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DISASTER RISK COMMUNICATION: A DICHOTOMOUS APPROACH INCORPORATING INDIGENOUS KNOWLEDGE SYSTEMS

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Abstract

The purpose of the study was to identify and understand the indigenous knowledge systems in general and specifically in disaster- risk communication management. The important link between indigenous knowledge systems and modern risk communication management is found in the need to establish effective and relevant local solutions to managing risk communication. The research was necessitated by the desire to seek ways in which indigenous knowledge communication systems could be incorporated into the modern disaster risk communication systems. The main focus of the research was twofold, first the research sought to understand disaster risk communication in terms of natural disasters such as floods, famine, and diseases. Secondly, the research was aimed at understanding disaster risk communication within the remits of human-made disasters such as wars, invasions, environmental pollution, and political disasters. The research followed qualitative focus groups strategies to collect the primary data that informs this report. The research, and to the shock of the researchers, found that there are many intelligent indigenous knowledge communications systems, embedded in the everyday lives, that go back many generations and are still relevant in the way peoples of different geographical areas communicate risks. The research found, also, that there are many secrets and code used to communicate some of the risks. The research concludes by acknowledging the rich potential in conjointly using modern and indigenous knowledge systems to communicate risk. The article proposes a dichotomous disaster- risk communication model as a way of providing a logical framework in which to manage such communication. The proposed model will undoubtedly provoke academic debate and help inform policy in the study area.

Keywords

Indigenous knowledge systems, disaster risk communication, natural disasters, human-made - disasters, knowledge ownership

Introduction

In seeking to understand how we may incorporate and use indigenous knowledge in disaster risk communication, the research purposed to find relevant and effective local solutions to the disaster risk communication and management. The research identified an array of exciting definitions of indigenous knowledge, including those used by Agrawal (1995), Flavier (1995), Grenier (1997), Nel (2005), Ngulube and Bosire (2011), Ntuli (2005) and the World Bank (2003). Most of those definitions reflect the purposes and contexts of the scholarship that underpins particular publications. However, in this report, we found Flavier's (1995) definition to be the most suitable. Flavier describes indigenous knowledge as:

> ..the information base for a society, which facilitates communication and decision making. Indigenous information systems are dynamic, and are continually influenced by internal creativity and experimentation as well as by contact with external systems.

The story of disaster risk communication and indigenous knowledge systems is an interesting if not a total intriguing paradoxical combination of beliefs and scientific manipulation of the environment by human beings. From a time immemorial, human beings have sought to understand and pass through inter generational transfer local knowledge to respond and deal with adverse phenomenological developments. There is indisputable evidence of awareness for

the need to communicate disaster- risk reduction strategies by some of the most ancient communities on all sides of the globe. This research focused on the Southern African experiences with most of the focus group interviews involving some of Botswana, Zambia, and Zimbabwe's rural indigenous communities. It may be significant to note that indigenous knowledge can be both rural and urban.

In Botswana, the research looked at the indigenous knowledge systems used by the San and Kalanga people. In Zimbabwe, the Babirwa and Kalanga people provided the necessary data that this research required in order to explore the important variables necessary to understand the interface between indigenous knowledge systems and modern disaster risk communication. In Zambia, the Lozi and Bemba local communities provided the much-needed information on the subject of inquiry. The similarities and differences in all these communities provide a rich source of information upon which future disaster- risk communication strategies may evolve. The relationship between the local communities, across the three countries, and the adverse-event causing agent was in most cases explained in terms of spirits and God. This was a recurring theme across these communities and for that reason; it makes a compelling argument for contemporary disaster- risk communication practitioners to incorporate some of those views in their plans.

It is worth recognising that the indigenous communication systems, embedded in the broader indigenous knowledge systems, appear evidently linked not only to the communal local beliefs that prevail at any one given time during the socio-political developments of humankind, but significantly too, there is the perceived salient relationship between the communities and the soil. Partly because of that, the research noted the importance and significance of respecting nature through activities that involve slaughtering of beasts or goats, harvesting of water, fruits, mopane worms, and so forth. That knowledge has passed through from one generation to the next through story-telling, and tacit and direct teaching by community elders. In some of the communities, failure to do things the way the ancestors of those particular communities would have done them, including failure to follow the ancestral rituals to the letter**,** is perceived to be sources of misfortunes that bring about adverse events such as drought, famine, disease outbreaks, civil commotion and so on. For that reason, at least, it is essential that the disaster-risk communication strategies employed in such communities recognize and show sensitivity to such local beliefs. Doing so may help the local communities to feel the ownership of the disaster communication processes. Moreover, the local communities may feel that they are part of the solution providers and hence are more likely to accept and take on board the intended broader outcomes in the disaster communication messages. This approach may be helpful where the local communities may perceive disaster communication rightly or wrongly, to be an outside programme which has little to do with them.

