International Institute for Sustainable Development
Institut international du développement durable
http://www.iisd.org

Traditional Knowledge and Sustainable Development

DRAFT FOR DISCUSSION

Ashish Kothari

September 2007

Published by the International Institute for Sustainable Development

The International Institute for Sustainable Development contributes to sustainable development by advancing policy recommendations on international trade and investment, economic policy, climate change, measurement and assessment, and natural resources management. Through the Internet, we report on international negotiations and share knowledge gained through collaborative projects with global partners, resulting in more rigorous research, capacity building in developing countries and better dialogue between North and South.

IISD's vision is better living for all—sustainably; its mission is to champion innovation, enabling societies to live sustainably. IISD is registered as a charitable organization in Canada and has 501(c)(3) status in the United States. IISD receives core operating support from the Government of Canada, provided through the Canadian International Development Agency (CIDA), the International Development Research Centre (IDRC) and Environment Canada; and from the Province of Manitoba. The institute receives project funding from numerous governments inside and outside Canada, United Nations agencies, foundations and the private sector.

International Institute for Sustainable Development
161 Portage Avenue East, 6th Floor
Winnipeg, Manitoba
Canada R3B 0Y4
Tel: +1 (204) 958-7700
Fax: +1 (204) 958-7710

E-mail: info@iisd.ca
Web site: http://www.iisd.org/

Traditional Knowledge and Sustainable Development

By Ashish Kothari
September 2007

Table of Contents

Introduction

Humanity's troubled relationship with the earth has raised a series of questions on how to change our behaviour. How can we live more sustainably, and with greater sensitivity towards our fellow creatures? How should our economic activities be altered, to reduce and eliminate our negative impacts on the environment? Do we have with us the necessary wisdom and knowledge to make this happen?

Increasingly, it is being realized that answers to these questions will have to come from a variety of sources. While earlier it was thought that modern science and technology will provide the answers, it is now more than ever clear that traditional knowledge also has critical insights and practices to offer….some say even more so than modern science, if the much longer history of responsible use that traditional peoples have demonstrated is to be taken as an indicator.

This paper will examine the claim that traditional knowledge is critically relevant to the human quest for sustainable living on earth. It starts by examining the concepts of "traditional knowledge" (TK) and "sustainable development" (SD). It goes on to show the essential links between the two and contributions of TK to various sectors of human welfare and development. It then looks briefly at the loss of TK, and ways to revive or maintain it within the context of the overall need for securing the integrity of its holders. This paper does *not* deal in any detail with the protection of TK in the face of current intellectual property rights regimes, as this is an issue that has been adequately debated and discussed in academic and popular literature around the world.

The Terms

"Traditional knowledge" and "sustainable development" are contested terms, with widely varying definitions and interpretations. In this paper I do not attempt to go into these contestations, but only briefly provide some broad idea of the terms to set the background for the rest of the paper.

Traditional knowledge (TK) (or other co-terminous terms such as **indigenous knowledge**, and **local knowledge)** generally refer to the long-standing information, wisdom, traditions and practices of certain indigenous peoples or local communities. In many cases, traditional knowledge has been orally passed for generations from person to person. Some forms of traditional knowledge are expressed through stories, legends, folklore, rituals, songs, art, and even laws. Other forms of traditional knowledge are often expressed through different means. One distinction that is often made between TK and modern or "western" knowledge is that unlike the latter, TK does not separate "secular" or "rational" knowledge from spiritual knowledge, intuitions, and wisdom. It is often embedded in a cosmology, and the distinction between "intangible" knowledge and physical things is often blurred. Indeed, holders of TK often claim that their knowledge cannot be divorced from the natural and cultural context within which it has arisen, including their traditional lands and resources, and their kinship and community relations.

It is important to emphasize that TK is not, as often perceived, a static phenomenon, but one that is constantly evolving with changes in the internal and external environment of the community concerned.

