

## **The Role of Women in Re-Orienting Mangrove-Based Practices Into Praxis in the Eastern Coast of Tanzania**

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### **Abstract**

Women are currently assuming a leading role in shaping mangrove-based management practices, as opposed to a historical tradition of men serving as the main actors. This paradigmatic shift is believed to be a result of change-oriented learning programmes implemented through the Integrated Coastal Management (ICM) approach, adopted in the mid-1990s. This article employs the concept of 'power' from the critical realism theory, and compliments it with the concept of 'capability' from the capability approach, to communicate key findings that 'change-oriented learning' can potentially foster agentive power. This power is necessary for creativity and reflexivity among women, and may also maximize their ecological-restorative potentials, a condition that is required for re-orienting mangrove-based practices into praxis. The paper is enriched by analysed primary data collected between 2007 and 2017 along the Dar es Salaam and Mkinga coastal sites of Tanzania, and is also supplemented with secondary data sources. This work affirms that the re-orientation of ecological practices into praxis requires a combination of enabling conditions, including exposure to different forms of learning.

**Keywords:** *re-orientation, practice, praxis, capability, power, change-oriented learning, integrated coastal management, ecological restorative capacity.*

### **1. Introduction**

This article seeks to respond to the following questions: (i) Can change-oriented learning foster agentive capability necessary for improving mangrove-based praxis? (ii) What is the effect of change-oriented learning programmes on women's ecological restorative capacity? The article elicits the process and impact of change-oriented learning programmes in fostering and maximizing the capacity of coastal women to restore mangroves species along Tanzania's coastal belt. It also suggests a significant cultural shift from previous historical practices that nurtured a tendency of attaching mainly men to coastal resources management practices, to a new approach that attracts various social groups, including women (KICAMP, 2001).

Historically, the participation of women in the management of coastal resources (mangrove-inclusive) was limited to certain functions such as collection of firewood and materials for domestic purposes (Caplan, 1975; Byashemererwa, 1994; Mwaipopo, 2000). Men were the main users of mangrove resources as a source of income, and for social cultural functions. Moreover, men

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were key decision-makers in matters of coastal ecology, including the ecological welfare of mangrove forests (KICAMP, 2001).

Currently, the role of mangrove management has significantly shifted to women, a state that this article refers to as a paradigm shift. Available evidences ascribe this societal turn to change-oriented learning programmes carried out from the mid-1990s to 2012 under donor and government supports (see testimonies given by Female Participants 2, 4, and 5). The most observable shift is the fact that the practice of mangrove restoration in the Eastern Coast of Tanzania has significantly attracted not only active participation of women in the area, but also accelerated five forms of learning among target participants in the coastal area (see testimonies given by Female Participants 5 and 6). This positive impact necessitates the need to examine factors that are responsible for activating individual's capability, reflexivity, and restorative potentials among coastal women; leading to the transformation of their restorative practices into praxis. Sayer (2000), for example, argues that individual powers may exist in a dormant form (unexercised). When such powers are activated by creating enabling conditions, they became active or actual. Powers may be made actual by putting in place necessary conditions or resources that may enable involved individuals to exercise their duties and roles effectively in specified contexts.

The decision of women to engage in mangrove restoration emerges from reflexivity of individual mangrove restorers. According to Archer (2003, 2007a), reflexivity provides a space for internal conversation where actors consider the implications of a process and outcomes of what they are undertaking in their environment. As a result of reflexivity, they may decide to continue with their actions, refrain from them, or come up with strategies that may suit the realized situations. Reflexivity, therefore, may serve as a vehicle towards improving mangrove transplanting praxis, and activating restorative potentials among female mangrove restorers.

Women involvement in mangrove restoration initiatives offers a space to examine the extent to which they exercise their freedom, and use emerging opportunities in executing site-based functions; which according to the capability approach, involve the so-called 'beings' and 'doings' (Crocker, 2008 & Nussbaum, 2011). The former, in this case, suggests potentialities that individual female participants have, which trigger their agency to foster restorative processes; while the later refers to specific and combined activities that are undertaken in a mangrove ecology as components of praxis.

