



**Climate Change
Symposium
sur le
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Climatique
2011**

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Panel 2: The roles of media and intermediaries in translating, sharing and advocating

Chair: Myra Wopereis (FARA)

Sarah Murabula Achola: Building and retaining community trust: the role of media and intermediaries in translating, sharing and advocating

Blane Harvey: Community radio, action research and advocacy for climate justice: lessons learned from Ghana

Juanita Schlaepfer-Miller: Communication of coping and adaptation strategies for climate change in tropical regions in East Africa

Clare Davis: Bridging the gap: experiences of communicating climate information between producers and end-users in southern Africa

Panel summary

Sarah Murabula Achola: Building and retaining community trust: the role of media and intermediaries in translating, sharing and advocating

Sarah described the importance of media engaging with communities, and the role this can play in helping them adapt to the impacts of climate change. Her work focused on Kenya, where the media has been used to communicate important information to communities, and has helped reduce the lead time in reacting to extreme events.

The follow-up discussion included the following:

- Did communities not already communicate? Yes, but not enough.
- Who provides the information to the communities? Government working with Kenya Meteorological Department.
- Should we focus on oral media between communities, rather than the role of mass media? A recent resurgence in community radio stations has proven to be a good way of reaching across communities in their own languages.

Blane Harvey: Community radio, action research and advocacy for climate justice: lessons learned from Ghana

Blane outlined how climate change adaptation strategies often failed to engage local communities, and made the case for community radio providing an effective way of working with communities. He outlined his work with three local community radio stations in Ghana, strengthening their capacity to engage with communities on climate change issues.

The follow-up discussion included the following:

- How do you measure success of behavioural change? Both at the level of broadcasters and communities, by carrying out base level assessments of their understanding of climate change issues, and then tracking any increases.
- To what extent have you seen behavioural and policy changes? Only identified behavioural change among journalists to date, not at the community level. It is too early to understand the impacts on policy as yet.
- How did the three stations work together before? They are all partners that have been operating under the same network.

Juanita Schlaepfer-Miller and Eugenio Tisselli: Communication of coping and adaptation strategies for climate change in tropical regions in East Africa

Juanita and Eugenio considered how participatory media can be used by farmers to communicate their adaptation strategies to policy makers, climate scientists and other farmers. Two methods were discussed: the use of a mobile phone application, allowing rural farmers to send images and audio recordings of their practices to a web-page; and encouraging farmers to draw 'rich' pictures of their experiences to help them understand the complex problems. The farmers can then present a body of evidence to policy makers.

The follow-up discussion included the following:

- How can you prevent these methods from being purely extractive, and not actually being available to the communities themselves? The communities involved are provided with computer access at weekly meetings, and provided with access at a nearby university.
- How do you overcome issues of quality control, if any farmer can upload information? Farmers are provided with guidelines, and they are trained during initial sessions.
- There were also concerns about how the farmers could be motivated to provide this information on a continued basis.

Clare Davis: Bridging the gap: experiences of communicating climate information between producers and end-users in southern Africa.

Clare spoke about the need to improve the science-practice dialogue, and the value of proper stakeholder engagement. She suggested that this was best achieved through facilitation by a boundary organisation or professional science communicator. She then discussed several examples from South Africa where this has been successfully used.

The follow-up discussion included the following:

- It was agreed that scientists often don't provide their findings in a format that is easily understandable to others outside their specialist area.
- Workshops between the producers of climate information and media should be arranged, connecting them to each other.
- A glossary of the climate terminology used should be produced.

Sarah Murabula Achola

BUILDING AND RETAINING COMMUNITY TRUST: THE ROLE OF THE MEDIA AND OTHER INTERMEDIARIES IN TRANSLATING, SHARING AND ADVOCATING

BY SARAH MURABULA ACHOLA

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INTRODUCTION

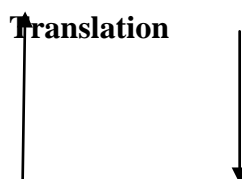
The media is an important part of the change process; it facilitates communication which is a vital component of mitigating the impacts of climate change in the community. Communication as defined by Peter R. Monge (2002) is the imparting or interchange of thoughts, opinions, or information by speech, writing or signs. It is especially valuable for community organizing, that is bringing the community together and educating them in this instance on climate change, its causes, effects, mitigation of the same and adaptation methods to reduce its impact. Objective, factual and reliable media plays an important role in building and retaining community trust; the community at the grass root level needs timely information that will be of use to them in mitigating the impacts of climate change, enabling them to reduce the severity of the effects of climate change.

This paper focuses on how the media, working in conjunction with other intermediaries like community-based organizations, youth and women's groups can succeed in building and retaining community trust through the threefold basis of translation, sharing and advocacy. This entails using communication as an adaptation tool to climate change, that is, use of information availed by the news media to mitigate and adapt to the effects of climate change within the community. This will ensure that climate change has less devastating effects on the community.

Effective Communication for Building and Retaining Community Trust

Elements of Communication

Steve Wilber (2000) notes that there are five elements of effective communication, which if observed ensure that the information disseminated accomplishes the set goal. It has to be noted that the threefold basis of translation, sharing and advocacy are interlinked in the following manner; information that is translated is shared to the community and the general public and any matters arising from it are advocated for to bring about change.



Sharing

Advocacy

As such, it is important to ensure that the following are considered in order for the communication to be effective as an adaptive tool.

1. Approach

This focuses on the timing of communication, the choice of medium, the tone and point of view (perspective, attitude, and relationship regarding audience, purpose, and material), the recognition of audience (reader vs. writer orientation); direct vs. indirect presentation (ordering of evidence and conclusions); persuasive strategies and rhetorical appeals (logos, pathos, ethos)

The conveyor of the message should ensure that the timing and choice of medium are appropriate to the purpose, audience, and material, the tone is appropriate to the purpose, audience, and material, material is made relevant to the reader (reader's interests and concerns are recognized), conclusions are presented directly (conclusion first, evidence last) to a sympathetic audience, indirectly (evidence first, conclusion last) to an unsympathetic or hostile audience, persuasive strategy incorporates a mixture of rhetorical approaches (appeals to logic, feelings, and ethics or credibility). This will ensure that the community does not feel ambushed in the delivery of news, but their welfare is considered in the manner in which news about the impacts of climate change is being relayed to them. For example, if the information being shared concerns a cultural practice that the community has to stop or change in order for the impacts of climate change to be mitigated, for instance stop the felling of trees or reduction of charcoal burning, then the approach used is important so as not to alienate the community but to spur them onto change.

The approach made towards a hostile community differs from that which is considered receptive; in the case of the hostile community the evidence of the impact of climate change is presented first and conclusions drawn later concerning the lessons learnt. This can be exemplified in settler communities-communities that have settled in water catchment areas, in instances where they have felled trees and depleted the natural forest cover, the evidence of the impact of their activities should be presented first before the conclusion or solutions to the problem are offered to them.

2. Development

Development entails organization (logical arrangement and sequence); evidence and support (relevance, specificity, accuracy and sufficiency of detail); knowledge of subject and material; quality of perception, analysis, and insight

In development as a means of effective communication, the following things should be considered:

- Material is arranged in a logical and coherent sequence.
- Conclusion or closing restates the argument and identifies the action to be taken.
- Examples are relevant, specific, detailed, sufficient, and persuasive.
- Quotations support the argument.
- Handling of material demonstrates knowledge and insight.

The translation and sharing of the material on climate change, its causes and effects should be gradual. Demonstrating to the community, the cause and event and providing them with evidence of what is being delivered to them. For example, in instances where there has been gradual depletion of forest cover, the community could be shown a timeline of the changes in productivity and weather patterns over the seasons from past to present, and the marked difference pointed out to them in a manner that is easily understood by them.

The message should be presented to them in a manner that is logical and accurate and evidence of what is being said made available to the community. For example, in the case of Budalang'i in Kenya, perennial flooding affects the area with the advent of the rains in the highlands. Given the situation with the changing rainfall patterns due to climate change, the community in the highlands and that in the lowlands (Budalang'i) should be availed with information that would help them mitigate the impacts of flooding in the area. Statistics from past flooding events should be used to support the argument in favour of conservation practices in the highlands to reduce the amount of run-off that ends up in the River Nzoia (the river that empties into the flood plains of Budalang'i) and thus causing the flooding.

3. Clarity

The message being presented to the community should be clear and precise. It should contain the following

- Presentation of the central argument or the main focal point of the message being delivered to the community.
- The choice of words should be done carefully, because information might be lost in translation, or different words might mean different things in different languages, therefore, the translator should be careful to ensure that the correct message is delivered to the right audience. The communicators should avoid the use of technical language or professional jargon so as not to alienate the community which is being presented with the information.

For example, in advocacy, the message that the media and other advocates of change are passing across should be clear and easily understood so as to avoid confusion and ensure that the gravity of situation is grasped in the shortest time possible therefore, ensuring that the actors of change get the message, understand it and are able to act on it in order to bring about change. The change could be in legislation or community practices that aggravate the impacts of climate change.

4. Style

The choice of words and the use of figurative language to further drive in the point should be considered. The means of delivering information should not be considered as boring by the receiver of the information to avoid instances where there is a breakdown in communication due to a lack of interest in what is being said. The styles used in communication should vary, for example, the use of audio visual material to make real the information that is being relayed to the community. For example, the images of a flooded area and the damages caused by it have more impact when the community can see for themselves the damage that the floods caused and the plight of the casualties.

