A Survey of Public Particpation in Planning for Climate Change Adaptation among Selected Areas of Zambia's Lusaka Province

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Abstract

The study aimed at investigating the stakeholders that would be relevant in planning for climate change adaptation. Uncertainties in terms of who could in planning prompted a snap shot survey research whose contextual relevance was premised on the Ahmadabad fourth conference on Environmental Education, to address climate change as a major global issue. It was also contextualized in the frameworks of article six of the United Nations Framework Convention on Climate Change (UNFCCC, 1992) and the Zambia National Adaptation Programme on Action (NAPA). Using a hermeneutic survey design, a sample of 165 households was captured using cluster and simple random sampling techniques. Respondents were interviewed using a semi-structured interview schedule. Overall, the study revealed that planning for climate change would require a diversity of views from multiple stakeholders such as educationists, traditional leaders, the government, affected people, government statutory bodies, clergies, NGOs, among others. Since most of the residents thought adaptation planning to be mainly (35 per cent to 90 per cent), the government's responsibility, it was recommended that further researches be conducted in order to find out how partnership for climate change adaptation planning and learning could be strengthened. The research findings could be useful to environmental educationists and practitioners, researchers, the government and others.

Key words: public participation, stakeholders, climate change, adaptation

1. Background

Zambia is one of many countries threatened by potential and actual effects of climate change. Sichingabula (1998) stated that Southern Zambia, including the Lusaka Province, would be prone to droughts due to climate change. Ministry of Tourism, Environment and Natural Resources (MTENRs) (2010) further pointed out adverse impacts on water resources leading to water rationing in towns and a decline in hydro-electric power generation as well as reduced foreign exchange earnings from water based recreation activities and tourism. The mean temperature in Zambia has steadily increased over the last 40 years. The average temperature was 21.57^{o}C between 1960 and 1990, but it has been projected that the temperature would be an average of 25.86^{o}C between 2070 and 2099. Moreover, the annual average rainfall between 1960 and 1990 was 2.75mm/day, but between 2070 and 2099, it is projected to decrease to 2.61mm/day. It was also concluded that Zambia may be warming up by 0.0023^{o}C annually or decadal increase of 0.023^{o}C (MTENRs, 2010). All such climatic anomalies seem to point to a change in climate although some scholars argue that it could just be variability (MTENRs, 2010).

Lusaka Province is located in the southern half of Zambia within longitudes 27^{o} 45^{I} East to 30^{o} 26 ^{I} East and latitudinal range of 14^{o} 40 ^{I} South to 16^{o} South. Its approximate area is 21896 Km^{2} with four districts (Luangwa, Kafue, Lusaka and Chongwe) (Central Statistical Office-CSO, 2003). Its altitude above sea level is between 900 metres and 1200 metres, drained by four rivers (Kafue, Chongwe, Lunsemfwa and Luangwa). The total mean annual rainfall in Lusaka, Kafue and Chongwe Districts is between 800mm and 1000mm because they are in the agro-ecological region IIa with moderately high rainfall (Banda, 2005). They have three main seasons namely, cool-dry from May to August, hot-dry from September to October and the warm-wet from November to April. The average midday temperatures vary from a maximum of 31^{o}C in October to a minimum of 10^{o}C or slightly above 10^{o}C in June (Meteorological Department of Zambia (MDZ), 2010). Peri-urban areas of Lusaka District are mainly inhabited by people whose socio-economic status is low and mainly engaged in quarrying, small businesses and others. The residents of Kafue District are engaged in fishing and peasant farming.

In Chongwe District, charcoal burning and small scale agriculture are the major sources of income (Central Statistical Office-CSO, 2003). Luangwa District is a valley area comprising the Zambezi and Luangwa Valleys with altitude between 300 and 400 metres above sea level. It is positioned in the agro-ecological region-I with very high temperatures (25°C-45°C) almost throughout the year with mean annual rainfall below 700mm (MDZ., 2010). Disaster Management and Mitigation Unit (DMMU) (2010) mapped it among the districts most vulnerable to climatic hazards, risks and disasters. The residents of Luangwa District barely practice arable farming except fishing and domestication of animals such as goats (MDZ., 2010). Figure one below shows a visual impression of the geographical location of the study area at regional, national and local levels.