## **2. Mangrove as a Valuable Ecology and a Learning Space for Coastal Communities**

Mangroves are salt-tolerant coastal trees and shrubs found in sheltered estuaries in both sub-tropic and tropic regions (FAO, 2005, 2007). They contain aerial roots and evergreen leaves, and have varying morphological forms due to the

availability of different species in specific areas. About ten (10) mangrove species have been observed in the Eastern Coast of Tanzania. These include, *Avicennia marina*, *Bruguiera gymnorrhiza*, *Ceriops tagal*, *Heritiera littoralis*, *Lumnitzera racemosa*, *Rhizophora mucronata*, *Sonneratia alba*, *Xylocarpus granatum*, *Xylocarpus molluccensis* and *Pemphis acidula* (FEA, ENVIROCARE & TACOENT, 2010).

Ecologically, mangroves are homes for a variety of biodiversity; including crabs, birds, snails, earthworms, and many other micro-and macro-organisms (Berjack et al., 2011). Falling under the forest category, they play a significant role in the hydrological cycle, and are regarded as useful carbon sinks (Laffoley & Grimsditch, 2009). Their roots help to bind coastal soils together, making them stronger enough to limit the speed of ocean waves, and eventually serving as an effective erosion control mechanism in coastal areas. Some studies have suggested that mangroves can control floods, and thus protect adjacent communities from flood-related disasters. In Asia, for example, it is reported that human settlements that appeared adjacent to mangrove forests were not severely hit by Tsunami as compared to communities that lived in bare areas (Scheltinga et al., 2005; Alongi, 2008). Mangroves also serve as habitats for juvenile fish, and as feeding sites for deep and shallow water fish (Fauce & Serafy, 2006).

Socially and culturally, mangroves are used by coastal communities as ritual sites and areas for solving personal or social matters (UN Environment, 2016). Their leaves, roots, and barks are used as herbals for preventing and curing a variety of ailments. Some social functions that are only carried out by specialized groups of elders are also carried out in mangrove sites.

Economically, mangroves offer building posts, raw materials for making baskets, herbs for sale, wood for making boats, and fish for sale (ibid.). There are cases where kilns have been found in mangroves, suggesting the presence of charcoal business. Cases of salt-pans have also been reported near mangrove sites. Salt-pans are normally established in mangrove cleared sites (KICAMP, 2004). Mangroves are also used as sites for beekeeping, where beehives are installed or tied near mature mangrove trees. This practice has a dual advantage: it yields honey, and at the same time it protects mangrove species from human-induced destruction. A study carried out by Sabai (2014) in the eastern coast of Tanzania revealed that keeping African bees in mangrove forests protected the species due to the protective aggressiveness of bees. Mangrove sites also serve as a source of firewood, helping women to collect fuel energy from nearby forests instead of walking long distances for the same. Moreover, mangrove sites serve as a useful space for learning (Sabai & Lotz-Sisitka, 2013).

### **3. The Role of Learning in Fostering Agentive Capability Necessary for Improving Mangrove-Based Praxis**

Sabai (2014: 63) uncovers 'five forms of learning' (four of which are directly linked with the change-oriented learning programmes) initiated in coastal areas in the

1990s, and implemented through the ICM approach. These include learning through (i) monitoring practices; (ii) mangrove transplantation; (iii) training offered by non-governmental organizations (NGOs), community based organizations (CBOs), local government, central government and scientific institutions; (iv) oral tradition or cultural transmission of ecological knowledge; and (v) interacting with other coastal resource users from nearby localities. These are presented and discussed in this article; supported by testimonies from the study area.

### ***3.1 Learning Through Monitoring Practices***

Learning through monitoring practices occurs when coastal communities learn as they engage in monitoring of coastal resources, including mangroves, under the coordination of scientific and higher learning institutions. This form of learning is centred on the use of adopted scientific indicators and parameters; although it is criticized for failing to attract a wider social learning due to its scientific nature of abstractions; and for overlooking social, cultural and contextual realities (Sabai & Lotz-Sisitka, 2013; Sabai, 2014). In one of the training events carried out in the coastal area in 2007, the following testimony was captured from the evaluation forms:

*“I am struggling to understand the indicators that are recommended by your trainers for monitoring mangroves; but I will closely follow, hoping that one day I will be familiar with them”* (Female Participant 1, captured from the evaluation form in a workshop for Mbweni and Kunduchi localities, Dar es Salaam, in 2007).

This testimony suggests that the participant is willing to take part in the learning process, but there are barriers or obstacles that limit her from comprehending and applying the newly-adopted scientific methods and techniques in the process of monitoring mangrove resources.