While the local knowledge is still widely used to communicate various types of risk in most rural communities, there appears, however, to be little access (and hence) to the use of localized modern communication channels such as telecommunication, radio, television, and so on. Most of the possible disaster communication options open to the rural indigenous communities appear divorced from the communities that they serve with, notably, the exception of mobile telephone facilities. For example, few if any of the radio and television facilities are "localized" to the extent that the local communities can feel substantial ownership of content and indeed many of the attributes associated with them. By contrast, though, the relatively new entrants in this area, the mobile phones, are proving to be a vital source in linking communal members and the community at large. There is evident increase in use of mobile phones to transmit messages that are essential for the livelihood and sustenance of the communities. Risk and disaster information can now travel very fast within the indigenous communities and more importantly across the

whole divide of the geographical network linking such communities with the rest of the world. The power and potential influence that mobile phone service- providers have, needs further research. However, from this research, it appears to be great, albeit untapped fully to be an integral component of the disaster- risk communication strategy found in some of the rural local authorities under whose jurisdiction the indigenous communities fall under. This research, therefore, gives evidence to the fact that it is necessary for future research to focus on identifying the role and position of mobile service-providers on the disaster- risk communication framework.

It was also interesting to note from the current study that fear and suspicion, of the agencies tasked with communicating disaster risk, by the indigenous communities are significant variables in deciding whether to cooperate or not, to spread the message further or not, and so on. The research thus identified the need to integrate the indigenous knowledge systems, with some of the relevant beliefs, to the modern disaster communication strategies. The proposed dichotomous disaster- risk communication model could alleviate some of the problems that, amongst others, the disaster relief agencies face in the area of disaster risk communication. The proposed model will be suitable for the communities in indigenous communities in Southern Africa but can equally be adapted for use across the sub Saharan Africa and parts of Asia where the systems of communal organization and beliefs are comparable to those in the regions studied.

The rest of this paper is in six parts. In the following section, the report discusses some of the pertinent scholarship in disaster risk communication and indigenous knowledge systems. After that, it explains the methodology of the research where we explain the justification for using a qualitative approach to inform the contents of this report. After methodology, follows the research findings of this research. Most significant in the findings is the extent to which local beliefs link to the broader relationships between communities and adverse events that those communities face from time to time. Discussion of the findings follows. Here we discuss some of the salient findings of the research in relation to the established scholarship in the subject area. The discussion allowed the research to make some broad conclusions and recommendations that are part of this report. The paper concludes by proposing a dichotomous disaster- risk communication model that employs both modern and indigenous knowledge systems. Finally, we provide a conclusion of the current study.

Literature review

There is, undoubtedly, an increase in number of recent publications, casual and rigorous, in the area of indigenous knowledge systems. The interest in the subject is not only academic but also cuts across for example many disciplines such as business, economics, indigenous knowledge advocacy, sustainable development and politics. For some of the scholarship that seeks to trace and explain the origins and trends in this field see, for example, Agrawal (1996), Nel (2005), and Ntuli (2005). However, little scholarship is available that relates to disaster risk communication, particularly in the region studied. In any case, the little that is available in that area focuses, mainly, on the Australian and Asiatic countries' experiences. Western scholars in their various journals tell the stories of African indigenous knowledge systems and other phenomena such as floods, famine, development etc. There is however, little evidence of significant contribution by the African scholars in this area until quite recent, hence the need to promote contributions of African scholars in the body of knowledge of indigenous knowledge.

It is notable that some significant, contemporary, research on African indigenous knowledge systems is available on South African literature. That scholarship, possibly predictable, is largely

with a South African context and evidence. This research, therefore, sought to increase and bridge the gap in understanding how indigenous knowledge systems can add value to the methods of communicating disaster risk using evidence sources previously not employed.

The fact that research into indigenous knowledge systems is relatively new is beyond any debate. Scholarship that predates the 1970s in this field is somehow dotted here and there. The motive and scope of most research into indigenous knowledge, as evidenced from early works in the study area, were largely anthropological and exploratory by Western scholars. The current shift and focus is largely on creating partnerships between the indigenous and external stakeholders in community problem solving. That makes it imperative to have scientific-researched methods and policies to inform both practice and policy in the study area, as this current study sought to do.

