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Radio Communication for Forest Conservation in Tanzania: a SWOC Analysis

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Abstract

This study investigated the strengths, weaknesses, opportunities and challenges (SWOC) associated with the power of radio in communicating forests information to enhance community responsiveness to forest conservation in Tanzania. Data collection entailed the analysis of the content of a series of *Urithi Wetu* (Our Heritage) programme produced and aired by the Tanzania Broadcasting Corporation (TBC) radio, conducting interviews with key informants, administering questionnaires with citizens living adjacent to forests, and holding focus group discussions (FGDs) with the villagers in the study area. The study established that, to some extent, radio presents some opportunities for easy communication of forest conservation information in a bid to influence communities to take the intended conservation action. On the other hand, the study found that factors such as poor packaging of forest information, lack of participation of the rural-based citizens in the programmes, and poverty among community members limited the power of the radio to influence effectively citizens to conserve forests.

Keywords

radio communication – forest conservation – strengths – weaknesses – opportunities

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1 Introduction

Despite some efforts taken to reduce deforestation and conserve forests, over 13 million ha of the world's forests continue to be lost every year (FAO, 2010, 2006, 2005; CEC, 2008). Statistics indicate that deforestation reached the rate of 9.2 million ha per annum from 1980–1990, 16 million ha per annum from 1990–2000 but decreased to 13 million ha per annum from 2000–2010 (Mohammed, 2014; Chakravarty et al., 2012). Countries such as Brazil and Indonesia, which registered the highest net forest loss in the 1990s, have significantly reduced their rate of losing the forest cover whereas in Australia, serious drought and forest fires have aggravated the loss of forest since 2000 (FAO, 2010). In fact, the data available indicate that deforestation remains high and a source of grave concern in tropical regions such as Africa, Latin America and some parts of Asia (Rademaekers et al., 2010).

In Tanzania, the government has made concerted efforts to conserve forests. These efforts have included the enactment of the National Forest Policy in 1998, and the Forest Act in 2002, as well as the introduction of Community-based Forest Management (CBFM), the Joint Forest Management (JFM), and Participatory Forest Management (PFM). However, these concerted efforts have yet to bear tangible fruits. In fact, the reports and studies available indicate a significant forest loss at the rate of 372,816 ha per year in the period between 1995 and 2010 (NAFORMA, 2015) due to commercial demand for timber, charcoal, illegal logging, shifting cultivation and late burning (Hamad et al., 2014; NAFORMA, 2015).

Overall, growing empirical evidence indicates that any government at the national level cannot achieve the goal of environmental conservation and biodiversity conservation until the masses at the grassroots play a participatory role in such endeavour (Hussain, 2014). People's proactive participation can occur only when the masses become aware of value of biodiversity and environmental issues (Hussain, 2014). To create such awareness among the rural-based citizens and influence them to participate effectively in forest conservation activities, scholars have acknowledged the power of radio in providing forest conservation education and raising awareness. In fact, growing scientific evidence indicates that local radio and television programmes need tailoring to meet the needs of the audience, provide education on forests and environmental protection issues to bring about the desired positive changes among community members (Setyawati and Shaw, 2015; Roba, 2012).

Documentations indicate that environmental knowledge most frequently comes from the mass media, especially radio and television (Boykoff, 2009;

Lee, 2008; Asunta, 2003). In this regard, scholars have established that radio is a crucial tool for communicating environmental information and engaging rural-based communities in the discussion of issues and taking of the intended action (Corner, 2011). Several studies conducted in Tanzania have revealed the level of radio set ownership hitting the 76% mark in town and 58% in rural areas in 2004 (Jones and Mhando, 2006; Myers, 2008; Steadman, 2005). According to Steadman (2005), radio listenership stands at 95% in the areas where the survey was conducted whereas a 2004 study conducted by Steadman found that 68% of the population had access to FM signals and 92% of the population listened to radio at least once a week.

Despite efforts aimed to broaden communication of forest information through various channels, including the use of radio for many years in Tanzania, studies have reported a persistent deforestation rate in the country (NAFORMA, 2015; Hamad et al., 2014). This continually recurring of the problem of deforestation against the backdrop of heightened communication efforts raises critical questions on the effectiveness of radio in communicating environmental information to inform rural-based communities about the value and need to conserve forests. In fact, what emerges, particularly in the context of Tanzania, is that, to-date, little is known about the strengths, weaknesses, opportunities and challenges associated with radio communication of forest issues to engender communities' responsiveness to forests conservation.