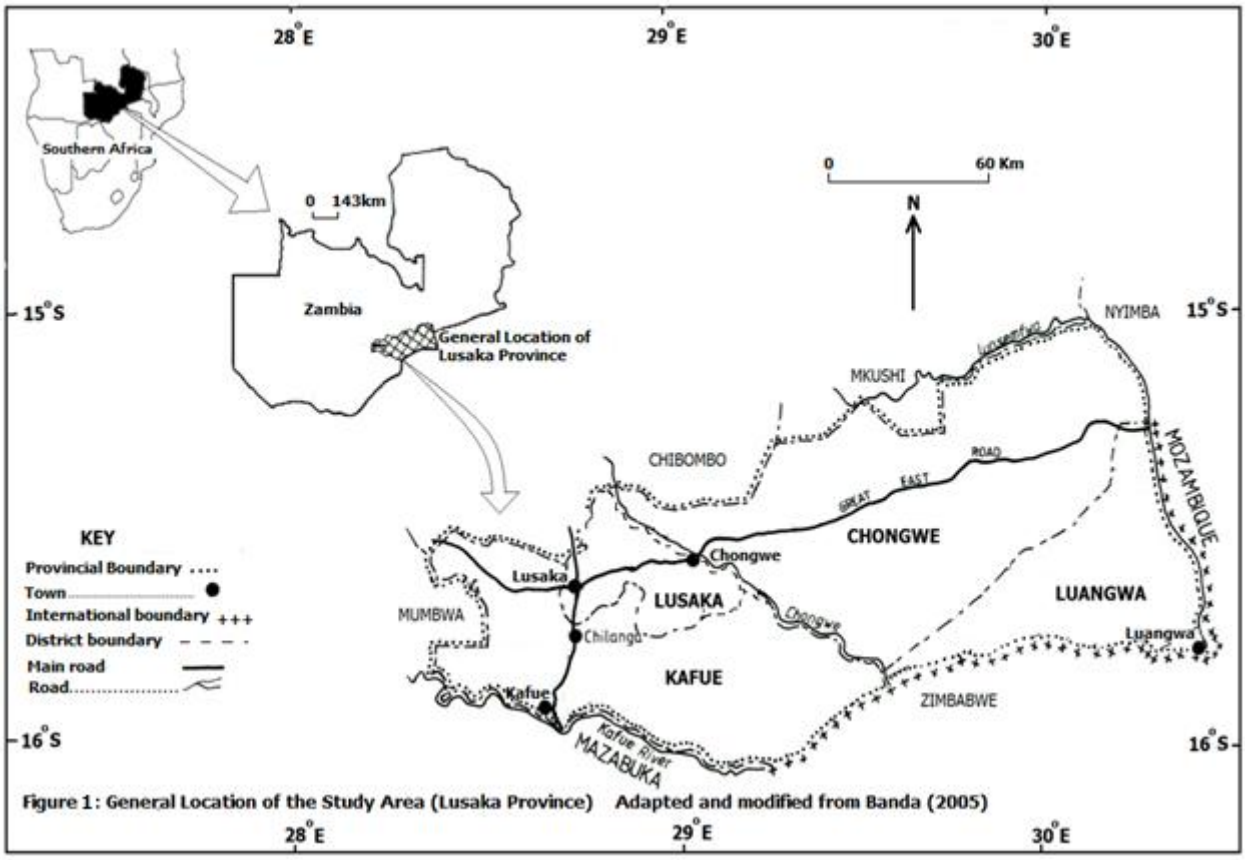

Figure 1: General Location of the Study Area (Lusaka Province) Adapted and modified from Banda (2005)

1.1 Theoretical underpinnings of *'public participation'*

According to Bonnemann (2008), public participation is the process by which an organization consults with interested or affected individuals, organizations, and government entities before making a decision. Public participation is two-way communication and collaborative problem solving with the goal of achieving better and more acceptable decisions. It prevents or minimizes disputes by creating a process for resolving issues before they become polarized. Being a stupendous normative goal in formative stage of a policy, effective public participation is quite a challenge. MTENRs (2007) explicitly noted that lack of public awareness on climate change and its effects could deter people from taking active role in adaptation policy planning. Few, Brown and Tompkins (2006) argued that reorganizing the complex political and social dimensions of decision making process on adaptation would enhance public participation. However, education- oriented form of reorganization could secure a broader range of stakeholders' participation in decision making for climate change than mere political and social reorganization.

By mainstreaming educational values, the subtleties and complexities intrinsic in efforts to engage the public could be reduced. Without this strategy, then the adaptation plans would be in suspense and could only offer simplistic assumptions on what must be done to adapt rather than the most needed, locally relevant and pragmatic strategies. Participation is segmented into four dimensions that make a complete whole. One of these components is called 'passive participation' where people are merely recipients of information about decisions that have already been made (Few, Brown and Tompkins, 2006).