The term "sustainable development" (SD) first came to vogue in the report of the World Commission on Environment and Development, *Our Common Future*. It was here defined as development that "meets the needs of the present without compromising the ability of future generations to meet their own needs". Many limitations of this definition have been pointed out, including that it is predominantly anthropomorphic (focusing only on how development should sustain human needs, and not considering the needs of other species), that it does not adequately take equity into account, and that it is in this form not possible to operationalize. A more detailed definition is that it is a collection of methods to create and sustain development which seeks to relieve poverty, create equitable standards of living, satisfy the basic needs of all peoples, and establish sustainable political practices, while ensuring that there are no irreversible damages to natural resources and nature. Whatever the definitions, countries and communities realize that SD can be operationalized only through a set of indicators and criteria for assessing the impact of development processes and projects. Following up from a number of international conferences and treaties on the subject, several countries have begun to use these to gauge whether they are on the path of sustainability (e.g., for United Kingdom, see http://www.sustainable-development.gov.uk).

The Relevance of Traditional Knowledge to Human Welfare and Development

The realization that TK has not become redundant in today's world, is increasingly widespread. The Rio Declaration, the Convention on Biological Diversity, the documents coming out of the World Summit on Sustainable Development, and a whole host of other international instruments and forums have emphasized the current (and future) relevance of TK. Institutions such as the World Intellectual Property Organisation, the International Labour Organization (especially Convention 169), the Food and Agricultural Organization, the World Health Organization, UNESCO, UNEP, UNDP, the UN Commission on Human Rights, and a number of other international organizations have similarly given it importance.

The World Conference on Science, organized by UNESCO and the International Council for Science (ICSU), in its Declaration on Science and the Use of Scientific Knowledge, explicitly recognized the importance of TK and the need to respect and encourage its use for various forms of human endeavour (ICSU 2002).

The UN Declaration on Indigenous Peoples, endorsed by the UN Human Rights Council in June 2006 with a recommendation for the UN General Assembly to adopt it (http://www.ohchr.org/english/issues/indigenous/declaration.htm), recognizes "that respect for indigenous knowledge, cultures and traditional practices contributes to sustainable and equitable development and proper management of the environment."

It is particularly instructive that the United Nations Committee on Trade and Development (UNCTAD), which essentially deals with international economic relations, has also given TK

considerable importance. Since 2000 when its member States decided to address the issue of the use and protection of TK, it has promoted work on the subject, including bringing together 250 experts from 80 countries in October-November 2000, to deliberate on the subject. The book coming out of that has a series of articles dealing with diverse aspects of the role of TK in human welfare and sustainable development (Twarog and Kapoor 2004).

Most commonly accepted is the role of TK in the "traditional" or primary sectors of the economy: agriculture and pastoralism, forestry, fisheries, water, and products made from natural resources such as crafts, furniture, housing, and so on (Posey 1999). Given the fact that a majority of the world's population remain dependent on these sectors for their survival and livelihoods, and for various aspects of shelter, the contribution that TK makes and can continue to make towards sustaining billions of people is quite clear (though not necessarily acted upon in policies and programmes of most countries).

However, the role of TK in the secondary and tertiary sectors of the economy too is becoming clearer. A whole range of industrial products are dependent on or use TK in varying ways. This is true for sectors like textiles, pharmaceuticals, household good, and so on. Health care, through all systems of medicine, is to varying degrees of extent dependent on TK, or on combinations of TK and modern knowledge. According to the World Health Organization (WHO), the majority of the world's population (in areas like Africa, up to 80 per cent of the population) is dependent for varying degrees on medicinal plants through traditional health care systems (www.who.int/mediacentre/factsheets/fs134/en/). Numerous studies have demonstrated the contribution that TK also makes to the modern pharmaceutical industry and modern health care, a contribution that may only increase as people in the western world (including westernized people in the "developing" countries) become more conscious of plant-based cures. The WHO estimates that 25 per cent of modern medicines are made from plants first used traditionally.

Services like food distribution, education, climate forecasting and warning, and community care also continue to be performed through institutions using traditional means, and in some cases even modern institutions of the government or corporate sector are discovering the value of this. In a Food for Work programme in Nepal, significant losses of food in the distribution system were reduced when the programme switched to the use of local technologies and networks (Gorjestani 2004). Rates of maternal mortality at childbirth were reduced significantly when traditional institutions (including the traditional birth attendant) were used in combination with modern communications (Musake 1999, cited in Gorjestani 2004).

The trade sector too has seen a significant and continuing contribution of TK related products and services, as recognized by institutions such as UNCTAD (Twarog and Kapoor 2004).