This paper reports the findings of a study carried out to answer four research questions: What are the strengths of radio in communicating and enhancing communities' responsiveness to forest conservation in Tanzania? What are the weaknesses of radio in influencing community members living adjacent to forests in Tanzania to conserve forests? What opportunities associated with radio communication of forest information are available to rural inhabitants in Tanzania? What are noticeable challenges associated with radio communication of forest issues in Tanzania?

2 Theoretical Framework

The study drew on the Agenda-setting theory which originated from the early work on political behaviour aimed to address the impacts of media coverage on political campaigns and elections (Soroka et al., 2015). Whereas McCombs and Shaw coined the phrase 'agenda-setting' as one of the media functions in 1972, this idea had actually evolved much earlier (Muin, 2011). McCombs and Valenzuela (2007) posit that, the agenda-setting idea stems from the *Public*

Opinion book written by Walter Lippmann in 1922. In *Public Opinion*, Walter Lippman contends that people generally fail to understand clearly and analyse the variety and subtlety of their environments (Muin, 2011). Instead, according to Muin (2011), Lippmann's argument was that people depend on the elites surrounding them or the media to synthesise and interpret the motives and beliefs of politicians.

Overall, early agenda-setting studies have revealed a strong relationship between the coverage of environmental issues and individual-level knowledge and attitudes toward salient issues (Huang, 2015). For example, media coverage of the oil spill from the Exxon Valdez provided a window of opportunity for environmental and fishing policy advocates to shift attention to their alternative problem definitions and policy solutions (Wolfe et al., 2013). In fact, some scholars such as Kiousis and McCombs (2004: 38) have argued that "the media may not only tell us what to think about, they may also tell us *how and what to think about it*, and even *what to do about it.*"

Generally, the application of the Agenda-setting theory in this study helped to establish the radio's strengths, weaknesses, opportunities and challenges associated with its ability to move the forest conservation issue from the media to the public arena as a cardinal agenda, sway public's opinion and attitude towards the matter, and enhance conservation practices among the citizenry in the process. In fact, McCombs and Valenzuela (2007) posit that the prominence the mass media accord to an issue, in turn, induces changes pertaining to the issue at hand to set it as a media agenda that finally ends up being thrust firmly on the public menu by itemising it as par oft the public news agenda. Additionally, Lyytimäki (2012) contends that there is a correlation between the framing of an issue and the prominence the media accords it in addition to its impacts on the public as a policy agenda item.

3 Research Methods

This study was conducted in the Matumbi-Rufiji landscape of Rufiji District, Coast (Pwani) region of Tanzania. Rufiji District is located at 7° 30′S to 8° 40′S and 39° 50′E to 39° 40′E on the Indian Ocean coast of Tanzania. The Matumbi landscape constitutes a large massif south of the Rufiji River that dominates the landscape in terms of Coastal Forest coverage (URT and UNDP, 2010). The landscape contains more than 26,000 ha of closed canopy Coastal Forest, grading into larger areas of coastal woodland and thicket habitats (URT and UNDP, 2010; Burgess et al., 2012). Natural vegetation within the Matumbi landscape includes scrub forest, dry evergreen forest, groundwater forest, riverine

forest, transition woodland/*Brachystegia* forest and coastal scrub (URT and UNDP, 2010).

The nature of the research questions justified the use of mixed methods to collect both qualitative and quantitative data on the study to develop a shared understanding of how effective the radio is in communicating environmental information and influencing the target communities' responsiveness to forest conservation. Whereas the quantitative data address the questions of *how many* and *how much*, qualitative data answer questions pertaining to h*ow* and/or *why*. The data for this study were collected in three phases thusly. Phase I focused an audio content analysis of 21 programmes of *Urithi Wetu* produced and aired by TBC radio from January to December 2016. The programme featured about 124 sources of information such as 93 (75%) male sources and 31 (25%) female sources. Phase II involved carrying out in-depth interviews with the producer of *Urithi Wetu* programme and with 15 key informants from institutions and organisations responsible for environmental conservation in Tanzania as well as local leaders in Rufiji.

