

The Troubled Marine Resource Frontier between local Communities and Salt Firms in Kilifi County, Kenya

David W. Ong'are¹, Stephen O. Anyango¹ & Nicholas O. Oguge¹

¹ Centre for the Advanced Studies in Environmental Law and Policy (CASELAP), University of Nairobi, Kenya

Correspondence: David W. Ong'are, Centre for the Advanced Studies in Environmental Law and Policy (CASELAP), University of Nairobi, Kenya. E-mail: ongare@gmail.com. Orcid: 0000000322939716

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Abstract

The marine environment represents a new development frontier for the globe in line with the blue economy concept. The coastal communities in Kenya are highly dependent on the marine ecosystem for socio-cultural, and diverse livelihood activities. The Kenya coast is the only region in the country where table salt is manufactured from sea water for both domestic and export purposes. The establishment, expansion; and operation of salt companies places demands on a host of environmental goods including sea water, land, and wood fuel among others. These same marine resources are needed by the local community for their daily subsistence. These resource- use incompatibilities are at the foundation of conflicts surrounding marine resource use between salt firms and the local community. There is need for alternative conflict resolution arrangements leveraging the existing informal structures in Kilifi County between salt companies and the local community. The study proposes a new perspective regarding the components of conflict comprising of tangible and intangible components as a way of alternative dispute resolution at the local level.

Keywords: marine resource conflicts, alternative dispute resolution, CSR, conflict transformation, limits of acceptable change, place attachment

1. Background

The blue economy concept that aims towards the exploitation of marine resources offers new opportunities and prospects but also complex governance challenges for coastal communities (Voyer et al., 2018). Access to the marine environment is critical to the well-being of coastal communities from various dimensions including health, culture, politics, economy and the whole cultural continuity (Bennett et al., 2018). Ecosystem services provide benefits that can put communities in conflict with other demands placed on marine commons (Robinson, 2016). The latter competing demands for marine resources could lay the groundwork for conflict. There are several drivers to marine resource conflicts including increased demands and unequal distribution of benefits that could end up undermining management objectives (Bellanger et al., 2020) and disrupt trade as well as compromise food security (Cohen et al., 2019). Africa's resource conflicts occur largely because of a lack of livelihood alternatives and are a reflection of individuals responding to specific conditions in their natural and social environments (Bugembe, 2016). In seeking to mitigate against marine resource conflicts it is vital to embed the concept of limits of acceptable change (LAC) from various dimensions for all concerned stakeholders especially where there is discordance between objectives or interests (George et al., n.d.; Thomas & Middleton, 2003). The limits of acceptable change approach helps institutions design policies that last through use of negotiations leveraging the concept of the 'consent of the governed' (Thompson, 2001). Governance systems have traditionally been designed to manage intra- sectoral conflicts rather than inter- sectoral ones leading to cross sectoral externalities involving heterogeneous groups with different interests, objectives and perspective (Bellanger et al., 2020; Schupp et al., 2019). There is a wide array of traditional conflict resolution mechanisms including competition, collaboration and compromise (Delerue-vidot, 2005). Relational interactions and historical perspectives have not been adequately covered within the discourse of marine resource conflict research (Dahlet et al., 2023). Current conflict discourse has moved beyond conflict resolution to conflict transformation which encompasses comprehension of shared challenges, and protagonists forming a relationship and working together towards a future of constructive and sustainable peace (Allen & Friedman, 2020; Kriesberg, 2011). The Kenyan coast has witnessed various forms of conflicts around ownership, access and use of marine resources (Civil

Application 168 of 2018 (UR 137/2018) - Kenya Law, n.d.). Alternative Dispute Resolution (ADR) procedures are one of the proven ways of sustainably managing conflict situations (Bowe, 2014) and be a sustainable option for the situation playing out in Kilifi especially though use of informal structures.

1.1 Research Question

How can prevailing informal structures be leveraged to resolve the emergent marine resource use conflicts between salt manufacturing firms and the local community in Kilifi County, Kenya?