This dictative dimension of participation is the most predominant and usually politically motivated. With reference to table two, it would not be an empty exaggeration to say that many residents among selected areas of Lusaka Province were marketing this unsustainable type of participation by pushing the task to plan for adaptation to the government and its entities. This could probably be attributed to lack of awareness on the implications of passive participation, hence, the need to educate the people. The other dimension of participation is known as 'self mobilisation' where people take initiatives devoid of external agencies (Few, Brown and Tompkins, 2006). This would be more feasible and it was notable especially among selected areas of Luangwa District as will be discussed later. However, people would still need locally relevant education to enhance their capabilities and reflexivity to participate locally without external interference. Their community practices for adaptation could then be embraced as part of the broader portfolio in planning for adaptation.

Between 'passive participation' and 'self mobilisation' lies 'consultative mechanism' where people submit views on what is already pre-determined (Few, Brown and Tompkins, 2006). This is another common form of participation in Zambian context and other parts of the world. Nevertheless, it would not pragmatically yield people's expectations because it is already pre-meditated by the high profile technocrats whose views could only be challenged by educated and informed members of the public. So the plausibility of this dimension of participation is equally bleak especially that climate change affects rural communities with little or no education strength to pass informed and critical views on such pre-meditated plans and policies for adaptation. 'Interactive participation' is yet another dimension of public participation where people participate in joint analysis of problem and take greater control over decision making (Few, Brown and Tompkins, 2006). Whilst this sounds so inclusive and participatory, it is not as inclusive as it sounds because it is most likely to favour only a sect of community that has a clear understanding of issue at hand such as climate change, yet leaving out the most vulnerable community members. So in order to ensure a practical interactive participation among grassroots members of the community, relevant education would be needed, otherwise, it may not be too possible especially among rural community members.

2. Problem statement

The National Adaptation Programme on Action (NAPA) by MTENRs (2007) shows that lack of public participation is one of the major challenges and barriers in the quest to implement climate change adaptation strategies in Zambia. Uncertainty on relevant stakeholders for climate change adaptation planning in Zambia's Lusaka Province necessitated the need for a research in order to identify potential stakeholders for adaptation planning. Premised on the proceedings of the Ahmadabad fourth conference on Environmental Education, addressing global climate change is now one of the major issues on the international political agenda and it must be one of the issues that need emphasis in environmental education. To address this issue, there would be need for a firm systemic partnership among various stakeholders.

3. Contextual relevance

According to article six of the United Nations Framework Convention on Climate Change (UNFCCC) (1992:17), "parties need to promote and facilitate public participation in addressing climate change and its effects and developing adequate responses". The Third Intergovernmental Panel on Climate Change (IPCC) report cited in Few, Brown and Tompkins (2006) also advocates for "active participation by concerned parties, especially to ensure that actions match local needs and resources". Moreover, the United Nations Development Programme (UNDP) 'Adaptation Policy Frameworks' cited in Few, Brown and Tompkins (2006) also embraces stakeholder engagement at all levels, including 'grassroots stakeholder' participation. The Zambia National Climate Change Response Strategy (ZNCCRS) by MTENRs (2010) also stresses the need for public participation in order to meet the challenges of climate change. The NAPA also stresses the same point whereas, the DMMU (2010) emphasizes the need for public participation in disaster and risk management through establishment of Satellite Disaster Management Committees (SDMC) as shown in figure two below.

