen and MAL launched the research. A team of environmental and liaison experts from KenGen participated in the research. The research was designed to involve affected farmers from planning, planting, and monitoring and data collection. Research activities being undertaken by MAL, KenGen officers and community members as KenGen organized is shown in plate 5.



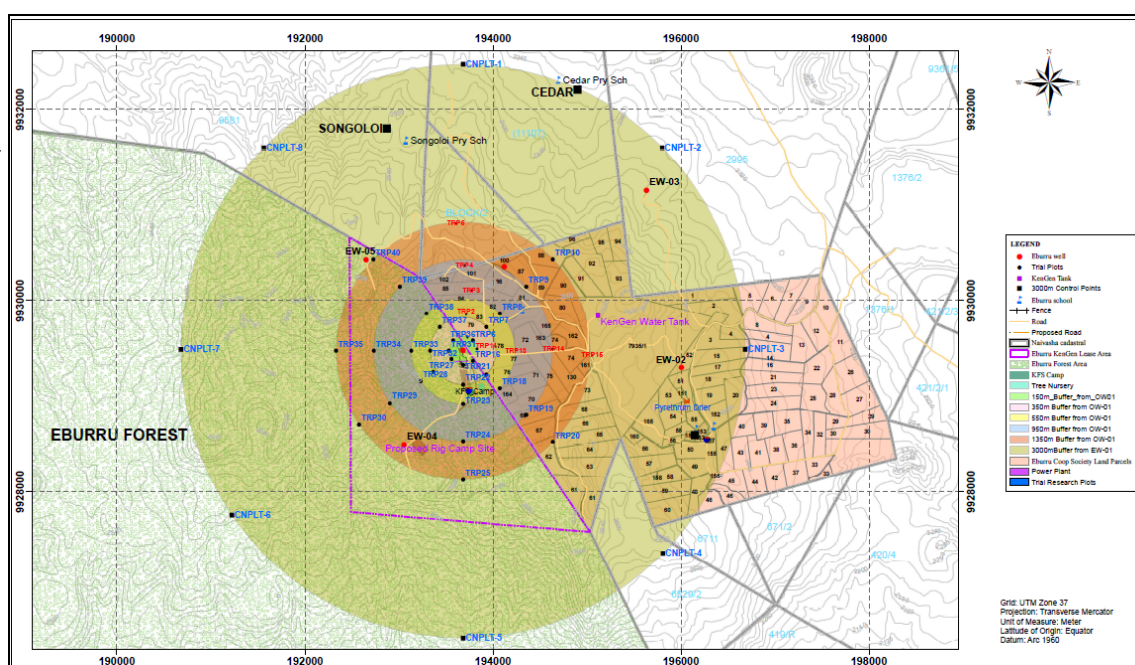
Plate 5. MAL, KenGen and farmers in one of the trial plots for the research.

Research Design

The first phase of the research was undertaken during the short rains in October to December 2013 and the long rains between March to June 2014. The locations of pilot farm sites were located to the North, North East, East and South East of well EW-01 to take care of the wind direction with regard to geographic location of the farms.

Five trial plots in each of the above listed directions located at intervals of 150m, 350m, 550m, 950m and 1,350 m from well EW-01 were established. Thus a total of forty (40) trial plots were established. Eight control points set at least 3000m away from well EW-01 to the North, North East, East and South East, were also established. The crops that were grown on the trial plots included maize, Irish potatoes, cabbages, carrots and peas. Each enterprise was subjected to two Management levels for each of the plot. Each plot measured approximately 3m by 30m. New crop varieties were also

Figure 2.
Research set up
indicating the
position of the
trial plots.



introduced in the area and were set up at 150M North, 550M North East, 150M and 950M East, 350M and 1350M South East from well EW-01. Prior to initiation of the research, baseline survey was carried out via laboratory analysis of soil samples collected from the farms and rain water samples. Other useful baseline information on crop farming in Eburru area was also collected. The research set up is as shown in figure 2.

Progress and Next Steps

The first phase of the study has been completed and MAL in collaboration with KenGen has prepared a report on the findings. The report will be disseminated to the local community in presence of KenGen and the Gilgil sub county assistant commissioner. KenGen will fund the second phase of the study in order to enhance confidence in the results. Meanwhile, KenGen has maintained quarterly meetings with new elected Eburru Stakeholders Community in order to ensure continuous engagement thus building trust.