2. Methodology

Kilifi is among the six counties in the coast of Kenya, bordering the counties of Kwale ;Tana River; Mombasa; and the Indian Ocean to the East (Kilifi County, 2021). Covering an area of 12,370.8 km²; the main activities carried out in Kilifi include fishing, peasant farming, tourism and ranching (Kilifi County, 2018). The population is estimated at 1, 453,787 according to the Kenya Population and Housing Census of 2019 composed of 48.4% males and 51.6% females with a mean household size of 4.8 and a population density of 116 persons per km² (Kenya National Bureau of Statistics, 2019). Kilifi County is the only county manufacturing salt in Kenya; Salt mining however, predominates Magarini sub-county in which is the famous Magarini salt belt in Kilifi County. The salt belt has a stretch of about 30km and a total area of about 10,000 hectares (Media Diversity Centre, 2012).

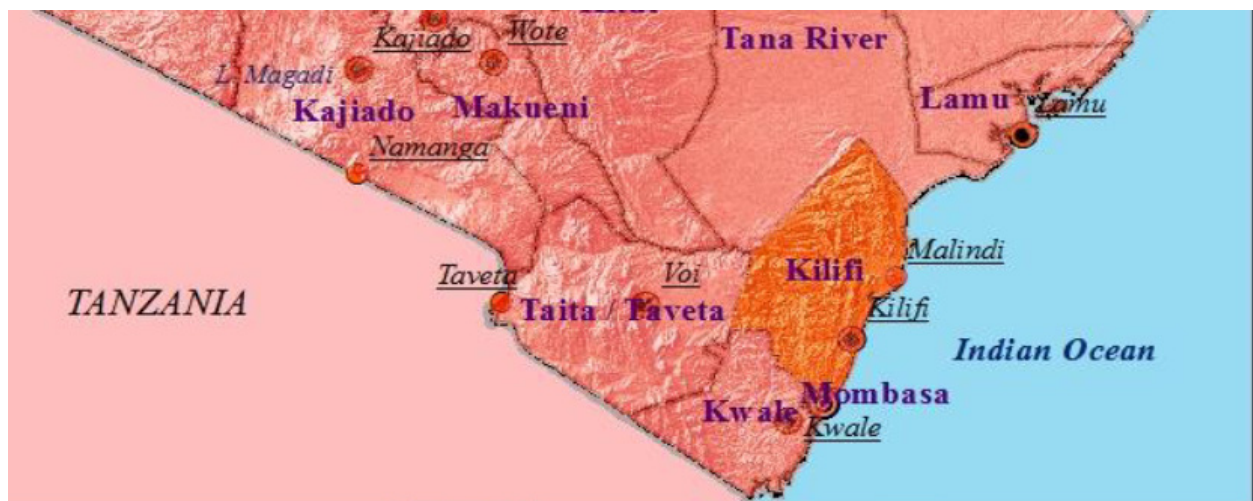


Figure 1. Map of the Southern Portion of Kenya showing the location of Kilifi County; the study site: Source; the Kilifi County Integrated Plan 2013-2017

A social constructivism philosophy (Dudley-Marling, n.d.) was applied in the study, which posits that knowledge and learning is collectively constructed by groups of individuals. In the context of this research the local community members share common socio-cultural practices which have shaped their viewpoints with respect to marine resource appropriation over several millennia. The latter have been passed down to successive generations through various community platforms including folklore and other activities including rites of passage that were carried out at their sacred sites commonly referred to as the Kayas¹. The other protagonists i.e. the salt manufacturers have their own viewpoints shaped mostly by the need to generate profits and enhanced returns for their shareholders. The study endeavored to see how to obtain a confluence between these two viewpoints based on their common needs to use common marine resources.

The study was conducted using both primary data from field surveys and secondary data from published sources. Data from the local communities was obtained through household surveys and focus group discussions. The sampling unit was the household sample size of 400 determined using Fisher's formula². Data from household surveys was collected using a semi-structure questionnaire. The questionnaire was of a mixed format comprising both closed and open-ended questions and the mode of data collection was through a digital data collection platform using kobo toolbox.

¹ Kaya; A sacred site of the Mijikenda people at the Coast of Kenya considered as a source of spiritual power and cultural identity- source Wikipedia.org

² $n = \frac{z^2 p (1 - q)}{d^2}$ where n = The desired sample size: z = Standard normal deviate: p = Proportion of the target group estimated to have a particular characteristic: q = Proportion of the population not having a particular characteristic: d = Degree of accuracy required

Data was collected from the local communities that reside within three kilometers radius from each of the five salt making companies within the sub locations of Fundi Issa, Gongoni, Marereni, and Kurawa as shown in table 1 below.

