International assessment of the value of Indigenous Knowledge to improve resilience to environmental change (all regions)

By Claire O'Neill

This scoping study includes assessment of the value of IK in improving resilience to climate change in four regions: Africa, Arctic, Australia and the Pacific with two main aims: to provide an up to date survey of the current use of Indigenous Knowledge for building resilience to environmental change; and to assess whether some of these strategies might be transferrable by bringing together key stakeholders from different regions to share their experiences and management approaches. This document provides a summary of the four studies that were completed.

Section A:

Geographic/historic context

The geographies/climates of the regions studied vary greatly.

In Africa, the study was focused on Kenya and Nigeria. The climate in these countries varies from alpine to humid tropical to arid, but both experience recurrent droughts and floods. A high level of dependence on agriculture highlights the problems of desertification and soil degradation. The Indigenous people of this region have been pushed off of their land due to the presence of colonial governments in the area. After Kenya's independence in 1963, people were able to buy back the land that they were pushed out of, only to face issues of increased populations and small land plots.

Australia is a vast landscape made up of a wide range of ecosystems spanning vast deserts, large areas of relatively intact tropical savannah thick rainforests, stone country off-shore islands archipelagos, mangrove systems, fringing coral reefs and complex river and wetland systems. Aboriginal Australians have had a long history of living with environmental change. Artifacts found in the north have been dated back 60,000 years which indicates that they are the oldest continuous living culture in the world.

The Arctic is characterized by cold and dark winters and summers with extensive daylight and bursts of biological productivity. Arctic Indigenous peoples had adapted to the environmental conditions of the region, developing the environmental knowledge, social organisation and skills, and flexibility to cope with extreme seasonal and interannual variability. The discovery of mineral resources across the region has spurred extensive exploration and development of the region, and there is growing concern that environmental change may make access to these regions easier, allowing even more exploitation of mineral resources.

The islands of the Pacific region vary in size, shape and habitat ranging from mostly tropical environments to sub-tropical, temperate and even sub-Antarctic. However, despite this diversity, there is much in the human and natural landscape that is common to the people living in the islands. The shared voyaging tradition in the region would have greatly enhanced an important knowledge base for Pacific peoples: understanding the sea and its creatures, shallow and deep ocean navigation, waves, currents, winds and stars.

Despite the obvious differences between geographies and histories of the Indigenous people studied, there are a number of key similarities between them. None of the participants in these studies are strangers to the struggle for recognition of Indigenous land (and sea) rights, and they have all dealt with effects of the presence

of European settlers to varying degrees. In the Pacific region, it was noted that the presence of missionaries and early European settlers and traders often deliberately and systematically eroded Indigenous Knowledge. The erosion of IK is problematic when we are attempting to assert the value of IK in improving resilience to environmental and climate change.

Land and sea are important aspects of IK in each of the studies undertaken (albeit sea is less important to IK in the African case studies as both communities examined are landlocked). This can be seen in the voyaging tradition throughout the Pacific. In the Arctic, both land and sea mammals and fish are vital to survival and cultural practices. A recent high court case in Australia has extended traditional ownership of land to include sea country within the high and low tide marks – there is a decision due mid 2009 for sea ownership in the Torres Strait Islands.

Arctic issues with exploration and development compound existing problems with autonomy and self governance, which is shared to a similar degree throughout these case studies as well.

The Africa (Kenya, Nigeria) case study points out that as yet there is no universally adopted definition of 'Indigenous peoples'. This is particularly problematic in Africa, as most African people can be considered Indigenous based on their existence in the area before colonial times. The current African context of the term 'Indigenous peoples' is used mainly to refer to those groups whose culture, way of life, land rights, access to natural resources, and political influence are marginalised by other groups that dominate the nation state. These people are further identified to have:

-close attachment to ancestral territories and natural resources in the area
-presence of customary, social and political institutions
-economic systems primarily oriented to subsistence production
-an indigenous language, often different from the dominant language of the country
-self-identification and identification by others as members of a distinct cultural group

This section of the Africa case study makes a valid point that Indigenous rights and land ownership falls into the background when the classification of Indigenous people is contentious. This could also contribute to the fact that IK is missing from education curriculum in the communities studied.