The integrated coastal area management programmes initiated in the mid- and late 1990s commissioned scientific institutions to develop monitoring programmes for specified coastal and marine resources, such as mangroves, fisheries, seagrass, coral reefs, and coastal land (KIMP, 2005). These spelt out indicators and parameters for monitoring each of the specified resources in a participatory manner. The programmes devised coastal monitoring guidelines that contained scientific indicators and methodologies adopted from the Survey Manual for Tropical Marine Resources, developed by English et al. (1994, 1997), which are considered to be “... in line with those put forward by the Science and Technical Working Group of Tanzania Coastal Management Partnership” (KIMP, 2005).

Commenting on the reasons for the failure of the adopted scientific indicators, Sabai (2014, 2019) argues that the process that leads to the adoption and application ignored cultural, social, and contextual realities. In other words, it failed to capture the interests of the coastal communities or their willingness to participate in the initiated programmes. Dwelling on the fact that social-cultural aspects may serve as

a medium of learning in a social context, Wals (2007) contends that there is a need for facilitators of ICM programmes and related approaches to create a space for local communities to add their input in the scientific indicators, methods, and techniques. Similarly, Berkes (2008) uncovers contexts where scientific knowledge and traditional ecological knowledge may work together to attain a desired situation.

Glahn et al. (2007) advise that contextual realities should be given priority and incorporated in a monitoring programme to help involved local communities to orient, navigate, organize, and assume active roles in the learning process. They argue that contextual information has been proved to be important in supporting learning processes as this stimulates learners' engagement in them, increases their commitment to collaborating processes, helps them reflect on acquired competences, and "... supports thoughtful behaviour in navigation and learning paths." Campbell & Vainio-Mattila (2003: 425) raise the need for a process that will allow control over knowledge use and access to information "... to shift from experts and scientists to the people whose lives are being affected."

Another challenge in the adoption of scientific methods and techniques as main monitoring tools in the coastal area is the fact that they failed to mobilise and stimulate learning in the area since their language of description appeared to favour scientific abstractions, which limited the capacity of the non-specialists "... to effectively comprehend, adapt and apply them" (TCMP, 1998; Sabai, 2014).

A report released by the Kinondoni Integrated Coastal Area Programme (KICAMP, 2004) (one of the ICM programme operating in the coastal area, after its first phase of operation), revealed that local communities in the coastal area, particularly in Mbweni and Kunduchi localities, could not easily apply the scientific indicators proposed by the KICAMP. A tendency of prioritizing active participation of coastal communities in the management of coastal and marine resources over acquisition of knowledge also seemed to affect monitoring practices in the specified areas.

It is advised that the proposed indicators must be relevant to the local people, and techniques used in collecting, interpreting, and displaying data must be those that can easily and effectively be applied by non-specialists to allow full engagement of the local people (Reed et al., 2006). Aswan and Lauer (2006b), Chalmers and Fabricius (2007), and Goldman (2007) argue in favour of incorporating traditional ecological knowledge, or indigenous logic and rules, in community-based monitoring practices for sustainability reasons.

### ***3.2 Learning Through Mangrove Transplantation***

This form of learning avails a space for coastal dwellers to learn as they engage in transplanting mangroves species in affected areas. Taking part in the practice allows them to observe how transplanted species adapt to the natural environment. Through this form of knowledge, participants develop capacities in seed selection, nursery preparation, and saplings transplantation. This form of

learning also helps them understand seed harvesting seasons for different mangroves species, and associated challenges. Community members who have participated in mangrove transplanting for a long time usually serve as facilitators and trainers. Newcomers are thus exposed to orientation, and thereafter take part fully in transplantation exercises as per agreed schedules. These serve as potential trainers in future. The following testimony depicts an evidence of the acquisition of knowledge via learning through mangrove transplantation.

*“It is amazing that one can plant mangrove species in a nursery and transplant them easily in other parts of the mangrove forest. It will be easier for us to do it on our own”*  
(Female Participant 7, Mkinga, 2012).

The participant here appears to have acquired the knowledge that she had not been previously inducted to, and she shows her readiness to embrace it as something that may be adopted as applied in the coastal area.

### ***3.2 Learning Through Participating in Trainings Offered by NGOs, CBOs, Local Government, Central Government and Scientific Institutions***

This form of learning is implemented through seminars, workshops, meetings, study tours, and events largely under donor support. It was found to have been active in the 1990s after the introduction of the ICM approach, but is gradually disappearing due to change of donor funding priorities and policies.