Table 1. Distribution of Household population and sample sizes in the target 4 sub- locations of the study area

Salt Company	Area allocated and land size	Sub-locations surrounding the company	Household population in the sub locations	Sample size
Kurawa salt works	595.2	Kurawa	1,201	38
KEMU salt packers and productions ltd	3,855	Marereni	6,101	193
Krystalline salt ltd	2,034	Gongoni	4,136	131
Ken salt ltd	2,264.9			
Malindi salt works	665	Fundi Issa	1,178	37
Total	9,414 ha		12,616	400

Simple random sampling was employed during the actual data collection using kobo collect mobile data collection kit. Transect walks/rides were made across the villages interviewing (upon being granted consent) heads or spouses of every 32nd household in order to maintain fidelity to probability sampling rules. The sample size was based on the area assigned each salt company within the sub- county as shown in the table above

Information from key informants such as government agencies, the salt firms themselves and non-state organizations, with interest and mandate over salt mining operations, marine and coastal resources, including community welfare organizations was obtained using interviews which were administered through phone, face-to-face interviews, and self-administration with a provision to make follow-up through phone or email. The sampling strategy for the key informant interviews (qualitative component of study) was based on the concept of saturation (Saunders et al., 2018). Saturation is the point at which new data tends to be redundant of data already collected.

Data analysis was carried for both quantitative and qualitative aspects of the study. The quantitative component was analyzed for descriptive and inferential (regression) statistical analysis whereby data from the responses were processed initially with the statistical package SPSS version 20, and then exported to STATA version 13 for further analysis. All the factors (determinants) were tested for significance at 90%, 95% and 99% levels, and only those that were significant at each level are reported in this study. The qualitative component was analyzed through inductive thematic analysis which involved allowing the data to define the themes.

3. Results

Conflict between the community and salt firms seems to be quite prevalent with 70% of respondents reporting that they have been involved in one type of conflict or another with salt firms in the past five years. The most common type of conflict with salt firms has been over land related issues (66% of conflicts reported), fishing, trespass, pollution, mangrove use, among others as shown in figures 1 and 2. It was noted during field observations that individuals undertaking small scale salt manufacturing had ponds that were quite close, and in many instances connected by illegal, man-made channels to the larger ones owned by the salt companies from which they were collecting sea water. From the key informants 85% of them were of the opinion that there was indeed conflict between salt firms and the local community. Out of those conflicts, 40% were reported to have been resolved, while 34% were not.