Human Resources

In all four case studies, the human resources for environmental and climate change mentioned fall into seven groups: traditional knowledge holders, community based organisations, governmental organisations, international organisations and development partners, regional organisations, non-governmental organisations, and academic institutions. Due to the variation between communities, there are a different number of these type groups involved in Indigenous Knowledge in each case study. Each community's primary relationship will be different – however the history of exploitation of Indigenous people means that there is a high level of distrust that persists in these relations.

In some cases, the organisations mentioned were established with the preservation and use of Indigenous Knowledge in policy development in mind, and in other cases the organisations are not directly concerned with IK. The diversity of these organisations allows them to cut across regions and ethnicity to address common concerns over one or more issues – however the distrust mentioned earlier can also hinder this process. A number of local and regional organisations have been

established throughout the study regions, and while their purposes and boundaries vary greatly they share the important role of giving voice to the concerns of Indigenous people, their land and sea country, and their culture.

Section B

Nature and scale of environmental change

Environmental change has always been observed, however the changes that have been visible in recent years have occurred much faster than those that were observed in the past. The level of understanding of the nature and scope of these changes varies dramatically from region to region. In the Pacific region, it was noted that the first time that people realised what was happening to one atoll was also happening to the others was from the two national adaptation consultations held in Kiribati in 2003.

In the Africa case study, the following changes were observed: increase in temperature, changes in rainfall patterns, drought and flood frequencies, changes in local flora and fauna, changes in incidence of diseases, and other changes such as increased desert encroachment and drying up of seasonal rivers (or the transition of rivers that were perennial to seasonal).

In the Pacific region, IPCC impacts were cited as evidence of the nature and scale of environmental change – with the ocean-related results of climate change being listed as particularly significant. It is likely that one or more Pacific island countries will have to be evacuated because of flooding or saltwater contamination, and internal relocation has already happened in Vanuatu, Kiribati and Tuvalu.

In Australia, ecosystems impacted by climate change are likely to have indirect impacts on the well-being of many Indigenous people. Projected biophysical changes such as the warming and drying of the centre of the continent, increases in extreme weather, rising sea levels and increases in sea surface temperatures are likely to have significant impacts on remote communities. The direct threats to communities caused by rising seas and bigger storm tides are only one of the more ‘visible’ impacts likely to occur in coming decades.

In the Arctic region, the nature and scale of environmental change is different to Africa, Australia and the Pacific region as the extreme change of seasons in the most regular and obvious. The existing climate extremes in the Arctic leave people vulnerable to changes in animal populations and the extremes of ‘man winters’ and ‘woman winters’ – however there have been a number of substantial changes in climate that extend beyond normal variation. Thinner sea ice has produced the following changes: coastal erosion, reduced opportunities for hunting, loss of habitat for marine species, greater industrial activity (without sea ice as a barrier), late snowfall (and therefore late freezing of lakes and rivers), hazardous travel conditions. As the permafrost thaws, land surfaces are being deformed and existing buildings and infrastructure damaged.

Each of the four case studies illustrates that environmental change is a consequence of complex factors; however this change has been further exacerbated by the impacts of climate change. It has been observed that the effects of environmental and climate change have increased as a result of increasing unsustainable human activities. Traditional ways of predicting weather no longer work or are no longer reliable, and natural signals that were used to trigger activities in the past are not less reliable. In the Arctic in particular, projections of sea ice retreat and sea level rise have underestimated the speed of change. The fact that Indigenous people who live

and work in their environments every day and are the first to notice many of the subtle signs of change was echoed throughout the case studies.