More than a decade ago Grenier (1997: viii) noted that;

> ..there was very little research that focused on IK, and there were even fewer examples of successful IK-based interventions. But since the early 1990s, IK has been fertile ground for research. With so much activity, there is now a wealth of information on the topic — in fact, lots of "pieces" of information all over the place. Because IK research is still relatively new, comprehensive source materials are rare.

The observation by Grenier (1997) holds much argument today as it did then. Today, for example, there is still a large concern over accessibility of comprehensive literature source material, which in part, is due to high acquisition costs, fragmented archiving of indigenous knowledge sources, and uncoordinated national and regional policies on utilization of indigenous knowledge systems in various developmental capacities. As stated in the Indigenous Knowledge and People Network Strategic Plan (2008:4), there continues an element of unprecedented changes caused by the expansion of externally driven modernisation, nationalism, regionalization, and globalization in some of the indigenous peoples of the South East Asia, including those in Thailand, Burma, Cambodia, Laos, Vietnam, and South West China. That experience is not unique to those Asiatic regions as this research found out. The crucial questions as invoked in Agrawal (2002: 290-297) pit indigenous knowledge against Western knowledge (supposedly scientific). For example, there are unavoidable questions to do with the extent to which the dominant knowledge systems suppressed development and applicability of indigenous knowledge on developmental issues, including disaster risk communication. There are also specific questions to do with the logic in explaining the delay in incorporating indigenous knowledge into the modern systems if, as the contemporary debates seems to suggest, indigenous knowledge should be at the heart of every sustainable development programme.

In most developed economies, the issue of disaster risk communication has become part of organized risk management programmes. Most of the literature about those economies shows that the focus has moved away from disaster response to scientific management of disaster risk (Granger 1999). That paradigm shift in turn involves efforts in identifying, avoiding, reducing, mitigating, controlling, and communicating disaster risk. The contrast with the rural indigenous communities, where there is low level of preparedness and use of modern technologies in disaster risk communication, is very wide. The United Nations (2010:10) identifies, inter alia, broadband networks, cellular mobile phones, landline telephones, global navigation satellite systems, and citizen's radio as amongst the disaster communication tools that a community can use in the event of a disaster. These being quite modern and to some extent trendy may be priced out of reach of most rural indigenous communities that the current study targeted.

As noted in Granger (1999) disaster risk management in an urban community requires use of sophisticated skills, commitment of resources, buy-in by various stakeholders, and so on. On the

other hand, despite not having access to the resources that urban indigenous communities may have, the rural indigenous communities in the study have social order and communication skills that allow them to respond to different adverse risks around their everyday lives.

The indigenous belief system plays a pivotal role in disaster risk communication in most of these rural indigenous communities. With the rural indigenous Lozi, for example, when faced with calamities, people respond through prayer and sacrifices; witch doctors prescribe both curative and preventative medicine. Similarly, rainmakers are called upon when there is a drought (Kamuwanga, 2007: 120). The latter part of this observation is significant since to do that would need pooling of community's communication capabilities and resources. It is not only that but also for purposes of mobilizing singers and dancers required to make the event a success. The current study sought to understand the extent and ways in which modern disaster risk communication could exploit some of those capabilities and resources to improve efficiency and effectiveness in the study area.

The rural indigenous communities have limited access to some of the effective tools and resources that would otherwise make disaster risk communication much easier. Previous research has identified barriers such as remoteness of rural indigenous communities from centres of modern communication, high acquisition costs of communication tools, poor or lack of education, poverty and discrimination as some of the major factors that explain the challenges that rural indigenous communities face in disaster risk communication.

Since one of the major purposes/objectives of disaster risk communication is largely to ensure that people "are warned" in time of any possible and imminent hazards that can cause damage to property, injury or loss of life, it is therefore necessary that tools that support that objective are availed to that particular community. That is before, during and after the adverse risk. Modern tools and systems of communication, as already alluded to, can be inaccessible to some members of the community especially to the poor. For that reason, it is unavoidable for the poor communities to resort to the traditional methods for purposes of survival and communication of the disaster messages. Masoga (2004: 7) observed that, "Indigenous Knowledge (IK) provides the basis for problem-solving strategies for local communities, especially the rural and urban poor".