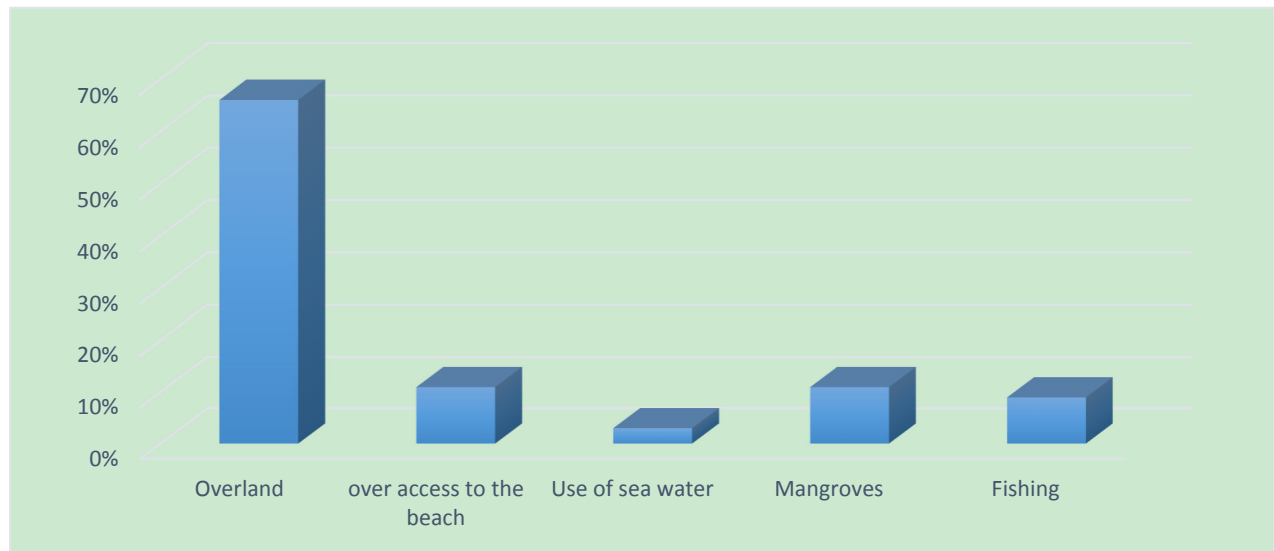


Figure 2. Types of resource conflicts between the local community and salt firms

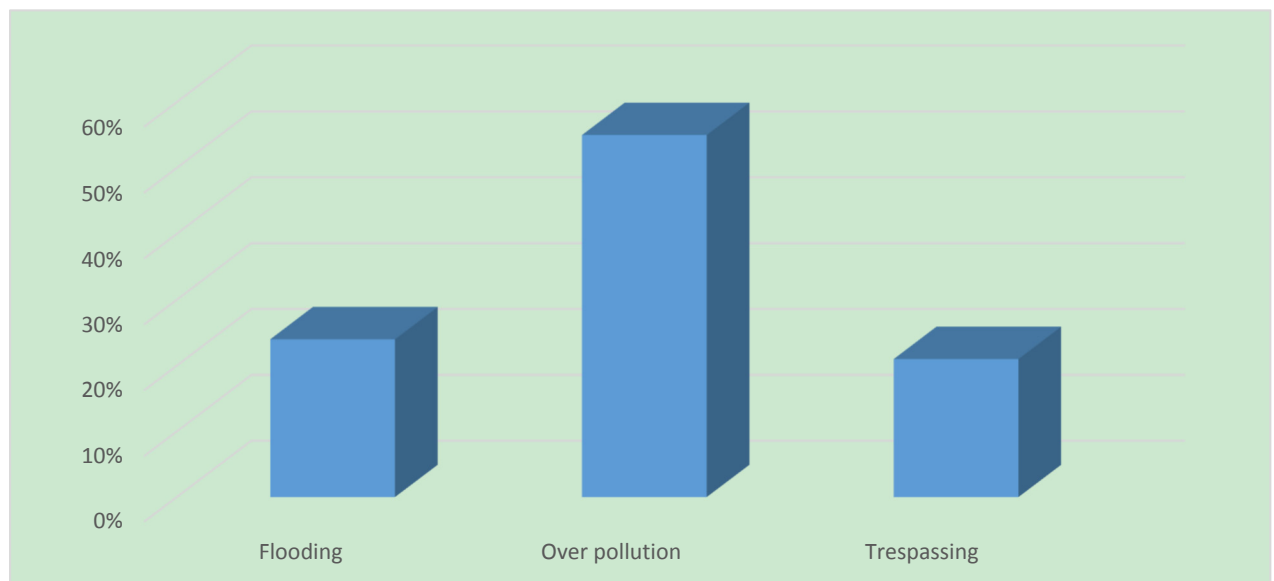


Figure 3. Types of non- resource conflicts between the local community and salt firms

Several factors also predisposed locals to conflicts with salt firms. Respondents who had lived for long in the locality were more likely to have been involved in conflict with salts compared to those who had lived there for shorter periods. Also individuals that had been subjected to displacement were more likely to be involved in conflict with salt firms. Compared to business people, fisher folk and those in informal employment were more likely to have been involved in conflict with the salt firms. Those who lived farther away from the salt firms were less likely to have been involved in conflict with the salt as compared to those who loved in close proximity to the firms as shown by the negative coefficient in table 2.

