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Variety and management of developmental conflicts: the case of the Olkaria IV geothermal energy project in Kenya

Lilian Namuma S. Kong'ani [a], Raphael G. Wahome [b] and Thuita Thenya [a]

aWangari Maathai Institute for Peace and Environmental Studies, University of Nairobi, Nairobi, Kenya;
bDepartment of Animal Production, University of Nairobi, Nairobi, Kenya

ABSTRACT

The development of geothermal energy installations generates varied conflicts in Kenya that often escalate because of improper management. Yet, these developmental project conflict dynamics remain poorly understood. To better understand the dynamics of these conflicts, quantitative and qualitative data were collected from the Olkaria IV project-affected persons (PAPs) household heads using questionnaires, focus group discussions and key informant interviews. The qualitative data was arranged into socioeconomic, cultural, environmental and political themes and the proportion of respondents within each theme was calculated. The triggers for the conflicts included inadequate communication and participation in decision-making, unsatisfactory relocation logistics, and unfulfilled compensation promises. Also, the formulation and implementation of the resettlement action plan was inadequately negotiated with the PAPs. The effects of the conflicts on the PAPs' livelihoods were severe. The conflicts were managed mainly through competition and avoidance strategies. Subsequent dissatisfaction on the part of the PAPs led to unrest that almost derailed the project. Planners need to be inclusive of the local community in the design of large development projects. Inclusiveness in planning would secure community buy-in, remove unrealistic pledges or expectations, and smoothen project implementation.

Introduction

The development of geothermal power projects increases energy availability and the use of green energy sources which helps to enhance environmental sustainability and address global concerns over climate change.[1] Worldwide, geothermal energy production had reached 14.3 gigawatt electric (GWe) by 2017.[2] Geothermal installations enhance capacity for economic development for many countries.[3] Geothermal energy generation is less prone to the disruption caused by unfavourable weather conditions and thus more reliable and secure than wind, solar and hydro-power generation.[4] 44 per cent of Kenya's electricity in 2017 was generated from geothermal installations.[5] However, like other flagship infrastructural developments, geothermal installations are often affected by developmental conflicts, especially involving local communities due to land invasion and forced population relocations.

Conflicts are endemic to society and unavoidable since time immemorial.[6] Conflicts arise in any situation where people interact, including in developmental projects,[7] often as a result of incompatible interests.[8] Whether violent or non-violent, conflicts are sometimes triggered by the discontentment of the parties involved due to inadequate consultation, marginalisation of communities, and forced relocation associated with the disruption of local people's livelihoods.[9] If unresolved, conflicts can lead to hostility and war with the potential to delay development projects, increase their cost, and lead to their rejection by the host community.[10] Conflicts may sometimes also lead to the loss of life and cancellation of projects.[11]

Conflicts around project development often follow a similar trajectory globally.[12] For instance, the Vattenfall project at Beeskow in Germany, which undertook explorations to determine the suitability of the Beeskow area for storage of CO2, encountered challenges in building trust among the local community, resulting in its cancellation.[13] The public was concerned with the potential risks of carbon dioxide storage,[14] including the occurrence of leakages with possible fatalities, ground water contamination, and negative impacts on the real estate market and tourism. The project opponents were also concerned that Vattenfall would not openly share its exploration results. The Tangkuban Parahu Mega geothermal project in Indonesia was halted following demonstrations by over 800 people in protest over unfavourable terms with regard to compensation as well as the project's potential to cause deadly landslides.[15] The Niger Delta oil development project in Nigeria resulted in violent protests by the Ogoni community due to extensive oil contamination that resulted in severe degradation of the environment, detrimental health effects for the local population, and the destruction of livelihoods.[16] This subsequently led to the militarisation of the community[17] with unforeseen consequences including many deaths, detention of community members, exile of key local leaders, rape and mutilation of women and children, and ultimately the collapse of the project.

In Turkana, Kenya, the Tullow Oil project, various wind power projects, and other development projects fuelled conflicts that were driven by the unmet expectations among local communities.[18] The alleged secretive manner in which the tender for the Mui Basin coal project in Kitui, Kenya was awarded to the developer, and the wrangling over the level of benefit sharing with the host communities has delayed its implementation since the initial awarding of the tender in 2011.[19] Omondi et al. reported in 2020, in the *Extractive Hub's Insight*,[20] that the residents' contestation against this project was ongoing at the time of their study.

Although it is generally implied that conflicts are destructive, conflicts can, however, be useful for developmental activity if constructively managed: they can help to bring out hidden pressures or displeasure, encourage resolution of issues, and improve stakeholders' understanding of the goals and purposes of a development project.[21]

Geothermal energy development is in line with Kenya's Vision 2030,[22] and its global commitment towards Sustainable Development Goal (SDG) 7, which is affordable, reliable, sustainable and modern energy for all, and SDG 13 which is climate action. The Olkaria IV geothermal project is located in the Olkaria geothermal block in Naivasha-Sub-County, Nakuru County, Kenya, partially within the Hell's Gate National Park (HGNP). Olkaria area is inhabited by about 20,000 pastoralists (semi-nomadic Maasai of various Maasai clans), whose main livelihood is supported by pastoralism and livestock trading, with a few community members relying on tourism

activities.[23] The Olkaria IV geothermal project, which has the capacity to generate an additional 140 MW of electricity, was conceived to deliver on Vision 2030 and SDGs 7 and 13. However, its installation was encumbered by conflicts[24] that persisted beyond its completion. Although numerous studies have been conducted on community interactions with geothermal power projects globally,[25] there is scanty scholarly work on this topic relating to Kenya. The socio-economic, environmental, cultural and political repercussions of these projects and how they intersect with conflict dynamics is poorly understood.[26]

Available information is insufficiently comprehensive with regard to local community reactions, especially where undemocratic planning processes that involve limited consultation with the community are used to conceptualise and implement projects.[27]

This paper addresses this insufficiency by documenting community insights on the types of conflicts that arose during the implementation of the Olkaria IV geothermal project, their effects, and how the conflicts were managed. Understanding the implication of infrastructure developmental conflicts between community and developers is essential for facilitating economic growth, and mitigating negative impacts on local communities.

This article first introduces the theoretical framework for this research, then it outlines the methodology that was adopted, before presenting the key findings and discusses these. Finally, the authors conclude by making a number of recommendations on how to more sustainably implement developmental projects in the energy sector.