Masoga's (2004) observation is in line with many other sources such as The World Bank (2003) that amongst other things described indigenous knowledge as an important part of the lives of the poor, embedded in culture and unique to a given location. The "poor" and "local" themes are common to many sources that have sought to contribute to the scholarship in the current study area. Reflecting, partly, on those observations, some of the inevitable crucial questions that require answering are:

- In what ways do rural indigenous communities perceive causes of disasters in their communities? More significantly, in what ways can those perceptions influence possible interface in disaster risk communication between indigenous and modern systems?

- In what ways and extent does the indigenous members' relationship with local resources affect the way they communicate within and with outsiders?

- How do local beliefs affect the way rural indigenous community members communicate disaster risks?

- What is the attitude of the rural indigenous communities towards new technologies and how can modern disaster- risk communication models exploit those attitudes in order to improve efficiency and effectiveness in disaster risk communication?

It was the research's desire to answer the above questions that the rest of this report rests. The entire report rests on the desire to answer the questions above. The reviewed literature sources seem to have a common theme, which should be of concern, that indigenous knowledge is associated with poor communities and inferior knowledge bases. Not only that but also, indigenous knowledge is described in terms of traditional story-telling, unreliable non scientific methods, myths, and uncorroborated local beliefs. It was in recognition of that and the concerns expressed by some of the rural communities that the research decided against use of some stereo typing telling photographic data in the report. The fear and certain concerns of some of the indigenous communities towards the intentions of the researchers and the research guided the broader principles of ethical considerations that the research used, whenever dealing with the indigenous community groups and their members.

Methodology

The research followed a qualitative approach to obtain the essential information that informs this report. The qualitative approach made this option the most ideal since the research had not identified the crucial variables that underpin the problem area. As noted, for example, in Strauss (1987), Creswell (2007), and Bergold and Thomas (2012), qualitative research method allows the research to be exploratory and relevant variables to a particular phenomenon can become known in that process where research precedes theory. The Current study followed a systematic process that ensured that the subject of investigation was treated with such objectivity as to guarantee credibility and reliability of the findings of the process.

Largely, this research paper is a reflection on the scholarship and the indigenous knowledge of the participants consulted during the research process. The research interviews with individual members of the indigenous community and participatory focus group discussions with members drawn from those communities helped the current research to identify the key variables necessary to understand further the indigenous knowledge and disaster- risk communication perspective within the scope of the study. In fact, this research process, just as Creswell (2007:57) put it, sought to find "the meaning for several individuals of their lived experiences of a concept or phenomena".

The research, in accordance with Strauss (1987) and Creswell (2007), used researcher's expertise knowledge to engage and lead the discussion towards unearthing the phenomenon of interest in the research. Since most of the participants in the focus groups felt comfortable contributing to the discussions using their native language, and used visual demonstrations to emphasize certain points, the research found it necessary to employ both audio tapes and video camera recordings. The indigenous community leaders and other participants got the assurances from the researchers to the effect that any recordings "would be used for purposes of capturing their views for future analysis" and would not be published anywhere without their consent.

Overall, 87 adult participants took part in the individual interviews and focus group meetings. Some of the participants took part in both the individual and focus groups discussions. The basis of selection of participants was on a convenience basis. There was a proactive attempt to get a balanced participation of males and females in the study. However, partly because of the dominantly patriarchal structure of those communities, in the end there were less than 23 female

participants in this study. Since those communities are, significantly, male-dominated, the views so captured should largely make a substantial meaning for many individuals of the experiences of their lives. Thus, that should reflect an acceptable perspective dimension of what to expect in those communities, in terms of beliefs, communication systems in place, sustenance of the communities, coping with danger, hunger, threats to the communities, and so forth.

The protocol of questions used throughout the individual interviews and focus group discussions are available as Appendix 1 at the end of this paper. The data in audio and the video camera tapes needed transcribing into English from the local languages. We achieved that with the assistance of the MPhil and MSC international students volunteers fluent/or having working understanding in the languages used in the initial recordings. The quotations used in the report are a result of the direct translations made with the assistance of the international students, without whose support, this report would not have been possible. The current study does not classify the research findings according to sub classes such as country, age, gender and marital status as we could not identify any scholarship value in so doing.