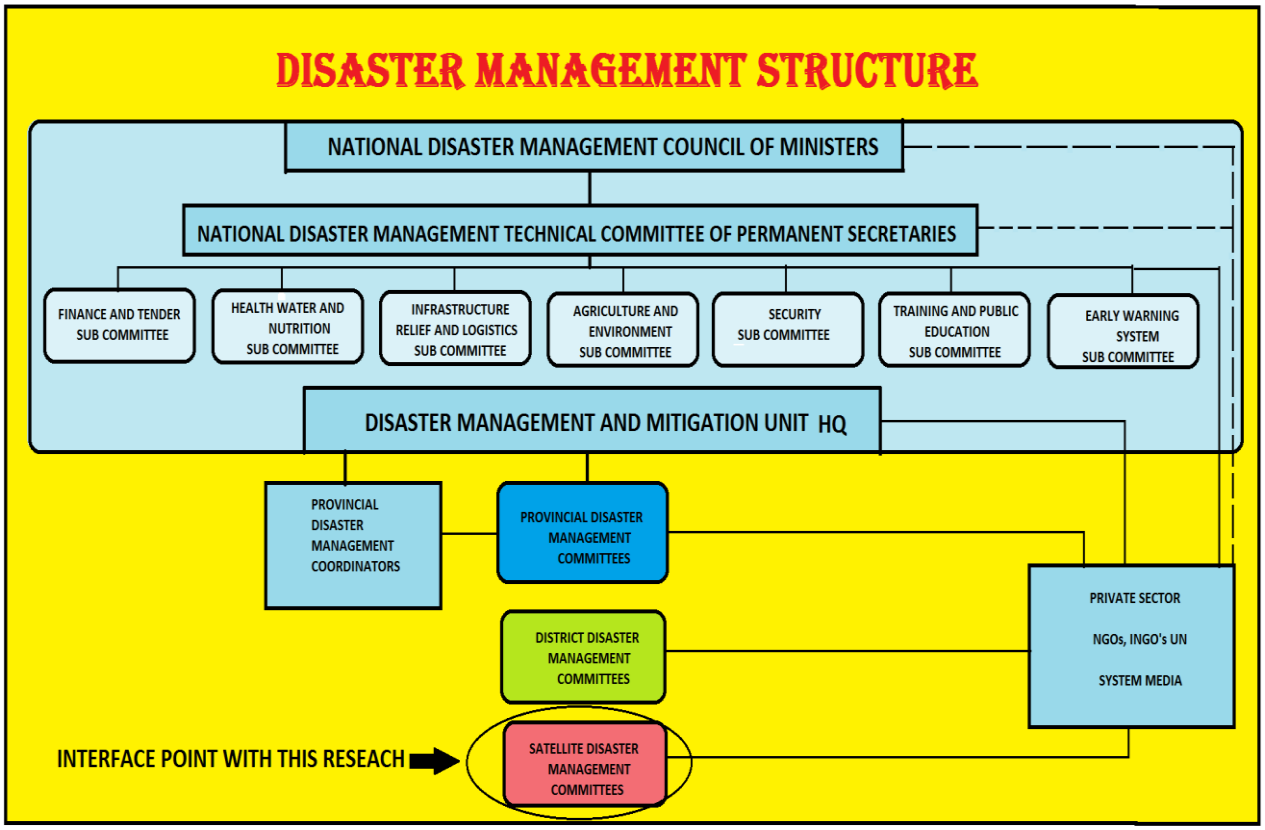

Figure 2: DMMU's structure of disaster management in relation to this research (DMMU, 2010).

Public participation is therefore, one of the ways through which adaptive capacity to adapt to climate change could be built. The findings of this research could be relevant to education sector, the government, researchers, government's statutory bodies, and others.

This research addressed the following question: ***Which stakeholder(s) would be relevant in planning for climate change adaptation?*** To address it, the following methods were employed.

4. Methods

This research employed hermeneutic survey research approach in order to facilitate succinct interpretations of respondents' views premised on their socio-ecological backgrounds. According to Sidhu (2009:109) "survey may be qualitative or quantitative" depending on the nature of data to be collected and how they are intended to be collected. In this research, quantitative approaches were employed during sampling, transcription and quantification of qualitative responses into themes. Qualitative approaches were employed during interviews and interpretation of data. Given the extensive nature (178081) of the target population (households) (Central Statistical Office-CSO, 2003), a survey was appropriate. It enabled capturing just a representative fraction of a whole, much as a camera takes a single frame photograph to represent larger landscapes (Leedy and Ormrod, 2001).

Simple random sampling allowed a situation whereby every household from each cluster had equal chance of being selected. Since the target population was extensive, it was infeasible to draw a list of every household in Lusaka Province, and from the list select a sample for study through normal randomization process. Therefore, cluster sampling was the most appropriate method of arriving at manageable sample size of households. The sample size (165 households) was just 0.009 per cent of the target population. The researcher obtained provincial districts and clustered them into wards. Each identified cluster (ward) was assigned with a number and thereafter, simple random sampling was conducted to select some clusters from which households were sampled. In instances where clusters were too populated (the case of Lusaka District), each randomly selected cluster was further divided into sub-clusters. Table 0.5 below provides a summary of households obtained from each district.

Table 0.5: Population of households by district and the sample sizes in Lusaka Province

Province	Districts	Number of households (N)	Sampled household (n)
Lusaka	Luangwa	3681	32
	Chongwe	23786	24
	Lusaka	145089*	69
	Kafue	29311	40
Total		**178081**	**165**

Source: Central Statistical Office-CSO (2000: 38-39). * (excluding households in low and medium density areas of Lusaka District)

Semi-structured interview schedule was used to collect the data, it facilitated follow-up questions to obtain deeper insight on certain issues that were raised by the respondents and also rendered sufficient flexibility to approach different respondents differently while still covering the same geographical area. Being a face to face interview, discussion was also automatically incorporated and note taking was used to record respondents' words and phrases related to research topic. My views about public participation in planning for climate change did not influence the respondents'. Thus, respondents' words and phrases were recorded as uttered without any personal twisting. This enabled gaining of understanding of their typical experiences. Ethical considerations included obtaining permission from relevant authorities of each visited area before conducting interviews. The respondents withheld their names and were not photographed without their consent.