Theoretical framework

The theory of vested interests provides a framework for examining the development of certain environmental conflicts and the categorisation of the parties involved.[28] Conflicts often arise as a result of incompatible and vested interests[29] of the involved actors. Schnaiberg et al. categorises the parties into the State, the producers, and consumers.[30] The parties in this study include the government of Kenya as the State, Kenya Electricity Generating Company (KenGen), which is a parastatal established by the Ministry of Energy (MoE) to generate bulk electricity to the national grid,[31] as the producer, and the Olkaria IV community as consumers who were in conflict with KenGen over differing vested interests relating to the Olkaria IV geothermal project. According to Schnaiberg et al.,[32] the State plays a twofold role. Firstly, the State supports the accretion of capital and development for the benefit of the nation implemented by its diverse institutions like KenGen. In Olkaria IV, the government's interest was to intensify investment in geothermal energy as part of its commitment to increase electricity supply and production of green energy towards meeting its goals for climate change mitigation. As the Kenya government already had other production wells on this site, this meant that it had strong vested interests in developing further wells where production infrastructure already existed.

Secondly, the State is also obligated to protect the rights of its citizens living in the local community that is affected by development projects through environmental laws. This provides for an assessment of the potential impacts of geothermal projects and the subsequent resettlement of the community within the project vicinity, to protect them from these impacts. Thus, in the case of Olkaria, the community was moved from the Olkaria IV site to allow KenGen to expand geothermal production after the

environmental and social impact assessment (ESIA) which was conducted found that the project would have potential negative impacts on the community. After negotiations, the community reluctantly agreed to be relocated to a piece of land near the project site. Whereas the proximity to the project site would have enabled the community to secure temporary/casual jobs, the land had poor quality forage for their livestock.

The land in question had volcanic ash soil type that was allegedly prone to erosion and quick formation of gulleys. However, the community was keen on keeping their traditional land which they found hard to give up. The community had made significant investments in their cultural activities and village life, the value of which it was difficult to calculate in monetary terms and hard to compensate for. In addition, it was difficult to transfer cultural activities, including the performance of traditional dances for tourists and the trade in traditional ornaments and other items from the Olkaria IV site, which is located inside a wildlife park, to the new site. The resettlement area lay outside this park, cutting the community off from the hub of tourism activities inside the park. This problem was compounded by the additional transport costs that the community would need to bear to get to the park.

The resettlement site came with permanent houses, unlike the semi-permanent houses at Olkaria IV. However, these improved standards failed to satisfy the project affected persons (PAPs) because they had been relocated from a position of close proximity to Olkaria IV where both their cultural activities and other income generation activities contributed to their livelihoods. Furthermore, they lost their easy access to the markets and town centres, including Naivasha, where some of their livelihood activities had previously taken place.

The competing interests exhibited by these actors are, therefore, the epitome of detrimental conflicts.[33] The community was forced to relocate to a less suitable area than the one they had left, while KenGen took over their traditional lands for the purposes of power production. Thus, the conflicts persisted because the PAPs had a vested interest in continuing to reside on their traditional lands due to the easy access to markets that it provided, the better terrain, and the community's *manyattas* (traditional huts) which were better suited to their needs. This study sought to provide a better understanding of the conflict dynamics associated with the Olkaria IV geothermal project with a view to identifying lessons for the proper management and sustainable development of other projects in Kenya and elsewhere.

Study area

This study was conducted among 1,209 PAPs spread across 155 households in the relocated area at the Resettlement Action Plan (RAPland) village[34] in the development area of Olkaria IV. Olkaria IV is situated in the Olkaria geothermal block in Naivasha Sub-County, Nakuru County (see Figure 1 below). Gazetted as a Geothermal Resource Area in 1971,[35] the geothermal field is located in the Hell's Gate National Park on KenGen's land covering approximately 80 sq. km. The park lies to the south of Lake Naivasha, about 120 km north-west of Nairobi. Olkaria IV power plant has an installed capacity of 140 Megawatt (MWe) owned and managed by KenGen. The project was established with the financial support of the Government of Kenya (GoK) which contributed 22 per cent of the overall funding, the Japan International Cooperation Agency
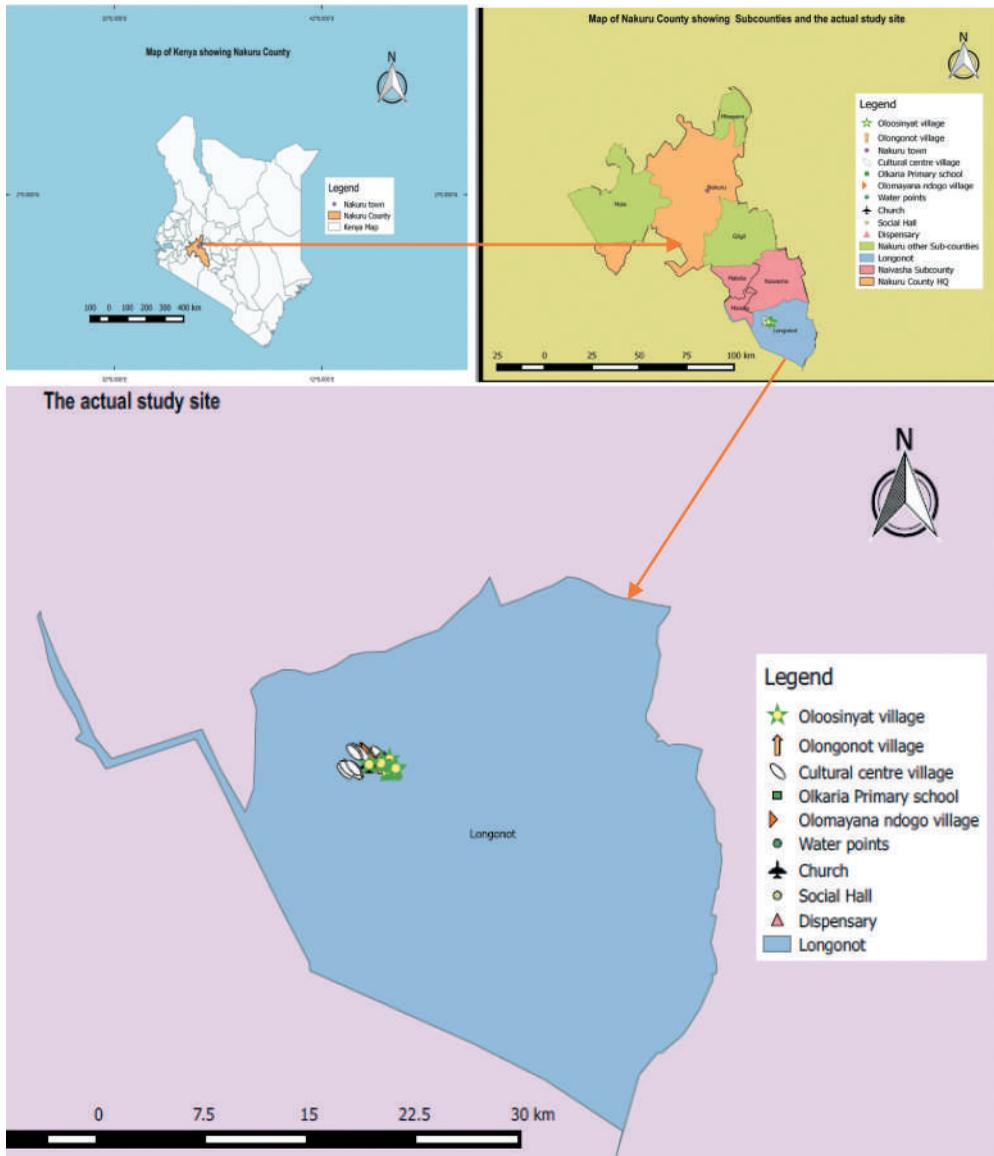
Figure 1. Map of study site – RAPland at Olkaria IV, in Lolongot.
Source: produced by study authors, 2020.