Findings

Analyzing the results of the research shows five broad findings. First, there is a clear role and significance of indigenous beliefs in the way those communities respond to disaster risk, and the way they manage disaster risk communication. Second, the research found that the rural indigenous communities have close relationship with the "soil" and other natural resources whose conservation is central to those communities' survival and sustenance. In the view of the majority of participants, indigenous local leadership is central in the management and communication of risk relating to threat or loss of natural resources. Third, the research found the rural indigenous communities are open to use of and integrate new technologies in the management of disaster related issues. In fact, some of the rural indigenous communities were already using such technology especially the easy to use mobile/cellular phones. Fourth, the rural indigenous communities have respect for the providers of new technology, especially the mobile phones that rural community members perceive as offering "locally relevant" services. Last, most if not all those rural indigenous communities show reservation that boarder around fear of foreigners and their intentions, whenever these "aliens" come into their communities. We mould the rest of this paper around these findings.

The research found that most rural indigenous communities linked one way or the other, disasters or causes of those disasters with some supreme beings. The most mentioned was God, gods, and spirits associated with the dead. In the opinion of most participants, across the three countries, the solution to the communal problems required involvement of communicating with the supreme God or other gods and spirits. That includes disaster risk communication where "communal messengers" would need blessing of the spirits or gods/and God. One male contributor remarked:

> *Any communication, irrespective whether about good or bad, in this society will not go anyway without blessing of those down below us [the dead]. It will thin away into the air or fall into the deaf ears.*

The above observation is very significant not least, that it may well explain the difficulties and resistance that modern disaster risk managers face in the rural indigenous communities. For that reason it is, possibly, necessary to make local beliefs and customs central to the disaster risk communication strategies employed in the respective rural indigenous communities.

The results in Table 1 show the distribution of the rural indigenous communities' areas of beliefs and potential sources of collaboration with modern disaster communication strategies. As the

results show, the potential areas of exploitation are vast. It is worth noting that although some of the beliefs system may make little scientific and logical sense from a Western world perspective, they are nonetheless, held dearly in those communities. The variance between what is really and possibly mythical was, throughout the discussions and interviews, of great interest.

These results, in Table 1, show that there is need to have a holistic approach when engaging and promoting disaster-risk communication in the indigenous communities. The potential challenges, such as clash of values and belief system can be resolved through, perhaps, negotiation, having open-mind to local issues, and so on. The risk found that the benefits of collaboration outweigh the risk of failure or status quo.

Table 1: Belief systems of indigenous communities

What is believed in?	**Frequency**	**Potential collaboration and exploitation in disaster risk communication**	**Possible challenges in disaster risk communication**
God	57	Use of faith-based institutions Accord indigenous spiritual leaders a role in communication chains	Resistance from indigenous spiritual leadership Apathy
Other gods	27	Flexibility- open mind approach Versatility	Fear and suspicion
Spirits of the dead	40	Include spiritual rituals in disaster risk communication matrix	Poor/ lack of understanding of spirits of the dead paradigm
Christianity	36	Exploit existing synergies	Clash of beliefs
Other	14	Use and improve on indigenous methods to achieve set goals	Ownership of process

NB. Frequencies in all the tables do not add up to 87 because of multiple responses.

The second issue that we can deduce from the analysis of the views of the communal members' views is the relationship they have with the soil and other natural resources. Table 2 is a summary of the major considerations in the indigenous communities' perspectives on their life experiences and areas of possible collaboration in improving efficiency and effectiveness in disaster risk communication. As is shown in Table 2, most rural indigenous communities associate some of the natural resources with their way of life.

Table 2: Major considerations in the indigenous communities' perspectives on their life experiences

Phenomena	View	Frequency	Collaboration potential	Challenges
Soil	Source of life Sacred place for ancestors	49	Conservation Custodianship	Conflict with indigenous views
Water	From God/spirits, blessing to the community From rainmakers	42	Exploit/improve on local practices and blend	Ownership
Animals	Some sacred/ possessed of spirits Some animals can provide early warning to impending disasters	37	Show sensitivity to local beliefs Use participative strategies in the disaster risk communication	Treatment of sacred animals Interpretation and validity/reliability of instincts
Drought	Angry spirits Avoidable through different interventions	55	Incorporate beliefs into disaster risk communication matrix	Clash of beliefs and philosophies
Civil commotion	Punishment for things done wrong	38	Exploit local solutions	Universal acceptability

In fact, the way of life and its sustenance revolves around the natural resources available to them. To that extent, the research found that disaster risk communication in those communities could

also revolve, to some extent, on the views and attitudes towards those natural resources. By way of example, the disaster- risk communication methods can exploit the sensitivity of some of the indigenous communities towards certain animals, to enhance buy-ins of the risk messages, and to reduce conflict with the perceived outsiders. One female participant, rural indigenous in Botswana, remarked:

> *Water is life for all Tswanas. Here, water is more than life. It is everything that we posses, it is us and our animals.*

Modern disaster-risk communication methods can exploit such strong views, as above, to enhance risk communication that touches, one way or the other, water. The disaster risk communicators from outside do not necessarily need to share the same views as the rural indigenous community members in order to achieve the objectives of a particular disaster risk communication. Notwithstanding the challenges, as in Table 2, the contemporary studies should make more effort toward understanding natural instincts of animals, for example, in order to build strong early warning systems and related disaster risk communication.