Workshops, for example, are often used as an opportunity to generate research data, and as a space to generate findings that may address knowledge gaps (Krishnaswamy, 2004). They differ from other participatory learning tools in that they are more interactive, last over a longer period, and they often follow a structured or semi-structured manner of interaction. In expansive learning research, for example, Engeström (2001), Virkkunen and Ahonen (2011), and other scholars have developed a sophisticated workshop methodology called the ‘Change Laboratory Workshop’ (CLW) that engages participants in a mutual learning process to expand their learning and practices.

On the eastern coast of Tanzania, a similar workshop tool called Experiential Learning Intervention Workshop (ELIW) was recently developed (Sabai, 2014). ELIW enables workshop participants to verify data from individual responses, analyse the same, and create a learning space throughout a workshop session. The method may be applied in a community of environmental researchers, fishers, mangrove restorers, and in any other context where the generation of environmental data is possible. ELIW may also serve as a useful tool that may potentially attract and enhance learning through guided interactions (Sabai, 2014).

As a learning tool, ELIW differs from the CLW, but it draws on Engeström’s proposal. It offers an opportunity to work on data generated from previous fieldwork, and allows them to be shared back or mirrored to research participants up to the level that attracts learning (Engeström, 2001).

Another aspect of Engeström's CLW methodology that was adopted in the process of developing the ELIW was the concept of an 'intervention workshop' i.e., a workshop with the specific purpose of furthering collective learning via sharing and discussing research data previously generated in, and through field-based research processes with research participants and other stakeholders. In such workshops, a researcher acts as an 'intervention researcher' (Mukute, 2010), and the sharing of data generated earlier in the research process helps to structure the workshop engagement through a carefully structured workshop programme, as was the case in the research that developed the ELIW (Sabai, 2014).

Instead of using the processes of 'modelling solutions' that Engeström uses in his CLWs, the ELIW works with the RRREI(C) scientific explanatory framework from critical realism (Bhaskar et al., 2010: 19) to explore data or any kind of research input that a researcher as a facilitator may bring before workshop participants for discussion, mirroring, and communication. An experiential learning intervention workshop may also need to consolidate and refine presented data as a process of verification. In this case, a researcher as a facilitator should ensure that invitees are familiar with the context of data generation, and that the same space is used for learning purposes.

Apart from workshops, there are records that suggest that when the integrated coastal management programmes were initiated in the period that extended from the mid- to late 1990s, meetings were used as a useful space for bringing people together to discuss emerging and prevailing concerns (KICAMP, 2001). It was through such meetings that cultural barriers that limited the participation of women in different leadership roles were overcome (KICAMP, 2004).

Study tours are also considered to have been useful in sharing knowledge. Testimonies captured in this study suggest that the Tanga Coastal Zone and Development Programme facilitated several study tours for mangrove restorers and fishers to Zanzibar and Mombasa. KICAMP (2001) also indicates that some fishers and mangrove restorers visited coastal initiatives in Kilwa, Unguja, Mtwara, Tanga, and Mafia to gain experiences on how to manage coastal resources, including the use of mangroves as sites for beekeeping projects.

Capacity building programmes was also carried out by securing facilitation from outside the coastal area (see the testimony given by Participant 1), especially trainers from higher learning institutions (KIMP, 2005); and non-governmental organization such as the Foundation for Environmental Awareness (FEA) and Envirocare.

#### ***3.4. Oral Tradition or Cultural Transmission of Ecological Knowledge***

This form of transmission is mainly revealed in a system of succession plan where retired mangrove restorers or fishers who use mangrove as fishing sites, engage 'inexperienced youth' in the practices of their speciality. As the

inexperienced ones participate routinely in prescribed contexts, they start gaining knowledge that they will also pass to younger practitioners in the future (Belay, 2012; Sabai, 2014). Under this form of learning, both inductive and deductive modes may be adopted and applied as references for the transfer of traditional ecological knowledge in the coastal area (Sabai, 2016).

### ***3.5 Learning by Interacting with Other Coastal Resource Users from Nearby Localities***

It was also found that day-to-day interactions created a space for people from other coastal villages to learn from each other. Mangrove restorers also had an opportunity to learn from other nearby communities. Interactions may either be locally motivated, or arranged or promoted by enabling organisations.

## **4. The Effect of Change-Oriented Learning Programmes on Women's Ecological Restorative Capacity**

All coastal-based forms of learning might have had an impact on coastal women depending on the level of exposure and the context within which target individuals and social groups were being exposed to, as the following testimony from a female mangrove restorer reveals.