This can further be exemplified by the following: Citizen Media projects whereby the community is part of the reporting team are known to focus on a limited range of common goals like giving voice to a marginalized people, or freedom of speech, or promoting government transparency. Citizen media can be very beneficial to development projects, for example, the NOMAD GREEN Project in Mongolia trains citizens to use social media to report on environmental issues using blogs, mapping, videos and podcasts. The project now has dozens of authors writing about environmental issues in the country and a map where citizens can report environmental problems (Sarah Standish: Role of Citizen Media in Development Work).

From this model, local media houses can develop a project whereby the communities which they cover can have a forum for airing their views, report occurrences in the community as they happen and share ideas on how to mitigate emerging and recurrent environmental problems that are directly or indirectly linked to climate change. By sharing this information, it becomes easy for the institutions involved to know immediately environmental issues arise, the probable cause and the course of action to take.

5. Correctness

The rules and conventions of spelling, grammar, punctuation, usage, and idiom; style (appropriateness of word choice and level of formality to audience, purpose, and material); social and cultural appropriateness and accuracy in proofreading should be

noted carefully. This is especially important in translation and the following should be considered when ensuring the correctness of a translated text:

- Spelling (including technical terms and proper names) is correct.
- Correct words are used to convey the intended meaning.
- Rules of grammar and syntax are followed, including pronoun-noun agreement, subject-verb agreement, appropriate verb tense, pronoun case, possessive forms, parallel construction, etc.
- Punctuation (particularly comma placement) reflects standard usage.

By ensuring that the aforementioned rules are followed then, the chances of the intended message being lost in translation are minimized. Minimization of errors lends credibility to the lessons being taught, for example, if a community is being educated on ways of utilizing scarce water resources and vulnerability to climate change and its effects, the information being relayed should be factual and presented in a manner that the community can relate to.

BENEFITS OF EFFECTIVE COMMUNICATION

Effective communication can help reduce the level of vulnerability in communities as relates to climate change. Lack of information or poor information increases the communities' exposure to the effects of climate change. Therefore, effective communication is essential due to the following reasons.

1. Reduces Resource Conflict.

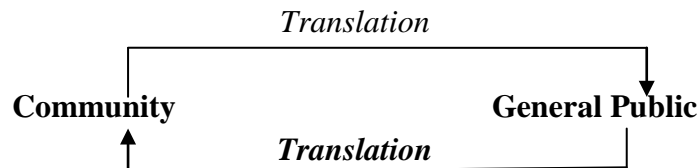
The primary reason for the occurrence of conflict is poor or misunderstood communication. Learning effective communication skills helps a person to be an effective communicator. The person is then able to resolve conflicts, build harmony and bridge communication gaps, which created conflict. This is especially important when addressing sharing of scarce resources and transboundary resources. Timely and accurate information can help in the reduction of the conflict that arises from sharing a common resource

2. Helps in achieving goals.

Effective communication helps the community to get more than they could have achieved on their own. This enables them to be able to advocate for issues that are important to them, thereby giving them a voice where they had none. Advocacy will then help acquire the resources necessary for example money and favorable legislation and policies which will make it possible for them to adapt to climate change. This is paramount in ensuring that the community achieves set targets with regards to reduction of the impacts of climate change and the steps they are taking to reduce the same.

3. Strengthens relationships.

Effective communication helps people understand what they want and expect from each other. This helps to build strong relationships between them. Translation is a participatory media process which involves the community, translator and the journalist. Translation information occurs as a continuous cycle whereby information from the community is translated into the other languages and information from outside the community is translated into the community's language as illustrated below.



For example, forums whereby important information is relayed like community awareness days should have a local interpreter translate the message into the local language in instances where the facilitator is not from the related community.

Local communities are generally not receptive to persons who claim to speak on their behalf yet they are unknown to them. Building and retaining community trust should therefore entail spending a considerable amount of time with the community, not only to learn their language, but their culture, beliefs and general way of life. This can be achieved through integration of the journalists from local media houses into the community so that they can learn community's way of life and their language and in so doing create a rapport with them. Consequently, the community would be more receptive towards them when they start making inquiries and sharing information with them on how to better their lives through change in lifestyles and embracing of environmental conservation measures to reduce the impact of climate change in their region.

4. Better acceptance of ideas.

Effective communication helps to discover the wants and needs of others. By adjusting the information delivery in a manner that matches their needs and explains to them precisely the areas of action, understanding will be fostered thereby giving them time to adopt the ideas that are being relayed to the community.

THEORIES OF COMMUNICATION

The following are some of the communication theories that are relevant using communication as an adaptive tool to mitigate the effects of climate change thereby building and retaining community trust.

Cognitive Dissonance Theory

Cognitive Dissonance Theory argues that the experience of dissonance (or incompatible beliefs and actions) is aversive and people are highly motivated to avoid it. In their efforts

to avoid feelings of dissonance, people will avoid hearing views that oppose their own, change their beliefs to match their actions, and seek reassurance after making a difficult decision.

This theory is relevant in climate change adaptation as it shows that for a community to embrace the lessons that they are receiving of adaptation to climate change, the message should be phrased in such a way that the community is not rendered averse to it because of obvious conflict with their beliefs.

Communication Accommodation Theory

This theoretical perspective examines the underlying motivations and consequences of what happens when two speakers shift their communication styles. Communication Accommodation theorists argue that during communication, people will try to accommodate or adjust their style of speaking to others. This is done in two ways: divergence and convergence. Groups with strong ethnic or racial pride often use divergence to highlight group identity. Convergence occurs when there is a strong need for social approval, frequently from powerless individuals.

In relaying information on adapting to climate change and mitigating the impacts of climate change, the communicator needs to ensure that he is able to identify with and accommodate the views of the community to ensure a positive reception to the message.

Cultivation Analysis

This theory argues that television (and other media) plays an extremely important role in how people view their world. According to Cultivation Analysis, in modern Culture most people get much of their information in a mediated fashion rather than through direct experience. Thus, mediated sources can shape people's sense of reality. This is especially the case with regard to violence, according to the theory. Cultivation Analysis posits that heavy television viewing cultivates a sense of the world that is more violent and scarier than is actually warranted.

This theory is important in that the visual effect of relaying information makes it more real for the viewer therefore; the severity of what is being conveyed is felt more than just mere word of mouth. Having a visual representation of the effects of climate change will give the community a mind map with which they can relate to the events being portrayed.

Face-Negotiation Theory

Face-Negotiation Theory is concerned with how people in individualistic and collective cultures negotiate face in conflict situations. The theory is based on face management, which describes how people from different cultures manage conflict negotiation in order

to maintain face. Self-face and other-face concerns explain the conflict negotiation between people from various cultures.

This theory is especially important in negotiating for sharing of transboundary resources and scarce resources. It will help resolve conflict and build consensus on how to share the resources and generate the guidelines of doing the same that is acceptable to all the parties involved.

Standpoint Theory

This theory posits that people are situated in specific social standpoints—they occupy different places in the social hierarchy. Because of this, individuals view the social situation from particular vantage points. By necessity, each vantage point provides only a partial understanding of the social whole. Yet, those who occupy the lower rungs of the hierarchy tend to understand the social whole. Yet, those who occupy the lower rungs of the hierarchy tend to understand the social situation more fully than those at the top. Sometimes, Standpoint Theory is referred to as Feminist Standpoint Theory because of its application to how women's and men's standpoint differ.

This theory is important and relevant in building consensus for climate change adaptation and mitigation in that the opinions of various groups are listened to and incorporated in the decision making process. This will then help the community to be well represented in the decision making process.

LITERATURE REVIEW

Communication is defined as the exchange of thoughts, ideas and through the transmitting of information from one party to another (Monge 2002).

According to I. Burton et al, (2000) adaptation refers to adjustments in ecological, social or economic systems in response to actual or expected climatic stimuli and their effects or impacts. It refers to changes in processes, practices and structures to moderate potential damages or to benefit from opportunities associated with climate change.

Research increasingly addresses how adaptation is considered in actual policy decision-making. Stakhiv (1996) and Frederick (1997), dealing with the U.S. water resources sector, conclude that existing institutions and planning processes can deal with climate change; such processes essentially represent adaptive management. As in many other sectors and circumstances, adaptation to climate change hazards in the coastal zone is part of ongoing coastal zone management. Adaptation to sea-level rise and extreme climate events is being included in Japanese coastal policies (Mimura and Kawaguchi, 1997), British shore line management (Leafe *et al.*, 1998), and Dutch law and coastal zone management (Koster and Hillen, 1995; Helmer *et al.*, 1996; Klein *et al.*, 1998).

Furthermore, he states that, adaptation to climate change has the potential to substantially reduce many of the adverse impacts of climate change and enhance beneficial impacts—though neither without cost nor without leaving residual damage.

Adaptation depends greatly on the *adaptive capacity* or adaptability of an affected system, region, or community to cope with the impacts and risks of climate change. The adaptive capacity of communities is determined by their socioeconomic characteristics. Enhancement of adaptive capacity represents a practical means of coping with changes and uncertainties in climate, including variability and extremes. In this way, enhancement of adaptive capacity reduces vulnerabilities and promotes sustainable development.