The responses which emerged from this question were analysed using constant comparative method, which involved classification of words and phrases that related to the same content (Leedy and Ormrod, 2001). The aim was to allow the actual prevailing pattern, themes and phrases of the research findings to emerge from the data rather than be controlled by factors predetermined prior to their collection and analysis. The emerging themes and ideas were manually coded, synthesized and quantified into percentages and presented using a table. Thereafter, the data were descriptively interpreted and conclusions drawn. Secondary data were obtained and reviewed from reports, journals, dissertations, electronic media and books in order to add reliability to the arguments. Due to limited financial resources and time, the researcher undertook a small scale survey (n=165), which only provided a snap shot for further researches. Moreover, updated statistics of households in Lusaka Province were inaccessible therefore, only the 2000 census statistics of households was used to determine the sample size when in reality, some more households might have developed within the 10-year period.

5. Results

In the context of the research question, table two shows that the largest responsibility to participate in planning and implementation of climate change adaptation was inundated on the government as well as its statutory bodies and ministries. Table two also shows the need for diversity in terms of stakeholders to participate in adaptation planning.

Table 1: Stakeholders that would be relevant for climate change adaptation planning among selected areas of Zambia's Lusaka Provinc

Suggested stakeholders	FREQUENCY OF RESPONSES IN PERCENTAGES (%)																			
	LUANGWA DISTRICT						CHONGWE DISTRICT					LUSAKA DISTRICT						KAFUE DISTRICT		
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
Government	50	63	79	90	55	38	50	50	63	40	47	52	63	45	53	47	35	42	39	66
Zambia Wildlife Authority	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Environmental Council of Zambia	5	-	-	5	-	-	-	-	-	20	-	16	-	35	-	-	-	-	-	25
Ministry of Health	-	-	-	-	9	-	-	-	11	-	-	-	-	-	-	-	-	-	-	-
Ministry of Education	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Department of Forestry	-	-	-	-	-	3	-	6	-	20	33	-	-	-	-	-	-	-	-	-
Ministry of Agriculture and Cooperatives	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zambia National Service	-	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-	-	-	-
Church	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	9	20	-	-	-
Pastors	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18		-	6	5	-
Local people	40	20	21	--	9	47	12	16	26	20	20	15	32	15	24	23	20	23	27	9
Non-Governmental Organizations	-	17	-	5	27	6	-	28	-	-	-	17	5	-	5	21	25	30	23	-
Industries	-	-	-	-	-	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-
Traditional Leaders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-
TOTAL	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Source: Field data 2010.

Key for table 1

A =Nyangu (22) B=Robert (30) C=Chilukusha-(A) (19) D=Chilukusha-(B) (19) E=Katondwe (11) F=Mphuka (32) G=Lubuko (8) H=Lusoke (18) J=Kampekete (5) K=Kanakantapa (15) S=Siamunyemba (66) (A-H, J-K & S = Villages)

L=Misisi (86) M=Mandevu (19) N=Bauleni (20) O=Kalikiliki (17) P=Old Kanyama (38) Q=Marapodi (20) R=Lumumba (53) T=Chilanga (35) I=Chongwe (23). (L-R, T & I = Peri-urban compounds)

Bracketed numbers refers to the total absolute frequency of responses on stakeholders that would be relevant in planning for climate change adaptation. All the numbers shown in table 2 above are in percentages of the absolute frequencies (bracketed numbers).

6. Discussion

Having shown the background and methods of research, this section discusses the results shown in table two above. Public participation is currently being advocated in order to enhance policy response to the adaptive needs of the communities. Lack of it, is one of the major challenges to the implementation of adaptation plans as highlighted by the MTENRs (2007). According to the evidence shown in table two, most of the responses captured from residents among selected areas of Lusaka Province showed that, it is mainly the government's responsibility to plan for climate change adaptation. Although others sectors such as the Environmental Council of Zambia (ECZ), Ministry of Health and Education among others, were also suggested, they inherently pointed to the government because it is the one in charge such ministries and statutory bodies of the government. By over projecting the task to the government, residents barely knew that they were marketing the unsustainable 'passive participation'. This outward over pushing of the responsibility could partly be attributed to the socio-economic challenges which have marred such areas as Misisi, Katondwe, Lubuko and Siamunyemba such that residents could barely divide their limited time between participation in matters of planning for adaptation and securing the means of daily livelihood. Lack of relevant education for them to participate in planning could also be one of the reasons they pushed the task mainly to the government system. It was only in Mphuka Village of Luangwa District where local people fairly recognized that they could lead the fight against climate change and probably be equal partners with the government system in order to plan for climate change adaptation.