*"I was a participant in the training which was carried out by a mangrove facilitator in our locality. Initially, I had no idea that mangrove seeds can be raised in a nursery and transplanted as it is the case with seed crops.... But I was aware that naturally grown mangrove seeds can be transplanted after attending training programmes organized by the Tanga Coastal Zone Development Programme. ... Currently, I am a leader of the mangrove restoration group" (Female Participant 2, Mkinga, 2012).*

This testimony depicts the first typology of social learning (out of six) outlined by Cundill and Rodela (2012), asserting that learning occurs through deliberative processes, and involves sustained interactions between individuals or social groups where different perspectives, notions, ideas, and knowledge are shared. Also, it suggests that old or previous knowledge may be blended to illuminate learners and guide them as they continue to engage themselves in initiatives such as mangrove restoration, regardless of their biological differences. Furthermore, it suggests that learning may also steer leadership capabilities and empower individuals who were once inexperienced and unable to assume leadership. It suggests a process of establishing human agency among female mangrove restorers to enable women accomplish what could have not been carried out in the absence of agencies and structures.

In spite of the absence of clear structures in the given testimony – which may potentially allow an established agency to operate effectively – there is an indicator of information or knowledge flow which, when combined with agency and structure, allows an effective social functioning system (Archer, 2003) in the coastal context.

The testimony also affirms Cundill and Rodela's claim (2012) that learning that occur in a social context involves participants' reflections on historical aspects and changes. Participant 1 narrates to readers the historical background of her involvement in mangrove restorative activities, and how her current knowledge depicts a change in understanding, which is necessary for mangrove restoration praxis. Wals (2007) argues that learning may cause its beneficiaries to see things differently from the way they used to, and improve their performance.

The use of metaphors in capacity building has also received positive attention among female mangrove restorers as the following testimony suggests:

*"When I attended the monitoring seminar at Moa, I heard the facilitator saying that the distribution of mangrove species in the forest is like the distribution of hair in the human body. He claimed that this principle suggests that some parts of the forest will naturally remain uncovered with mangrove species. But we have realised that some parts of the forest were once cleared and can still support re-growth. Transplanted saplings take a long time to grow than naturally growing species. Nevertheless, we find it necessary to carry out this important activity even where the top soil requires a bit of tilling"* (Female Participant 3, Mkinga, 2013).

Martinez et al. (2001) point out that metaphors are essential mechanisms that help us view various phenomena from specified angles. Andriessen (2008) supports this view by claiming that metaphors play a significant role in the process of imparting knowledge. The use of metaphors in communicating ecological knowledge is a common behaviour in the eastern coast of Tanzania (Sabai, 2014), which is preferred by individuals and social groups as a necessary tool for knowledge transfer.

The same testimony also suggests that learners (female mangrove restorers) have the potential to observe changes in the mangrove ecology, and choose options that truly suit their contextual needs. To them, the application of a particular theoretical rule like the 'hair-mangrove' metaphor must be preceded by physical observation of forest land to ascertain whether the land that requires transplanting was cleared or is naturally bare. Also, it shows that participants can compare transplanted mangrove species from naturally growing species, and can balance taught knowledge with contextual realities. The testimony manifests the use of agentive power to compare alternatives and benefits as a basis for choosing the most suitable route. It also reveals the capacity to manipulate resources, e.g., *soil* for attaining maximum restorative results.

The participant's testimony reveals some elements of the capability approach where certain capabilities and functions are clearly depicted. According to Crocker (2008) and Nussbaum (2011), capabilities involve potential opportunities and freedom that an agency experiences in the process of fulfilling a desired situation. Fulfilment usually involves the beings and doings; which refer to activities or practices that are accomplished when opportunities and freedom are exercised. The beings here may, for example, include 'being' able to compare transplanted

mangrove species from naturally growing species, and to balance between taught knowledge and contextual realities; while the 'doings' may refer to the practice of transplanting mangrove species and manipulation of soil in the mangrove forest.

Perhaps it is important to note that mangrove restoration requires the support of hierarchical structures, in this case the village and district leadership. This is necessary since the management of coastal resources is a national agenda (TCMP, 1999b; NICEMS, 2003), and it is an initiative that requires harmonization and collaboration among all involved actors in the eastern coast of Tanzania. The initial mangrove restoration process faced some obstacles from within. However, these ended when local leadership intervened by offering structural support as the following testimony reveals:

*"When we started transplanting activities, many villagers used to laugh and deride us. They kept on clearing the forest but that is now history. We received support from the village leadership, and most of us know the benefits of this forest"* (Female Participant 4, Mkinga, 2012).