Subsequently, phase III entailed administering 404 questionnaires with village households and in the suburbs of three selected wards on the Matumbi landscape. The questionnaires were administered in the following villages/suburbs and their respective wards: Nyamwage and Nambunju in Mbwara Ward, Mohoro Mashariki and Mohoro Magharibi in Mohoro Ward, and Kitunda and Kiwili suburbs in Utete Ward. The principal researcher and research assistants administered the questionnaires in person by keying in the respondents' answers directly in relation to their respective responses for questions derived from the questionnaires. Phase III also entailed holding focus group discussions (FGDs) in each of the selected villages/suburbs of the three wards: Mbwara Ward (Nyamwage and Nambunju villages), Mohoro Ward (Mohoro Mashariki and Mohoro Magharibi villages), and Utete Ward (Kitunda and Kiwili suburbs).

4 Results and Discussion

4.1 *Strength*

To begin with, the study established the issue of the accessibility of radio among rural inhabitants as one of its strengths in the dissemination of forest information to community members once properly operationalised and utilised. The findings of the study (Fig. 1) indicate that 76.7% of the respondents had access to radio broadcasting thusly: Rarely (37.4%), occasionally (20.3%), almost every time (8.9%), and every time (10.1%). Only about 23.3% of the

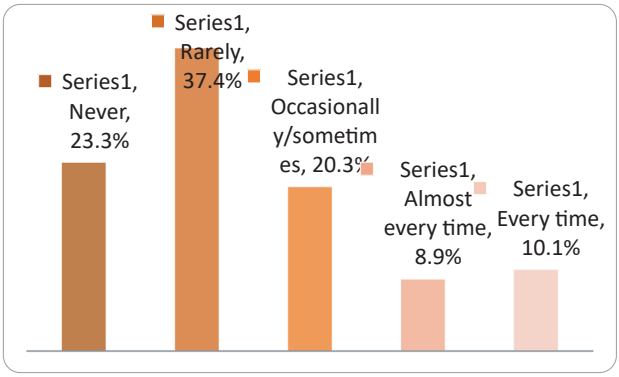


FIGURE 1 Respondents' access to radio broadcasting
SOURCE: FIELD DATA, 2017

respondents indicated having no access at all to radio broadcasting. In fact, the findings on the accessibility of the radio reflected the findings of other researchers such as Murthy (2011), who had established that in Tanzania, about 75% of people with the lowest income and over 91% of those with the highest income owned a radio set in their respective households.

The findings obtained from FGD revealed that the radio's power to serve the literate, illiterate, and poor population with information alike was another strength in terms of its potentiality in effective communication of forest issues and influencing rural inhabitants towards conserving forests. In fact, the majority of the respondents were confident that radio remained the most powerful medium, which could easily educate citizens and influence them to stop wantonly cutting down trees and, instead, conserve forests as required. One of the FGD participants at Nyamwage village said that prioritisation of forest conservation education by radio owners to make it an integral part of their agenda, citizens would foster understanding amongst their ranks and make them take full responsibility in the protection of forests:

> Radio plays a significant role in the war against deforestation. It provides a clear picture of the magnitude of forests destructions and educates the citizens on the impacts of their actions.
>
> Participant No. 2 at Nyamwage village, FGD, 8.12.2016

It was also established that the strength of radio in enhancing forest conservation among the community members was in its ability to set an agenda and shape people's collective perceptions. In this regard, the respondents reported that radio could ease deforestation when it treats the matter as an agenda of

its communication strategy on forest conservation and climate change issues. The participant above cited an example of elections, and explained that when the media campaigned for a particular candidate, they enhanced the chances of that candidate winning that poll. She said that the same power could influence citizens towards stopping cutting down trees, particularly when the media made it an integral part of their communication agenda. In this regard, another participant said:

> I remember. In the past, the government had approved the establishment of prawn shrimp farms in the Rufiji Delta. But when the media decided to report against the project, highlighting the attendant adverse environmental impacts, the project was shelved despite the huge investment, which had already been made for its commencement.
>
> Participant No. 3 at Nyamwage village, FGD, 8.12.2016

Indeed, the government had approved a proposal by the African Fishing Company (AFC) in 1997 to build the world's largest shrimp aquaculture facility in the Rufiji Delta. The project attracted fierce opposition from Tanzanian environmentalists, most notably the Journalist Environmental Association of Tanzania (JET) and NEMC on the ground that, it would destroy 1,200 hectares of mangroves, including rare species such as *Rhizophora* in addition to threatening the habitats of a variety of endangered species (WRM, 2001).