Table 2. Demographic determinants of conflict between salt firms and the community in Kilifi

Parameter	Coefficient	Significance
Age	0.062	0.019
Home distance from shoreline	-0.166	0.014
Past displacement by salt firm	5.080	0.000
Livelihood type		
business	–	–
fishing	1.268	0.094
formal employment	1.230	0.063
Observations	405	
Log likelihood	-97.788	
Pseudo R squared	0.650	

Among the tools, the most common avenue of conflict resolution between the local community and the salt firms over the last two years has been through community elders (43%), followed by county government (26%) as shown in figure 3 below.

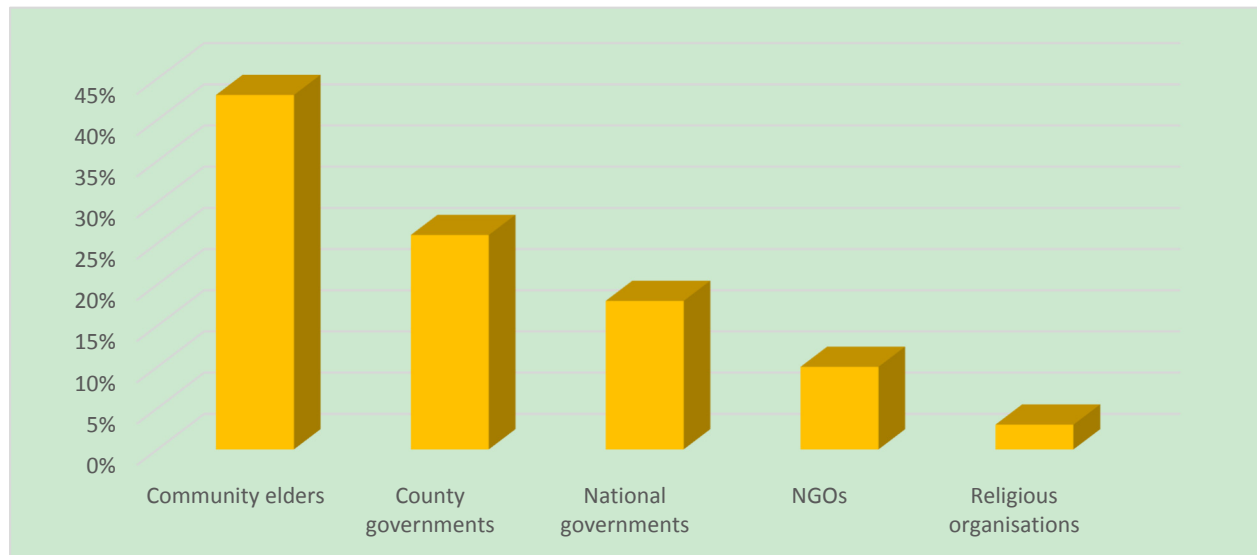


Figure 4. Common avenues for conflict resolution between the local community and salt firms

Some of the remedies to conflicts reported by the respondents included; compensation for land at 84%. Additional remedies included; alternative routes to access the ocean; resettlement; opening up of gateways for sea water passage to artisanal ponds; observing no trespass advisory and some cases pardon in case of violation/ none compliance (Figure 4).



Figure 5. common ways of conflict resolution between salt firms and the local community

Informants from national government agencies were of the opinion that mechanisms for closer interaction and addressing of grievances should be established, while limiting political interference and incitement in the management of salt production activities should be prioritized. Other proposals included proper policies and laws, public participation, creation of employment and facilitation of access to marine resources. Similar sentiments also came from informants from the county government

They also reiterated that land issues including displacements and lack of deeds should be addressed and also proposed improving working conditions of the local community members employed by the salt companies. Informants from non-state actors recommended consultation, strict adherence to the environmental license and permit conditions and relevant laws provided for by government agencies. Another proposal was for establishment and maintenance of buffer zones between salt firms and communities to avoid nuisance to the locals in addition to controlled expansion of salt manufacturing activities.

In terms of engagements with salt firms, 71% of the respondents stated that they have never attended any meetings with salt firms. The percentage of respondents who were dissatisfied with communications between salt firms and the community was recorded at 73%.

With respect to grievance redress mechanisms 32% of the respondents averred that such mechanisms exist, a further 27% reported that they did not know if such mechanisms were in place. Of the key informants 62% were of the opinion that the grievance redress mechanisms were inadequate. Some 41% of the respondents are of the view that there are no avenues for raising complaints against with the salt firms. Some of the preferred avenues for raising complaints include; local committees, community meetings, local leaders, political leaders, human rights agencies, and NEMA as shown in table 3.