The third major finding of this research was on the use of and attitude of the indigenous communities' attitude toward new technologies used in communication. The use and acceptability of new technologies in the communities under current study surpassed the expectations of the researchers. Although enthusiastic about new technologies, mobile phones in particular, some of the communities linked the new "gadgets" to their belief system, and ritual communions with the spirits and/or ancestral spirits to herald arrival of new tools appear to be a common theme. The singing and dancing was part of the rituals, in all the communities. Table 3 shows a summary of modern communication tools, attitudes of members of rural indigenous communities towards them, and possible areas of exploitation to improve efficiency and effectiveness in disaster risk communication.

Table 3: Modern communication tools and how rural indigenous communities perceive them

New technology tool	Attitude	Frequency	Opportunities	Challenges
Mobile/cellular phones	Very positive	51	Incorporate participatory methods	Defining boundaries across all stakeholders involvement'
Landline telephone	Associated with colonialism	63	Include social norms in planning	Applicability
Broadband networks	Indifferent and hardly known	6	Policy makers and network providers inclusion	Buy-in and resources
Citizen' band radio	Positive but hardly known	9	Buy in strategies for all community stakeholders	Resources and political will
Global navigation satellite system (GNSS)	Feared and not known	2	Advocacy to increase awareness and positives of GNSS	Resources and political will

The fourth major finding of the current study relates to the rural indigenous communities' attitude towards the outsiders and development. For a variety of reasons, most of the members of the indigenous communities are indifferent towards if not largely against interference from outsiders. Most members of the rural indigenous communities appear to be very content and happy with their ways of life. The modern disaster risk communication strategies can make effective use of "fear and tension" caused by engaging outsiders to build trust and gain confidence of the local indigenous communities.

The results, undoubtedly, show us that the members of indigenous communities are very positive about development. Modern disaster risk communication may take advantage of that attitude to enhance disaster-risk communication strategies, particularly those risks that may have

a direct effect on the perceived quality of life of the indigenous communities. Furthermore, the current study found that these communities could enhance disaster risk communication by embedding the themes of development into the disaster- risk communication model. To that effect, one of the male indigenous community members summed it well when he observed that:

> *You can blow the horns. Blow them loud, loud, and fast! However, if they do not result in better harvest, chase away locusts, and bring better fortune to the people, phew! And into the air with no effect even to the beggars of the beggars.*

The current study, contrary to the perception at the beginning of the research, found the members of the indigenous communities to be very good listeners and participatory in most things. The indigenous communities showed willingness to be involved in designing new risk communication systems that they would easily identify with, in the context of their histories and development. The modern disaster- risk communication approach could make an effective use of the indigenous knowledge system through, for example, incorporating them into the formal learning and teaching of disaster related issues. The receptive attitude of most members of the indigenous communities can be a good starting point for any initiatives in those endeavours.

Table 4: Attitude of members of the indigenous communities towards certain phenomena

Phenomena	Attitude	Frequency	Opportunity	Challenges
Attitude towards aliens	Neutral/largely negative	63	Use tension to build effective risk communication strategies	Fear of motives of foreigners, e.g. suspicion to change belief systems, way of life, children rights
Attitude toward learning and development	Very positive	59	Build on that hope	Fear of change
Respect of alien practices	Neutral/largely positive	55	Participatory introduction of systems	Low educational levels Exposure to outside world
Community involvement	Overwhelmingly positive	70	Ride on goodwill to develop participatory risk communication strategies	Setting boundaries

The last major finding of this study shows the reservation and at times fear of outsiders. However, after trust is built most of the members of the indigenous communities open up and discuss issues with clear and open minds. The interesting observation that came from all the communities is the nature and extent of community involvement. The concept of voluntary work on behalf of the community appears well advanced. There is, for example, a lot of work done on behalf of the community and/or community members for free or just token appreciation. Modern disaster risk communication can exploit that culture to build and sustain localized disaster-risk communication ambassadors and messengers.

