

Dynamics of Culture and Climate Change and their Implications on Livelihoods: Experiences from Rural Zimbabwe

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ABSTRACT

That climate is changing is evident in all the regions of the world, and people in those areas have been attempting to reorganize their livelihoods around the changing local contexts. One elusive issue about climate change is that it is producing mixed paradoxes – extremes of drought and dryness in other areas and extreme cold and heat in other areas, among other complex phenomena. As people engage in their livelihoods, their actions and survival strategies are informed by custom, practice and even past experience. As the impacts of climate change start getting acute with the passage of time, people are bound to interpret and respond to them within the confines of their culture, both material and immaterial. This becomes critical when these impacts spread to cause upheaval to the very cultural foundations upon which that society is built and driven. The paper examines the nature of culture's preparedness to engage the evolving system that evidently calls for new ways of social, political, economic, environmental and ideological organization. One needs to explore the possibility of 'cultural adaptation' as climate change unfolds. The views of mainly rural people in Zimbabwe form the basis of issues are captured in this paper. These shed light on how the people affected by climate change are managing to survive in the four Districts of Matobo, Shamva, Chirumanzu and Gwanda. The paper highlights the need to pay attention to religious and cultural experiences, alongside scientific climate change approaches, in informing adaptation. It concludes by noting the potential benefits of cultural diversity in managing climate change in a context largely shaped by the precautionary principle.

Keywords: Climate, Livelihoods, extremes, perceptions, culture

INTRODUCTION

Natural scientists have described global warming as perhaps the preeminent environmental risk confronting the world in the 21st century. Meanwhile, social scientists have found that people respond to hazards based on their perception of the risks. What the public perceives as a risk, why they perceive it that way and how they will subsequently behave are thus vital questions for policy makers attempting to address global climate change, in which the effects are delayed, have inequitable distributions of costs and benefits, and are beyond the control of any one group. In this situation, public support or rejection of proposed climate policies will be greatly influenced by the perceived risks of global warming (Leiserowitz, 2003: 1). Some scholars have even claimed that we now live in a "risk society" characterized by threats of an unprecedented global scale (Beck 1992; 1995). Governments, industries and public interest

groups have spent billions of dollars conducting formal risk analyses and assessments to address public demands for safer and healthier food, vehicles, medicines, medical procedures, airplanes, nuclear power plants, etc.

The effectiveness of the various ways of addressing adaptation to climate change may be crucially dependent on the underlying cultural fabric of the human groups involved for their successful implementation (Heyd and Brooks, 2009: 270). Our cultural backgrounds and contexts' shapes our concerns and actions hence the reason why strategies to reduce disaster risk or factors that increase disaster risk are not recognized as such by society as they are embedded within everyday life.

The failure to understand the cultural context of disasters and human–environment interactions, communities are at risk of repeating past mistakes fail to understand the underlying causes of disaster(s) (Nunn et al., 2007). In the last few years scientists, civil society, business and most world state leaders have agreed that climate change and earth's limited bio-capacity, implies that the planet must radically change its economic value creating / production system by 2050. The purpose is to avoid absolutely devastating consequences for humans and all life on the planet, gradually starting now, and forecasted to accelerate to the catastrophic by the end of the century. This consensus was exemplified in the UN Climate Summit Decision in 2009 of limiting global warming to 2 degrees celcius maximum (Gerlach-Hansen, 2012).

Although there are several climate change definitions available, one factor that they have in common is, the fact that there is a change in the climate. The term global warming often is been used as a synonym of climate change. Van der Wurff (2009) describes climate change as “a catch-all phrase that refers to possible climatological consequences of increasing greenhouse gas emissions”. The climatological changes that will occur because of the enhanced greenhouse effect can only be predicted in general terms. Predictions for specific regions of countries cannot yet be made and the social, economic and health effects of climate change are even more unclear. Then uncertainties about changes in regional climates are reinforced by the unpredictability of social-economic developments (Glantz, 1995).

The potential effects of climate change are a lack of (clean) water, rising sea levels, global warming – an upward trend in global mean temperature – and a probable increase in the frequency of some extreme weather events (IPCC, 2007). To prevent these potentially costly social-economic and health effects governments can either aim to reduce greenhouse gas emissions (mitigation policies) or prepared for coming changes in climate (adaptation policies) (Klein, Schipper & Dessai, 2005). However, even when the policy choice is made, formulating and implementing these policies is complicated, due to a number of factors.

CULTURE EXAMINED

Culture is notoriously difficult to define, but it is helpful to see culture as “the common way in which a community of persons makes sense of the world” (Gross and Rayner 1985: 2). Communities may consider disaster events to be Acts of God. Communities in some instances engage with these events through sharing knowledge, views and beliefs termed as ‘our culture’. ‘Culture’ shapes our communities concerns, actions and in many cases is the reason why strategies to reduce disaster risk or factors that increase disaster risk are not recognized as such by society as they are so embedded within everyday life (Mercer et al., 2012). By failing to understand this cultural context of disasters and human–environment interactions, we are at risk of repeating past mistakes and misunderstanding the underlying

causes of disaster(s.) (Nunn et al., 2007; Casimir, 2008). On this view, a community is a group of people sharing a way of life informed by a common cosmology.

Cultures, in defining appropriate attitudes and behaviors, develop the logic and grammar through which communities interpret and adapt to their environment. Community action is oriented by culturally mediated beliefs about what is real and what is good, and channeled through culturally approved social, political, and economic institutions that codify and follow the accepted norms. If we are to have a global community, it will be one that shares the same rules. But, the world is a diverse place physically. The character of the political processes through which authority is allocated and rules are made differs depending on the level of diversity in the community. The larger the community and the higher the level of diversity, *ceteris paribus*, the more difficult it is to develop consensus and the more likely that some level of coercion will be necessary to implement and enforce rules (Pendegraft, 1999: 72).

In this paper, we speak of culture as comprising values, beliefs, practices and material artifacts that condition the production of tangible including intangible goods and services needed for the satisfaction of a human group's needs and wants. Certainly, we should not think of cultures as neat, homogeneous, isolatable units that can be apportioned to discrete human groups. The culture of any group has to be conceived of as dynamic, subject to constant transformation and in regular interaction with that of other groups, especially given the interrelationship of human populations in today's increasingly globalising context (Heyd and Brooks, 2009: 270). The effect on behaviors of any cultural ensemble is mediated, moreover, by power relations, and not simply the result of adaptation to objective conditions of the natural environment. Nevertheless, particular cultural patterns may be among the key factors that distinguish populations from each other in terms of their respective collective abilities to cope with powerful natural events (Heyd, 2010: 89).