In fact, the findings that the media can set agenda and induce positive change in society are similar to those of Wolfe et al. (2013). In their study in Austin, Texas in the USA, Wolfe et al. (2013) established that the media coverage of the oil spill from the Exxon Valdez forced fishing policy advocates to shift their attention to their alternative definitions of problems and policy solutions. The mass media's agenda over the issues resulted in the revision of laws pertaining to oil pollution and the clean-up of oil spills (Wolfe et al., 2013). According to Curtin and Rhodenbaugh (2001), the currency of the environmental agenda in the mass media is crucial as scientific evidence confirms a strong relationship between the mass media's environmental agenda and its value to the public.

Furthermore, the study established that the radio's geographical reach was another vital strength in communicating forest issues effectively to the rural inhabitants in a bid to influence them to conserve forests and stop wanton tree felling. In this regard, the Director of Environmental Information, Communication and Outreach of NEMC said during an interview that, sometimes citizens might engage in actions that destroy the environment for lack of education. As such, when they had benefited from an appropriate education

via the radio, they normally understood and desisted from such activities. In reality, they noted that the use of TV to communicate information on forest conservation was undercut by its little accessibility, particularly in the rural areas, which faced infrastructural challenges, including the absence of a steady supply of electric power.

The study also established that the radio's geographical reach reflected the findings of many other researchers. Chapman et al. (2003), for example, found that the radio had the capacity to reach heterogeneous audiences and can communicate relevant information using the language and the accent of its community. When compared with TV, newspapers, or ICTs information access points such as the Internet, radio has remained the most consistently available mass-medium in Tanzania with the widest geographical reach and the broadest audiences (Murthy, 2011; Balancing Act, 2008; Myers, 2008; Panos Institute of West Africa, 2008). In addition, other scholars have established that radio was one of the most popular and a highly effective method of information dissemination in developing countries, partly due to its accessibility and affordability (Rao, 2015; Vaijanath and Chandunavar, 2013).

Furthermore, the study found that radio could enhance communities' responsiveness to forests because of its flexibility in terms of how people access it and where. In this regard, the respondents reported during face-to-face interviews that, the radio as opposed to other mass-media such as TV, could be listened to while one is cooking, farming and walking. The respondents also reported that the probability of delivering forest conservation education to the citizens and changing their behaviour was higher using the radio than other communication means. For example, the Acting Wards Executive Officer of Utete Township said:

> In our villages, it is common to find a woman cooking while listening to a radio. Therefore, if such a radio station has forest educational programme, it may help her understand how cutting down trees ruin her own life. If the same message continues to be injected into the citizens' minds, with time they will stop felling down trees.
>
> Acting Wards Executive Officer of Utete Township, interview, 23.11.2016

4.2 *Weaknesses*

Conversely, the study sought to establish the weaknesses of the radio in communicating environmental information to steer people towards conservation in accordance with the second research question. In this regard, the study findings based on content analysis of a series of *Urithi Wetu* programme identified poor packaging of forest conservation related information as the main

weakness. Such poor packaging of information acted as an obstacle to effective radio communication of forest issues to influence positively the communities living adjacent to forests to stop the wanton cutting down trees and, instead, conserve forests. The term *packaging* refers to a piece of broadcast reporting that is essentially pre-recorded and self-contained featuring at least two different voices, sound effects and linking narration from the reporter (BBC Media Action, 2013; Obaje, Nwodu and Aliede, 2014). Hewitt (1995) describes packaging as a complete news story from the field with the reporter's voice tracks narrating the entire segment. Proper organisation of packaging makes the story sound alive and interesting, with the opposite making the story boring and pedestrian.

This study established that the radio failed to package forest information properly to resonate with and appeal to rural inhabitants and their tastes. Specifically, the study established that instead of identifying the magnitude of the problems and diagnosing the causes of tree felling, as Cronin et al. (2015) argue, TBC radio in the *Urithi Wetu* programme ended up by simply blaming the community members for their involvement in the destruction of forests and prescribing what they needed to do. In its programme of September 27, 2016, for example, the radio features the Minister of State in the Vice President's Office responsible for Union Affairs and the Environment blaming the citizens for their failure to conserve forests and excessive harvesting of resources from natural forests. He says on the programme, "Cutting down trees such as Pterocarpus (mninga), Milicia/Chlorophora (mvule) and Leguminous (mpingo) for charcoal production was quite unlawful behaviour that has adverse impacts on conservation practices." This is a blame-game, which may not necessarily produce the desired results as it fails to get to the crux of the matter of why they acted in such a manner.