Planned anticipatory adaptation has the potential to reduce vulnerability and realize opportunities associated with climate change, regardless of autonomous adaptation. Implementation of adaptation policies, programs, and measures usually will have immediate benefits, as well as future benefits. Adaptation measures are likely to be implemented only if they are consistent with or integrated with decisions or programs that address non climatic stresses. The costs of adaptation often are marginal to other management or development costs. This can be achieved successfully through effective communication such that the community is prepared for mitigating the impacts of climate change. For example; In Madagascar, citizen journalists also contributed to raising awareness of illegal logging in the national forests by blogging about it. As technology becomes more advanced and accessible to communities, digital media tools are increasingly significant in society for groups who want to change society.

Adaptation is also considered an important *response option or strategy*, along with mitigation (Fankhauser, 1996; Smith, 1996; Pielke, 1998; Kane and Shogren, 2000). Even with reductions in greenhouse gas (GHG) emissions, global temperatures are expected to increase, other changes in climate—including extremes—are likely, and sea level will continue to rise (Raper *et al.*, 1996; White and Etkin, 1997; Wigley, 1999). Hence, development of planned adaptation strategies to deal with these risks is regarded as a necessary complement to mitigation actions (Burton, 1996; Smith *et al.*, 1996; Parry *et al.*, 1998; Smit *et al.*, 1999). Article 4.1 of the UNFCCC commits parties to formulating, cooperating on, and implementing “measures to facilitate adequate adaptation to climate change.” The Kyoto Protocol (Article 10) also commits parties to promote and facilitate adaptation and deploy adaptation technologies to address climate change.

Additionally, according to Communication for Development (ComDev), an approach that combines participatory communication methods and tools ranging from community media to Information and Communication Technologies, plays a key role in:

- facilitating equitable access to knowledge and information;
- promoting peoples' participation in policy development and collaborative natural resources management;
- enhancing community-based adaptation processes and Disaster Risk Management;
- supporting research and advisory services for technology innovation;
- bridging the gap between global environment information, local knowledge and communities;
- strengthening dialogue between institutions and small holders; and
- fostering equity and long

According to George Mason centre for climate change risk communication is more about building constructive relationships than just explaining the facts.

“Actions, words, and other interactions that incorporate and respect the perceptions of the information recipients, intended to build trust and help people make more informed decisions about threats to their health and safety.”

Lastly, according to Mashury Wahab (2008) there should be an integrated data communications and processing system to manage data in different format, collect data in real-time, construct data-base for the collected data, process data in a very short time, and transmits the alerts to the local and national authorities via available communications media such as SMS, email, and broadcasting system. This will effectively reduce the lead time in responding to crises caused by climate change.

Significance of Communication in Effecting Change

In conclusion, communication is an important tool in climate adaptation and it is significant in effecting change in the following ways:

- communication helps in building consensus in the community where it is employed effectively, this then ensures that the community is able to come together to deal with and come up with new ideas on how to deal with the impacts of climate change, how to mitigate and adapt to the same.
- Enhancement of adaptive capacity is a necessary condition for reducing vulnerability, particularly for the most vulnerable regions, nations, and socioeconomic groups. Activities required for the enhancement of adaptive capacity are essentially equivalent to those promoting sustainable development.

Climate adaptation and equity goals can be jointly pursued by initiatives that promote the welfare of the poorest members of society—for example, by improving food security, facilitating access to safe water and health care and providing shelter and access to other resources. Development decisions, activities, and programs play important roles in modifying the adaptive capacity of communities and regions, yet they tend not to take into account risks associated with climate variability and change.

- Relaying of timely information to the communities' at the grass root level ensures that disaster is averted and gives them enough lead time to evacuate the area before the disaster strikes, alternatively it could also relay information on impending drought or floods and the measures to take to avert crises.

In conclusion, communication as an adaptive tool should aim to reduce the vulnerability of the community to climate change and give them means of empowering themselves through translation, sharing and advocacy.

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Blane Harvey

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Theme: The roles of media and intermediaries in translating, sharing and advocating

Authors: Blane Harvey with the Ghana Community Radio Network

Title: *Community Radio, Action Research and Advocacy for Climate Justice: Lessons emerging from Ghana*

Abstract:

Community radio is well-recognised as a powerful vehicle for advocacy and social change in Africa, but its use in the field of climate change has remained very limited, and largely for top-down transmission of information to communities (Myers, 2008; BBC World Service Trust, 2009). This paper discusses the “Climate Airwaves” action research initiative aimed at developing new approaches for supporting community radio broadcasters to investigate, communicate, and engage in broader debates on the impacts of climate change on vulnerable communities in Ghana. It outlines the forms of partnership and support that have been developed between two African networks on climate change and community radio and a UK research institute; the participatory evaluation approaches being used to capture the learning from and impacts of this partnership; and the lessons learned for future collaborations of this nature. It also discusses in depth the central role that action research aimed at effecting social change plays in this particular initiative and in climate justice initiatives more broadly.

I: Background

Climate Change and Development in Africa: Dimensions of local engagement

According to the IPCC (2007), by 2020 between 75 and 250 million people in Africa could be exposed to increased water stress, and agricultural yields in some areas of the continent reduced by up to 50% as a result of climate change, resulting in a widespread loss of lives and livelihoods across the continent. These and other impacts are already being felt and will continue to worsen for the foreseeable future. The local level impacts of climate change on vulnerable communities in Africa compound the challenges of extreme poverty, HIV/AIDS and social vulnerability that already affect many of these communities. As a result there has been increasing attention and funding directed at helping vulnerable communities, particularly in developing and least developing countries develop strategies to adapt, though current funding flows are still widely seen as grossly insufficient (Brown, Nanasta & Bird, 2009).

Despite the increased international attention on the projected socio-ecological impacts of climate change on Africa, studies suggest that related research has had limited success in being taken up at the local level, partly due to challenges of communicating scientific research in ways that are appropriate to local stakeholder needs (Gauthier 2005), and failure to meaningfully engage existing local institutions (Agrawal and Perrin

2009), and local cultural practices (Ensor and Berger 2009). Alongside these challenges, numerous studies have called for an increased scientific engagement with local or indigenous ecological knowledge as a valuable source of adaptive practice and a pathway to integrating new approaches to adaptation (Berkes, Colding *et al.* 2000). One of the key barriers to meeting these challenges, this paper argues, has been a failure to harness effective local-level forums that allow for dialogue and exchange between researchers, community members and intermediaries (individual or institutional), and policy makers. Much of what has been termed “knowledge sharing” or “research communication” in climate change adaptation has relied upon institutionally-managed online databases and “knowledge portals,” periodic workshops for climate change focal points, or occasional meetings to coincide with particular projects being implemented in a given community or district. These approaches tend to either engage those already “in the know” and engaged with the discourse and institutional processes around climate change, or engage with those at the margins of this discourse as passive or uninformed *targets* of information. As a result these initiatives have frequently failed to span the “last mile” in engaging vulnerable communities in ways that address barriers presented by technology, language, power, etc; to link with existing channels of communication that communities rely upon; or to build upon ongoing activities and social sphere of vulnerable groups. This fails to capitalise on the important role that local culture and ways of knowing must play within climate change adaptation (see figure 1) and limits the potential for lasting change:

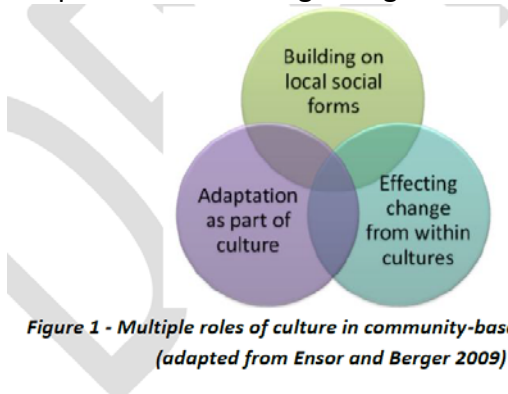


Figure 1 - Multiple roles of culture in community-based adaptation (adapted from Ensor and Berger 2009)

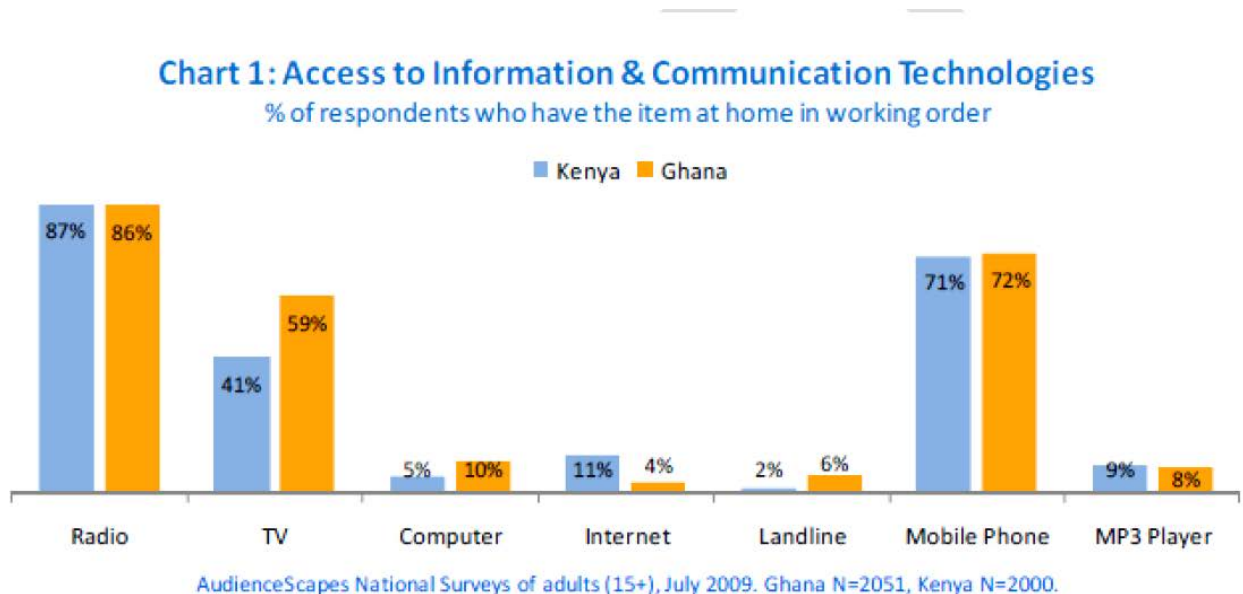
Figure 1 - Multiple roles of culture in community-based adaptation (adapted from Ensor and Berger 2009)