In a world of intensifying environmental risks, determining the ways in which human values and practices are mediated by ideas about the relationship between humanity and the wider 'natural' environment, and how adaptive (or maladaptive) cultural patterns come about, are fundamentally important steps that can complement the development of technological, engineering, managerial coping and adaptation strategies. Cruikshank encapsulates this perspective in her statement that 'our human ability to come to terms with global environmental problems depends as much on human values as on scientific expertise' (Cruikshank, 2001, p. 390). This forms the backdrop of this research paper, which focuses on the dynamics of culture and climate change insofar as they shape livelihood systems in four districts of Zimbabwe. It unravels some of the issues highlighted above as they are extracted from responses given by people who took part in the snap survey conducted in July 2012.

Climate Change Primer

According to UNISDR (2004), the climate of a place or region is changed if over an extended period (typically decades or longer) there is a statistically significant change in measurements of either the mean state or variability of the climate for that place or region. Levina and Tirpak (2006: 12) assert that The United Nations Framework Convention on Climate Change (UNFCCC) makes a distinction between 'climate change' that is attributable to human activities altering the atmospheric composition of the globe and 'climate variability' attributable to natural causes. By contrast, the IPCC takes a broader view on 'climate change' and states that climate change can occur as a result of natural variability and human activity. These different definitions have implications for defining 'adaptation' as a policy response to climate change.

Climate change is a global matter. It might have different effects on several countries, but nevertheless the changing of our climate is a problem that will influence the whole World. Therefore, several countries will have to cooperate in the battle against climate change. A global problem needs a global solution, (Van den Pol, 2010). To provide a solution, cross-cultural communication will be necessary. People from various countries, with various backgrounds, have to exchange their ideas and opinions about how to solve this problem. The cultural differences between these people influence both the content of their message as well as the way it has been expressed (Shadid, 2007). According to the UNISDR (2008: 3), the projections of future climate patterns are largely based on computer-based models of the climate system that incorporate the important factors and processes of the atmosphere and the oceans, including the expected growth in greenhouse gases from socio-economic scenarios for the coming decades. The IPCC has examined the published results from many different models and on the basis of the evidence has estimated that by 2100:10:

1. The global average surface warming (surface air temperature change), will increase by 1.1 - 6.4 °C.
2. The sea level will rise between 18 and 59 cm
3. The oceans will become more acidic
4. It is very likely that hot extremes, heat waves and heavy precipitation events will continue to become more frequent
5. It is very likely that there will be more precipitation at higher latitudes and it is likely that there will be less precipitation in most subtropical land areas
6. It is likely that tropical cyclones (typhoons and hurricanes) will become more intense, with larger peak wind speeds and more heavy precipitation associated with ongoing increases of tropical sea surface temperatures.

According to van del Pol (2010), climate change policymaking requires dealing with uncertainties, because numerous interests are involved and often affected in partly unknown ways. This is the reason for the widespread disagreement on how much and in what amount of time, emissions should be reduced and by whom. There have been major attempts to develop international climate change policies. In 1992, this led to the UNFCCC, the United Nations Framework Convention for Climate Change, in which emission stabilization targets for the period 1990-2000 for industrialized countries were included. In 1997, the first Kyoto Protocol was funded including emission reduction targets for the post-2000 period. The major distinction between the Kyoto Protocol and the Convention is that the Convention *encourages* industrialized countries to stabilize GHG emissions, but the Protocol *commits* them to do so (www.unfccc.int, 2010). The negotiations that led to the adoption of the UNFCCC and later the Kyoto Protocol are characterised by contradictions between both industrialised and developing countries as within the industrialised and developing countries. Within the group of industrialised countries, contradictions exist between the United States who favours flexible and cautious policies and Germany who supports the adoption of relatively exact targets for industrialised countries in particular. The position of the UK is in between the two extremes of the United States and Germany.

RESEARCH METHODOLOGY

This research used a mixture of both primary and secondary sources of data to gain an impression of how people developed the disaster risk script, and how such development influenced their interpretation and understanding of the disaster script. The research was largely a survey. The field work was limited to selected people from Plumtree, Matobo,

Chirumanzu, Shamva and Gwanda Districts. People interviewed included Rural District Council (RDC) employees in the four Districts mentioned above, community members who were trained in DRR and Livelihoods by some NGOs, District level heads of Government Departments who participated in drafting District Disaster Management Plans for the three Districts, lecturers and researchers in Disasters from the Institute of Development Studies at National University of Science and Technology (IDS-NUST), Diploma and Masters in Disaster Management students studying at IDS-NUST and people not involved in disaster issues. In the survey, a total of 90 questionnaires were distributed to the categories of people indicated above.

Sampling Techniques

The study used the non-probability purposive and convenience sampling methods, where the idea was to target specific people ranging from opinion leaders to the poorest of the poor in the rural areas. The idea was to target people who were directly involved in climate change and development issues at various levels, so as to elicit their views on the interface between climate change and culture. The survey did not make use of Focus Group Discussions (FDGs). It was felt that data sources from secondary sources and impressions gained by the authors during general interaction with community members, disaster specialists and RDC employees in DRR work would be used to replace FDGs. In addition, the authors already had in 2010 conducted some FDGs on disasters and climate change with community members in Bulilima, Gwanda and Mangwe Districts. Records of these FDGs constituted part of the secondary data sources utilized. The FDGs were conducted when the authors were training ward and district level disaster risk management committees.