(JICA) – 23 per cent, the French Development Agency (AFD) –15 per cent, the European Investment Bank (EIB) – 12 per cent, the World Bank (WB) – 7 per cent, and the German Development Agency (KfW) – 7 per cent. The remaining 14 per cent of the costs were covered by KenGen.[36]

The development of Olkaria IV necessitated the relocation of four villages, namely, Cultural Centre, OlooNongot, OlooSinyat and OlooMayana Ndogo.[37] GIBB Africa, a consultancy firm, was contracted by KenGen to develop a RAP to facilitate the resettlement process. The four villages were inhabited by the Maasai Community. The

PAPs were resettled on a piece of land measuring 1,700 acres, upon which they were to get title deeds, modern infrastructure, social services, and grazing land. The PAPs depended mainly on pastoralism and livestock trading while those from Cultural Centre relied principally on tourism (selling of curios and guiding of tours).[38]

Methodology

Reconnaissance and preparation

A reconnaissance study was conducted in May 2019. During this visit, three male research assistants and one female research assistant were recruited. The research assistants were all drawn from RAPland and trained on the different aspects of the questionnaire as well as interview techniques. The training also covered etiquette for peaceful and fruitful field research. The research assistants were provided with flip charts, notebooks, strings and pens. They helped to draw a sketch map of RAPland depicting the four villages including OlooNongot, OlooSinyat, OlooMayana Ndogo and the Cultural Centre (see Figure 1). The sketch map also depicted important landmarks including the community dispensary, the two churches, the primary school, the secondary school and the road system. The RAPland chief elder also provided input into the production of the map. The training was conducted at the RAPland Gospel Church. The semi-structured questionnaire was trialled to fine-tune the questions.

Study design

The aim of the study was to capture PAPs' input on conflicts associated with the implementation of the Olkaria IV geothermal project, their type, nature and manifestation, their effects on the community, and how these conflicts were managed. Data was collected over a period of 2 months between May – November 2019. The study employed different methods to collect both quantitative and qualitative data. The quantitative data, which was gathered through a household survey, included the respondents' ages, the number of people per household, and the percentage that took part in resisting the relocation process. The qualitative data was collected through three focus groups and eight key informant interviews. These data included respondents' views on the initiation of the project through its implementation as well as the associated conflicts that emerged and how they were managed. An evaluation was carried out of secondary sources of information including journal articles and published books on infrastructure development and conflicts.

Sampling

This study targeted all of the 155 households in the four villages, though only 117 households were actually surveyed. 24 households were not occupied at the time of the study because the occupants had temporarily moved out of RAPland in search of other economic opportunities. The members of 14 other households were also unavailable because of work-related engagements outside RAPland that saw them only return home late at night.

Data sources

Secondary data were obtained from reviews of published and unpublished literature from varied local, national and international sources. The literature was related to involuntary resettlement and also conflicts associated with the installation of the geothermal power plants and other infrastructural developments. The results from the reviews have been used to supplement primary data gathered on conflicts connected with the installation of the Olkaria IV geothermal plant in Kenya. These data were collected via household surveys, focus group discussions (FGDs), key informant interviews (KIIs), and field observations.

Data collection

Household survey

The semi-structured questionnaire was administered to household heads and, where they were absent, to offspring above 18 years old in order to elicit individual household experiences regarding the dynamics of conflicts associated with the Olkaria IV project installations.

Focus group discussions

A checklist guide was prepared based on a questionnaire survey and used to collect qualitative data on how the community learnt about the Olkaria IV project, the information received about the project, their reaction, how relocation was conducted, how conflicts ensued, and how they were addressed. Three FGDs were conducted (consisting of elders, women and youth) with eight participants in each group. The youth group consisted of four male and four female participants who equally and actively participated in the discussions. The female elders were separated from male elders in order to facilitate free participation and discussion because Maasai culture forbids women speaking openly among men.[39] Judgemental sampling was applied in the selection of the FGD participants to ensure their capacity to provide useful insights on the subject matter. Consent was sought and granted to record these FGDs.

Key informant interviews

Further qualitative data was collected via interviews conducted with eight key informants. These informants were also judgmentally selected for their ability to inform the study objectives. The informants included participants of a mediation process that had been successfully conducted to resolve conflicts that persisted after the community was relocated. These participants were one mediator, two informants from the complaints group, two from the Resettlement Action Plan Implementation Committee (RAPIC), a representative from KenGen, and two Village Elders at RAPland. A standard interview guide for the eight key informants was prepared ahead of the interviews. None of the participants gave their consent for the interviews to be voice recorded, so meticulous notes were taken.

Field observations

Field observation of the RAPland's topography, the established facilities and infrastructure, and PAPs' livelihood activities was carried out. Photographs were taken and informal talks led by the research assistants were also used as an additional method to validate the information that had already been gathered.

Data analysis

The completed questionnaires were checked for accuracy and coded. Quantitative data on the respondents' ages, the number of people per household, the number who participated in resistance of relocation was organised in an Excel spreadsheet. This data was imported into an R programme,[40] managed and analysed. Qualitative data on respondents' reflections on all aspects of the project initiation and implementation including PAPs' relocation process were typed up and the interview recordings transcribed. The transcripts were imported into qualitative research software, NVivo[41] for coding and analysis. The summaries of the narrations were used in the discussion in the next section, with data displayed using illustrations and tables.

Research findings

Conflict foundation

The conflicts that arose during the Olkaria IV geothermal project manifested themselves during the three key phases of the project cycle as illustrated in Figure 2.