In fact, the study established that the citizens were over-reliant on the forest products due to abject poverty and lack of alternative sources of energy. The study established during the FGDs that poor members of the communities were not necessarily wilfully destroying forests, but lacked alternative sources of income generation, which forced them to continue over-relying on the forest products for their lives. Therefore, the study established that, the packaging of the content aired on the public radio was supposed to address the intertwined nature of poverty and the forest degradation first instead of simply blaming community members for destroying the forests. Moreover, the study established through FGDs that the thinking of providing forest conservation education through radio and other mass media outlets without empowering members of the community to find alternative sources of income generation and expecting such members to stop cutting down trees was flawed.

Whereas the BBC Media Action (2013) states that when preparing broadcast packages, journalists should endeavour to reveal the sources of information doing particular activities instead of simply telling the audience about the event, this study established that the packaging of *Urithi Wetu* programmes relied heavily on telling about what some organisations were doing or had done in relation to forest conservation. In this regard, a resident of Mgwashi ward, Lushoto, Tanga featuring in one of the programmes points out:

> In fact, TFCG has played a significant role in providing us with proper education on the importance of shifting to improved wood fuel-saving stoves and improved charcoal stoves. These energy-efficient stoves have halved the amount of firewood or charcoal a family needed before, hence reduced women's burden of walking long distance searching for firewood.
>
> Source: *Urithi Wetu*, 8.11.2016

The study found that the most important information here, which would otherwise have empowered the rural inhabitants, was the technology knowhow on how to produce such improved wood fuel saving stoves and improved charcoal stoves or information on how to access them. Overall, it was established that the *Urithi Wetu* programme was supposed to provide sources of information on making or producing such stoves. In this regard, the BBC Media Action (2013: 65) states, "Don't just have a midwife talking about giving an antenatal check-up, record her doing it as well." Such an approach could provide the radio listeners with information on actualities that they need in their lives.

Additionally, in the September 20, 2016 radio programme, a discipline master of Faraja farmer's group in Kilosa District says, "The conservation agriculture has helped us to adopt new knowledge of building simple trenches for capturing and storing rainwater and building key-hole gardens. All these technology applications have increased agricultural yields." As stated earlier, the most important packaging here was not the testimony but the technology of building simple trenches for harnessing and storing rainwater and building key-hole gardens. Furthermore, the study established that the new knowledge of building simple trenches for trapping and storing rainwater and building key-hole gardens was essential for the farmers' engagement in irrigation agriculture and reduction of their over-reliance on rain-fed agriculture. As such, the radio's failure to broadcast information on the methods of adopting and building such simple technologies for irrigation agriculture led to its failure to posit solutions and help communities find new eco-friendly ways of doing things.

The study also established that it was not only the producer of *Urithi Wetu* programme but also organisations such as TFCG, TaTEDO and MJUMITA that lacked education on how to package information related to forest conservation through the mass media. The study found that these organisations had played significant roles in educating the community members on the use of energy-saving stoves, production of sustainable charcoal burning, and the application of conservation agriculture aimed to empower the rural inhabitants to find alternatives and refrain from deforestation activities. However, these organisations fell short on the packaging such information because they based their packaging on explanations and testimonials, describing what they had done or what they were doing on the ground instead of the technological knowhow, the processes, and hands-on knowledge to help community members benefit from such life-changing information delivered through the radio.

In addition, the content of *Urithi Wetu* programme was, to some extent, poorly packaged as it lacked balance and impartiality. The BBC Media Action (2013) states that broadcast packaging requires different points of view. Yet, during the FGDs it emerged that the programme was so one-sided that it concentrated on broadcasting views of government officials and leaders of some organisations on issues relating to environmental and forest protection, hence side-lining the most important players – the people. In this regard, Participant No. 2 said during an FGD held at Nambunju village: "Although I did not go to school, I would request those journalists to visit us and listen to our cries. If they can do that, we will feel valued and start to pay attention to media's information." Chapman et al. (2003) cautions that radio stations should give community members a voice and encourage their active participation in the making and scheduling of radio programmes.

The study also established that this kind of gate-keeping of selecting which viewpoints to air and which ones to shut out had some negative implications for the reception and utilisation of forest information communicated through radio among rural inhabitants. The study established that, as journalists were not going to the villages to incorporate the villagers' views in their coverage, at times the citizens tended to treat those who broadcast forest conservation issues as satiated people who had no clue about the challenges the villagers faced in their struggle to make ends meet.