Research Methodology Matrix

Table 1(Part-I). Research Methodology Matrix

<i>Data Collection Tool/Method</i>	<i>Justification</i>	<i>Data Source</i>
<ul style="list-style-type: none"> Questionnaires – mixture of closed and open-ended questions (21 closed questions and 7 open) 	<ul style="list-style-type: none"> To elicit responses from subjects that can be quantified and comparable to derive key response and impressions on climate change and culture. Open ended questions provide for flexibility in responses, thereby accommodating diversity 	<ul style="list-style-type: none"> Disaster Management students at NUST (mainly MSc Disaster Management and Diploma in Disaster and Development Management). DRR and Climate Change practitioners in NGOs Officers of relevant central and local Government Departments
<ul style="list-style-type: none"> Interviews – structured (key informant) (applied to the 7 open ended questions in the questionnaire) 	<ul style="list-style-type: none"> To allow for subjective and interpretive responses especially on cultural perceptions and interpretation of climate change For cross-checking responses given from questionnaires and data collected through observation 	<ul style="list-style-type: none"> Community members disaggregated according to gender, age group, vulnerability status (e.g. disabled) Climate Change and DRR lecturers from NUST DRR specialists from NGOs

Table 1(Part-II). Research Methodology Matrix

<i>Data Collection Tool/Method</i>	<i>Justification</i>	<i>Data Source</i>
<ul style="list-style-type: none"> • DRR and Climate Change experts opinion 	<ul style="list-style-type: none"> • Proper usage of Climate Change, cultural and DRR jargon • Taking into account new DRR, climate change and cultural models and changes to conventional/common models and tools 	<ul style="list-style-type: none"> • DRR practitioners • NUST Lecturers • DRR Consultants
<ul style="list-style-type: none"> • Secondary data review (DRR and Climate Change training reports, curriculum, project progress reports) 	<ul style="list-style-type: none"> • Capturing historical trend of phenomena under investigation (Climate Change, Culture and DRR) 	<ul style="list-style-type: none"> • DRR training modules/manuals/books • DRR and development journals from the internet
<ul style="list-style-type: none"> • Content analysis (videos and posters on Climate Change and DRR training/education) 	<ul style="list-style-type: none"> • Reliving and transcribing data that could not be captured at the time of occurrence of events under investigation (training and education) 	<ul style="list-style-type: none"> • Department For International Development-Conflict and Humanitarian Fund (DFID-CHF) and Practical Action DRR videos • Field training videos (shot in 2010)

CLIMATE CHANGE EXPERIENCES BASED ON FIELD RESEARCH

In this section, we present a summary of research findings based on responses elicited by respondents to questionnaires. The responses are organized according to thematic ideas as guided by the schedule of questions on the questionnaire.

Frequency of Responses and Personal Information of Respondents

A total of 90 questionnaires were administered in the four districts of Chirumanzu, Matobo, Shamva and Gwanda, with about the 10% of respondents also drawn from academicians, humanitarian workers and climate change specialists in Plumtree and Bulawayo. In terms of age, the highest percentage frequency was in the 18 to 30 year age group, which constituted 28.9% of total respondents. The second in order of frequency of responses was in the 31 to 40 year age group with 22.2%, followed by the 41 to 50 age group with 17.8%. The 51 to 60 year age group constituted 12.2%, while the 61 years and above group had 5.6% of the respondents.

In terms of the sex composition of respondents, 41.1% were female, while 58.9% were male. As for marital status, 44.4% were married, while 31.1% were single. The remainder was made up of the divorced/separated, widowed and the never married categories. When it comes to educational level, 48.8% of the sample went through tertiary education, 33.7% through secondary school, 12.8% through primary school, while 4.7% indicated they never went to school. The high level of literacy of majority of the respondents was noted. 47.7% of respondents were in formal employment, with 32.6% being unemployed, while 19.8% were informally employed.

CLIMATE CHANGE EXPERIENCES

Understanding of Climate and Climate Change

The first question of subject matter content respondents were asked was to explain their understanding of climate. Majority of respondents had a good idea of climate, with some even using metaphors to depict it. When it came to the second question of climate change, some insightful responses were given. Whereas the understanding was that climate change was happening, it was depicted in different ways according to the people’s own experiences, priorities, mode of livelihoods and even tastes. Some of the outstanding responses are reproduced below:

“Changes in the climate due to natural causes or human activities. This takes time to notice”

“Change of weather patterns from the usually known to new patterns”

“Change of weather due to serious temperatures”

“Starving due to climatic changes”

“Change of weather which brings about disasters”

“Diversion of the cloud from the seas and ocean i.e. it does not reach where it used to reach”

“Climate change is when seasons are changing and shifting causing confusion especially to farmers in the planning for the agricultural year”.

Knowledge on Climate Change

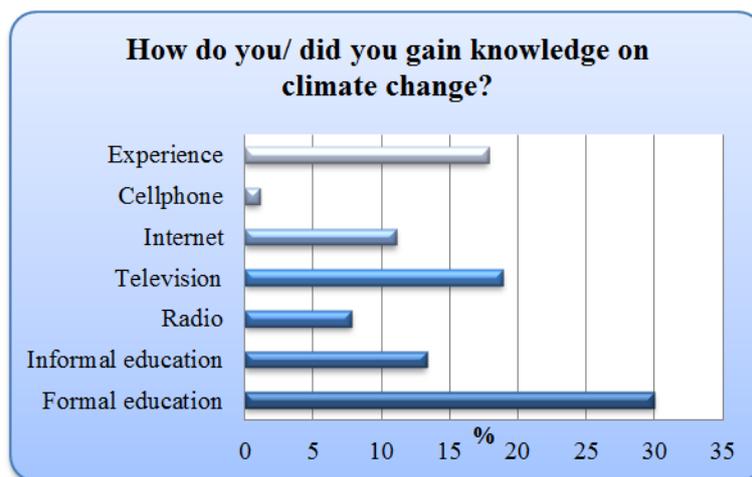


Figure 1. Acquisition of Climate Change Knowledge

Respondents were next asked to indicate how they gained knowledge on climate change. Field results show that 30% gained the knowledge through formal education, around 19% through television, 18% through experience. The remainder was split amongst knowledge acquisition by cellphone, internet (about 11.5%0, radio and informal education (13.8%).

Nature of Climate Change Knowledge

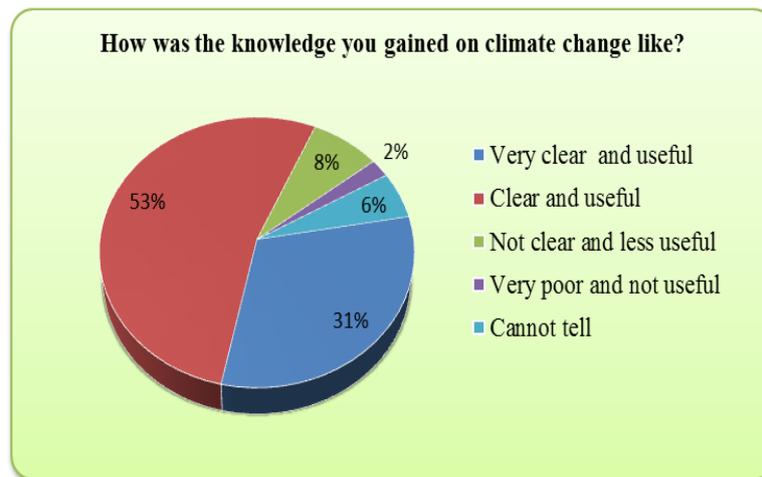


Figure 2. Nature of Climate Change Knowledge

Respondents were next asked to comment on the status of the climate change knowledge they gained above. 31% indicated that they found the knowledge very clear and useful, 53% found it clear and useful, with 8% finding it not clear and less useful. 2% found it very poor and not useful, while 6% could not tell. The relatively high numbers of people who found the knowledge very clear and useful and clear and useful (combined 84%) was noted.