At the project's initiation, the resident community at the project site learnt from several sources, among these the media and members of neighbouring communities (see Figure 3) that KenGen had identified Olkaria IV area as a potential site for setting up a geothermal plant. KenGen was considering installation of the additional plant as part of the Kenya Electricity Expansion Project (KEEP). The aim of the project was to generate more power (140 MW) to contribute to the national grid and to increase the country's gross domestic profit. The respondents revealed that an Environmental and Social
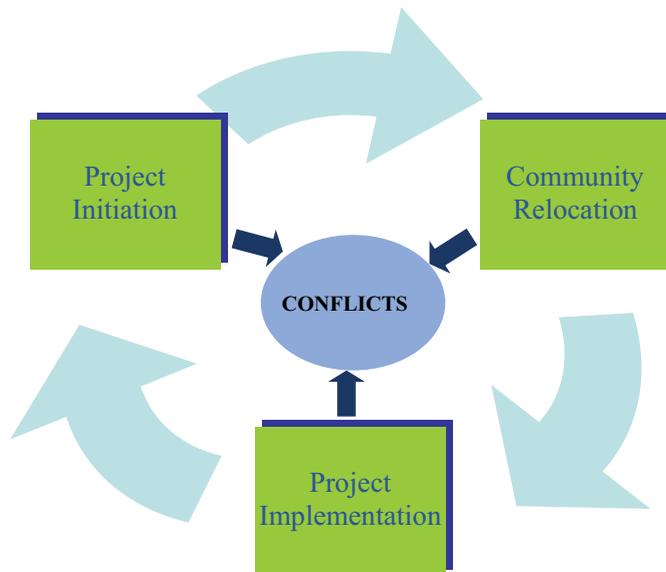

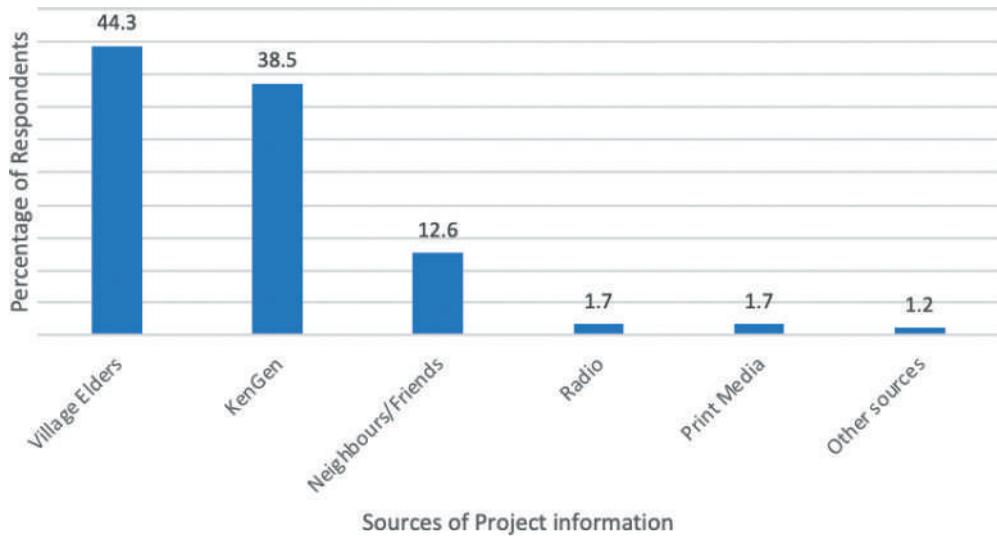**Figure 2.** Conflict phases at RAPland.

Figure 3. Source of information about Olkaria IV project.

Impact Assessment (ESIA) had been conducted. The results demonstrated that the drilling of the power plant would negatively impact on the health of the community. This information was also confirmed during the FGDs:

> We were told about the establishment of a geothermal power plant which would have seen us resettled. We were convened and told of the negative and positive effects of the project, which included: respiratory diseases due to dust emissions, generation of the electricity to benefit the entire nation, benefit sharing, employment for majority of the youths and scholarships/bursaries/sponsorships. We were told that when the community continued to stay around the project, there would be an influx of people and we would easily get diseases not found in our area and which would spread faster because of the high populations.[42] There would also be miscarriages and hence relocation was necessary.[43]

PAPs had also been told that the project would bring numerous benefits to the community, along with some negative consequences. The benefits included bursaries, scholarships, good housing, reliable water facilities, good accessible roads, health facilities, connection of electricity to households, land with title deeds, numerous employment opportunities for both skilled and non-skilled Maasai PAPs, financial compensation, improved welfare of the vulnerable PAPs, as well as sharing of revenue from the project. The negative consequences included noise pollution, relocation/loss of ancestral land, poisonous smoke/gases (*Hydrogen Sulphide*) and risk to grazing and livestock. Specifically, smoke emanating from the project would also pollute the air and affect the PAPs' health. However, a few respondents (5 per cent) claimed there was a lack of coherent communication of the information regarding the project. They were only given a few months' notice to relocate without being told the exact reason for the need to move.

With regard to relocation phase, a majority (57 per cent) of the respondents were ready for relocation, while 43 per cent were hesitant. However, most of the respondents (77 per cent) were of the opinion that KenGen should have prepared them better for the

relocation. Only 23 per cent were satisfied with the relocation process. The respondents said that, they should have been given adequate time to relocate. In addition, KenGen should have adequately compensated them financially to enable them buy basic needs including food and furniture to facilitate a smooth relocation and settlement at RAPland. A respondent stated, 'We were relocated in a very bad way, we were equated to prisoners; who have no rights. Houses were supposed to have been furnished, my life and that of many PAPs went bad.[44] Consequently, a majority (80 per cent) would not recommend involvement in a similar process of relocation, either if they had to be moved again or if another community had to be moved.

During the project implementation phase, the PAPs anticipated the fulfilment of the promised socio-economic benefits of the project. These included the developer's promises of a six-month package of financial support for the PAPs, employment for the youth in the community, adequate water points, stabilisation of the gulleys and, issuance of land title deeds. However, these pledges were not fulfiled to the community's expectation. It was claimed that the developer's failure to follow the memorandum of understanding (MoU) led to complaints and conflicts that prompted some PAPs to write to several of the project financiers, including the World Bank and the European Investment Bank, seeking intervention. According to participants in the FGDs and KIIs, conflicts would possibly reoccur should there be inadequate implementation of the MoU.

Conflict types

The study established four types of conflicts that emerged, including socio-economic, environmental, cultural and political conflicts (see Figure 4).