Table 3. Preferred avenues for raising complaints by members of the local community against salt firms

Proposed avenue for raising complaints	observation	percentage
Grassroots structures: local committees; chiefs; village elders; nyumba kumi* ³	213	60%
Political leaders and government representatives: MPs ⁴ ; MCAs; women leaders; youth leaders	42	11.83%
Human rights platforms: Human rights bodies; demonstrations	50	14.08%
Labour agencies: Unions; Beach Management Units	8	2.25%
Engagement with salt firms: suggestion boxes; toll free lines; media; PR office	37	10.42%
Special courts; mediation; tribunals	5	1.41%

Various ways were proposed for improving relationships with salt firms. The most preferred change in the relationship is through improved partnerships with the local communities by avenues such as inclusive decision making over the use of marine resources and speedy resolution of complaints (56%); followed by training and employment at all cadres (20%) (Table 4).

Table 4. Preferred ways to Improve relationships between salt firms and the local community

Proposed interventions	Observations	percentage
Improve partnerships with local community (joint decision- making; create PR ⁵ office: speedy resolution of complaints	200	56.65%
Training and employment of locals at all cadres (better pay; better work environment)	73	20.67%
Revamped CSR ⁶ (joint planning and implementation etc.)	43	12.18%
Integrate HRBA ⁷ approaches (stop child prostitution; fair compensation for land)	26	7.37%
Implement environment and social governance practices (mitigate pollution; facilitate access to beaches; support fishing)	11	3.12 %

With regard to communication platforms the preferred means to access information from the salt making companies by the local community is through grassroots leaders and structures (35%); followed by social media (27%). The least preferred was workshops and civic education at 13% as shown in table 5.

Table 5: Preferred means of communication between salt firms and local community in Kilifi

Preferred communication channel	observation	percentage
Print and electronic media (radio; TV newspapers; posters)	94	23.80%
Grassroots structures (chiefs; village elders; community committees; community meetings)	141	35.69%
Workshops and civic education	53	13.42%
Social media and SMS	107	27.09%

³ Nyumba Kumi: A grassroots security and governance model where at minimum ten households are coordinated with members knowing the identities of people in their cluster and what they do for a living

⁴ MP- Member of Parliament; MCA- Member of the County Assembly

⁵ PR: Public Relations

⁶ CSR: Corporate Social Responsibility

⁷ HRBA: Human Rights Based Approaches

The salt companies also engage in various Corporate Social Responsibility (CSR) activities and most of the respondents (90%) are aware of these initiatives. Some of the CSR activities associated with salt manufacturing companies include; construction of schools (45%), followed by bursaries (36%) (Figure 5).