Although local people's participation was recommended in all areas except for Chilukusha-B Village, the burden seemed to have been more tilted towards others institutions. On the other hand, the results in table two show that local residents in typical rural areas such as Luangwa District were more likely (nine per cent - 47 per cent) to participate in adaptation planning than those of peri-urban areas such as Lusaka District where the frequency was only between five per cent and 21 per cent. Some residents in Luangwa District were already engaged in 'self mobilization' form of participation, which refers to people's initiatives independent of external agencies (Few, Brown and Tompkins, 2006). Thus, they were already involved in community practices such as crafts making, small scale fishing, and building houses out of mud and tree branches to reduce intense heat, keeping drought resistant livestock such as goats, chicken and sheep, among others in order to cope with poor arable agricultural system (Muchanga, 2011). Moreover, MTENRs (2007) argued that the impacts of climate change could be greatest in rural communities such as those of Luangwa District, therefore, they are more likely to exhibit agency for adaptation planning than those in semi-urbanized areas.

Since some residents among selected areas of Lusaka and Kafue Districts partly understood climate change as a spiritual construct, they suggested churches and pastors (church leaders) to be relevant in adaptation planning. Climate change is one of the greatest challenges facing the world today and will impact on every aspect of human life including the religious systems. Therefore, there is need to mainstream environment and sustainability in religious systems which could be a powerful tool for public awareness and subsequent agency to act for adaptation to various risks of challenges such as climate change. A good lesson could be drawn from the Church of England which has aimed at shrinking the footprint is the Church by facilitate its members and institutions to address in faith, practice, and mission, the pressing issue of climate change. It aims to challenge, encourage and support the whole body of the Church to shrink environmental footprint to create the "The 40% Church" reduction in carbon foot print. The Church of England's seven year 'Church and Earth' climate change action plan was launched in November 2009. It outlines policies on climate change mitigation and adaptation, which will be overseen by the Church of England's *Shrinking the Footprint* campaign, set up in 2007, and implemented by the Church's 43 dioceses, 16200 churches and 4700 schools across the United Kingdom (UK) in an effort to cut the combined annual carbon footprint of around 330,000 tonnes of carbon dioxide (Church Care, 2010).

Currently, the church and its leaders are part of the fight against HIV/AIDS, their contribution to mitigation of the pandemic cannot be doubted. Therefore, they must be part of the broader forum to fight against climate change which is currently the neo-adversary. In fact, most believers partly look to their church leaders in their religious lifestyles and daily challenges, so once these church leaders are strategically engaged in adaptation awareness and campaigns to participate in planning, they could reach out to so many people in a shortest possible time. Therefore, the church and the leaders therein should be among stakeholders planning for climate change adaptation.

Drawing on data from local Non-Governmental Organisation (NGOs) that identify how they understand climate change, how this understanding shapes their agendas, and how these agendas translate to adaptation projects on the ground would be very pertinent for climate change adaptation planning. The NGOs as suggested among some selected areas of Lusaka Province could help build adaptive capacity. According to Biermann (2010), adaptive capacity is an ability to cope with, adapt to, and shape change. Encouraging pragmatic NGOs at local levels would evoke adaptive capacity and agency among local people to participate in planning for adaptation. Biermann (2010) adds that planning for adaptation must move beyond reactive and outcome-oriented analyses to become proactive and anticipatory. The Zambia National Policy on Environment (NPE) by MTENRs (2007) emphasizes environmental management by linking the interests and perspectives of all groups, among which are the NGOs, which could be very relevant in fostering public participation especially by the rural communities. The industrial sector was also deemed to be relevant for adaptation planning.

Although developing countries are at varying levels of industrial development, it is true that all of them are still very eager to modernize the industrial sector of their economies and to reinforce the base of a self-sustaining economy (Garg, 2002). We are now too sure that industrial activities are a major source of carbon dioxide which has largely contributed to climate change. Strategic engagements of industries in planning for climate change adaptation could offer business opportunities like clean technology transfers and energy efficiency improvements as well as funds for researches in climate change. They must therefore, be embraced in planning given their huge carbon foot prints.

For example, some residents of Chilanga area largely pointed out the nearby Lafarge Cement Factory as one of the major causes of climate change in their area due to air pollution. Engaging such industries in local adaptation programme would build consensus between the local communities and the local industries in planning for climate change adaptation. Moreover, engaging industrialists into planning would grant an opportunity for them to appreciate the need to mainstream Environmental Education in their industrial policies in order to sustainably manage the local environments. For example, Chibuluma copper mine on the Copperbelt of Zambia is one such an industry that recognizes the need to sustain the environment through Environmental Education especially in the face of climate change. It is such kind of environment-oriented industries that would be needed in policy planning for climate change adaptation.