The relationship between the village leadership and the mangrove restoration group(s) in this case should not be *contingent*, but rather *necessary*. When structures allow authorities to show full support to individuals and social groups in matters that affect an entire community—as it is the case with the restoration or conservation of mangrove resources—they create a space for other members of the community to analyse the benefits or disadvantages of the initiatives that have received government attention and support, and perhaps join the practices that they once ignored and derided. This suggests that relationships that are *necessary* carry on board priorities, attention, and collective efforts; while relationships that are *contingent* tend to lack such attributes. The testimony further creates an opportunity for female mangrove restorers to engage hierarchical structures in restorative initiatives. It also shows how they exercise freedom in engaging others in the learning process, and uncovers their capacity to draw lessons from the past and use them as a landscape for advancing ongoing restoration practices.

The testimony suggests that acts of derision and scorning are no longer prevailing in the area when she employs the words 'it is now history'. One would wish to explore possible factors that might have caused the tendencies of ridicule to end, and those that have attracted public support in mangrove restoration. While the testimony capitalizes support from the village leadership as the main factor, it is possible that there are other confounding factors behind the curtain. These need to be explored and captured since they are part of successful implementation of mangrove restoration in the coastal area.

One possible driver of this support could be the role of female mangrove restorers in sharing their desires, plans, and expectations with their partners, relatives, friends, and peers; which according to Belay (2012) contributes significantly to knowledge generation and raising awareness. This is also

affirmed by Sabai (2014) who found that the sharing of knowledge between experienced and inexperienced mangrove restorers was common in the eastern coast of Tanzania. The elderly had a tendency of sharing notions, ideas, and concepts that tie day-to-day specialised practices. Danemark et al. (2002) agree that such sharing may lead to knowledge generation.

It is quite clear from the testimony given by Female Participant 4 hereafter that those who were against mangrove restoration did not merely stop deriding the female restorers as stated by Female Participant 3, but they began supporting their on-going initiatives. This suggests that learning is a powerful tool that may cause individuals and social groups to change their perceptions and behaviours (Cundill & Rodela, 2012).

*“We are happy that Envirocare and FEA conducted awareness raising campaigns in this area, and encouraged us to use the forest for bee keeping, mangrove transplanting, and monitoring. Those who championed mangrove clearance are now supporting our initiatives”* (Female Participant 5, Kijiru coastal site, Tanga, 2010).

The testimony suggests that non-governmental organizations have also contributed to knowledge generation in the eastern coast of Tanzania through capacity building programmes, helping coastal communities to realise available options and utilize them in a sustainable and environmentally friendly manner. These help coastal communities to balance ecological, economic, and social-cultural needs to increase their income, and at the same time maximise ecological potentials that are necessary for human wellbeing (NICEMS, 2003). Sharing of experiences, notions, ideas, and concepts may also lead to the improvement of initiated practices such as mangrove restoration. This is useful because knowledge is rooted in the life-worlds of people (Wals, 2007). When knowledge is acquired through learning, it serves as an enabling condition (Lotz-Sisitka, 2012). It may thus facilitate smooth transformation of practice into praxis, and yield tangible results.

There are times when users of generated knowledge tend to collapse practice into praxis, bringing a state of ambiguity (Sabai, 2017). For this reason, there is a need to clearly describe each of those grand concepts to help organizations that are involved in empowering mangrove restorers to distinguish whether their support is geared towards practice or praxis.

While both *praxis* and *practice* involve actions, the former has some special attributes that differentiate it from the latter. *Praxis* is a kind of moral action that follows a logical nature of intervention (Kemmis & Smith, 2008). On the other hand, *practice* may also be morally carried out but not necessarily for the intention that aims at safeguarding or benefiting a community at large. From this description, it may be argued that *praxis* carries community interests on board, and is normally guided by logical plans that involve more than one individual than it is the case with *practice*.

It may thus be argued that the mangrove restorative initiative started as a mere practice that was not guided by a logical plan, and was previously perceived negatively by many members of the coastal community as being useless and non-beneficial. With time, its members were exposed to change-oriented learning programmes that helped them to envision the practice in a wider sense, and created a logical plan to guide their day-to-day practice under the support of capacity building and empowerment entities. This, combined with the support from village authorities and knowledge-sharing, attracted the attention of many coastal dwellers; making the practice of mangrove restoration to be regarded by the community at large as being moral, and serving the interest of the coastal communities. Having gone through such an advancement, it is no longer a *practice*- but rather a *praxis*-oriented initiative (Sabai, 2017).