The failure to effectively engage appropriate communication channels to involve local stakeholders in sustained discussion on climate change has prompted a series of reflections on needs and recommendations for both researchers and journalists (Fahn 2009; Godfrey, Pauker and Nwoke 2008; Ochieng 2009). In general, these recommendations have highlighted the urgent need for spaces for interaction between research, policy, and media actors throughout the research and implementation of adaptation actions. This interaction must be supported, they argue, by capacity strengthening for media in understanding the fundamentals of climate change and how it relates to local-level concerns, on how research is conducted, and on how to

investigate climate change locally. These studies also recommend that research institutions link with media to provide them with relevant and up-to-date scientific information.

Community Radio as a Tool for Advocacy and Social Change in Africa

Despite the attention given to the exponential growth in access to new ICTs in Africa, radio remains the continent's dominant mass-medium, with the widest geographical reach and highest audiences when compared with television, printed press, and other ICTs such as the internet (Balancing Act 2008; Panos Institute of West Africa 2008; Myers 2008). Recent surveys conducted by InterMedia in Ghana and Kenya (comparatively well-connected countries by sub-Saharan African standards) reveal that only mobile telephones approach the level of popular use that radio enjoys (see chart 1 below) (Bowen and Goldstein, 2010).



Studies from elsewhere in sub-Saharan Africa cited above suggest equal or still-greater dominance of radio as a communications medium with the exception of some parts of southern Africa where television is in wide use.

Radio station ownership in Africa tends to fall under three categories: state-controlled public radio; privately owned commercial radio and community-controlled radio, though the distinctions can be somewhat unclear in certain cases. Community radio in particular has been cited for the great potential it holds as a tool for popular expression, democratisation of content, and advocacy. Myers (2008) observes that “Radio seems to have proven itself as a developmental tool, particularly with the rise of community and local radios, which have facilitated a far more participatory and horizontal type of communication” (p. 5). This said, Myers (*ibid*) also notes that community radio is not uniformly or uniquely beneficial as “[...] there are some radios with a community licence that can be appropriated by negative political forces and, at worst, can turn into 'hate

radio'. Many commercial radio stations have impressive development content. So, 'community' is not necessarily 'good', and 'commercial' is not necessarily 'bad' and many community radios are semi-commercial anyway. (p. 13)

With these points in mind, community radio seems to offer a potentially valuable medium for engaging in local discussions on the political, environmental and social dimensions of climate change adaptation, especially within the African context where access to other communication channels is often limited. Current research suggests that community radio programming which is developed alongside communities and is complemented with the use of organised listening and other channels of communication (such as new ICTs) can provide a very effective means of learning and behaviour influence (AFFRI 2008). Beyond the role of influencing behaviour, community radio is compelling in its ability to provide a platform for community voice in areas where language, transportation, and poverty present major barriers to popular expression. Gauthier (2005) notes that “with its lower production costs and extreme versatility, radio lends itself just as well to rapid interventions as to the broadcasting of in-depth reports, and is just as suitable for the dissemination of information as it is for entertainment or educational purposes. Radio allows villagers to make their voices heard directly, regardless of their level of education or social standing.” (p. 1) This facility is due not only to the technological appropriateness and accessibility of radio in the context of rural Africa but to the mandate that community radio is expected to fulfil as “as the voice of the voiceless, the mouthpiece of oppressed people (be it on racial, gender, or class grounds) and generally as a tool for development” (AMARC Africa & Panos Southern Africa 1998).

To date, however, the majority of the initiatives linking community radio and climate change have been focused upon the top-down delivery of messages informing listeners about strategies for adapting, anticipated climate-induced events such as floods and droughts, and influencing decision-making at the household level (Godfrey, Pauker, *et al.* 2008). While this is indeed a valuable role in the context of climate change adaptation, it fails to capitalise on the much greater potential of community radio to strengthen citizens' voice and even to fundamentally challenge existing socio-political power structures, by helping people to “define, claim, and give meaning to their citizenship, and re-create the social and political openings and alternative spaces where their voices might be heard” (Pettit, Salazar, and Dagon, 2009: 445). Doing so, as I describe below, involves bringing radio beyond the role of information transmission and into the process of *knowledge production*.

Community Radio as Action Research

This paper has highlighted the growing recognition of the importance of involving communities and their knowledge in assessing, prioritising, communicating and implementing action on adaptation to climate change (Jennings 2009). This recognition invokes similar debates around the value and forms of participation in international

development cooperation (Cooke and Kothari 2001; Cornwall 2006) and North-South research collaboration (Bradley 2006). In all of these cases, the potential for employing participatory and action-oriented research are invariably highlighted.

Participatory forms of inquiry share a common politically and ethically motivated interest in “sharing in the way research is conceptualized, practiced, and brought to bear on the life-world” (McTaggart, 1991, p. 171). This includes shifting both the *aims* and the *ownership* of research findings away from the researcher and toward the participating peoples with the ultimate hope of achieving community action that challenges hegemonic structures and practices (Fals-Borda, 1988; Kemmis & McTaggart, 2000). These ambitions resonate closely with the stated potential of community radio as a vehicle for social and structural change highlighted above. However, the degree to which any of these shifts occur within the context of participatory research can vary from case to case and depending on the particular participative approach, and what research actually qualifies as “participatory” is frequently debated (Jordan, 2003). For instance there is often disagreement about how the notion of “meaningful” participation can be interpreted. Peet and Hartwick underscore this distinction, noting the “real differences between institutional view of participation (in which local populations serve only as ‘extras’ or ‘human resources’) and the more radical views of PAR theorists, who admit that their knowledge is irrelevant if local people do not regard it as useful and believe in full participation” (1999, p. 141).

In many senses, there is a close complementarity between the concerns over voice, ownership and representation of knowledge (and ways of knowing) voiced by proponents of participatory action research and those evoked by community media including community radio. Cornish and Dunn (2009) highlight some of these complementarities:

Citizen-led approaches to communication as means of both creating and expressing knowledge are often more visual, expressive, and co-constructed than traditional textual outputs used to communicate research findings. They have the power to complement and enhance more formalised and analytical research findings, because of their ability to access and convey other ways of knowing, which may be intuitive, tacit, embodied, artistic, cultural, symbolic, or spiritual in nature. They also have potential to contribute to a broader empowerment process within communities; to allow people who are traditionally the ‘researched’ to have a sense of ownership over the research process and potentially take action on their own behalf. (p. 670)

Indeed, as we have argued in establishing this initiative community radio can and should be an active participant in action research on climate change adaptation within communities. It has a strategic position as actors permanently embedded within and working alongside communities, and may well have a clearer understanding of stakeholder groups, local history, and community needs than researchers or other practitioners coming from outside. Its ability to convene community representatives, ensure democratic representation within the community, keep communities apprised of work being conducted, and collect local testimonies are important aspects of action

research which are often overlooked in conventional research. Also important is its mandate for challenging existing systems by transmitting *upward* to duty-bearers and power-brokers (see figure 2 below). Importantly, this role is not greatly different to the one that many community radio stations or networks have already defined for themselves (White, 2007). In Ghana, where the pilot study that is the focus of this paper is being implemented, Alex Quarmyne, founder of the Ghana Community Radio Network, describes the challenge that confronts these broadcasters as "ensur[ing] that listening communities are not only consumers of information, however rich and appropriate. Rather, to be consistent with its objective of promoting indigenous knowledge, the station will need to work ... to enable the listening communities, especially the most disadvantaged groups, to upload and grow their own knowledge" (*ibid*). 6

Figure 2: Information sharing and advocacy intervention model



Figure 2: Information sharing and advocacy intervention model

In the sections below, we draw on the case of the “Climate Airwaves” initiative to reflect on these theoretical framings in light of lessons learned from experience.

II: Climate Airwaves: Linking Climate Change and Advocacy through African Community Radio Description

The Climate Airwaves initiative is a pilot project aimed at testing many of the theoretical assumptions outlined above alongside a network of community radio broadcasters in Ghana. It was launched in June 2010 with funding from Carlton University (Canada) and the International Development Research Centre (Canada) with the aim of piloting and validating a methodology for strengthening community radio capacity to draw upon ICTs and intermediary networks to engage in action research and advocacy on climate change adaptation. Through this methodology it is hoped that community radio can help strengthen community knowledge and voice on climate change impacts and adaptation by increasing their input into local research and policy dialogue and sharing their experiences in coping with and adapting to climate change. The initiative therefore sees community radio as playing a convening, knowledge brokering, and advocacy role among community members, decision makers, and researchers.