Although traditional leaders could be counted as part of the local people participation in climate change adaptation, they are worth discussing separately because of their profound influence among local communities especially those in rural areas. A Traditional Leader is an individual that a forms leadership in which the authority of his or her organization or a ruling regime is largely tied to traditional norms, values and ethics (Nsiah, 2008). As stated on page 23 of section 7.1.5.3b of the National Policy on Environment, the government of Zambia strategized to make Traditional Rulers and Chiefs pro-actively involved in environmental awareness and information dissemination. Therefore, even though traditional leaders as agents of adaptation planning were only suggested in Siamuyemba Village as shown in table two, they are a pertinent stakeholder in environmental issues of Zambia such as climate change.

Most communities in African are found in rural areas and, hence, they prefer looking up to their chiefs (heads of traditional ceremonies and reseviours of traditional knowledge), who are their traditional leaders, for some initiatives on various problems including climate change. Since chiefs and queen mothers are the custodians of the traditional ceremonies, knowledge, among other cultural facts, they can definitely lead the 'new war' against climate change, which is apparently the neo-adversary or 'enemy' of humanity especially in traditional societies (Nsiah, 2008). Consulting traditional authorities prior, during and after traditional ceremonies, for example, dialoguing with traditional subjects and relevant stakeholders on issues of climate change adaptation and planning; would be a step in the right direction toward addressing climate change challenges (Namafe, 2006). Okyehene Amoatia Oforipanin II, the great traditional king of Akim Abuakwa traditional area, in the eastern region of Ghana has led environmental conservation and awareness in most parts of the region by using modern and traditional wisdom to mobilize his subjects to conserve the environment and enhance environmental awareness as well as influencing policy decisions (Nsiah, 2008). In Zambia, Chief Mukuni of the Toka-Leya People in Southern Province of Zambia has also launched local policies to reduce over cutting of tree so as to conserve tree for local carbon bio-sequestration. We therefore, have lessons to learn from such traditional leader by using their traditional epistemologies as part of the media in planning for climate change adaptation and learning.

7. Summary of main findings

This paper has shown that planning for climate change adaptation is resistant to a single stakeholder. It would require a diversity of synergies from different stakeholders' ingenuity, activities, interests and perspectives. Passive participation intrinsically emerged because the responsibility to plan for adaptation was mainly inundated on the government and its ministries and statutory bodies, which implied that residents were mainly ready to receive adaptation plans which have already been done for them by the government. Passive participation is unsustainable and most often apt to fail to produce tangible results. As Banda, Mitoti and Sichingabula (1998) argued, most adaptation plans and policies in Zambia have failed because they have merely been formulated by technical experts without consideration for the general public. Few, Brown and Tompkins (2006) advocated for integrated participation by non specialist actors to contribute knowledge and perspectives so as to guide research and priorities. Therefore, other stakeholders such as the church, local people and traditional leaders should be deemed relevant for the task.

Although the responsibility to plan for climate change adaptation was pushed outwards to other stakeholders, it was noted that some rural communities especially those in Luangwa and Kafue Districts were more likely than urban communities, to engage in planning through 'self mobilisation' form of participation. As earlier mentioned, this form of participation implies people's efforts to locally plan for adaptation independent of external agencies such as the government.

In my view this should be encouraged along side with relevant education to boost their capabilities to act effectively and to enhance interactive participation in adaptation planning. Although interactive participation especially among rural people could be possible based on the results in table two, not everyone could have the mental power to critically analyse and question the reliability of what the learned technocrats would be proposing during the planning process. So the feasibility of this form of participation inclusive though it may sound is somehow bleak because in most cases, the less educated stakeholders such rural people would be dominant and spectators unlike active and equal partners. Arstein (1969:216) argued that "participation without redistribution of power is an empty and frustrating process for the powerless". Therefore, educating residents about their duties in planning for climate change adaptation would improve their effectiveness in what is known as interactive participation. Figure three below shows some ideas on how to improve public participation in planning for climate change adaptation especially among geographical areas that were studied.