Though much more recent, there is now a growing recognition of the role that TK could play in humanity's response to the gravest threat it now faces: climate change. The fact that communities have for centuries and millennia adjusted their behaviour and strategies and knowledge systems to changes in their surrounds, is central to this realization. Communities adjust their agriculture/pastoralism/fishing and hunting-gathering to subtle or not-so-subtle changes in climate, to threats from other communities or invasions, to disease and

epidemics, and so on. Traditional systems appear to be static, but they are indeed dynamic in making such adjustments. Such adaptability could be a key factor in the response that we give as a species, to the impacts of climate change….and TK's role in all the sectors named above could provide the alternatives needed to build towards a more sustainable way of dealing with our atmosphere. As an example of the potential of this (as yet considerably under-utilized), researchers, government agencies, and indigenous peoples of Canada are collaborating in research and action related to climate change that brings together TK and modern knowledge (see http://www.itk.ca/environment/climate-change-index.php; and Birkes and Jolly 2001). Parties to the CBD are also beginning to highlight this issue, as pointed out by its Executive Secretary Ahmed Djoghlaf at the "International Expert Seminar on Indicators Relevant to Indigenous Peoples, the Convention on Biological Diversity and the MDGs" (Banaue, Ifugao, Philippines, 5 March 2007) (http:// www.biodiv.org/doc/speech/2007/sp-2007-03-05-ind-en.doc).

A key scientific question that faces us today is: how does one assess unsustainability? What indicators and criteria and methods can be used for this? Here too, TK has a vital role, for traditional peoples and communities have used a wide range of their own indicators and methods to get an idea of sustainability. Water flows, the presence/absence or appearance/disappearance of certain species, the behaviour of domestic or wild animals, and other kinds of changes in their surrounds are used in myriad sophisticated ways to learn about ecological changes that may be detrimental or beneficial.).

The Erosion of Traditional Knowledge

More than ever before, TK faces serious levels of erosion. As the peoples and communities holding TK themselves face a range of threats from outright annihilation to "assimilation" into "mainstream" society, the knowledge they hold also slips away. A clear and alarming indicator is the threat to languages, with some scholars estimating that half of the around 6,000 languages spoken today may become extinct by 2050 or 2100 (http://www.en.wikipedia.org/wiki/Endangered_language; http://www.ogmios.org/manifesto.htm; http://www.wholeearthmag.com/ArticleBin/325.html#top). A language (oral or written) is not only a means of communication between members of a people or community, it also contains within it the essence of considerable information and knowledge and wisdom of the people or community. Its loss is therefore a loss of TK. The threat is greatest in the case of TK that has passed down and evolved orally, since it disappears with every generation that has not been able to hand it down to the next one.

Across the world, as one model of modern education and means of mass communication spread, newer generations of traditional peoples are simply not imbibing TK in way that their parents or ancestors did. As growing demand for natural resources from a greedy global economy touches every community, elements of TK that managed to maintain sustainable levels of harvest become redundant or sidelined, and soon forgotten. Most of all, as the people in such communities themselves get amalgamated into urban-industrial sectors, they no longer have a need for TK….at least not for a while till many of them find themselves cast out of the economy and adrift, but now without even their TK or without any natural resources to fall back on.

Reviving, Encouraging, Using TK

The realization of TK's importance to SD, and growing concern about its continued erosion, have prompted a number of countries to adopt policies and programmes recognising and promoting it. International agencies, NGOs, and indigenous peoples or local communities themselves, have also initiated a number of measures.

In Uganda, the National Council of Science and Technology has initiated a process to highlight the importance of TK in agricultural and health sectors. A national workshop on the topic resulted in a Kampala Declaration on Indigenous Knowledge for Sustainable Development, and steps to integrate TK into the country's Poverty Eradication Action Plan and other official processes (Gorjestani 2004). In the Philippines, a law relevant to the protection of TK has been promulgated, though implementation lags (http://www.grain.org/brl/?docid=767&lawid=1469). In India, the Biological Diversity Act contains a framework provision for TK protection, but the government has been dragging its feet in making this provision operational (Apte 2006). In many countries, the government and/or NGOs are helping promote TK-based products and services, including forest and agricultural products, herbal medicines, cultural heritage or traditional health-based tourism, ecotourism, and handicrafts.