The project is being implemented through a partnership of networks working on climate change and community radio in Africa. These are the Ghana Community Radio network, the AfricaAdapt Knowledge Sharing Network on adaptation to climate change and AMARC, the World Association of Community Radio Broadcasters. Another core partner

in the initiative is the Institute of Development Studies at the University of Sussex, UK, which works extensively on both climate change and participatory development.

Ghana, like many countries in West Africa, faces significant vulnerability to the projected impacts of climate change, particularly in terms of water-stress, land degradation, and coastal zone erosion which are expected to lead to drops in agricultural productivity, power shortages (nearly 80% of Ghana's electricity is from hydroelectric generation), and loss of key coastal land, among other impacts (Dazé 2007, McSweeney, New and Lizcano 2008). There is also concern that these projected impacts could prompt internal (north-to-south) and cross-border migration and conflict (Dazé 2007, BBC World Service Trust 2009).

The three GCRN-member stations participating in the project – *Radio Ada*, *Radio Afram Plains* and *Radio Tongu* – all lie on the Volta River. *Radio Ada* has been on the air for 12 years and is the effective forerunner and living laboratory for many of the participatory methodologies applied by GCRN. *Radio Afram Plains* went on the air in 2001 following a participatory design process facilitated by GCRN. *Radio Tongu* is the youngest GCRN member-station, having gone on the air in mid-February 2010, but has benefitted from the range of GCRN participatory training programmes. Communities served by the three stations have all had their lives and livelihoods significantly diminished by the damming of the Volta River. The impact of climate change on the ebb and flow of the river has made them even more vulnerable. The harm is most evident in communities in Ada, which is at the estuary of the Volta and the Atlantic Ocean, and where entire communities are being displaced by the silting of the river and coastal erosion. Though 18 km inland from the sea, the communities are seeing their future mirrored in Ada, particularly as fishing activities have increasingly had to be replaced by alternative livelihoods like petty trading. Afram Plains, an island created by the dam, is host to migrants displaced by the same dam. The communities of *Radio Ada* are Dangme-speaking, but feel a kinship to the Ewes on the other side of the river. The Tongu language is part of Ewe, which is also the native language of many of the migrants in Afram Plains. In all three communities, women bear the brunt of sustaining the day-to-day economy and their empowerment is a focus of their Community Radio station's programming.

The partnership and capacity strengthening model that is being piloted was collaboratively developed between 2008 and 2010 with an aim of building on the existing strength of Ghana's community radio stations as a means of convening local stakeholders and creating a space to share knowledge on the causes, impacts, and responses to climate change. However, it is also recognised that climate change presents a complex challenge which spans spatial, temporal and jurisdictional scales and therefore extends beyond the knowledge or influence of singular institutions or actors (Cash, Adger, Berkes, *et al.* 2006). Thus, in order to achieve the full potential posited above, there is also a need for access to and understanding of information, political processes and actor-networks which extend beyond the scale of local community. As a

result, the engagement model being piloted here contains a strong focus on capacity and network strengthening, where capacity is understood as the capability to: Act intentionally amid complex constraints; generate desired development results; relate to other actors; adapt and self-renew; and bring things together and achieve greater coherence (Morgan 2006).

Methodology – The value of action research

It is important to emphasise that the pilot study, and the questions that frame it, has been conceived around participatory, action-oriented methodology, reflecting the belief that “if you choose to regard your subjects as self-directing agents, whose creative thinking determines their actions, then you cannot do research on them or about them, but only with them.” (Heron 1996, p. 202) As such, the validity and usefulness of its findings should, first and foremost, be confirmed by those engaging directly in the study’s activities, particularly local broadcasters and community members. The choice of approach is fundamentally important given that the model of practice being piloted is itself built upon the same principles on the benefits of participation and co-production of knowledge. Thus, it should be noted that there are two levels of action research at play – the overarching collective testing and validation of the method, and the engagement that is being led by community radio broadcasters at community scale as a part of the process.

More specifically, the initiative is being implemented in three phases. During each of these phases there is a strong emphasis on documenting the reflections, processes, and outcomes of engagement through production of radio broadcasts which can then be aired in the communities to keep community members informed about the work that is being undertaken. The first consists of a baseline assessment of the existing experience and knowledge on climate change and participatory research approaches within the participating radio stations and their communities they serve, followed by capacity building activities to address the gaps that participants have identified. The assessments are designed by IDS and GCRN, carried out by the station members themselves, and analysed collectively at a workshop in Ghana. On the basis of these assessments, workshops on “understanding and communicating climate change” and “conducting and communicating community-based action research on climate change” were developed in collaboration between GCRN and IDS.

The second phase involves piloting the engagement process between community radio, their broadcast communities, applied research taking place in the region, and local authorities and power-holders. This sees broadcasters collecting testimonies of community experiences and understanding of climate change, engaging with researchers working on climate-related issues in their regions to understand what *they* are prioritising and finding, and finally, bringing these groups together with decision makers to collectively reflect on what communities are experiencing, what research is revealing, and whether/how these are being translated into policy and action. Identification of and engagement with climate researchers is supported by the

AfricaAdapt network, which convenes a large community of researchers and practitioners working on climate change.

The third and final phase of this initiative involves compiling the findings and experiences of the three stations and sharing them at national and international levels to raise awareness of and prompt responses to community-level experiences of climate change, and to share lessons on the potential of community radio as a catalyst for social and political action on climate change in Ghana and elsewhere in Africa. The reporting on community experience at the national level is facilitated through GCRN via a national forum where broadcasters showcase their findings. Lesson sharing with the broader radio and climate communities is facilitated through AMARC and the AfricaAdapt network.

Participatory evaluation of the process

Ultimately, the success or failure of this initiative will be assessed by the broadcasters themselves and the communities that they represent. As noted above, one of the key frameworks for reflecting on the success of this initiative is the extent to which it strengthens the capacity of participating community radio broadcasters along five dimensions: Act intentionally amid complex constraints; generate desired development results; relate to other actors; adapt and self-renew; and bring things together and achieve greater coherence (Morgan 2006). A second approach which has been adapted and frequently employed by GCRN to envision and develop strategies for social change in their action research initiatives, is Appreciative Inquiry (Cooperrider and Srivastva, 1987). These two approaches are applied in this initiative using both face-to-face reflections at capacity building workshops and stakeholder dialogues, as well as through the use of audio journaling by community broadcasters as they move through the different phases of the methodology.

Audio journaling allows the evaluation process to play a central role in the actual implementation, rather than it being seen as an “add-on” procedure merely carried for auditing or accountability purposes. Broadcasters, who already possess strong capacities in designing, recording and editing discussions for airing, use these reflections as a part of the broadcasts they produce throughout the initiative. These journals can be used to reflect on the challenges of understanding and communicating on climate change, the value of the action research process, overall impressions of the initiative, etc. and be revisited periodically to track how people’s experiences have evolved over time in line with the dimensions of capacity outlined above. Some audio journaling moves beyond broadcaster experiences and engages community members in reflections on the value of or approaches to addressing climate change. Regular audio journaling, paired with the baseline self-assessments conducted at the outset of the initiative, and a re-assessment conducted at its conclusion provide a body of participant-generated evidence that can then be reviewed collectively to establish what has been learned, what changes have occurred, and what the next steps should be, using the model of appreciative inquiry developed by GCRN.

Outcomes to date

The process outlined here is still underway, meaning that the full impact and value of the methodology being piloted in this partnership is difficult to gauge, however some early outcomes are already beginning to emerge. These relate primarily to broadcasters' own appreciation of the current and potential impacts of climate change on their communities and other communities in the region, growing awareness of the complexity of climate change as a phenomenon, and an increase in participants' capacity to, and interest in, exploring the question of climate change within their communities.

Through capacity building workshops paired with field visits to communities affected by climate-related impacts, participants report having a much more concrete understanding of the challenges that climate change may present to their communities. Capacity building which has emphasised both the social and physical dimensions of vulnerability has helped them to identify populations who would most likely be at risk within their own communities, and to consider how these new vulnerabilities intersect with existing vulnerabilities they are already working to address through their broadcasting, such as health, sanitation, women's rights, and social or political marginalisation. This points to the strength of many community radio broadcasters as partners in action research to quickly re-frame new issues within the contexts of the local communities for whom they are advocates.

At the same time, the growing awareness of the local dimensions of climate change has had to be presented alongside a framing of climate change as a global phenomenon. Establishing the link between global drivers of climate change and its localised impacts is recognised as a major challenge to communicating climate change as people, including the media, are likely to point to localised behaviours such as charcoal burning, deforestation, and pollution as the causes of climate change (BBC World Service Trust 2009). Thus, time has been invested into pointing to differences (as well as complementarities) between climate change and environmental degradation in order to clarify the global dimensions of the former and frame it within notions such as climate justice and common but differentiated responsibilities, as well as to link advocacy at the local scale to similar national and international struggles that are underway. Through the use of visual supports, multimedia resources, and discussions, progress has been made in clarifying these distinctions for participants.