Challenges Encountered During the Research

Several challenges were encountered during the research. First, historical mistrust between the community and Government institutions came into play. This was manifested during the first meeting between the affected farmers, KenGen and the local Administrators. In the said meeting, the affected farmers expressed their reservations in expressing their grievances to KenGen as they felt that it was against conventional practices for one to express his grievances to the perceived wrong doer, particularly when it is a government body. They felt KenGen was not likely to act on their concerns. To back up their positions, they produced evidence of previous compensation letters dating back in 1980 that were not honored by various government organizations. However, after much discussion KenGen informed the community that as a country a lot of progress had been made to incorporate community concerns while undertaking National projects. KenGen pinpointed that in the country, with a new constitution that has embedded public participation and requisite environmental laws and regulation certainly things have changed for the better. Against the above backdrop, KenGen team assured the local community that largely KenGen was well placed to self regulate and would incorporate the MAL for technical expertise. Further, KenGen argued that, KenGen and MAL being in touch with the locals and with the requisite knowledge in geothermal and agronomic practices were better placed to address the concerns raised by the farmers. Subsequently, the community accepted that a multi disciplinary team comprised of KenGen, MAL staff and community representatives was to go ahead and undertake a crop damage assessment.

Second, some community members took advantage of the concerns raised by farmers at the vicinity of the plant to lodge claims that their crops had also been damaged by geothermal emissions up to five kilometers away from the power plant. Nevertheless, this issue was addressed by the multi disciplinary team visiting all the farms owned by the farmers that had raised concerns. In farms, where no damage was correlated to geothermal emissions, farmers were promptly advised

to avoid being disappointed at later stages. This foregoing also heightened the need for a collaborative research between KenGen, MAL and the farmers for purposes of ensuring farmers and KenGen were in agreement in terms of impacts associated with geothermal operations, possible impact radius and developing scientific database in regard to impact of geothermal operations an agricultural activities.

Third, at around the time when the production well EW-01 was resuscitated, political campaigns were on going as the country was about to embark on General election. The politicians caused community agitation by peddling unsubstantiated narratives on the effect of geothermal operations to agricultural activities. To address this issue, the team embarked on a participatory research for purposes of generating scientific information on the impacts of geothermal operations to agricultural activities and ensuring the results is socially accepted.

Benefits Accrued So Far

The participatory research has brought numerous benefits to the Eburru community and KenGen. In regard to KenGen, first, there has been minimal negative publicity by the public in regard to the company operations in Eburru area. Second, there has been improved relationship between the community and KenGen; there has been no demonstration against the company since the research was rolled out. Third, the community has gained trust in KenGen through constant engagement. Fourth and most important, KenGen modified the EW-01 emergency discharge system to minimize community complains.

Benefits to the community includes farmers acceptance to use Single Super Phosphate fertilizers as opposed to CAN fertilizers which was making their soil acidic as per the finding of soil baseline data obtained upon analysis of their soils. Second, farmers were trained on best agronomic practices mainly in terms of fertilizer application, disease control and use of certified seeds. This was done at no cost as KenGen facilitated the MAL staff in the entire period of the research. Third, some farmers have adopted some of the new crops advocated by the MAL because the research proved that they were suitable for the area.

Conclusions and Recommendations

When carrying out ESIA for geothermal power plants, there is need to engage internal stakeholders as well. If the reservoir engineers had been engaged during this phase, potential impacts associated with venting to the atmosphere would have been identified and appropriate mitigation measures recommended. For progressive organization, participatory research can be an effective means for stakeholder engagement and management as long as an organization is open to ideas and implements recommendations arising from such a research. Further, for controversial issues it pays to engage in negotiation; for KenGen case, upon conclusion of the crop damage assessment report some farmers argued out that they were left out in the first assessment, to address the issue KenGen entered into a successful negotiation, which resolved the issue.

In Eburru geothermal field, KenGen used various methods to engage the stakeholders. These included participatory research, establishment of a stakeholder committee, public meetings, key stakeholder workshop, email trails and telephone calls through the liaison officer. The participatory research has developed a partnership based on trust thereby helping to vent out community concerns and fears. The approach used by KenGen has confirmed that proper identification of project-affected persons and subsequent enhancement of awareness on the perceived impacts of a geothermal power project are the first steps towards a successful stakeholder engagement process. Involvement of the respective government ministries or agencies instills confidence and transparency in the entire process.

The authors recommend the following measures to be implemented by KenGen

- A written grievance mechanism to be developed in collaboration with the local community and disclosed
- Prompt disclosure of the research findings is necessary in order to avoid speculations which might result to community unrest
- Next phase of research needs to be launched since during the first phase the wellhead was not operational for the better part of the research period and
- The results of the second phase of the research should be able to guide appropriate decision to be taken by KenGen in order to achieve a long lasting solution to the problem.

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