4.3 *Opportunities*

Despite some weaknesses associated with radio communication of forest information in Tanzania, this study found some opportunities, which, if utilised properly could make the radio more effective in communicating and

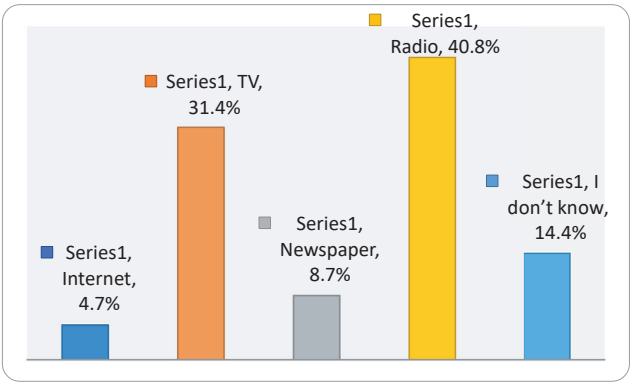


FIGURE 2 The medium mostly used in the study area
SOURCE: FIELD DATA, 2017

enhancing community responsiveness to forest conservation. In response to the third research question on what opportunities were available to rural dwellers when it came to communication on forest conservation via the radio, the study found that when compared with TV, newspapers and the Internet, the radio was the most widely used medium for getting information on various matters among the community members in Rufiji. Specifically, the study established that 40.8% of the respondents depended mostly on the radio for information on various events happening in the country. TV emerged as the second mostly used medium (31.4%), with the use of newspapers and the Internet as sources of information remaining relatively low at 8.7% and 4.7%, respectively (see Fig. 2).

These findings are consistent with those of many other researches in this field. For example, Myers (2008) found that the radio was still the dominant mass-medium in Africa with bigger audiences than TV, newspapers and other ICTs. Similarly, Murthy (2011) found that in Tanzania the radio was a top source of information for every age group, income group, males and females, and rural and urban dwellers. In addition, a UNESCO (2012) report similarly established that, whereas access to TV remained low in many countries, the radio was widespread and commanded a hefty reach and access that was unparalleled by any other form of media. Furthermore, study findings by Myers (2010) indicate that in West Africa radio ownership dwarfed all other communication media outlets, including TV and mobile phones. Skuse (2004) also found that the radio was the most popular source of family planning information among different media – radio, television, print materials and a promotional logo – used in the campaign in reaching to 49% of the survey respondents.

This study found that the radio had the capacity to disseminate information to the rural inhabitants at a faster rate than personal contacts presented another opportunity, which could easily influence rural-based communities' responsiveness to forest conservation in Tanzania. In particular, the findings from face-to-face interviews revealed that the power of the radio to change the citizen's behaviour was traceable to its ability to reach a large number of people in the shortest possible time as opposed to convening a public meeting that only a few people can attend. The respondents reported that, many people failed to turn up at public gatherings due to their daily routines. As a result, they failed to know what had transpired during such meetings. With the use of the radio, on the other hand, they could easily get and understand the message communicated while going on with their daily chores. In this regard, the Chairperson of Kitunda Suburb said:

> The media, particularly the radio has a huge potential of contributing meaningfully to the fight against deforestation because it can reach a greater number of the citizens over a wider geographical reach in their localities faster than public meetings. Therefore, the probability of delivering forest conservation education to the citizens and changing their behaviour is higher using the radio than the use of other means of communication such as public meetings.
>
> Chairperson of Kitunda Suburb in Utete Township, interview, 5.12.2016

On top of that, this study established that the radio had power to alert the government to the need to take initiatives on salient issues through frequently broadcasting of such issues via the radio. The Chairperson of Nambunju village said during the interview that when the radio and other mass media report on the magnitude of forest destruction they do not only influence citizens to take action but also implore the government to take appropriate remedial action on forest conservation to halt further destruction. By so doing, he said, they help to minimise the rate of deforestation. The Chairperson of Nyamwage village offered a similar sentiment when he said during an interview:

> I agree that journalists and the media play important roles in educating the communities to conserve forests and influence the leaders to take action. For example, we were once visited by journalists from JET [Journalists Environmental Association of Tanzania] and their coverage about how forests in Nyamwage were being depleted by human-induced

activities resulted in government officials flocking to this area to investigate the magnitude of forest destruction.