Major Kinds of Climate Change Experiences

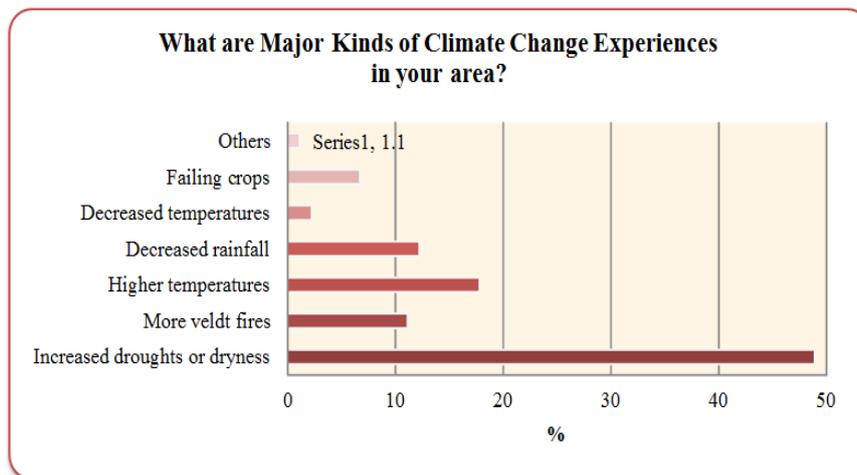


Figure 3. Major climate change experiences

Respondents were asked to indicate the major kinds of climate change experiences in their areas. 48% pointed out to drought, around 18% to higher temperatures, 12% to decreased rainfall and about 11% to more veldt fires. Others pointed out failing crops (around 6.5%), decreased temperatures and some other experiences not specified.

Portraying Climate Change

Respondents were next asked to indicate how they would portray climate change to someone. This was an open ended question meant to assist researchers probe the diversity in how people characterized climate change, based on their own understanding. The following, quoting direct verbatim, were the outstanding responses among those recorded:

“The shifts in temperature, rainfall patterns and seasons from those already known depicting a need to shift people’s livelihood activities also”

“..has caused conflicts among countries”

“..causes starvation, migration and death”

“...terrible changes of weather on a daily basis”

“I will tell him/her that there are some factors which are due to anti-cultural traditions”

“I would portray it as a serious threat to the existence of the world hence everyone’s responsibility to act”

“I will tell him that people are becoming lazy to worship their ancestors”.

This question was followed up by another open ended one where respondents were asked to indicate how they would characterize or depict climate change to the following people: the very elderly, women, children and illiterate people. For the elderly, there were indications to use stories and the shift or change in the types of crops being grown now, as distinct from crops grown in the past. The explanation would be that this difference in crop types and varieties has been necessitated by changes in temperature and rainfall patterns. As for women, majority of respondents indicated they could be educated on climate change in clubs, through tree planting competitions, and by pointing out to the inability of communities to have communal crops like watermelons that used to be found in abundance in the past. For children, respondents indicated that one could use games, poetry, drama, art, music and competitions to portray climate change to them. Respondents indicated that for illiterate people, one could use demonstration woodlots, show them pests that have prevailed as a result of climate change and the rate of sun burn and other notable factors practically experienced in society.

Cultural Issues and Climate Change

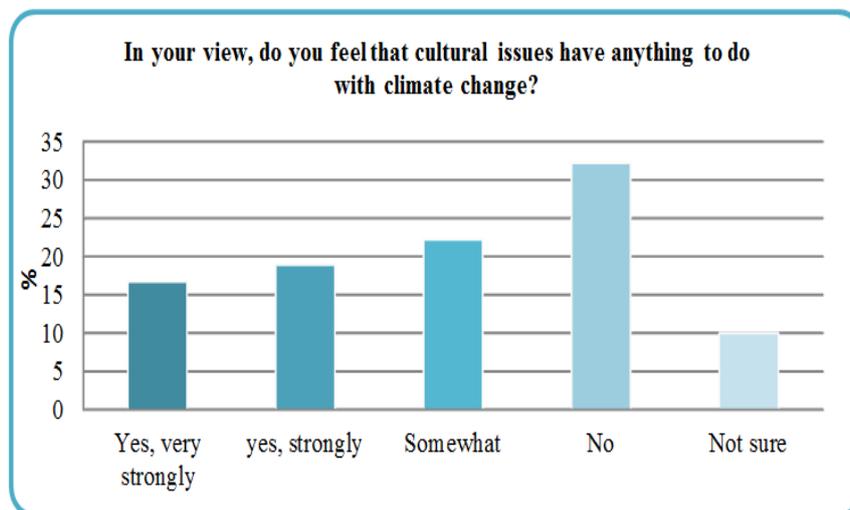


Figure 4. Cultural issues and Climate Change

Respondents were next asked to indicate if cultural issues had anything to do with climate change. In response to this, about 16% indicated ‘very strongly’, 18% ‘strongly’ and 22% ‘somewhat’. 32% indicated that cultural issues did not have anything to do with climate change. Around 8% indicated that they were not sure.