Finally, a significant outcome of work thus far has been progress made in developing appropriate language and analogies to explain key climate-related concepts in local languages. Research conducted by the BBC World Service Trust (*ibid*) notes that there is no local-language equivalent for the term "climate change" in Ghana, and that the technical and political discourses of climate change are virtually inaccessible to those who are most at risk. This was echoed in capacity building workshops with broadcasters, the majority of whom for example, had never seen a greenhouse, making the notion of

a “greenhouse effect” difficult to illustrate. Thus, a key area of focus has been on the development and testing of a glossary of climate-related terminology into the three languages used by the participating stations. Terms and concepts such as *adaptation*, *vulnerability*, *greenhouse gas*, and *resilience* were described in local languages with accompanying analogies, and participants developed strategies for discussing these concepts with differently-situated community members such as village elders or district representatives. This led to a noted increase in confidence in taking these discussions back into the community and engaging with those who have technical expertise on climate change such as researchers.

While this pilot research has succeeded in producing some early outcomes that have been noted above, it has also been useful thus far in revealing some key challenges and lessons to be retained from the initiative to date. These are outlined below and will be reflected upon for their broader implications in the concluding section of this paper.

Challenges and lessons learned

Dealing with complexity amid competing priorities

Some of the challenges encountered and lessons learned from this initiative to date can be grouped around three main themes, namely: Understanding, framing and communicating climate change; establishing appropriate partnerships; and building and sustaining capacity. On the first point, climate change is recognised as a complex (Rind 1999) or “wicked” (from a policy perspective) problem even for those who have specialisation in the issue. As was noted above, for community radio broadcasters, most of whom are volunteers and who may have had limited formal education (this is particularly prevalent among women in this initiative), this complexity can prove a major stumbling point in terms of linking local experience to global phenomena. This complexity is further complicated by frequent conflation between climate change and other environmental issues that have been heavily covered in the Ghanaian media in the past, particularly deforestation and depletion of the ozone layer (BBC World Service Trust 2009). It has also led, as noted above, to a discourse of “self-blame” within many African community broadcasters, who attribute poor environmental stewardship in their communities to being key drivers of the rise of climate change and global warming, and in turn pass this messaging on to their communities. In reality, Africa is estimated to be responsible for a mere 3.8% of global carbon emissions (Robinson & Miller 2009).

This complexity has led to either a limited coverage of the climate change agenda, or to the use of scripted “kits” developed outside of the community then customised for local language and context. In the case of GCRN, there has in fact been past work done on climate change with NGO partners in Ghana, as well as regular programming at some of the stations on other environmental issues, but these challenges still remain despite their experience. As a result, initiatives seeking to help broadcasters produce their own reporting on local dimensions of climate change must invest heavily in ongoing capacity development and partnerships that can support these efforts. The time and resources

needed for this type of investment present a significant challenge for stations who are largely run by volunteers, have limited financial resources to draw upon, and who are often expected to cover the full breadth of issues relevant to community wellbeing including health, governance, and other environmental concerns. Thus, the prioritisation of climate change as an issue for which investments should be directed must be balanced with the relative perceived importance of the issue in comparison to the needs for investment into work on good governance, HIV-AIDS, land rights issues, etc. As such, it should be expected that not all stations would see the value of devoting the required time and investment into this process if they are already struggling to provide adequate attention to those issues that communities deem to be higher priorities.

Framing climate change as a question of rights and duties

This second point of learning may actually provide a way of addressing, or at least clarifying the point raised above. In many community radio stations like who form GCRN, addressing local dimensions of rights, justice, equity, and citizen empowerment are central to the stations' broadcasting objectives (White 2007), and this presents both an opportunity and a requirement. For these stations to fully appreciate the local relevance of climate change and invest themselves into the development of capacities for covering it as an issue, it is essential that it be framed in the context of social and environmental rights and justice. Doing so allows broadcasters to begin integrating climate change into the range of other interlinked issues that they are already covering such as poverty, marginalisation and governance and understand its relationship with their communities' interests and challenges.

While broadcasting that is uniquely designed to raise awareness of current and anticipated impacts and to promote behavioural change is used through community radio, our findings suggest that these broadcasts tend to provide insufficient engagement with broadcasters or stations themselves, seeing them largely as conduits for transmitting messages produced elsewhere. This not only undervalues the agency and contributions that broadcasters can make, but it risks compounding the confusion they experience in relaying the latest trends that science and policy actors wish to see passed on, potentially leading to the spread of misinformation. Much as research has suggested that radio listeners have higher levels of understanding and information retention when they are engaged in active listening (for example, through listening and discussion groups, or call-in question and answer segments), we argue that broadcasters will serve as better intermediaries with local communities if they are actively engaged in processes of inquiry, interpretation, translation and transmission of information and messages. This perspective is very much in line with educational theories of inquiry-based or constructivist learning, and critical or liberation pedagogies (Freire 1972). By understanding climate change in the context of the existing points of struggle in which they are already engaged, broadcasters are able to embed new knowledge within these existing frameworks and improve their grasp of the issues.

□ *Sustainable partnerships*

It is important to distinguish the types of engagement that community radio mobilises to support and inform community development with those that have become commonplace in international development practice. While development projects tend to be quite time-bound, targeted to a specific issue or set of stakeholders, implemented in an isolated manner (often independently of other initiatives which are taking place in the community or district, for example), and with an “exit strategy” built into the project design to avoid creating dependency, community radio seeks to embed itself into the fabric of the community, seeking to maximise community appropriation of its services (and thus its sustainability) and to cover the range of issues that their communities deem important. Given the different nature of engagement and incentive structures found in radio and development intervention, it follows that the types of partnership models each pursues differs as well.

In keeping with these realities, the Climate Airwaves initiative has tried to build upon existing networked partnerships for capacity support for broadcasters, particularly with organisations sharing similar priorities or values as the broadcasters. This has meant trying to limit, for example, the role that external partners such as IDS play in the ongoing implementation of the work. It has also meant orienting the partnership toward the existing network of partners that GCRN has developed over the years rather than aiming to engineer partnerships with new partners who may be very competent in their fields but lack a strong desire to develop long-term alliances with limited financial incentives, or may simply be busy with their own initiatives. In cases where capacity support has been offered solely by outside partners such as IDS, we have sought to ensure that the support is aligned with the objectives of stations beyond the scope of the project itself in order to maximise its value. Following this model of partnership engagement can be challenging in projects where two quite distinct communities of practice are working together, but may be an important aspect of ensuring that stations’ capacity to continue carrying out the work that was developed is maintained over time.

□ *A long-term vision of capacity*

Building on the points raised above, the final area of learning we wish to highlight centres upon the approach to capacity building pursued through the partnership. As was noted at the outset of the paper, the concept of capacity embedded in this initiative aims at strengthening people’s collective ability to act intentionally amid complex constraints; generate desired development results; relate to other actors; adapt and self-renew; and bring things together and achieve greater coherence (Morgan 2006). This view of capacity is based on the notion that collective learning is a prerequisite to affecting broader social change (Harvey and Langdon 2010), a core objective of community radio broadcasters in Ghana. It privileges work that builds collective capacity over seeing individual skills development as an end in itself, and longer-term social change objectives over the outcomes of individual projects such as this one. This does

not mean that individual development and shorter term goals, but rather that these aims must be understood in the context of the longer-term, more transformative aims to which they should contribute. Conversely, there may also be more targeted forms of capacity building that are needed in order to move toward the longer term vision of change, such as strengthening women's capacities to engage with action research activities in the case of GCRN. Balancing an emphasis on longer term change with demonstrating impacts in the shorter term in this way can create challenges for initiatives that are funded for shorter periods of time. These realities should be communicated to funding partners in advance to avoid situations where donor demands sit in tension with the aims of those who project activities are intended to serve.

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Juanita Schlaepfer-Miller

Communication of coping and adaptation strategies for climate change in tropical regions in East Africa

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This paper presents a transdisciplinary art and science research project from the Swiss Federal Institute of Technology and the University of Dar es Salaam, Tanzania in cooperation with the Zurich University of the Arts (ZHdK). The project aims to improve science communication of climate change adaptation measures in rural communities in Tanzania.

Communication in this context is participatory, and the role of local knowledge and its relation to climate change science will be investigated.

Digital communications technologies have become an important and pervasive medium in our daily lives. Internet usage is still low in Africa, reaching about 10.9% of the population; yet it has grown 2,357.3% over the last ten years, almost five times more than the rest of the world¹.

More than a third of the population in Africa are cell phone owners, and this rate is growing fast (ITU, 2010). Beyond their standard modes of operation, such technologies can be used to empower communities, by giving them an unfiltered medium through which their voices can be heard. Projects in which cell phones and web pages are appropriated by marginalized communities and used to their own benefit, such as megafone.net², are a proof of what can be done to achieve community empowerment.

In this project we facilitate the use of these technologies with communities of rural farmers, by enabling them to speak for themselves and raise their issues publicly in an increasingly digitally connected world.

The farmers are in the Bagamoyo District, Tanzania, and they use shared multimedia cell phones to report their observations of the effects of climate change on their farms. By using a special cell phone application, the farmers can send tagged images and audio recordings directly from the fields to a web page. These multimedia contents can thus be immediately published and visible on the Internet, creating a body of evidence that is collected in a participative way. Farmers are provided with a limited quantity of multimedia cell phones, which they share for the project's purposes. There is a group computer at the research station with an Internet connection. In weekly meetings, they exchange the phones and discuss the images and recordings that they have published.

In order to augment the informational richness of the materials collected by the farmers in Bagamoyo, we use folksonomies and geographical mapping. Folksonomies are aggregations of keywords, also called tags, applied to digital contents by individual users in order to describe them.