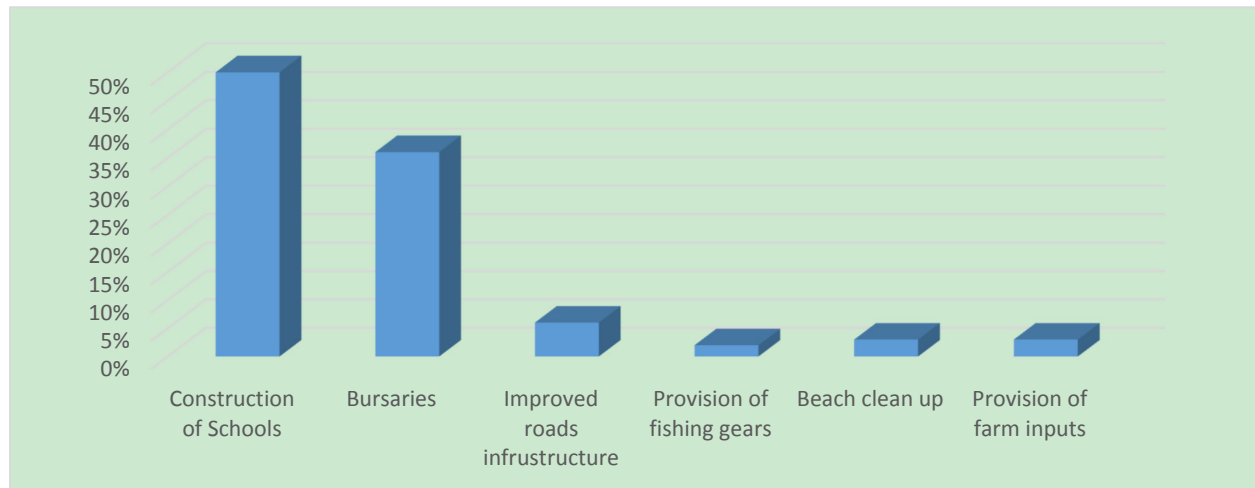


Figure 6. Corporate Social Responsibility activities undertaken by salt firms

Other corporate social responsibilities though not quite widely known by the local community include; improved infrastructure, support to sporting activities, construction of health facilities, provision of farm inputs, provision of fishing gears, beach clean ups, among others. Around 6% of the respondents stated that they were not aware of any corporate social responsibility activities that the salt firms undertake for the community. Contrasted with the CSR initiatives designed solely by the salt companies the community members had their own preferences with regard to CSR activities; these include bursaries for school going children; food donations; construction of health facilities; and construction of schools among others (Fig 6).

Informants from the private sector reported that they had a good understanding with the community through the CSR committee which forms the bridge between salt firms and locals and could improve and support the local structures that have been put in place through the CSR committee groups that solve conflicts between the community and the salt firms. While the informants from academia proposed comprehensive environment and social impact assessments and greater public participation

4. Discussion

The conflict exposure in the study area is fairly high at around 70% and left unattended could be detrimental to the well-being of both the salt companies, the environment, and the surrounding communities. The conflict is playing out over a wide array of issues principally related to land and other marine resources. The non-resource conflicts revolve largely around pollution. The prevailing scenario offers opportunity to experiment with the concept of conflict transformation to bring the two protagonists i.e. the salt firms and community members together looking at common interests and a common future. In seeking solutions to pre-existing conflicts especially in a rural area such as the study location it is a good strategy is to start with pre-existing informal elements that already show potential of success before creating completely new ones- i.e. moving from the known to the unknown. None of the respondents resorted to use of the formal court process for conflict resolution instead resorting to use of local informal structures including village elders and a unit called 'nyumba kumi'. The reasons for the current high level of acceptability of these grassroots structures are varied and might relate to, among others, established practice; easy accessibility to the locals; less bureaucracy; convenience or minimal costs associated with informality as compared to the strictures of formal court procedures. Potential for an on-going relationship is an important consideration for Alternative Dispute Resolution (ADR)(McMurtry, n.d.) as is the case in the study area.

This research posits a new perspective regarding the underpinnings of conflict around natural resources and the possible sustainable solutions. It proposes that in the contest for natural resources there are two tiers concurrently at play i.e. the tangible and the intangible that are mutually reinforcing. Conflict transformation using informal structures could therefore be built upon a solution that has a duality of both tangible and intangible components intertwined together in the form of some 'double helix'; the intangible (soft) components made up of trust-building

'bricks' with the tangible component leveraging visible aspects such as the Corporate Social Responsibility (CSR) initiatives that are already well-established in the area. Building outwards the intangible components could incorporate elements that were identified in the study such as power-relations; communication; partnerships; human rights; and shared vision-building. The key actors from the community side in this arena should be the village elders as the locals have demonstrated a high degree of faith in them. Elders have earned their prestige and trust through being custodians of culture (Agatha, 2016). They should also be integrated in joint decision-making processes on issues of mutual interests with the salt firms.

Information as an important aspect of the intangible component, needs to be provided to community members in a meaningful way since natural resource management is as much a people craft as it is a science and might encourage better participation in a pluralist context (Daniels & Walker, n.d.). More civic awareness campaigns need to be undertaken to enable the community participate meaningfully in conversations regarding natural resource management in Kilifi.