Socio-economic conflict

51 per cent of the respondents stated that the bad roads, along with the increased distance that they needed to travel to work and the shopping centres in Kamere and Naivasha, led to increased travel costs. This problem was compounded by the limited means of transport that were available. Additional constraints identified by PAPs included inadequate and unreliable water collection and watering points, porous RAPland borders due
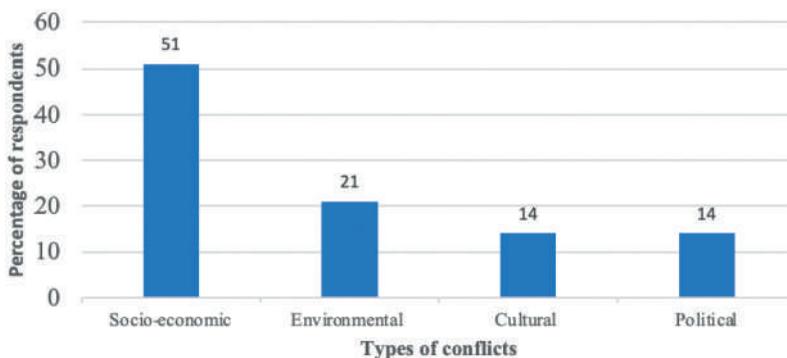

Figure 4. Types of conflicts manifested at RAPland.

to incomplete fencing, a lack of reliable electricity supply and a reduction in income from the sale of traditional ornaments and guided tours. As expressed by a respondent, '*The relocation decreased my rate to employment because I moved many kilometres away from the project. When I get a clue of employment, it is already too late because transport is the most problem.*[45]' Another interviewee stated, '*Relocation resulted in long distances, transport cost went up, it took too long to walk to work. I delayed to attend to tourists and business declined.*[46]' The latter was of concern particularly for most of the respondents from the Cultural Centre village whose livelihoods were also supported by tourism. The former settlement was preferred due to the ease of earning a living. In the new villages PAPs faced significant income generation uncertainties, due to the difficulties in keeping livestock and the lack of alternative employment. Some were unhappy with the unfurnished houses that they were given which lacked the basic necessities for a new lifestyle. Specifically, they stated that they were forced to relocate before they were ready without being fairly compensated. One respondent aptly put it, '*I wanted to be compensated and there was not even a single shilling for me: my children were stranded, with nowhere to go*[47]' And another said, '*Some of my tenants had not paid before relocation, I did not have money for my children. Two of my sons were left out. I had two houses and I was given only one house at RAPland.*[48]' Thus, the unfulfilled promises of improved livelihoods and living standards that were made by KenGen resulted in distrust.

Environmental conflict

At first sight, the RAPland appeared dry and frequently visited by drought. The terrain suffered from severe and frequent soil erosion occasioned by rain and the poor landscape. It was also characterised by poor grazing areas of low-quality pasture. The inhospitable valleys and gullies engendered a fear of death among members of the community and their livestock which were vulnerable to injury. The terrain was infested by wild animals, especially hyenas, that became a nuisance by killing PAPs livestock daily. 21 per cent of respondents expressed dissatisfaction with the general state of RAPland and indicated a preference for their traditional lands. They were unconvinced that the geothermal developments actually posed a real danger to inhabitants, thus necessitating their move, since they were never provided with documented scientific evidence of the potential negative effects of the noise pollution, as claimed by KenGen. However, according to the KIIs that were conducted, the community had been given an opportunity to select an alternative site, but settled for RAPland so that they could remain relatively near the project site.

Cultural conflict

Fourteen per cent of the respondents spoke of conflicts related to their attachment to their ancestral land, homes and culture and to the loss of livelihoods that occurred as a result of their relocation. Notably, the erection of the fence around the plant's area and around RAPland would restrict the community's access to some grazing areas, interfering with their nomadic way of living. The standard two-bedroom houses built at RAPland did not cater for the customary needs for separate units for the husbands, wives, sons and daughters for the PAPs that had several *manyattas* (households) at the former site. In this light, a respondent stated, '*I and my family are many and the room is too small. It is not enough for us, we are so congested. Cultural mixing of boys and girls in the sleeping room is a taboo.*[49]' The FGDs with women revealed that some of them were

dissatisfied, since they were denied voice because of their sex and their views were disregarded. The respondents also acknowledged that they had elected leaders who made decisions on their behalf, with which they had to abide irrespective of their feelings on the matters.

Political conflict

The respondents advised that KenGen had indicated that the plant would emit poisonous gas (*Hydrogen Sulphide*) and noise that would negatively impact on their health and that of the community's future generations if they continued to live next to the project site. Most of them noted the inadequate and improper sharing of information relating to the project development. Furthermore, their participation in project development meetings and involvement in the decision-making process was inadequate. According to 14 per cent of the respondents, KenGen tricked them in to relocating so as to increase the company's geothermal perimeter by making promises that were never fulfiled as a respondent from OlooMayan Ndogo noted:

> During KenGen's preparation of the community for relocation, a lot of lies were promised. I'm saying lies because they never came to fulfilment later e.g., gulleys were to be stabilised, KenGen promised better livelihood measures for the first six months for settlement and water to each family's home. [50]

Seventy-seven per cent of respondents would have appreciated more support to prepare for the relocation. They suggested that KenGen should have compensated them financially and given the PAPs adequate time to relocate instead of using force and threats. According to 43 per cent of the respondents, they were unhappy with the arrangements, but lacking power to challenge them, succumbed to KenGen's pressure to relocate. This problem was compounded by inadequate support from other community members, who were reportedly too quick to accept KenGen's pledges. Some PAPs also alluded to statements made by KenGen to the effect that the geothermal plant was a government project and, either way, the community had no choice but to relocate.

Nature and manifestation of the conflicts

Due to resentment and dissatisfaction, these conflicts arose between KenGen and the PAPs when the latter learnt of their unavoidable relocation to pave way for the Olkaria IV project. Half of the PAPs participated in community-organised peaceful protests against the relocation. Community meetings were held to strategise on how to resist KenGen's relocation plans, during which the youth received advice on how to spearhead the resistance from the elders whose age limited their active participation. The protesters attempted to block roads. Although the demonstrations were non-violent, criminal elements within the communities also manifested their displeasure by looting shops. However, the protests were thwarted early on following talks with the KenGen which did not lead to a resolution of the protesters demands and resulted, instead, in half of the resisting group feeling aggrieved, without the opportunity to speak or share their thoughts and vent the resentment that they harboured within themselves.

The dynamics of conflicts

According to the FGDs and KIIs, during the project initiation and relocation, conflicts resulted in abandoned businesses at the Hell's Gate National Park and reduced tourism activities. This impacted negatively on the livelihoods of members of the Cultural Centre village, which was at the core of these activities. In addition, 41 per cent of respondents noted that some PAPs lost their jobs through punitive measures taken for participating in protests against relocation. For example, one respondent noted that '*KenGen targeted those who attempted to resist relocation and denied them job opportunities as well other benefits like scholarships and bursaries hence, causing anxiety among community members*.[51] The interviewees also claimed that those who resisted relocation lost friends. PAPs that were seen to associate themselves with the resistance group were threatened with the legal sanctions and isolation by KenGen. The RAPIC members who held opposing views on the project were evicted from this committee. A few community members were arrested, questioned and released.

FGD participants indicated that the conflicts around the Olkaria IV project resulted in the WB and the EIB calling for mediation. The mediation process, held after the relocation had occurred, was successful according to 82 per cent of the respondents. They applauded the mediated negotiation of the 27 main areas of disagreement including the construction of additional houses for those who had been neglected, improved services at RAPland, restoration of livelihoods and the issuance of land title deed, among others, most of which were amicably addressed. This has, since then, led to an improved relationship between KenGen and the community.