Yet, even though using tags to describe content can be considered an individual activity, the aggregation of tags produced by an online community evolves into a common, coherent vocabulary which is created in a bottom-up fashion. Moreover, a folksonomy, represented as a 'tag cloud' (Fig. 1), can function as a model of a group's shared interests, providing a valuable insight into their own issues.

The mobile phones used by the farmers in Bagamoyo have integrated GPS modules, through which geographical coordinates can be obtained. The cell phone application, which was specifically developed for this project, takes advantage of this possibility by attaching geographical information to images and sounds, thus making it possible to locate them on a map. This map is available on the project's web page, and it allows the farmers to physically situate all of their observations (Fig. 2).

One of the key concerns of the project in Bagamoyo is sustainability. What we understand by this is that we are facilitators and that if the project is useful and interesting to the farmers it will continue to run with minimal outside intervention long after we have left. The project is not about one day workshops or farmers being film-makers for a

day. This means that all the technical equipment provided for the project remains property of the farmers. It is still our task, however, to ensure a continued source of funding to pay for the phone-to-web data transmission. (See for example the canal*MOTOBOY project in Sao Paulo₃ which is still running after 5 years, the participants found their own funding to continue and have created a website and book).

We expect that the project in Bagamoyo will provide the farmers with the necessary means to keep track of their issues regarding adapting to climate change and gather audiovisual evidence to support their cause when dealing with policy-makers. It can play an important role in community forming, while enabling the farmers to become active participants in networked environments.

There has been a move in recent years for 'Farmer led research', see the work of Fetien Abay from Mekelle University, Ethiopia Climate scientists also recognize need for participatory research that not only values indigenous knowledge, but uses knowledge which is locally based. This is not only because farmers already have a considerable body of knowledge as they have been coping with climate variability for years, but also because areas with crop gains or losses are highly localized. Therefore a holistic, participatory approach is necessary (Reid 2003, in Reid and Huq 2005 p 68) and recommendations "cannot be made at regional or national level but must be essentially local".(Jones and Thornton 2003, in Jones 2005 p 23).

We are using the participatory processes of Rich Pictures both as a workshop exercise in itself and as an impetus or first step to the more long-term mobile phone project. Rich Pictures are part of Soft Systems Methodology and were developed by Peter Checkland. Rich Pictures can be done individually or as a group and provide a way of learning about complex or ill-defined problems by drawing detailed, 'rich' representations of them. " They usually consist of symbols, sketches or 'doodles' and can contain as much (pictorial) information as is deemed necessary. The finished picture may be of value to other stakeholders of the problem being described since it is likely to capture many different facets of the situation, but the real value of this technique is the way it forces the creator to think deeply about the problem and understand it well enough to express it pictorially - a process known as Action Learning." (Monk and Howard 1998).

A question that arose in researching this project was how we could digitally link to other media/climate change adaptation projects in the Africa-Adapt network. For example it seems to us that there is a considerable colloquial knowledge already recorded in many videos and other recordings which are posted on the network. Yet this information is not readily available or categorized other than with a keyword or full-text search which does not find information in the interviews. Yet if these videos or radio recordings were tagged as they were uploaded (or retrospectively) then a wealth of information could form a clickable folksonomy, adding value to existing projects and extending their impact.

So for example, if a farmer is talking about wind change then this would be tagged as such and another farmer, a development worker, or climate scientist clicking on that tag would see all references to wind in all the media projects where this is tagged. Tagging, in this sense, can act as a way of making embedded knowledge available by attaching meaningful and searchable descriptions to stories told within a project. Thus, folksonomies could become a powerful addition to Africa-Adapt by extending the network's potential as a research tool and resource.

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Bridging the Gap: Experiences of communicating climate information between producers and end-users in southern Africa

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Southern Africa is likely to be significantly impacted by future climate change (Fischlin et al. 2007), and hence is considered a priority area for creating an enabling environment for adaptation. The latest climate change projections for the region indicate that both temperature and evapotranspiration are likely to increase into the 21st century (van Jaarsveld and Chown, 2001; IPCC 2007; Archer and Tadross 2009; Department of Environmental Affairs 2010). Until fairly recently work investigating the impacts of and responses to climate change tended to be more prolific in the northern hemisphere. In Africa there are fewer scientists per capita (approximately one scientist/engineer per 10 000 people, versus 20-50 in the industrialized world) (Pifer and Demissie 2009), and academia struggles even more to retain talent since the public sector is under-resourced and does not have the level of prestige of its northern counterparts. As such, climate change information has not been easily accessible in southern Africa; and has tended to be provided in a minimally usable format, at spatial scales inappropriate for local level planning, with little translation, capacity building and follow-up with stakeholders involved in decision-making. That said, increased public awareness of the issue, and the concomitant growth in political commitment to mitigation and adaptation, has made the need for accurate communication more pressing.

Climate change information is often difficult to communicate beyond the scientific community, due to its inherent uncertainty and complexity, yet at the same time, end users need access to the information in a format that is appropriate to them, in order to bring about sustainable responses. This requires a concerted two-way communication process between information producers and information users, and is often best facilitated by a boundary organization¹ and/or professional science communicator to cross the science-policy/practice divide. This paper highlights two key attempts currently being used to bridge the gap in the southern African context; RIACSO and South African Risk and Vulnerability Atlas.

¹ We use here a working definition of a boundary organization as encompassing any organization or institution that lies at the science-policy or science-practice interface.

1. RIACSO

RIACSO is a forum for humanitarian organisations working in southern Africa to coordinate their preparedness and response activities. Members include a variety of UN agencies, led by Office for the Coordination of Humanitarian Affairs (OCHA) Regional Office for Eastern and Southern Africa (ROESA), as well as international and local NGOs. Recognising the role that climate variability and change plays in contributing to the potential existence of humanitarian situations, such as droughts, floods and cyclones, RIACSO has been actively trying to incorporate the existence of climate information into their preparedness and response planning. RIACSO contracted the International Research Institute for Climate and Society (Columbia University) to undertake a stakeholder mapping exercise and consultation on information requirements.

As a follow-up to this, a boundary organisation (Kulima Integrated Development Solutions (Pty) Ltd) that specialises in communicating between scientists and practitioners/policymakers facilitated further dialogue between information users and providers, which involved three main stages. First, a selection of existing seasonal forecasts was presented in a RIACSO meeting, and members then had the opportunity to evaluate the strengths and weaknesses of these various products, and also to create a “wishlist” of information and its packaging that would be useful to their programming activities. Second, Kulima summarised this and fed it back to climate scientists specialising in the provision of both short term (seasonal forecast) and longer term (climate change) climate information from the CSIR. The climate scientists then had the chance to consider the viability of the requests, based on what is already possible, might be possible, or is currently impossible based on existing climate science. The third stage involved the scientists feeding back their comments on the “wishlist” at another RIACSO meeting.

The opening of this communication channel, and facilitation of ongoing dialogue, has already addressed some issues that will lead to increased effectiveness of information provision. Seasonal forecasts (typically issued on a 3-6 month basis) give the likelihood of the total seasonal rainfall being greater than, less than, or merely reflecting a long term average, and have proven skilful in projecting total amounts of rainfall received, particularly in El Nino years. Scientists typically have been preoccupied with improving the confidence in predicting the start of the season, and were interested to hear from humanitarian organisations that farmers are more concerned with distribution within the season. Although this is scientifically difficult, in southern Africa prediction of mid-summer rainfall is quite skillful. Humanitarian organisations were interested in this information to pass on to farmers, since midsummer coincides with an important part of the agricultural season (grain filling and tussling of some crops).

Benefits of the opening of the communication channel between humanitarian organisations and scientists have clear benefits to both communities. Programming activities by humanitarian organisations can be more effective, both in terms of cost-effectiveness to donors and benefits to recipients. Scientists are also able to tweak their outputs and research foci based on the demands of a user-community, and thus improve the likelihood of their information being actively embraced in decision-making and programming. The dialogue continues, brokered by the boundary organisation, with the ultimate aim that salient climate information is made available to end users in a format that

is appropriate to their needs. In addition to seasonal forecasts, to date this has involved requested commentaries on topical issues, such as whether the 2010 Zambezi floods were related to climate change.

2. South African Risk and Vulnerability Atlas

South Africa's Department of Science and Technology recently published a Risk and Vulnerability Atlas (DST 2010) that presents selected findings regarding global environmental change impacts in sectors such as agriculture, health, biodiversity, water and South Africa's coastal/marine zone. The Department of Science and Technology (DST) identified a Risk and Vulnerability Atlas as one of the best and most practical ways to bridge the divide between scientists and policy/ decision-makers. It was conceived and designed with the goal of providing up to date global change and vulnerability information at regional, national, provincial and municipal levels. The Atlas assesses and consolidates the latest findings on global change impacts on key sectors in South Africa (such as biodiversity, water and agriculture) in an easily understood and relevant manner. Such information, made available through the Atlas in spatial and non-spatial format, has begun to serve the increasing requests by stakeholders in Southern Africa for information about global change impacts on key sectors in the area.

The volume has been distributed by the South African Local Government Association (SALGA) to each district and local municipality in the country to help inform decision-making. Given this intended audience of professionals without specific climate change training, the volume was designed for use by a non-specialist audience, but retained integrity of the scientific findings presented therein. The Risk and Vulnerability Atlas scientists thus worked with a professional science communicator to translate their findings for a lay audience, yet to retain information (and often, limitations of that information) they saw as critical. While this process could certainly have been more comprehensive (and will hopefully be so for the second edition), the dialogue between scientists and science communicator illustrates the key point here – scientists themselves often simply lack the ability to present their work for audiences other than readers of academic journals. It is critical that their skills set in this regard be developed – yet working in dialogue with a professional science communications team, we would argue, both allows scientists to spend more time on what is arguably their primary role – the science itself, and also teaches them key lessons in translating their work into a format understandable by multiple audiences.