Examples of IK in use for adaptation

Traditional and Indigenous peoples may have useful lessons to offer about successful and unsuccessful coping strategies. Like the environment itself, Indigenous Environmental Knowledge began to decline with the arrival of foreign ideology, theology, technology and goods.

In the Pacific region, as in most of the regions encompassed in this study, the relationship between elders and the young is one in which the young inherit the elders stories of struggle and survival, values and vision for the future. As much of this described inheritance comes through day to day activities, it can be asserted that Indigenous Knowledge is a living form of knowledge and practice. As such, the issue of climate change needs to be seen as part of a whole relationship to the environment, environmental health and well being. Language is particularly important in the use of Indigenous Knowledge, as it often includes highly specialised language that is used to convey knowledge from one generation to the next. Language is also important in explicit and tacit IK. Explicit IK is knowledge that can be defined and learned (fruiting and harvesting seasons, names and uses of medicinal plants, etc), whereas tacit IK is understood more indirectly through implication and is much more difficult to articulate. The loss of traditional language means that much of this tacit IK is lost along with it.

In an effort to increase resilience to environmental and climate change in Africa, many people use advocacy to increase awareness of issues of sustainable development. Communities are encouraged to plant drought resistant crops and terrace their lands, and plant trees (reforestation) in relation to cultural activities. Some IK-related community practices are discouraged, as they do not foster adaptation to environmental and climate change. For example, in Australia cultural dugong hunting has been limited due to the decreasing population numbers of dugong and in the region studied in Africa authorities have banned cutting down hundred year old trees for funerals.

Government agencies use IK in a number of their awareness campaigns designed to increase public understanding of environmental and climate change issues by referencing things that occur now, but never used to occur. However, it should be noted that the Africa case study also highlighted some significant problems with using IK –respondents voiced concern over the possibility for conmen to infiltrate IK, and others spoke of scepticism and lack of research and reliability of IK. These problems were echoed to some extent across all of the case studies, but they were particularly concerning to African respondents.

The Arctic has a history of adaptation and transfer of knowledge between communities. In the Arctic in the 1990s, Alaskan walrus hunters were able to help hunters in Russia to regain hunting skills appropriate to traditional hunting. In recent years, Russian walrus hunters have been able to help Alaskan hunters learn how to hunt walrus that have hauled on land in response to summer sea ice retreat. This transfer of knowledge has allowed Indigenous communities to retain what the Arctic region perceives to be the best adaptation capacity for Indigenous communities: their autonomy to produce food for their peoples even under the rapid new conditions of change.

Ideas that could be put into practice / applying IEK

Traditional and Indigenous peoples may have useful lessons to offer about successful and unsuccessful coping strategies for environmental and climate change. As environmental and climate change increases, adaptation becomes even more critical – as some benefits of modernisation come at the expense of reduced flexibility. In the Arctic, for example, people are now tied to a particular location by the presence of community infrastructure and schools that previously weren't available. These impacts are most likely similar for Africa, Australia and the Pacific region to varying degrees.

In the Pacific region, and similarly in other Indigenous cultures, some cultural practices influence a community's behaviour by naming a particular place sacred or forbidden – this has been used to influence behaviour in the past and could certainly be used in conjunction with local and national government support for conservation practices.

The Arctic region found significant value in formalisation of traditional learning processes to compensate for erosion in cultural processes and links in communities. It is noted that training and increased access to technology will aid adaptation, as will a way to facilitate adaptation both within communities and beyond.

The Africa scoping study highlights the need to involve local people in planning and adaptation measures relating to climate change. This will allow policy makers to tap into some of the IK that local people use on a day to day basis. It is also noted that increasing community awareness on a number of levels is crucial to adaptation strategies.

In Australia, it was noted that there is a large unmet demand for well-explained plain English summaries of projected climate impacts. While there are a number of communities that have active involvement in climate change related projects, some regions have yet to take on climate change due to resourcing limitations, lack of information and contacts or other priorities.