Some international agencies have also proposed or adopted principles for the use of TK in relation to SD. The International Council of Science and UNESCO, for instance, propose the following principles (ICSU 2002):

- Ensure the full and effective participation of traditional knowledge holders during all stages of elaboration of sustainable development policies, plans and programs, alongside the scientific and technological community;
- Acknowledge and respect the social and cultural bases, including the authority structures within which traditional knowledge is embedded;
- Recognize the rights of traditional people to own, regulate access and share benefits of their unique sets of knowledge, resources and products
- Ensure that traditional knowledge holders are fully informed of potential partnerships and that these are only entered into with prior informed consent;
- Promote models for environmental and sustainable governance that incorporate principles of genuine partnership and collaboration between scientific and traditional knowledge;
- Promote training to better equip young scientists and indigenous people to carry out research on traditional knowledge.

Considerable discussion and a number of resolutions under the CBD have also dealt with TK. These related to both its role in conservation and development, as also issues regarding its protection. Article 8j of the CBD mandates that countries "respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices". How

precisely this is to be done, has been the subject of negotiations and discussions at several sessions of the CBD Conference of Parties as also its various sub-groups. One of the arenas where this discussion is on-going are the negotiations relating to the "access and benefit-sharing" provisions. The CBD-generated "Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising Out of Their Utilization" (http://www.biodiv.org/decisions/default.aspx?m=cop-06&d=24), specify the following: "Respecting established legal rights of indigenous and local communities associated with the genetic resources being accessed or where traditional knowledge associated with these genetic resources is being accessed, the prior informed consent of indigenous and local communities and the approval and involvement of the holders of traditional knowledge, innovations and practices should be obtained, in accordance with their traditional practices, national access policies and subject to domestic laws."

UNCTAD's *Biotrade* initiative has been developing principles and tools in relation to "those activities of collection, production, transformation, and commercialization of goods and services derived from native biodiversity under the criteria of environmental, social and economic sustainability." (http://www.biotrade.org/Intro/bti.htm). An informal meeting of experts in 2006 came up with some objectives and elements of BioTrade guidelines on benefit-sharing, which includes transparency, adequate compensation and other benefits (monetary and non-monetary), recognition of TK, and empowerment of local communities to handle negotiations and implementation of benefit-sharing arrangements (http://www.iisd.org/pdf/2006/abs_btfp_biotrade.pdf).

The fear that a number of indigenous and local communities have, however, is that even well-meaning initiatives such as the ones under CBD and UNCTAD, may encourage the kind of commercialization of life and knowledge that may be unacceptable. While in theory such processes are open to non-monetary benefit-sharing including political empowerment, in practice, most negotiations may restrict themselves to monetary transfers. To quote the International Indian Treaty Council (IITC): "For us, "trade" is an equitable exchange relationship between individuals, communities, or peoples, but we point out that there are aspects of material or immaterial elements of the indigenous peoples that under no condition --- we repeat, under no condition --- can be sold or exchanged, and we also ask that this be respected." (Ibarra 2004). Moreover, indigenous peoples have pointed out that Bonn Guidelines and other ABS documents or recommendations emanating from CBD and other international forums, are incomplete without the recognition of a number of rights: to self-determination, to their territories and resources (including restitution of resources taken away in the past and kept in international or national gene banks or museums), to their knowledge and practices, to prior informed consent, and others (http://ipcb.org/pipermail/ipcb-net_ipcb.org/2006-February/000043.html). Without such recognition, they say, the principle of "equitable benefit-sharing" is toothless.

The UN Declaration on the Rights of Indigenous Peoples, adopted in June 2006 by the UN Human Rights Council (but continuing to struggle to find adoption by the UN General Assembly), stresses that: "1. Indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as the manifestations of their sciences, technologies and cultures, including human and genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs, sports and traditional games and visual and performing arts.

They also have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions; 2. In conjunction with indigenous peoples, States shall take effective measures to recognize and protect the exercise of these rights."