Evidence of the transition from practice into praxis is given hereafter by another participant. This excerpt suggests that a kind of re-orientation of mangrove restoration practice from a narrow to a wider space has occurred. It further reveals the agentive capacity in nursery preparation, seed selection, and transplanting. Furthermore, it suggests that beneficiaries of the various learning opportunities may use gained knowledge in maximizing ecological restorative potentials.

*"I am very familiar with the mangrove forest.... I was part of the team that received training from the FEA and Envirocare. As a group, we prepare nursery grounds, select seeds from the mangrove forest and transplant them. .... our forest is currently very healthy, if you observe the roots, leaves, stem and canopy"* (Female Participant 6, Mkinga, 2012).

This testimony suggests that when individuals and social groups are exposed to learning contexts they tend to develop competence, confidence, and ability to understand better different actions that they are involved in, and the consequences of their actions. It supports Sayer's (2000) assertion that individuals' powers may be activated when enabling conditions are met. These include offering training programmes to target individuals or groups; availing physical and financial resources to mangrove restoration groups; securing support from existing administrative structures such as village environmental management committees and district authorities; harmonizing social/cultural overlaps with adopted coastal management approaches to avoid potential conflicts and stigma; and cultivating the culture of knowledge-sharing to attract a wider social space for participating in mangrove restoration praxis.

In contexts where praxis is practiced, the potential for actors to learn beyond the knowledge they had acquired before is very high (Sabai, 2017). As Kemmis and Smith (2008) put it, such opportunities are directly linked with experiential learning practices that avail a space for them to learn new things because of the challenges encountered, for instance, in the mangrove transplanting process. Actors identify themselves as learners who try to develop their knowledge and practices within their social context through action, experience, and reflection (*ibid.*).

The testimony also indicates that when enabling conditions are met, the desired objectives are likely to be achieved. It may be argued from the given testimony that the desired situation for the mangrove restoration groups is to have a healthy mangrove ecosystem that offers maximum ecological, economic, and social-cultural benefits to the coastal dwellers. It is also true that when enablement is disregarded, arriving at the maximum ecological benefits will remain a dream.

Enabling conditions in this context also means helping mangrove restoration groups to consider the future of the initiatives they have initiated in terms of survival and achieving long-term benefits. This raises the concern of sustainability of coastal management initiatives over time and space. Many conservation projects that were initiated in the 1990s under donor support are no longer operating. Many phased out, and it is only a few that were successfully phased on (being mainstreamed in the existing local government structures), depending on the original objectives. Githinji (2009) argues that community-based projects failed to achieve their objectives since the idea of initiating such initiatives was from outside their geographical settings, or was based on donor preference. He argues further that some fail due to the lack of transparency and commitment on the part of a community.

Initiatives that have successfully yielded positive results are those that carry on board the variables of sustainability from the time of initiating a project (KICAMP, 2007). Some of the necessary variables or factors of sustainability in the coastal context include the capacity to run initiated activities after financial support has ended, the ability to develop human resources (local participants) who will continue to expand restorative activities in the coastal area, and the capacity to maximise the ecological potentials of the mangrove ecosystem and at the same time create non-destructive income generating activities in the same ecosystem. Enabling conditions that carry on board factors of sustainability are thus required for successful management and restoration of mangrove resources.

Sometime, enabling conditions may entail the need to do away with certain cultural restrictions. Sabai (2014) argues that culture may serve as an enabler or barrier in coastal management initiatives. The following testimony, for example, raises some cultural barriers that need to be overcome, and shows how historically it was impossible for women to take part in restoration activities.

*"We still need more men to join us; currently our group is dominated by women. Initially, leadership was assigned to men, but currently our group is led by a woman who is assisted by several women"* (Female Participant 5, Kijiru coastal site, Tanga, 2010).

Culture may constrain, limit or support initiatives that are implemented in ecological sites, such as mangrove sites that are regarded as learning sites. As Wals (2010) puts it, learning can be influenced by values, perspectives, beliefs, and languages. He regards culture as a conduit that may facilitate or inhibit learning.

According to Participant 4, historically coastal women were excluded from matters that concern the management of community ecological sites since most of such sites were regarded as sacred (Berkes, 2008). In most African societies, sacred activities are largely carried out in forests, where special sites are designated for carrying out ritual functions in times of need (Ayot, 2015). Medin and Atran (2008) argue that sometimes cultural values, attitudes, and practices may not be shared. This was the case in the coastal area before the introduction of the ICM programmes where men were the designated custodians of community-based ecosystems such as mangrove resources.