Use of Culture for Climate Change Adaptation

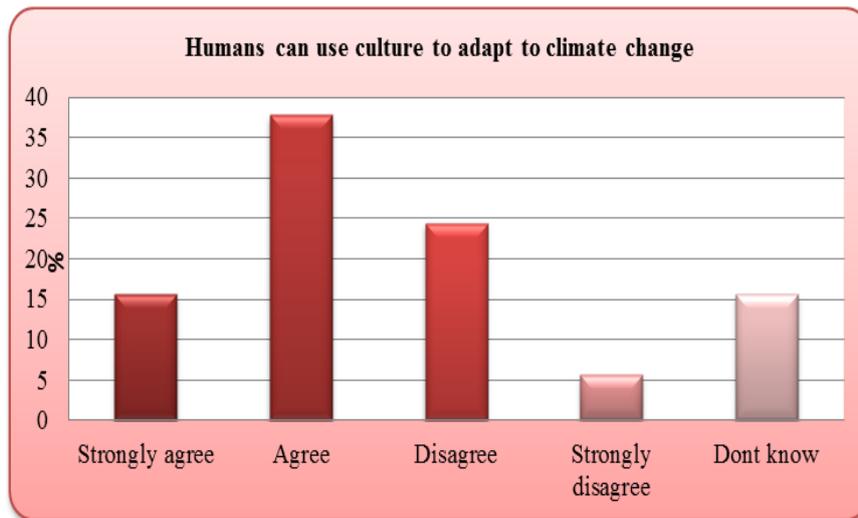


Figure 5. Use of culture for Climate Change Adaptation

Respondents were asked to indicate how they felt about the assertion that human beings can use culture to adapt to climate change. 38% strongly agreed that human beings can use culture to adapt to climate change, 16% strongly agreed, while 16% did not know. 24% disagreed while 6% strongly disagreed with this assertion.

Climate Change Affects Culture

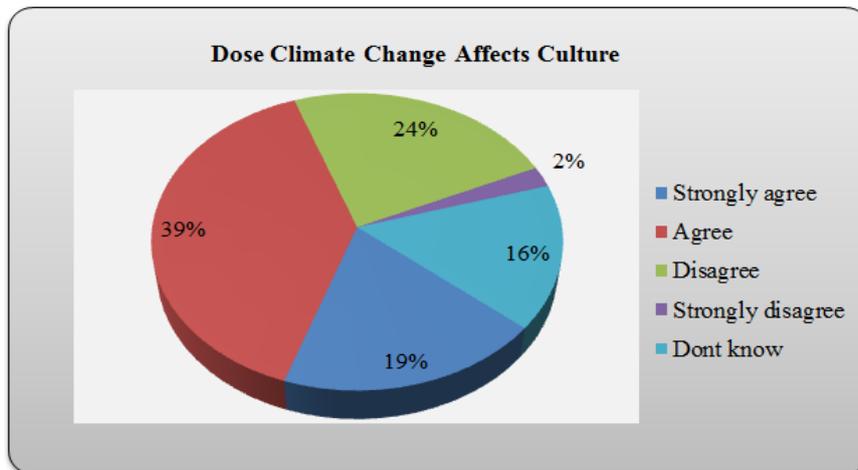


Figure 6. Climate Change affects culture

When respondents were asked to give their opinions on the issue that climate change affects culture, 39% agreed, 19% strongly agreed, 24% disagreed, 2% strongly disagreed and 16% did not know. The total of agree and strongly agree (58%) was noted. To substantiate issues raised above, some went on to indicate that people had abandoned their cultural practices, and this was making them contribute more to climate change and also make them have less adaptive capacity. There were also indications that certain plants had disappeared due to high temperatures and lack of rain. Since humans used culture to interact with and make use of these plants, their disappearance had a bearing on that aspect of culture that had to do with the plants. Therefore climate change affects culture in that it alters lifestyle when trees and animals die and when water sources dry up and this includes influencing types of foods eaten.

Link between Religion and Climate Change

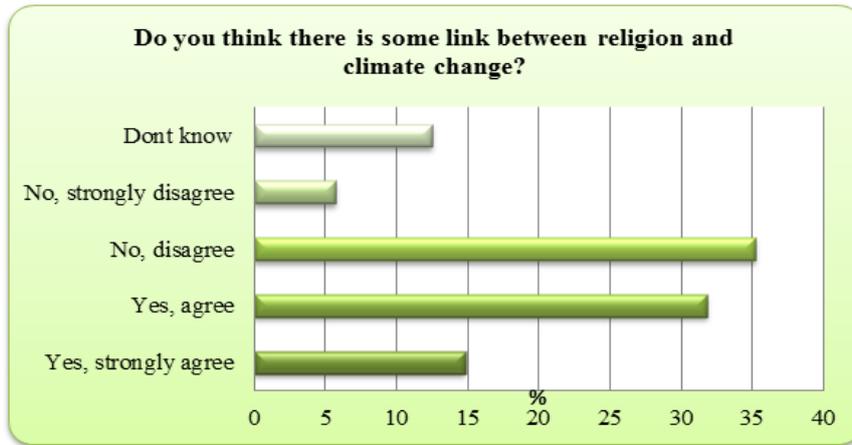


Figure 7. Link between religion and climate change

Respondents were asked to indicate if there was any link between religion and climate change. 14% strongly agreed, 32% agreed, while 35% disagreed. 6% strongly disagreed while 13% did not know. The near deadlock between those who agreed and those who disagreed was noted.

Exposure to Religious Messages on Climate Change

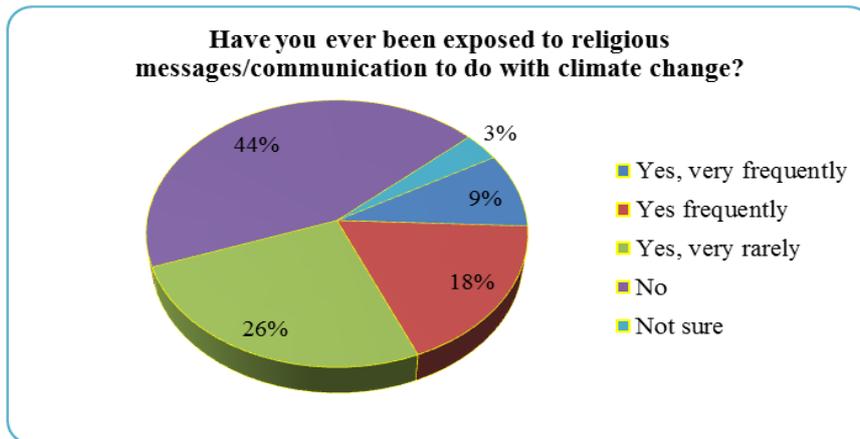


Figure 8. Exposure to religious messages on climate change

Respondents were asked to indicate if they had been exposed to religious messages or communication to do with climate change. 26% indicated that they had been exposed to these religious messages very rarely, 18% frequently, and 9% very frequently. 44% of respondents indicated that they had not been exposed to these messages, while 3% were not very sure. Drawing from this, it can be noted that a total of 53% had been exposed to religious communication on climate change. Some even went on to indicate that God uses climate change as one of the ways of disciplining or punishing a sinful and wayward people. One of the respondents even went on to refer to the Judeo-Christian tradition’s belief in “..be fruitful and multiply..” as indicated in the Biblical book of Genesis. He argued that this belief had caused people to multiply without any bounds, thereby spawning problems to do with overuse of resources, high pollution levels and higher ecological footprints, among others.