Interview, 8.12.2016

4.4 *Challenges*

This study also established challenges that constitute setbacks for the radio to communicate effectively and enhance forest conservation among communities in Rufiji. This was in line with the fourth research question on what noticeable challenges were associated with effective communication of forest issues among villagers. To begin with, it was established that the majority of the community members (60.4%) trusted and preferred to get information associated with forests from village meetings to any other means of communication. On the other hand, only 16.3% of the respondents reported that they trusted and preferred to get forest information through the radio. Mobile phones emerged as the third most trusted and preferred medium for getting forest information with 10.9% of the responses whereas only 7.4% of the replies were for TV. The use of newspapers to communicate forest information was the least trusted and preferred with only 1.5% of the respondents indicating so.

This study's findings, however, on the most trusted and preferred medium for getting information on forests appear dissimilar to those of other researchers. A study conducted by Murthy (2011) revealed that over 70% of the respondents rated the radio as very trustworthy followed by TV which was rated by 55% for all the information sources in that study. Additionally, the UNESCO (2012) report revealed that, although Tanzanians received information from

TABLE 1 The most preferred medium for getting information about forest conservation

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Village meeting	244	60.4	60.4	60.4
	Radio	66	16.3	16.3	76.7
	Newspapers	6	1.5	1.5	78.2
	TV	30	7.4	7.4	85.6
	Mobile phone	44	10.9	10.9	96.5
	I don't know	14	3.5	3.5	100.0
	Total	404	100.0	100.0	

SOURCE: FIELD DATA (2017)

the radio and from their own friends, their level of trust in the radio and TV far-outstripped their trust in their own friends and family. In another study, Hampson et al. (2016) found that about 82% of women and 73% of men in Uganda trusted the radio to have the most significant bearing on their decision to participate in forests restoration. Similarly, a study by Kakade (2013) revealed that the radio was reported as a credible, authentic, trustworthy and prestigious medium of communication in *Dharwad* District in *Karnataka*, India.

On the other hand, the current study also established an erosion in the level of trust in the radio among community members in Rufiji due to their lack of participation in such the radio programmes. In this regard, the study established that rural citizens in Rufiji were eager to see journalists visiting their villages and talk to them. In one of the FGDs, the participants reported having attempted to bring journalists to their villages but to no avail. One of the FGD participants in Nambunju village reported that at one time they wanted to call journalists to go and listen to their concerns soon after the Prime Minister's ban on forest resources harvesting. However, they failed because they were informed that it costs about Tsh. 200,000 to bring just one journalist to their village:

> We were unable to raise that amount, hence, failed to bring journalists to our village. So, we request journalists and the media to have a tendency of visiting the villagers and broadcasting the villagers' concerns.
>
> Participant No. 7 at Nambunju village, FGD, 12.12.2016

It was established that the gap between journalists and the community members did not only reduce the trustworthiness of the information communicated through the radio but also made community members fail to heed forest information communicated through this medium.

A study conducted by Roba (2012) in Ethiopia also found that media did not create any significant forum for the common citizens to participate in the conservation programmes and air their views and concerns. Roba (2012) established that, despite the advancement in the modern forms of media, many people still related more readily and easily with traditional modes of communication, which not only were closer to their local cultures but were also often more interactive and participatory than the regular forms of contemporary mass media. Cooper et al. (2010) advise that organisations should actively engage community members in discussions for them to identify concerns and possible and appropriate solutions. Shading more light on the matter, PANOS (2006) states that people should heed and seize opportunities to participate in

the debates and decisions that affect their lives directly and indirectly and for them to make their voices heard.

Lack of specialised forest reporters emerged in this study as another challenge to effective radio coverage of forest issues. In this regard, the producer of the *Urithi Wetu* programme acknowledged during the interview that he had no special education on forests and their conservation apart from the little knowledge he had acquired through attending short courses on environmental reporting. The findings from the key informants also revealed that the little coverage of environmental stories and forests in particular was partly attributable to lack of specialised journalists with a grounded specialisation in environmental issues. In this regard, the Head of Forest Monitoring and Assessment Department and acting Communication Officer of TFS said during an interview:

> Environment is a professional that needs a clear knowledge before one starts to write or report anything about it. The challenge is that, we do not have professional reporters on the environment and forests. The only three journalists that I know who have at least a certificate in environment are no longer working in the media.
>
> Interview, 12.1.2017