Report from one of the ICM programmes suggest that when integrated coastal management initiatives started in the 1990s, one of the major challenges was to bring men and women in planned sensitization meetings (KICAMP, 2002). When this was achieved, still men and women appeared to sit in two different sex groups. This was not a healthy situation since coastal women would only engage in practices that their husbands or community leaders allow. Facilitators were thus compelled to approach each different group as a necessary stage to ensure that all necessary conditions that surround women's willingness to participate in coastal management initiatives were met. Men's conditions were also captured and addressed accordingly. After sessions of interactions with the two groups, the barriers were removed and men and women started interacting and working together (*ibid.*).

Another challenge was the reluctance of women to assume leadership roles in community-based management of coastal and marine resources. This was also overcome through awareness sensitization programmes. Currently, women are assuming top leading roles unlike before (Sabai, 2014). This is also affirmed by Participant 5.

As Medin and Atran (2008) further argue, culture is closely linked with societal moral behaviours. When a society or community labels certain cultural practices as moral, the rest of community members will regard them as such. When they are regarded as immoral, members of that community are likely to label them as such, and refrain from practising them.

## **5. Theoretical Framework**

This paper employed the concept of *power* from the critical realism theory (as perceived by Sayer, (2000)) to explain the process of creating enabling conditions for women in the eastern coast of Tanzania. Critical realism is centred on the works of Bhaskar (1975, 1986, 1989). It seeks to identify potentials, necessities, and possibilities in the world. Mangrove restoration is one of the areas that contains potentials, necessities and possibilities that can also be identified, understood, captured, and utilized effectively. Some concepts from the critical realism theory – *i.e., contingent* and *necessary* – were also used to depict the situation or process that suggests *power* relationship between women and the mangrove ecology. The study also applied the concept of capability from the capability approach (as perceived

by Crocker (2008) and Nussbaum (2011)) to elicit potential capabilities that existed among women in the coastal area, and which may potentially compliment their powers to reorient mangrove management practice into praxis.

## **6. Material and Methods**

### **6.1 Selection of Research Participants and Data Collection**

This article is enriched with seven (7) analysed testimonials captured between 2007 and 2017 at Mbwani, Kunduchi (Dar es Salaam), and Mkinga district (Tanga Region). Five (5) testimonies were captured through face-to-face interviews between 2012 and 2013; and two (2) accounts were accessed from evaluation forms of workshop participant filled in in 2001 and 2010. These were supplemented with secondary data from the ICM sources to capture the way the creation of enabling conditions for women empowered them to reorient mangrove-based practices into praxis in the study sites.

### **6.2 Data Analysis**

Captured testimonies were analysed in terms of content to yield meaningful input that depicts women involvement in the management of mangrove resources in their localities. Under this, testimonies that contained key themes such as *training, participation, involvement, knowledge, practice, praxis, power, capability, ecological restoration, gender, and sex* were observed and analysed in terms of meaning and implication to mangrove management in the study sites. The study also carried out an analysis of coastal data from secondary sources to compliment the captured 'contents' and make them more meaningful.

## **7. Results**

Captured testimonies and analysed data from coastal sources suggest that change-oriented learning can potentially foster agentive capability necessary for reorienting mangrove-based practices into praxis. The study findings also revealed that the change-oriented learning programmes initiated in the 1990s in coastal Tanzania increased women's ecological restorative capacity to participate in mangrove restoration by creating enabling conditions that allowed them to acquire various forms of knowledge, transplanting skills and capabilities to assume leadership in the mangrove restoration initiatives. It is also evident from the findings that the number of women increased in the mangrove restoration mission after the creation of enabling conditions. This affirms that re-orientation of ecological practices into praxis requires a combination of enabling conditions, including exposure to different forms of learning.

## **8. Conclusion**

It is evident from this study that change-oriented learning can foster agentive capabilities and increase creativity and reflexivity to individuals and social groups in the coastal area, particularly women. The creation of enabling conditions for

disadvantaged groups may not only actualize their power to transform ecological restorative practices into praxis, but also to become leaders and agents of learning in their own community. It is also evident from this study that change-oriented learning may maximize ecological restorative potentials among target social groups (particularly women), and help in re-orienting mangrove-based practice into praxis; which maximizes ecological benefits and increase community's resilience and adaptation to ecological changes in coastal areas.

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