Another section made reference to the fact that people had abandoned their traditional African religion in favour of Christianity, and as a result, departed ancestors were not happy with that, hence the negative trends experienced in climate change. These went on to argue that since humans use culture to adapt to climate change, we needed to think about what happens when people abandon that culture for another (i.e., Western).

Opinions on Communication on Climate Change

Respondents were next asked to indicate what they thought about climate change communication from the time they first got to come across it to the current situation. This was an open ended question. The most recurring responses are reproduced below, with direct verbatim quoted:

“Notify people when to plough crops and the types of crops”

“Education reaches people but most of them do not respond”

“It does not help as people these days are even using motor cars to visit Njelele shrine which was very illegal (taboo?)” (our emphasis and addition)

Njelele is a shrine located in the Matobo Hills of Matabeleland South Province. It is usually visited between August and September annually when rainmakers from all over Zimbabwe come together for ritual purposes just before the rainy season. In ancient days, it was the place where elders used to go and report all problems bedeviling communities such as droughts and lightning bolts. There used to be a voice coming out of the rock wherever spirit mediums would go and present their reports to the shrine. The voice is now said to be mum these days because of desecration of the shrine.

“It does not help because people speak without doing and humans do not have power for rainmaking”

“People must be taught how our elders used to ask for rain long ago, even the youngest”

“It has to be accurate to avoid misinforming the public. If accurate – it has to be intensified”.

The responses seemed to suggest that people were not very confident of current communication and messages on climate change, owing to a number of factors, mainly the issue of people not acting on the basis of the knowledge and their being helpless to change the situation. This may have implications on mitigation and adaptation initiatives.

How to Improve Climate Change Communication

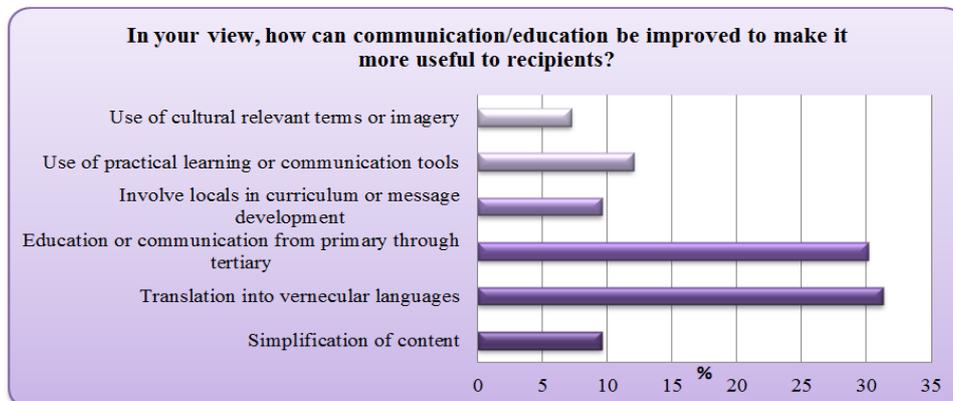


Figure 9. How to improve climate change communication

Respondents were asked to indicate how they thought climate change communication could be improved, partly based on the issues they raised in answering the immediate last question. 32% indicated that climate change communication could be improved by translating the messages into vernacular languages, 30% through education or communication from primary school through tertiary level, 12% through use of practical learning or communication tools and 9% through simplification of content. Another 9% were in favor of the involvement of locals in curriculum or message development while 8% were for the use of culturally relevant terms or imagery.

CLIMATE CHANGE AND LIVELIHOODS EXPERIENCES

Mode of Livelihood

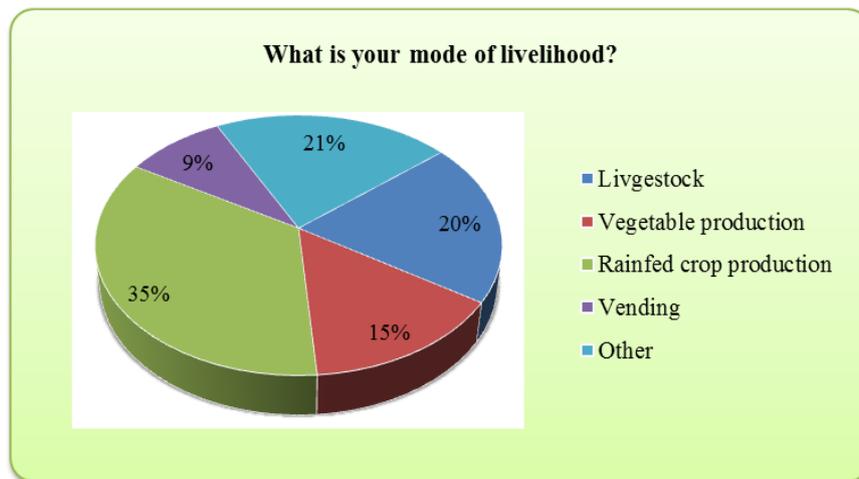


Figure 10. Mode of Livelihood

Having provided a profile of climate change issues, respondents were next asked to indicate their modes of livelihood. 35% indicated that they were dependent mainly on rain fed crop production, with 20% being involved in livestock production. 15% were into vegetable production, 9% in vending and 21% in modes of livelihoods other than the ones indicated on the pie chart.

How Climate Change has Affected Mode of Livelihood ?

Respondents were asked to indicate how climate change had affected their mode of livelihood. The recurring issues are captured in the following direct verbatim quotations:

“...recourse to small livestock (goats) but these are also dying..”

“..shifting agricultural season affects choice of crop..”

“Caused my husband to go to South Africa and take himself another wife because of hunger”,

“Very bad as my children are now working for food not improving their standards of living”

“...animals go with limited grazing and end up succumbing to drought..livestock suffer due to shortage of grazing land. This then decreases the value of the animal in an auction..”