Conflict management

The study's inquiry on how conflicts associated with the Olkaria IV thermal development project were managed illustrated diverse conflict resolution approaches adopted by the PAPs as categorised in Table 1:

From a conflict management point of view, project initiation is in many ways the most crucial phase of project development and implementation. The manner in which a project is introduced to the likely PAPs and the availability of information regarding the project play a significant role in determining its acceptance by PAPs and its long-term sustainability.[52] In the case of Olkaria IV, project information was mainly shared with the PAPs by their community leaders. This is likely because, traditionally, the selected Maasai elders are given the mandate to lead and make decisions for the community. KenGen engaged these leaders on establishment of Olkaria IV who then proceeded to disseminate the information among the PAPs. The positive reception of information is, therefore, dependent both on how the leaders convey the information to the PAPs and the nature of their relationship with the community. Community leaders have the potential to either market the project among the community members in a positive manner or incite them to reject the project. The success of projects is also, therefore, very much dependent on how leaders perceive the benefits of the projects to their community (and themselves), their relationship with the project developer (in this case, KenGen) and what information the developer shares with the community leaders. The information received regarding the project can influence its smooth implementation or otherwise prompt conflict. In the

Table 1. Conflict management methods.

Approach	Indicator	Project phase	Percentage
Competition	(1) PAPs were threatened that their houses would be torched and they would be imprisoned if they refused to relocate; (2) Some PAPs were denied relocation benefits; (3) A 'divide and rule' strategy was applied by community leaders and the developer; (4) Some PAPs were awarded jobs and scholarships to reduce their resistance and avoid conflicts; (5) The developer promised 'heaven' at RAPland; (6) Community initiative was suppressed – KenGen did not want PAPs to write letters to financiers in protest against the project; (7) Illiterate PAPs were used to sign the MoU; 8. Leaders were 'bribed' by being taken to seminars and used to 'sweet talk' PAPs into relocation.	Initiation Relocation	31 per cent
Avoidance	(8) Resistance was ignored by the developer who was annoyed and insisted on relocation; (9) Some PAPs were willing to resist but lacked majority support; (10) Individuals had hidden and uncommunicated 'private resistance,' but did not speak out to anyone else; (11) The majority of PAPs, including their leaders, had accepted to relocate; (12) The developer threatened to forcefully move livestock and goats	Relocation	27 per cent
Collaboration	(13) Meetings were held between KenGen and community leaders; (14) Community leaders organised *Barazas* (public meetings) to convey their deliberations with KenGen.	Initiation Relocation Implementation	17 per cent
Compromise	(15) Mediation and negotiation	Implementation	13 per cent
Accommodation	(16) 'We had no choice but to move because Olkaria IV is a government project'; (17) 'We welcomed the Kenya Electricity Expansion Project (KEEP) because it will benefit the entire nation.'	Initiation Relocation	12 per cent

case of Olkaria IV, the PAPs were initially excited and ready to embrace the project, mainly because of the anticipated benefits. They were convinced that their livelihoods would be improved. This can be attributed to the PAPs' lack of a clear understanding of the consequences of relocation,[53] hence, a potential source of conflict should the developer fail to translate their promises into actions and deliver the benefits that the PAPs were expecting.

While the role of renewable energy in promoting clean, reliable and sustainable energy sources is increasingly recognised globally,[54] the potential involuntary relocation and associated impacts on the well-being of affected communities that accompany large project developments are often painful. At the study site, the PAPs' main livelihood was livestock keeping, though there was also trading, and cultural activities related to tourism.[55] The decline in livestock production would perhaps have been unavoidable had the PAPs fully appreciated that the RAPland consisted of poor terrain, gulleys and valleys that would become a deathtrap for their livestock. The decline in livestock might, in turn, ignite further intra- and inter-community conflicts because of the increase in cattle rustling that would likely result. This a common coping strategy among herding communities in most of the arid areas of Kenya.[56] Conflicts were also likely to emerge over competition for scarce pasture within the community land leading to injury or even loss of life and impoverishment of the PAPs who relied most on livestock production.

The increased distance to the market centres, including Kamere and Naivasha, also meant that PAPs spent more time travelling and paid more for transport which reduced the resources available for other livelihood needs, such as food. Furthermore, the increase in distance made it more difficult to effectively manage tourism activities resulting in a decline of income. The conversion of their pledges into actions,[57] by KenGen, including the provision of financial compensation, would have gone some way in helping to prevent these conflicts.

Lessons can be learned from a similar experience relating to a geothermal project in the Philippines.[58] In this case, De Jesus[59] reported physical and economic dislocation of settlements, inadequate consultation and lack of benefits, among others, as the social issues raised against geothermal projects since the 1990s. To address these concerns and facilitate the smooth operation of the thermal projects, the PNOC Energy Development Corporation in charge of these projects prioritised the actual implementation of the commitments where all pledges including Environmental Guarantee Fund, host communities' economic packages, and awareness and acceptance campaigns became part of the standard procedures in field operations. As part of translating their commitments into action, the company engaged the residents in replacing the 445-hectare area developed for its five projects with about 8,050 hectares of agro-forest plantations to meet its commitment to minimise forest destruction and empower the local community.[60]

In the case of Olkaria IV, the unmet project expectations became a source of conflicts also during project implementation phase. Because the conflicts were not well addressed, it became possible for concerns to escalate and compromise the positive gains already achieved, and also soured the good relationship established between KenGen and the

community. This threatened to undermine that peaceful and harmonious coexistence needed for KenGen to proceed with the next stages of its geothermal project (Olkaria V and VI) as well as other future developments elsewhere in the country.

Most respondents preferred their former settlement, perhaps because of their accrued knowledge of their surrounding which helped them to readily make ends meet. Customarily, the Maasai live in *manyatta* villages and inhabit temporary houses made of poles that are covered with a mixture of cow dung and mud.[61] Such was the case in the former settlement where the community performed traditional dances and rites.[62] But contrary to the cultural value that the Maasai have traditionally placed on *manyattas*, the majority of the respondents were excited about the prospect of owning new modern houses at the RAPland site. However, the new arrangement was not compatible with tradition where each wife and mature son owned and lived in individual *manyattas*. Forethought and better planning would have provided for customarily acceptable relocation units for the respondents that catered to the different needs of daughters, sons, wives and husbands. The excitement at the prospect of owning modern houses at RAPland is perhaps an indication of gradual erosion of the Maasai's nomadic pastoralism and cultural values.[63] More evidence of cultural erosion took the form of small-scale farming, where the PAPs planted a variety of food crops including maize, beans, vegetables, bananas and pawpaws, to supplement their main source of livelihood.