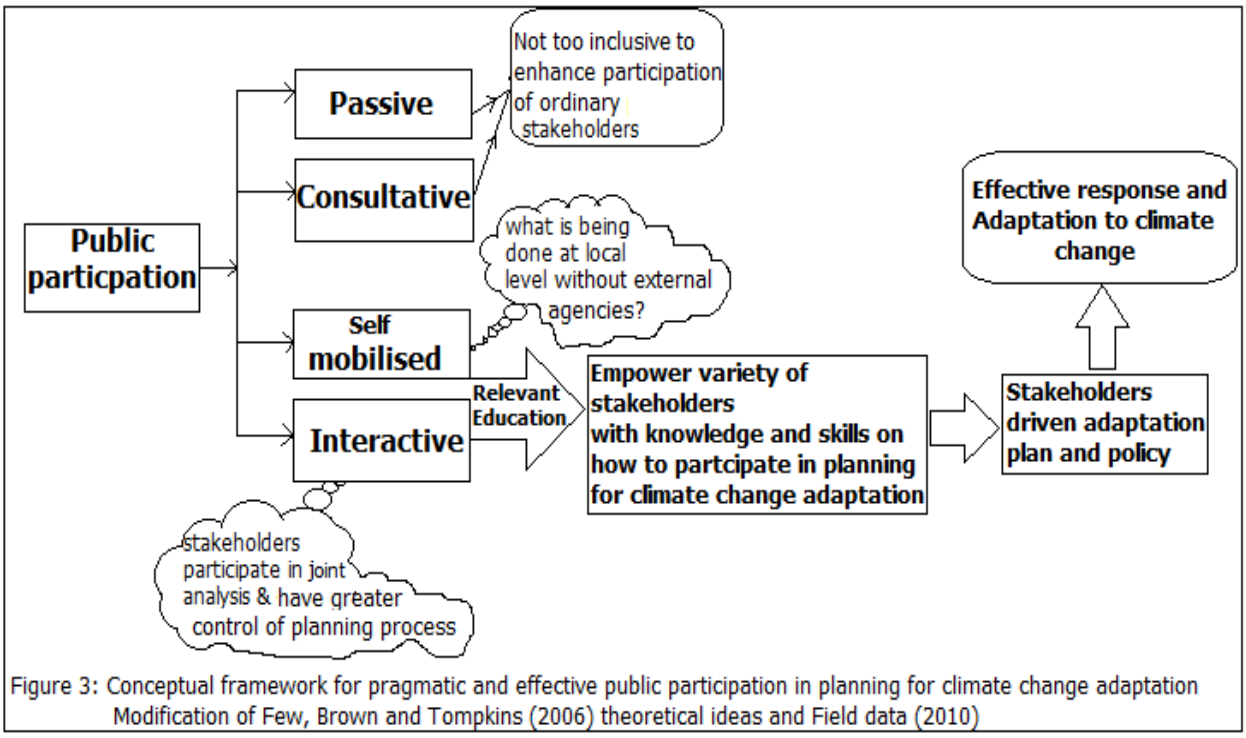

Figure 3: Conceptual framework for pragmatic and effective public participation in planning for climate change adaptation
Modification of Few, Brown and Tompkins (2006) theoretical ideas and Field data (2010)

Figure three shows that *passive* and *consultative* dimensions of public participation are not too inclusive to enhance participation of ordinary stakeholders such as those in rural communities of Lusaka Province. However, 'self mobilization' and 'interactive approaches', along tight frontiers with relevant education could perhaps lubricate and strengthen people's capacity to effectively participate in climate change adaptation planning.

8. Conclusion and recommendations

The study aimed at investigating stakeholders that would be relevant in planning for climate change adaptation. It was contextualized within the Ahmadabad framework of Environmental Education to address global climate change as a major issue on the international political agenda and as one of the issues that need emphasis in Environmental Education. It also ventured within UNFCCC declaration that "parties need to promote and facilitate public participation in addressing climate change and its effects and developing adequate responses". Using hermeneutic survey design, a sample of 165 households was captured using cluster and simple random sampling techniques. Data were collected using a semi-structured interview schedule. This paper has shown that planning for climate change adaptation is resistant to a single stakeholder. It would require a diversity of synergies from different stakeholders such the government, civil societies, local communities and traditional leaders. Passive participation intrinsically emerged because the responsibility to plan for adaptation was mainly thought pushed to the government, its ministries and statutory bodies, which implied that residents were mainly ready to receive adaptation plans which have already been predertmined for them. However, this was considered to be unsustainable dimension of participation because people's inputs are most likely to be sidelined.

Educating residents for participation in adaptation is therefore recommended as this would help them understand the issues surrounding participation in decision making on climate change and realize the implications of pushing decision making outwards. Whilst 'self mobilisation' and 'interactive participation' could possibly enhance practical public participation, it was recommended that further researches be conducted in order to find out how partnership for climate change adaptation could be strengthened especially at local level. It was also noted that as we plan to adapt to climate change, we should carefully consider the political, socio-economic and cultural aspects of decision making and planning because a single handed approach may not be adequate enough. Some of the research findings could be useful to environmental educationists and practitioners, researchers, the government and its ministries, among others.

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