Discussion

The current study found indigenous beliefs to have a great bearing on the attitude towards and take on disasters and ultimately the risk communication models used in the rural indigenous communities. The role and focus on "supreme beings" such as God and other gods came top of the popular themes that explain the rural indigenous communities' response toward adverse natural and human-made disasters. As explained, for example in Kamuwanga (2007), the oldest member in a rural indigenous community set up spoke and represented the communal needs to the supreme being, in this case Nyambe. The organized religious approach, this research found, provides some opportunities for exploitation by disaster-risk communication practitioners to adopt and embed indigenous beliefs into their models. That, as the current study concluded, enhances acceptability of disaster risk communication by the indigenous communities. Logic

actually dictates that the "supreme being" should be visible in the disaster- risk communication models in those communities since they explain causes of disasters often in terms of spirits, and appeasement of other super beings.

Rural indigenous communities have shown strong religious beliefs to the extent that it is difficult to ignore the issue of spirituality when designing disaster- risk communication strategies in those communities. It is thus necessary that modern disaster-risk communication show sensitivity to the indigenous beliefs. Moreover, the belief system of indigenous people has local context and existential history just as old (Nyirongo 1997; Kamuwanga 2007). The indigenous belief systems would not be more relevant than **on** risk communication messages about drought and civil commotion where, as Kamuwanga (2007:120-121) noted, primal people of the world consult a Supreme Being/power when they face challenging situations. For that reason, it is imperative for an effective and efficient disaster- risk communication model to incorporate some of those oldest traits in the indigenous communities. Most members of the rural indigenous communities, in the current study, would most likely feel ownership of both the process and outcome of the disaster risk communication if their indigenous beliefs took a reflection in the risk communication strategies employed.

Notwithstanding the fact that the indigenous knowledge is identifiable with the urban poor and rural indigenous communities, (Granger, 1997;World Bank 2003) there was little to suggest that the methods and strategies used in those communities were "last resort" survival manoeuvres. To the contrary, most members of the rural indigenous communities appeared happy with their way of life, experiences, and strategies of responding and communicating adverse developments in their communities. That was despite low efficiency of systems used. However, that positivity would suggest that the rural indigenous communities would be happy to integrate their indigenous knowledge in those areas if, for example, those perceived as continuing/advancing what they already know and own as a community. In disaster- risk communication context, that provides an opportunity for modern risk communicators to embed some of those practices into the current models. A blended or dichotomous approach as we propose in this essay would localize the risk communication process. That would minimize fears associated with externally driven developments, explained in Indigenous Knowledge and People Strategic Plan (2008:4).

It would appear that the positive attitude that the indigenous communities have toward new technologies and development is strength, unexploited fully by developmental agencies. The new technologies as in United Nations (2010:10) may be inaccessible to the urban poor and indigenous communities. Just as Masoga (2004:7) noted, the urban poor and rural indigenous communities can use indigenous knowledge as the basis for problem-solving strategies. Such local problem solving strategies need further research, development and possibly, what other scholars call African "scientisation" of indigenous knowledge. See for example Masoga (2005:5). Incorporating such capabilities into the modern disaster-risk communication strategies may improve efficiency and effectiveness of disaster risk communication.

The current study identified some local resources and animal natural instincts that modern disaster- risk communication models can exploit to improve efficiency and effectiveness. The use of animal instincts, in cases of natural disasters, is one such example that the modern disaster risk communicators can exploit into their models. Not only will such gestures have a local relevancy but also, more importantly, make the outsider more acceptable in the risk communication process. The same argument should as we expect, hold true for other phenomena central to the life experiences of the rural indigenous communities.

Proposed disaster risk communication model

This paper concludes here by proposing a dichotomous model that hinges on both the modern scientific advantages and the indigenous knowledge systems. To be successful, the proposed model should receive support from both the local indigenous community leadership and the contemporary service stakeholders in disaster communication. The latter could include the United Nations and its various organs, the International Voluntary Relief Organisations, the local Non Governmental Organizations, the national governments, regional governments, telecommunication service providers, and so forth. On the other hand, the former could encompass the indigenous leadership, the local community representatives, the informal and formal local information distribution channels, etc.

As Figure 1 shows, the proposed dichotomous disaster risk communication model is a three-phased model that exploits the strength of both modern scientific approach and indigenous knowledge systems found in most rural communities in the region studied.