The seasonal Maasai migration of livestock traditionally enabled them to crisscross different areas including the new site in search for pasture and water for their livestock. Thus, the PAPs were already familiar with the layout of the RAPland, the valleys and gullies, the loose volcanic soils and the challenges inherent in living there. It is therefore unclear why the PAPs accepted to relocate, given this prior knowledge. It could be that the majority of the PAPs (62 per cent) had no formal education, hence they did not adequately comprehend the costs of relocation as also suggested by Hughes and Rogei in their study on responses to geothermal development in Kenya's Rift Valley.[64] However, it should have been foreseen that the decline in grazing area occasioned by restricted access[65] to particular grazing areas due to the fencing around RAPland would possibly interfere with the community's nomadic lifestyle. This could possibly ignite conflicts with KenGen or other neighbouring communities. Clearly this type of conflicts should have been foreseen by KenGen and picked up by the Environmental and Social Impact Assessment (ESIA): this is evidence of a planning failure that could have been avoided. In addition, a participatory demarcation of grazing areas in the local community involving all key stakeholders could also have served to manage this potential area of conflict.

With regard to the project consultation processes, the female PAPs generally felt that they were denied a voice during the relocation planning. Often men made decisions for women leaving no room for them to express alternative views. The study results have indicated low empowerment of women within the community. It is unlikely that their status has changed much since Hodgson wrote in 1999 that, 'Women among the Maasai community are accorded equal status with children.[66] The Constitution of Kenya 2010, Chapter Four on the Bill of Rights, provides for women to have equal rights to men to participate in politics, laying the foundation for the inclusion of women in decision-making process from the grassroots to the national level.[67] However, traditionally, the Maasai elders

(men) are mandated with the overall decision-making on community issues, as also demonstrated when they participated in dialogue with KenGen over the relocation process. Some respondents were effectively coerced into relocating due to decisions made on their behalf by their leaders, leading to claims that certain leaders had been favoured by KenGen. There were hints that some of the community leaders were induced to take a softer stance in the conflict. Since the leaders participated in capacity-building workshops, it is also possible that they gained a better appreciation for the project than the general community. Tasked with the leadership role, the leaders should have gone further to consult with the female members and find ways to manage their contrary opinions. While culture is a significant part of the sustainability discourse,[68] clear identification of the kinds of conflicts that can emerge in such settings is imperative to their adequate management.

The environment upon which the community expected to be resettled on should have enabled restoration of the livelihoods of PAPs or its improvement in compliance with World Bank Environmental and Social Safeguard Policy.[69] However, the PAPs' settlement on RAPland, which was close to the project site, was perhaps a necessary evil given the inhospitable topography in this area. This demonstrated the greater value which the PAPs placed on the economic benefits they believed they would derive from RAPland over ecological considerations.

The project's impacts on the quality and health of the community may not have been readily understood by the PAPs, conceivably because most of such impacts are typically only felt long after the project is implemented.[70] This observation resonates with the case of the oil conflict in the Niger Delta region of Nigeria where the Ogoni community protested because of the extensive environmental degradation caused by oil spillages.[71] The Shell Petroleum Development company was already operational but it had to pull out from Ogoni land in 1993,[72] because of the affected communities' protests. Environmental conflict is usually associated with negative socio-economic consequences, including on the health of the PAPs.

The Olkaria IV project demonstrates clearly that if the views of PAPs are not adequately taken on board during project decision-making processes, this is potential risk for political conflict.[73] The Constitution of Kenya 2010, Article 10, provides for the national values and principles of governance, whose adoption and implementation in developmental projects would promote equality of opportunity, good relations, harmony and peaceful coexistence. However, the results of this study of Olkaria IV demonstrate a serious level of laxity not only on the part of the developer, but also the community representatives when it came to consulting with PAPs. This resulted in mistrust among these key stakeholders creating a non-conducive environment for development.

The Olkaria IV conflicts were non-violent perhaps because only a small population (about 1200 people)[74] was affected. However, the effects of these conflicts cannot be ignored due to their potential to delay the development progress as observed in oil projects in the Northern-Western part of Kenya, where Tullow's operations have continued to be interrupted by the local communities following unmet demands.[75] While KenGen and PAPs held meetings to resolve the issues, the post-relocation conflicts point to the inadequacy of their efforts. This could have been occasioned by the possible lack of trust not only between KenGen and the PAPs but also among the PAPs, exacerbated by the power imbalances that likely resulted in the subjugation of the weaker party, in this case the PAPs.

Conflict avoidance and accommodation by PAPs, especially during relocation, was likely due to fear of retribution. The PAPs may have been cognisant of their inevitable loss of the battle to KenGen which would have made them more impoverished. Or else they felt that their leaders' decision to cooperate with KenGen left them with no option. Often, where a national growth has to be attained, the potential negative project impacts would be deemed as acceptable collateral harm.[76] This encourages the use of a competition approach, which may entail an offensive and aggressive[77] conflict management style. Competition was the main approach resulting in forceful relocation of the resisting PAPs. However, its application could lead to detrimental effects including loss of lives, if used in projects of greater scale with a large population as was the case of the Niger Delta oil conflict.[78] This would likely also result in project unsustainability and/or a range of operational challenges due to its lack of acceptance by the community.

Conclusion

The research presented here highlights the dynamics of conflicts associated with the Olkaria IV geothermal project with a focus on the different types of conflicts, their manifestation, and how the conflicts were managed. Understanding the conflict dynamics is key to facilitating their proper management for the sustainable implementation of projects. The conflicts were triggered by inadequate sharing of information and weak PAPs' participation in the decision-making process in regard to project design, the relocation of the PAPs, and the compensation they would be awarded.

The key lesson from Olkaria IV is that planners need to be inclusive of the local community in the design of large development projects. Inclusiveness in planning would secure community buy-in, help to prevent unrealistic pledges/expectations, and aid implementation. Where relocation is necessary, a prior negotiation strategy that ensures sufficient participation of community members in the design of a resettlement action plan (RAP) should be instituted.

Notes

1. Karytsa et al., 'Towards social acceptance'.
2. Pan et al., 'Establishment of enhanced geothermal energy'.
3. Edelstein, 'Cultural relativity of impact assessment'.
4. Kubota and Kaieda, 'Determining barriers'; Kunze and Hertel, 'Contested deep geothermal'.
5. Boulle, 'The hazy rise of coal'.
6. Madalina, 'Conflict management'.
7. Fenn and Speck, 'Conflict and dispute in construction'; Kishor et al., 'Conflict dynamics'; and Ock and Han, 'Lessons learned'.
8. Ibid.
9. Kron and Jensen, 'From curse to opportunity'; Chueng, 'Mediation'; Dhiaulhaq et al., 'Transforming conflict'; Patel et al., 'Predicting future conflict'; and Yurdi et al., 'Conflict over forest and land'.
10. Vestergaard and Aase, 'Conflict resolution'.
11. Batel and Tangel, 'Social acceptance'; Enevoldsen and Sovacool, 'Examining the social acceptance'; Jobert et al., 'Local acceptance'; and Karystas et al., 'Towards social acceptance'.
12. Boele, 'Ogoni'.
13. Oltra et al., 'Public Responses'.