Case study projects were included in the Atlas in order for scientists to demonstrate, in a practical way, how typical research findings accessible in the Atlas can be used in decision making and policy formulation. These studies such as within the Kruger to Canyons Biosphere Region, involved stakeholder dialogues to determine how information on environmental change can be successfully utilised to guide and inform adaptation strategies. The biodiversity case study focused on one of UNESCO's Biosphere Regions; the Kruger to Canyons Biosphere Region (Davis et al., 2010), which stretches across two provinces, Limpopo and Mpumalanga, and incorporates a range of different land uses. It is the third largest biosphere reserve in the world with a total size of 2,474,700

hectares. Three of the southern African biomes are incorporated in the biosphere reserve, including grasslands and Afro-montane forests, and the savanna of the Lowveld (Figure 1).

A three-stage stakeholder engagement procedure (mapping, questionnaire and workshops) was employed in this case study, which identified key stakeholders in the region, their information usage and needs and their principal climate change concerns, as well as the adaptation strategies that are currently possible to undertake. The primary information basis for the workshops was a handbook: *"A Climate Change Handbook for North-Eastern South Africa"* (Davis 2010), which was produced with the help of a professional science communicator. The handbook was designed to present future climate change scenarios and possible impacts of these changes in an understandable and accessible manner. The handbook also provides a background on the processes of global change and climate change and the definitions associated with these fields of research and serves as a reference guide for those currently engaged in impacts and adaptation research.

There was a keen desire amongst stakeholders to access climate change information as climate change information can provide a stepping stone for integrating short term weather changes as well as longer term climatic changes into planning and decision-making. Climatic extremes, ecosystem impacts and the increased prevalence of diseases were highlighted as priority areas for adaptation. All participants agreed that targeting funding, as well as capacity, training and awareness, are required and that proper policy planning at the national, provincial and local levels could improve adaptive capacity (Davis 2010)

Overall, interaction with stakeholders in the Atlas project has proved essential in ensuring that the outcomes both reflect and address the information needs of each of the stakeholders and that the nature of the information residing in the Atlas is relevant. Table 1 provides an example of the stakeholder feedback obtained through a preliminary workshop that highlights key sectors of concern, the intended users and the decisions that could be supported. Engaging stakeholders in this project has facilitated the sharing of spatial and non-spatial information and the co-production of knowledge within the Atlas community. To facilitate on-going stakeholder involvement, the project has a dedicated stakeholder outreach component, which includes Risk and Vulnerability Assessment Centres located in rural areas.

The Atlas is currently being extended into Southern African Development Community (SADC) countries in order to build capacity amongst the SADC member states in understanding information on climate risk. As with the South Africa example, active consultation with end-users will inform the exact content, format and packaging of the final product to ensure maximum utility.

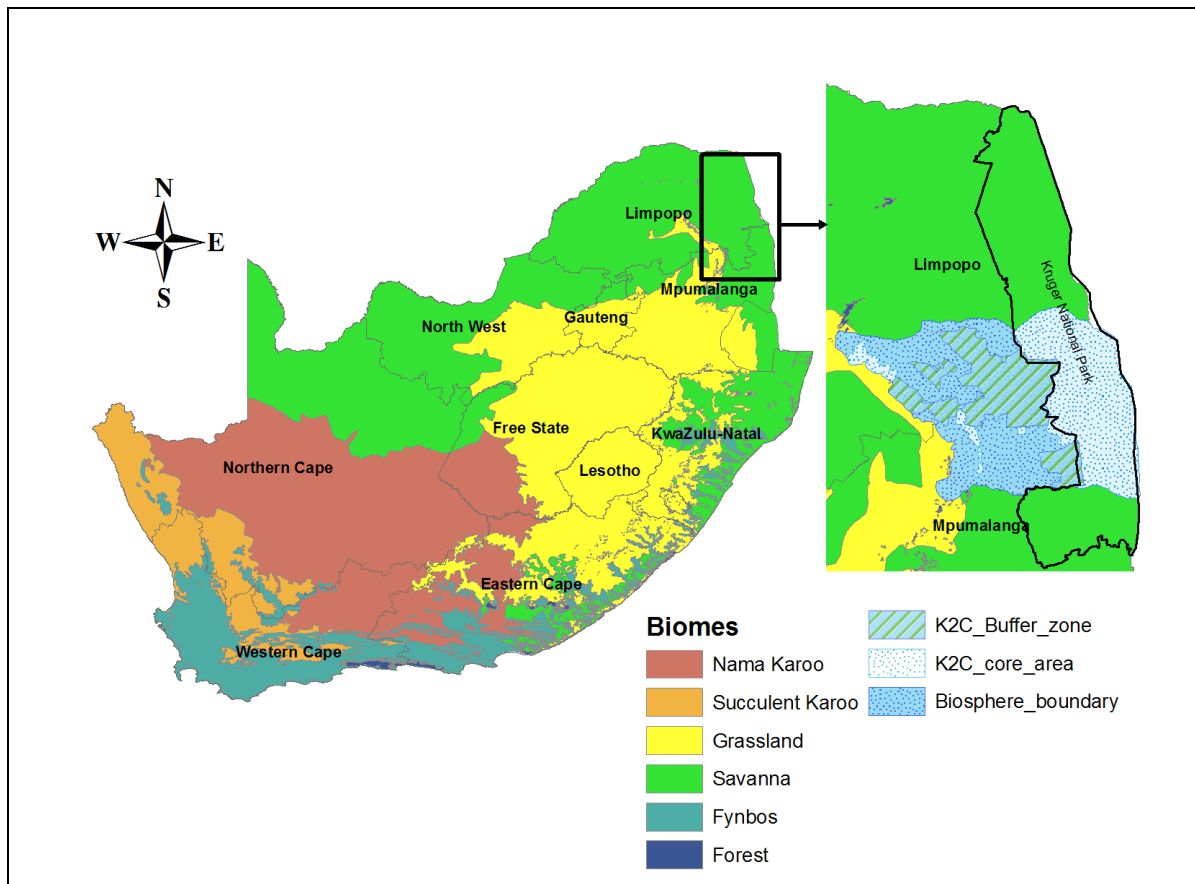


Figure 1: Location of the Kruger to Canyons Biosphere Region in South Africa

Table 1: Sectors of concern and inclusion in the Atlas and how it can support decisions

CONTENT TO BE INCLUDED (by sector)	USER	DECISIONS SUPPORTED
1. Air quality Data on the contribution of various sectors to air pollution, for example the percentage aerosols emitted from Sasol versus local fires.	Department of Water and Environmental Affairs	The evaluation of measures to mitigate the effects of pollution on vulnerable groups, such as those located in South Durban.
2. Agriculture Predicted changes in rainfall and evaporation at the fine scale.	Commercial farmers NGOs working with local subsistence farmers	The suitability of certain crops can be evaluated under difference climate change scenarios. This could aid food restructuring initiatives locally and nationally.
3. Biodiversity Current species distribution data and maps linked with the predicted future loss in biodiversity as a result of climate change, land degradation, and direct human involvement (poaching).	Department of Water and Environmental Affairs	Planning of new conservation corridors in order to mitigate the losses in biodiversity. The improvement of early warning systems to detect the impacts a certain factor, such as land reform, has on biodiversity.
4. Forestry Future temperature and humidity predictions for a specific vegetation types (biomes).	Department of Agriculture, Forestry & Fisheries	Update fire risk maps and create new maps at a finer scale. Evaluate the suitability of current fire protection boundaries to future fire risk.
5. Energy Energy demand and emission inventories per municipality.	Eskom Department of Energy	Planning of future energy expansion initiatives as well as studies detailing the stability of the future use of renewable energy sources.

<p>6. Health Demographic data such as age, gender, income status and morbidity. Maps of population increase and areas prone to certain diseases, such as malaria.</p>	<p>CSIR Natural Resource & the Environment Department of Health</p>	<p>Vulnerability maps of low income, high population areas to future climate variability and disease outbreaks can be created. Early warning systems and response plans can then be determined.</p>
<p>7. Industry and Development Aerial photographs of urban areas, zoning information and maps of proposed small-scale and large-scale developments. Vulnerability maps showing the risks to specific developments.</p>	<p>Municipalities Construction companies</p>	<p>The production of maps of no-go areas or highly sensitive areas that preclude development, such as areas along the coastal boundary.</p>
<p>8. Marine Projections of sea level rise and maps of areas vulnerable to storm surge events.</p>	<p>Coastal Municipalities</p>	<p>Guide the planning of future coastal development and to support changes in the EIA process.</p>
<p>9. Municipal/ Domestic Maps of current and future hazards (such as flooding and fire risk)</p>	<p>City of Johannesburg Johannesburg Road Agency</p>	<p>Disaster risk reduction management and response plans. Updating of 1:100 and 1:50 year floodline maps.</p>
<p>10. Water quality Maps detailing oil spill events.</p>	<p>Department of Water and Environmental Affairs</p>	<p>Review of legislation and measures to control marine pollution from land-based sources.</p>

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