Challenges of Addressing Effects of Climate Change

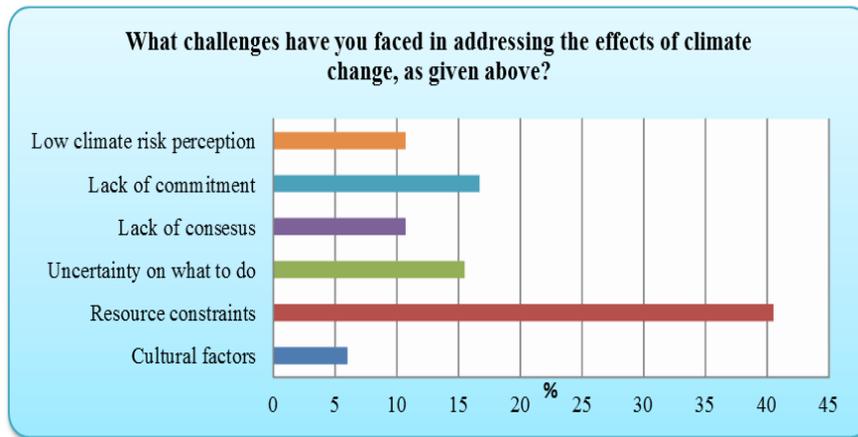


Figure 11. Challenges faced in addressing climate change effects

When asked to identify challenges faced in addressing effects of climate change, 40% indicated resource constraints. 17% indicated lack of commitment, 15% uncertainty on what to do, 10% low risk perception of climate change, 10% lack of consensus and 8% indicated cultural factors. In elaboration, some respondents indicated that instead of finding practical and scientific solutions to climate change, people are attributing the problem to the hand of God while they continue with their behaviors that are not climate friendly.

Ability to Address Effects of Climate Change

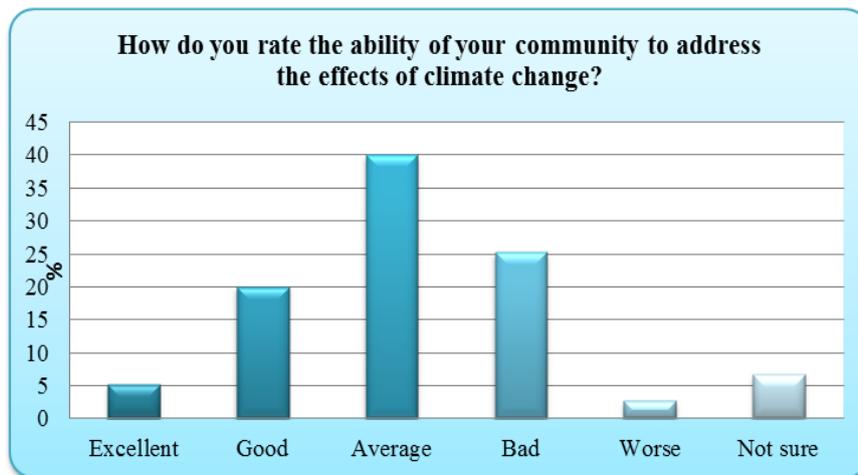


Figure 12. Rating of ability to address effects of climate change

As a follow up to the challenges in addressing the effects of climate change, respondents were asked to rate the ability of their community to respond to climate change. 5% rated their ability as excellent, 20% as good and 40% as average. 25% indicated the ability as bad, 3% as worse and 7% not sure. The fact that a total of 65% collectively rate their ability to address effects of climate change as ranging from average has been noted.

DISCUSSION OF RESEARCH FINDINGS ON CLIMATE CHANGE AND CULTURE

Having presented key findings from the field, this section attempts to explain them in relation to past research findings and existing body of knowledge on culture, climate change and livelihoods. We have seen from field evidence that climate change has been depicted in

mainly negative and fatalistic terms. This may create further negative connotations on a phenomenon that also has the potential for some positive impacts or benefits to society. Overemphasis on the negative impacts could contribute towards the creation of a sense of helplessness, thereby stifling people's creativity within their cultures when confronted with climate change. There is need to consider possible positive outcomes and benefits of climate change, and these could inform and become part of adaptation. An example, for instance, could be that those who rear livestock could realize that shortage of pasture owing to increased dryness could be a wakeup call for them to regulate the size of their herd, thereby avoiding the 'tragedy of the commons', as highlighted by Hardin. Some climate change experiences could also be ways of providing a challenge to the way cultures generate and utilize energy and other resources, prompting them to be more efficient. This is also linked to climate change information dissemination. Such information would be more useful if it were packaged in such a way that it balances between negative impacts of climate change and its opportunities across cultural contexts. People's cultural backgrounds influence the way they communicate. Gudykunst, Ting-Toomey en Chua (1988) distinguish four different Communication styles and made a link between these Communication styles and the cultural dimensions of Hofstede (1994). The communication styles of Gudykunst, Ting-Toomey en Chua (1988) are the following:

1. Direct versus indirect
2. Elaborate versus briefly
3. Personal versus contextual
4. Instrumental versus affective

The application of a certain communication style is affected by people's cultural background, or their cultural dimension. For example, the indirect form is namely used in collectivistic cultures like Japan and China. In these cultures people focus on not hurting the feelings of their communication partner. In individualistic countries, as the United States and the United Kingdom, it is more important that the sender of the message is certain that the message got received well, than that they think about the feelings of the receiver.

We have also seen the role of formal education in climate change knowledge acquisition and dissemination. This raises issues to do with the media, which arguably have to be culturally relevant. How do we make climate change communication culturally relevant? If one were to talk about climate change with Westerners, it would most likely find resonance with the ozone layer, efficient production systems, fuel types and so on. However, one could argue that for the Africans and most developing world people, climate change may not necessarily be an issue of so much priority as things like hunger, malnutrition, conflict, firewood and food sources. There is need to use local cultural symbols and emblems in climate change communication. This is akin to what one University of Zambia employee said to a researcher (Clark C. Gibson, 1999: 21) on cultural differences in natural resource management, "*The man who looks at an animal and sees beauty is a man who has eaten well*".