In fact, even scientific evidence has identified the challenge of lack of specialised environmental reporters as a hindrance to effective communication of environmental issues. In India, for instance, Hoerisch (2002) found that, a common weak point shared by the radio, TV and newspaper was lack of journalists who specialised specifically in environmental issues. Roba (2012) also established that the poor quality of environmental news coverage in Ethiopia was a result of ill-prepared and ill-equipped journalists who were incapable of reporting accurately environmental issues. Wezel and Haigis (2000) also found that media coverage of the environment in Niger had to contend with inconsistencies, distortions and misrepresentations of the data due to an insufficient number of journalists specialising in environmental reporting.

The study findings also revealed that lack of financial resources was one of the challenges for various institutions and organisations dealing with environmental conservation in their efforts to establish their own radio programmes on forest conservation despite having forest experts. The study found that the two programmes – *Mali Asili* (Natural Resources) and *Misitu ni Uhai* (Forests is Life) – which were being produced by the Ministry of Natural Resources and Tourism and aired by the then Radio Tanzania–Dar es Salaam (RTD) in the 1980s were forced to cease due to financial constraints. When contacted to find

out why an institution such as NEMC had no mass media programme on the environment, the Director of Environmental Information, Communication and Outreach of NEMC said, "It is too expensive to establish and maintain a programme in the mass media and our budget is too limited to incorporate such programmes."

In addition, the study established that, despite their importance in providing forest conservation education to rural inhabitants, all the zonal forest publicity units under the Ministry of Natural Resources and Tourism in the 1980s folded due to lack of financial resources. The study established that in the 1980s, that ministry had a vibrant forest publicity department later transformed into an extension publicity. Then the ministry had seven forest publicity zones countrywide. Moreover, the forest publicity department used to have mobile cinema vans, which travelled throughout the country to educate citizens on how to protect and conserve forests. The study learned that the vans were effective means of communicating information on forest conservation issues that motivated citizens to establish their own woodlands. Despite their significant roles in the provision of forest conservation education, all the zonal forest publicity units finally closed shop and ended their operations due to lack of funds.

Furthermore, the study found that the country had only a few mass media programmes on forests and the environment in general due to lack of an environmental communication policy and irresponsiveness of forest officers. In this regard, the acting District Forest Officer of Rufiji said during an interview that he did not know whether the Rufiji District Council had ever produced any programme on forest conservation for broadcasting in the mass media. He attributed this anomaly to lack of a policy instructing District Forest Officers and District Forest Managers to provide forest conservation education through mass media: "It is high time now for the government to put in place a policy which will guide forest officers to communicate forest issues through mass media."

On the other hand, the Head of Forest Monitoring and Assessment Department and acting Communication Officer of TFS blamed the DFOs and DFMs for failing to utilise the mushrooming local radio stations – particularly community-based radios – in their areas to communicate forest issues. He explained the situation thusly: "Just imagine when we had only one radio station, we were effective in communicating forest issues, but now with the mushrooming of radio stations, we are ineffective." This paradox needs a resolution to enhance radio communication of information on forest conservation in Rufiji and other areas in the country.

The study also established that some governmental institutions, organisations and divisions dealing with the environment such as the NEMC and the Vice President's Office – Division of Environments had no radio and TV content on forest conservation for airing in the mass media as sponsored programmes, or freebees or jointly-funded programmes to reach as many people as possible. This study found that currently there was no forest programme in the media produced or sponsored by these institutions. The Director of Environmental Information, Communication and Outreach of NEMC said during an interview that NEMC normally uses brochures particularly during the commemoration of World Environment Day to disseminate environmental information to the citizens or sometimes NEMC officials went on TV studio discuss particular conservation-related topics.

5 Conclusion

On the whole, despite some strengths and opportunities available for the radio potentially to communicate forest information effectively and enhance conservation practices among communities, some weaknesses and challenges remain. These include the failure to package properly forest conservation information in ways that resonate with and appeal to rural inhabitants, and how to overcome the problem of the low level of trust among community members of the radio due to its failure to incorporate their views and concerns in forest broadcast programmes. The study has also established that these weaknesses and challenges were dragging back the radio's efforts to communicate forest issues and influence the rural-based citizens to conserve forests. In short, despite the huge potential that the radio has in engendering the effective communication of forest conservation issues, many challenges that need to be overcome for such communication to produce the intended results remain.

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