Traditional peoples themselves, or sensitive scholars and NGOs who have worked amongst such peoples, have articulated a number of visions and practical measures for sustaining TK (see for instance, Posey and Dutfield 1996, GRAIN 1995 and GRAIN 2004, Singh 1998). Most of these reject the view that conventional intellectual property rights (IPR) regimes can help protect or promote TK, and instead assert that what is needed a holistic system that includes rights and responsibilities to natural resources, knowledge, and culture. A crucial message contained in these approaches, one that even the sensitive modern worldview often misses out on, is that TK is not something that can be saved in isolation of its holders. It is so integrally connected to the way of life of the traditional peoples themselves, that it only makes sense *in situ,* when used and evolved by such peoples. Documenting TK through ethnobiology and other means of study may be important, and may contribute to its continuation, but this can never substitute for the live propagation and evolution of the knowledge through its holders themselves. As the IITC states: "we believe that in order to the protect the light, one should not only protect the light bulb; it is also necessary to protect the cables that transport the power and, above all, to protect the source that produces or generates said power." (Ibarra 2004).

Indeed in the absence of the central involvement of the knowledge-holders, documentation of TK could become a threat by opening it up to biopiracy. In India, for instance, the move to document TK through Peoples Biodiversity Registers (or Community Biodiversity Registers) is rapidly gaining ground, but a number of community organizations and NGOs have raised concerns about whether it could open up even oral TK to piracy if the PBRs/CBRs are not given adequate protection. On the other hand in cases where it is being carried out under the control of communities themselves, it is acknowledged to benefit them in various ways including the revitalization of knowledge that was otherwise dying out.

A corollary to this is that TK can be meaningfully used and propagated only if the natural and physical environment in which it has evolved, is sustained. A forest-dwelling community that has developed a range of TK elements relevant to living with the forest, may remain a community in many senses of the word even if the forest were to disappear or if it were to be alienated from such forest, but it would lose its forest related TK as surely as it would if the community itself was to disintegrate. Environmental movements and the movements for the survival of indigenous peoples and local communities are therefore natural allies.….though the two do not always realize it and are sometimes at loggerheads due to certain narrow visions of environmentalism or human rights.

References

Apte, T. 2006. *A Simple Guide to Intellectual Property Rights, Biodiversity and Traditional Knowledge.* Kalpavriksh, GRAIN, and IIED, Pune/Delhi.

Berkes, F. and D. Jolly. 2001. Adapting to climate change: social-ecological resilience in a Canadian western Arctic community. Conservation Ecology **5**(2): 18. [online] URL: http://www.consecol.org/vol5/iss2/art18/

Gorjestani, N. 2004. Indigenous knowledge for development: Opportunities and challenges. In Twarog and Kapoor, op. cit.

GRAIN. 1995. Towards a Biodiversity Community Rights Regime. *Seedling,* October 1995 (www.grain.org/seedling/?id=5).

GRAIN. 2004. Freedom from IPR: Towards a convergence of movements. *Seedling,* October 2004 (www.grain.org/seedling/?id=301).

Ibarra, M. 2004. Statement by the International Indian Treaty Council. In Twarog and Kapoor, op.cit.

ICSU. 2002. *Science, Traditional Knowledge and Sustainable Development.* ICSU Series on Science for Sustainable Development No. 4. International Council for Science, Paris.

Musake, M. 1999. The challenge and opportunities of information and communication technologies in the health sector. Paper prepared for the African Development Forum 1999, Makerere University, Kampala.

Singh Nijar, G. 1998. Community intellectual rights protect indigenous knowledge. *Biotechnology and Development Monitor*, No. 36, p. 11-12.

Posey, D (ed). 1999. *Cultural and Spiritual Values of Biodiversity.* United Nations Environment Programme, Nairobi, and Intermediate Technology Publications, London.

Posey, D. and Dutfield, G. 1996. *Beyond Intellectual Property: Towards Traditional Resource Rights for Indigenous Peoples and Local Communities.* International Development Research Centre, Ottawa.

Twarog, S. And Kapoor, P. (Eds.). 2004. *Protecting and Promoting Traditional Knowledge: Systems, National Experiences and International Dimensions.* United Nations Conference on Trade and Development. Document No, United Nations, Geneva. UNCTAD/DITC/TED/10.

World Commission on Environment and Development. 1987. *Our Common Future.* Oxford: Oxford University Press.