We have also seen that for majority of respondents (40%) climate change seems synonymous with drought. This therefore implies that we need to latch on to people's experiences of drought in order to better understand their coping, and ultimately, adaptation strategies (taking after them, assuming that climate change implies prolonged or 'permanent drought'). Part of our understanding of the dynamics of culture and climate change could stem from our bid to understand how their culture enabled them to deal with past droughts, even though they were not 'permanent'. Does this mean that climate change adaptation also entails cultural

change? We have also seen how some respondents pointed to some critical changes to the landscape as a result of climate change. One of these was identified as extinction of plant species. However, the list could go on, like when water sources dry up, when people have to switch from long to short-season crop varieties, when they have to switch from large to small grains, when they have to switch from crop production to animal husbandry, when they have to migrate in search of resources and livelihood, when they have to fight over scarce resources, and when societal power structures have to be redefined and renegotiated. All these call for major cultural shifts, and have implications on the functioning and survival of present cultures. For instance on the issue of diet, in Zimbabwe, bulgur wheat was not welcome by recipients of food aid as it was entirely out of sync with most staple food crops people had been used to, and it also caused widespread cases of stomach problems that included diarrhea. Therefore in this context dominated by drought, issues to do with availability of water will likely have strong cultural resonance, and will most likely shape sub-cultures and mainstream culture. This therefore might be related to the central role played by belief systems in rainmaking ceremonies, by moisture/water conservation strategies and negotiating water related conflicts. Noting the central role played by the precautionary principle, and in a situation where no single 'environmental knowledge' on climate change can exist, it becomes important to consider various environmental knowledge and their consequences (Milton, 1993).

Cultural theory identifies four distinct types of social organization, based on two dimensions: group and grid. *Group* represents the degree to which an individual identifies with and is incorporated into a bounded group. "The further one moves along the group dimension, the tighter the control over admission into the group and the higher the boundaries separating members from nonmembers" (Thompson 1990: 5-6). *Grid* represents the degree to which an individual's life is circumscribed by externally imposed prescriptions and proscriptions (Thompson 1990: 5-6; Pendergraft 1998). The two axes of this schema produce four types of social organization -- hierarchy, individualism, egalitarianism, and fatalism (see Fig. 1). Cultural theory posits that individuals and groups tend to fall into one or another of these 4 types. Importantly, however, these are only *ideal* types -- "This typology is a heuristic device; few individuals should be expected to hold to these extreme positions consistently" (Jaeger 1998: 191). *Hierarchism* is characterized by strong group boundaries and binding prescriptions. Individuals strongly identify with the group, yet "are subject to both the control of other members in the group and the demands of socially imposed roles" (e.g. an officer in the military) (Thompson, et al. 1990:6). *Individualism*, however, is characterized by weak group boundaries and few binding prescriptions. *Egalitarianism* is characterized by strong group boundaries and few binding prescriptions. It is "communitarian, holding that every member should have input into the decision-making process" (e.g. a commune) (Pendergraft 1998). *Fatalism* is characterized by individuals with weak group boundaries, yet subject to binding prescriptions. According to Leiserowitz, (2003: 50), research has further demonstrated that each group is associated with a particular myth or model of nature -- nature as benign, capricious, ephemeral or perverse/tolerant. Egalitarians typically view nature as ephemeral, worrying "that even the slightest additional burden placed on the environment might push it over the edge into inevitable decline" (Milton 1996: 92). Individualists typically view nature as benign, or cornucopian. They believe that whatever they do, the environment will recover (Milton 1996: 92). Thus, the ball always returns to a stable equilibrium. Hierarchists, however, typically view nature as perverse/tolerant. They believe that the environment will tolerate a certain amount of abuse, but no more – thus they urge caution and central control. Finally, fatalists view nature as capricious. Nature is unpredictable and uncontrollable; thus they merely try to cope or adapt to the inevitable vagaries of nature. In

this model, the ball can move in any direction at any time. Recent research also demonstrates that cultural biases or worldviews are associated with different patterns of environmental concern (p51). We argue that Zimbabwean society is largely dominated by hierarchism fatalism, and some egalitarianism to some extent, and these have implications for the dynamics of culture and climate change. We have already emphasized how respondents were making reference to religion – how climate change was viewed as a consequence of desecration of traditional African culture and also part of God’s punishment for humanity’s sins and transgressions.

We have also noted the fact that more than half of respondents indicated that there was a link between religion and climate change, albeit in various ways. This could have implications for climate change measures, considering the fact that Zimbabwe is dominated by two main religions – traditional African and Christianity. There are other religions like Islam, BaHai and Hinduism, among others. We have also seen how climate change has been attributed to apocalypticism, sin to God and desecration of African culture and sacred shrines. Maybe we need to be looking for answers to do with how to bring in these religions into the climate change arena, in terms of both discourse and practice. Are religious explanations of climate change entirely untenable? This has happened against a background where climate change issues have been largely informed and dominated by the natural sciences. Science is an encoded form of knowledge that requires translation in order to be understood. While there is some evidence that people can make reasonable scientific inferences under ideal conditions, there does not appear to be sufficient payoff in day-to-day events and conversation to endure the costs of scientific literacy. Hence—and this is consistent with the bulk of the extant evidence—the paper takes scientific ignorance as the norm and suggests that it is pockets of knowledge that require explanation. To break through the veil of ignorance, scientific knowledge must be motivated.

We have also seen how about 65% of respondents indicated that they are willing and able to take part in adaptation measures, but are largely constrained by resources to do so. They also indicated next that there was uncertainty in terms of what to do to address climate change, in addition to low perception of climate risk. It can be deduced from their past and everyday experiences that people have always dealt with climate variability – they now only need assistance in understanding that they are now dealing with permanent phenomenon, which is climate change. Otherwise they are not being necessarily fatalistic. Equating non-participation with fatalism risks underplaying the importance of institutional factors in perpetuating climate change. In areas such as energy use and transport, individuals are routinely forced to behave in ways they know to be unsustainable by the underlying organization of society. Economic and political factors prevent them from adopting their behavior to that associated with another cultural type (O’Riordan and Jordan, 1999: 92).

CONCLUSION

What kinds of shared meanings are connected with the full range of human practices associated with global environmental change? How are they produced and consumed, maintained and transformed? Culture itself is a dimension of all other human dimensions of global change; thus research must be done to explicate the myriad cultural dimensions associated with relevant human practices (Proctor, 1998: 239). The political problem, of course, is that zealous advocates of a view think they are wholly correct and often try to coerce others to conform to their way of looking at things. Theologian Hans Barth (1960: 2) put it well: “Man has always justified unlimited coercion by rightly or wrongly assuming and monopolizing the possession of some absolute truth. And obviously all those political

theories which prepare and foster revolutions, and subsequently justify them, are very closely associated with theories of truth.' In a global arena dominated by latent and sometimes open conflict between the North and the South to do with climate change, and where the precautionary principle rules, there is a strong case for the necessity of considering the role of different cultural practices in understanding and shaping climate change adaptation.

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