Section C: response to the value of international workshop

An international workshop on IK has the potential to serve multiple purposes, from training and networking opportunities to opportunities to share lessons learned, and to develop collective responses to climate change, food security, water, health, climate and weather forecasting and prayer.

The response to the value of an international workshop varied across the case studies. While all respondents could see the reason for holding an international workshop, some were more concerned with local and regional opportunities. In Africa, for example, respondents felt as though the international dimension of the issue is well articulated by IPCC and that the problem now becomes downscaling to a local level. On the other end of the spectrum, people in the Arctic have been dealing with more extreme environmental changes over a more extended period of time – leaving them desiring thoughts and opinions from the rest of the world that may help them cope.

The amount of value placed on the international workshop seems to reflect the length of time that a particular region has been dealing with environmental change, and also highlights the regions that have a number of other problems to deal with on top of environmental change. For example, the Australian response to this section was an agreement that the workshop would be valuable, however the respondents also pointed out that a workshop at regional and/or local levels would be valuable as well. In this same vein, the concern in Africa seems to be more about sustainable

development than adapting to significant environmental changes. In the Arctic, on the other hand, environmental change has been studied and workshopped for a long time, and in a number of situations they have seen improvement in their ability to adapt by sharing traditional knowledge among Indigenous groups. The Arctic and Pacific regions of this study are also in a position where they can see what the effect of environmental change will be on them in the future – it is not difficult to comprehend what sea level rise will do to a low lying island nation, and the environmental changes associated with permafrost thaw experienced already are so extreme that people do not want them to get any worse. In the study regions in Africa and Australia, the effects of environmental change have often been overshadowed by more visible and pressing issues.

All of the study areas are concerned with the transfer of information concerned with environmental change to local communities through outreach and education, with an emphasis on decentralisation. This was suggested to highlight local and regional projects opportunities, as people are beginning to focus on the question of adaptation in the face of inevitable environmental change. The Arctic community felt particularly strongly about the use of shared information from people in similar circumstances would be helpful in demonstrating the range of options and ideas available. The workshop could at least provide a place where people could come together to share their common concerns and their need for developing new options and ideas, with the potential for people to learn from the experience of others, however it is important that these discussions are made locally relevant to all involved.

There was also concern over who would set the agenda for an international workshop.

Section D: Conclusions/discussion

Indigenous environmental knowledge today receives considerable attention, in contrast to having been largely ignored or marginalised outside of Indigenous communities until recent years. However, IK is not general knowledge, and in some situations knowledge holders are uneasy about sharing this knowledge with the general public; this leaves it open to a certain degree of scepticism from people who do not understand it. Past and current exploitation of Indigenous peoples has left many knowledge holders uneasy with the idea of sharing their knowledge with those outside of their community.

The application of IK (by itself or in combination with other forms of knowledge) to deal with environmental issues and other problems is still under-developed. IEK holders and those involved in the field are often not easily accessible by phone or email due to constraints on communications. Further development of applications of IK offers mutual empowerment of both Indigenous people and western scientists, however it is important that this work addresses the real needs of local people and involves those who are directly affected by environmental change. The development of the application of IK needs to be part of a genuine strategy for ongoing engagement, not merely a one off extraction of information, in order to be successful.

Degradation of IK is also worrisome. In the Pacific it was noted that much in the way of traditional knowledge systems has been lost, and the other studies highlighted the difficulty of maintaining and passing down traditional knowledge to the younger generation.

All of the areas covered in this scoping study highlighted potential for high levels of vulnerability and also resilience to environmental change. In many cases, this high

level of resilience occurs because there is no other choice. Collectively, these communities have much experience with environmental change and many lessons to offer the rest of the world, but they also have a great deal to learn in order to keep increasing their levels of resilience and to decrease their level of vulnerability to environmental change.