14. Dütschke, 'What drives local public acceptance'.
15. Eko, 'Strategy of conflict resolution'.
16. Boele, 'Ogoni'.
17. Ibid.
18. Schilling et al., 'The nexus of oil, conflict'.
19. Neumann, 'Extractive Industries'; Omondi et al., 'Public Participation'; 'Constitutional Petition on Mui Coal Basin Local'.
20. Omondi et al., 'Public Participation'.
21. Mohammed et al., 'Style of international project managers'.
22. Kenya Vision 2030 is the country's development blueprint covering the period 2008 to 2030, that aims to transform Kenya into a newly industrialising 'middle-income country providing a high-quality life to all its citizens by the year 2030.' The Vision is based on the economic, social and the political pillars. The economic pillar aims to improve the prosperity of all Kenyans through an economic development programme, covering all the regions of Kenya, and aiming to achieve an average Gross Domestic Product (GDP) growth rate of 10 per cent per annum beginning in 2012. The social pillar seeks to build a just and cohesive society with social equity in a clean and secure environment, and the political pillar aims to realise a democratic political system founded on issue-based politics that respects the rule of law, and protects the rights and freedoms of every individual in Kenyan society.
23. Schade, 'Kenya Olkaria IV'.
24. Ibid.
25. Camu and Santiago, 'Social development'; Chavot et al., 'Social shaping'; Karytas et al., 'Towards social acceptance'; Pellizzone et al., 'Geothermal energy'; Schade, 'Kenya Olkaria IV'; and Vargas, 'Understanding social acceptance'.
26. Unruh et al., 'Linkages Between Large-scale'.
27. Chavot et al., 'Social shaping'.
28. Schnaiberg et al., 'The treadmill of production'.
29. Fenn and Speck, 'Conflict and dispute in construction'.
30. Ibid.
31. GIBB Africa, 'Olkaria IV, Resettlement Action Plan'.
32. Schnaiberg et al., 'The treadmill of production'.
33. Kunze and Hertel, 'Contested deep geothermal'.
34. GIBB Africa, 'Olkaria IV, Resettlement Action Plan'; and Schade, 'Kenya Olkaria IV'.
35. Sena, 'Renewable energy project'.
36. Abad, 'Conclusions Report'; and Schade, 'Kenya Olkaria IV'.
37. GIBB Africa, 'KenGen Olkaria IV Domes'.
38. Schade, 'Kenya Olkaria IV'.
39. Hodgson, 'Women as children'.
40. Gentleman, 'Computer Science and Data Analysis Series'.
41. Bazeley and Kristi, 'Qualitative data analysis with NVivo'.
42. Elders' FGDs, RAPland, 25 May 2019.
43. Women's FGDs, RAPland, 25 May 2019.
44. Interview, Female PAP at RAPland, 3 June 2019.
45. Interview, Male PAP at RAPland, 27 May 2019.
46. Interview, Female PAP at RAPland, 23 May 2019.
47. Interview, Male PAP at RAPland, 21 May 2019.
48. Interview, Male PAP at RAPland, 3 June 2019.
49. Interview, Female PAP at RAPland, 21 May 2019.
50. Interview, Male PAP at RAPland, 22 May 2019.
51. Youth FGDs, RAPland, 25 May 2019.
52. De Jesus, 'Social issues raised'.
53. Hughes and Rogei, 'Feeling the heat'.
54. Chavot et al., 'Social shaping'; and Pellizzone et al., 'Geothermal energy'.
55. Schade, 'Kenya Olkaria IV'.

56. Malley et al., 'Linking perceived land'.
57. Mensah and Okyere, 'Mining, Environment and Community Conflicts'; and Schilling et al., 'The nexus of oil, conflict'.
58. De Jesus, 'Social issues raised.'
59. Ibid.
60. Ibid
61. Njeru, 'Culture and conflict'.
62. Schade, 'Kenya Olkaria IV'.
63. Njeru, 'Culture and conflict'.
64. Hughes and Rogei, 'Feeling the heat'.
65. Melubo and Lovelock, 'Living Inside a UNESCO World Heritage Site'; Ogwang et al., 'Impacts of the oil boom.'
66. Hodgson, 'Women as children'.
67. Grillos, 'Women participation'.
68. Shortall and Kharrazi, 'Cultural factors'; and Soini and Birkeland, 'Exploring the scientific'.
69. World Bank, 'Environmental and Social Framework'.
70. Mariita, 'The impact of large-scale'.
71. Kron and Jensen, 'From curse to opportunity'; and Boele et al., 'Shell, Nigeria and the Ogoni'.
72. Boele, 'Ogoni'.
73. Hedström and Smith, 'Overcoming political exclusion'.
74. GIBB Africa, 'Olkaria IV, Resettlement Action Plan'; and Schade, 'Kenya Olkaria IV'.
75. Schilling et al., 'A local to global perspective'; Schilling et al., 'For better or worse'; and Schilling et al., 'The nexus of oil, conflict'.
76. Vanclay, 'Project-induced displacement'.
77. Cloke et al., 'Resolving conflicts'.
78. Boele, 'Ogoni'.

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Notes on contributors

Lilian Namuma S. Kong'ani, Tutorial Fellow, University of Nairobi, Wangari Maathai Institute for Peace and Environmental Studies, (UoN-WMI). Holder of Master of Science degree in Environmental Governance and Bachelor of Science degree in Environmental Studies (Community Development). She is currently pursuing a doctoral degree in Environmental Governance and Management, University of Nairobi.

Prof. *Raphael G. Wahome*, Associate Professor, Department of Animal Production, UoN. Prof. Wahome is an experienced lecturer on livestock production systems. He emphasises the importance of a variety of people/disciplines thinking and working together to solve societal problems, thus building capacities for practical living and the well-being, peace, and tranquillity of global societies. Email address: rgwahome@uonbi.ac.ke

Dr. *Thuita Thenya*, Senior Lecturer, UoN-WMI. His areas of specialisation and research interests are Biogeography and wetlands ecology, spatial analysis, participatory forest management, mobile telephony data capture and management. He has a wealthy of experience in assessment of best practice in natural resources. He is also trained in conflict mediation. Email address: tthenya@uonbi.ac.ke.

ORCID

Lilian Namuma S. Kong'ani 🆔 http://orcid.org/0000-0003-2442-6914
Raphael G. Wahome 🆔 http://orcid.org/0000-0002-7459-2606
Thuita Thenya 🆔 http://orcid.org/0000-0002-5643-0048

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