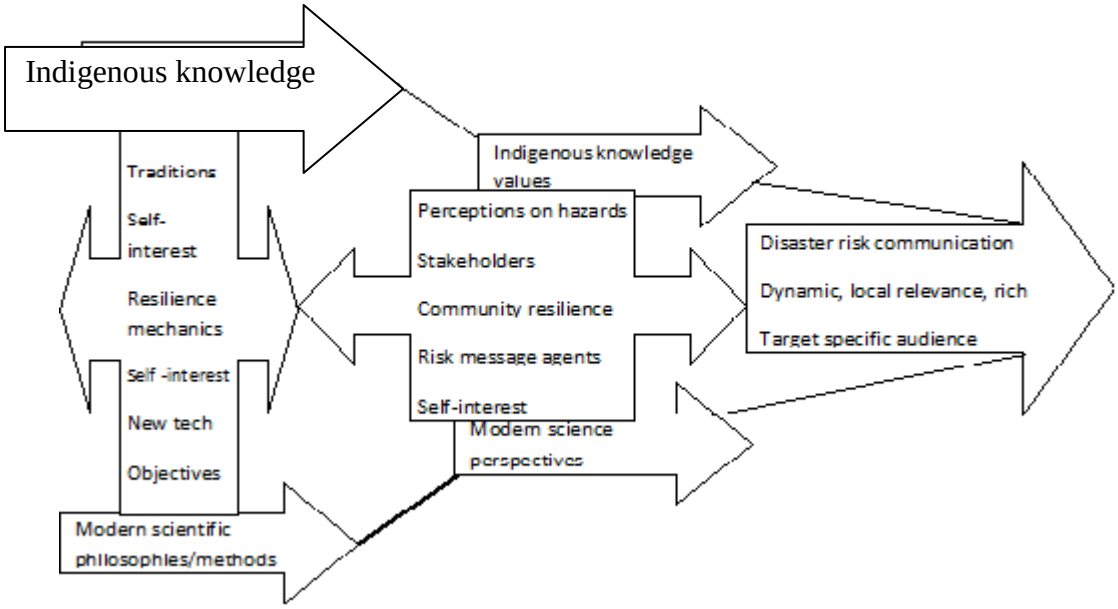

Figure 1: Proposed dichotomous disaster risk communication model

The right hand side direction represents the desired positive phenomena that must flow with the model. On the other hand, left-pointing arrows represent the opposite. The biggest strength of the proposed dichotomous model is its parsimony. However, the model has identifiable weaknesses. Most significantly, this model does not take into account the unpredictability of human behaviour when, for example, put under sudden pressure. It also does not depict likely scenarios for indigenous communities already, for example, in perpetual conflict and cyclical human-made disasters. Nevertheless, the proposed dichotomous disaster- risk communication model will and should provide a logical framework to use by those seeking to design or map disaster risk communication in rural indigenous communities. Future studies may want to focus on the testability of the proposed model.

Conclusion

In this current study, we have identified and reviewed the literature in the subject area. The literature reviewed shows the complexity and number of variables that are central to the life experiences of the rural indigenous communities studded, and more so in the three regions of SADC. The current study used qualitative research approach to investigate the key variables that underpin the life experiences of the selected rural indigenous communities in Botswana, Zambia, and Zimbabwe, all SADC countries. The research found that the life experiences, in general, and attitudes of members of the rural indigenous communities affect the communal approach that those communities adopt, before, during, and after a disaster. That is both natural and manmade disasters. The life experiences and attitudes of the rural indigenous community members affect their perception towards disaster risk communication, within the members and with the outside world. Indigenous knowledge from the study sample is vast and rich, albeit underexploited by contemporary disaster-risk management specialists, local and national policy makers. From the analysis of the findings of the research, we propose a disaster- risk communication model that exploits both indigenous knowledge systems and modern risk communication methods/tools. The limitations of the proposed disaster-risk communication model reflect the amount of research required in the study area.

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Appendix 1: Sample of protocol questions used in the interviews

1. What does your community perceive to be major causes of disasters in your opinion, based on life experiences in this part of the country?

2. How and in what ways has your community managed to respond to adverse natural risks and those that are manmade?

3. How does your environment and local resources around you affect the way you interact and engage, for example communicate within and with outsiders?

4. How does your belief, as a community, affect the way you respond to natural and manmade disasters?

5. Is the way that you communicate disaster risks revolving with times or static?

6. What is your view of new technologies and do you think they have a role to play on the way you communicate disaster- risk?

7. How do you feel about people from outside your community who come here for various reasons?