A number of products could be jointly generated from the intangible thread including a public communication and outreach strategy. It would be useful for the salt companies to engage community liaison personnel as well as have open days for interactions with locals. As has been stated, *'honest, responsible, public talk has the power to make the "I" of private self-interest into a "we" that makes possible civility and common public action'* (Barber, 1984)

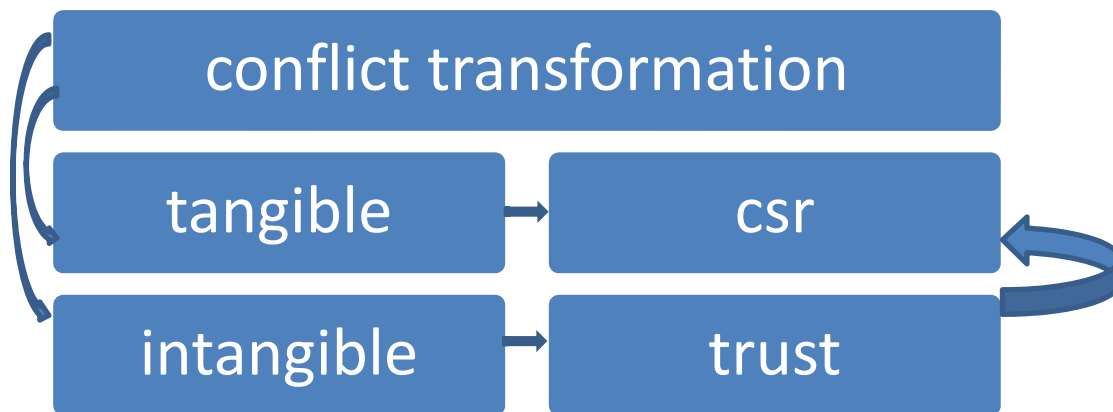


Figure 7. Illustration of the mutually reinforcing tangible and intangible components of conflict resolution

The tangible aspects of the helix could repurpose the Corporate Social Responsibility (CSR) to move beyond tokenism and 'green-washing' and position it towards integrating social and ecological justice, including aspects such as community capability development (Monteaw, 2008). It should address components identified in the study such as community capability-development; environmental planning; sustainability; and the technical operations of the companies. It also needs to be jointly conceptualized, planned, implemented and monitored. The percentage of locals working in management positions in the salt companies is still pretty low; while academic standards remain depressed. The capability development activities could enable the locals be more better represented in the management cadres of the salt companies as opposed to the current scenario; it could also enable them migrate to better livelihood practices. The Kenyan constitution has given citizens the right to participate in proper management of natural resources in the country (Kenya Law, 2010). The environmental issues to be addressed could include a re-design of the area so locals can easily access the beach and the sea through agreed routes as well as to also reduce confrontations around trespass matters that are frequently reported; the latter could also assist stem complaints around pollution. Some important outputs in the tangible area would be for the salt companies to design Environment Management Systems (EMS) as well as a local content strategy for purposes such as employment and contractors from the local community. Since distance from salt firms was a determinant of conflict (the further one moved away from salt firms, the less the incidence of conflict), they should also map out the geographic scope within which to embed their interventions outside of which investments by salt firms would not yield attendant returns in line with the concept of place attachment (Gurney et al., 2017).

Table 6. Table outlining the sub-elements of the tangible and intangible components of conflict resolution

Helix component	Main Plank	Support elements
Tangible	Corporate Social Responsibility	Capacity and skills upscaling Environment management system Beach access roads Employment
Intangible	Trust	communication partnerships Decision-making Power- sharing

5. Conclusion

Conflicts over marine resources access and use rights in Kilifi County will most likely continue to increase and present in various ways as new realities and developmental pressures come into play. Grassroots and indigenous knowledge structures offer great potential for less costly and sustainable platforms for dispute resolution both in this locality and other marine environments and should be part of environmental policy. There is need to leverage the agency of conflict transformation as a tool for conflict mitigation. The ‘double helix’ proposed here comprising of tangible and intangible strands offer new perspective on how to manage resource use conflict in other contexts

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Authors contributions

Mr. David Ong'are as the principle researcher was responsible for the study design, data collection, analysis, and drafting of the manuscript. Prof. Stephen Anyango reviewed and critiqued the study design and assisted with the data analysis. Prof. Nicholas Oguge reviewed and gave inputs into the final manuscript. All authors read and approved the final manuscript.

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Data sharing statement

No additional data are available.

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