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REVISION OF THE SECOND PHASE OF THE COMPOSITE REPORT – ASIA/AUSTRALIA

Note by the Executive Secretary

1. In decision VIII/5 B, I, paragraph 3, the Executive Secretary was requested to further develop phase two of the composite report taking into account comments made at the discussion held during the fourth meeting of the Working Group on Article 8(j) and related provisions. In decision VIII/5 B, I, the Conference of the Parties renewed the mandate of the Advisory Group[1] to Article 8(j) and related provisions, which was requested to continue to provide advice on the further development of phase two of the composite report.

2. Based on information received and input from the Advisory Group, contained herein is the revised report for the Asia/Australian region on the status and trends regarding the knowledge, innovations and practices of indigenous and local communities. This report has provided input for the Executive Summary of the second phase of the composite report on the same subject (UNEP/CBD/WG8J/5/3) and it is largely based on the original consultants report as contained in UNEP/CBD/WG8J/4/INF/4.

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[1] Established by decision VI/10 and VII/16 E

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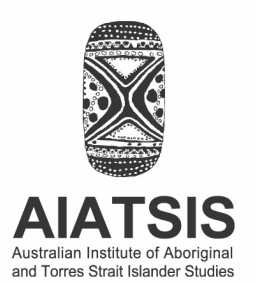

REPORT ON THREATS TO THE PRACTICE AND TRANSMISSION OF TRADITIONAL KNOWLEDGE REGIONAL REPORT: ASIA AND AUSTRALIA

Phase II of the Composite Report on the Status and Trends
Regarding the Knowledge, Innovation and Practices
Of Indigenous Peoples and Local Communities
Relevant to the Conservation and Sustainable Use of Biodiversity

Prepared for the Secretariat of the Convention on Biological Diversity

by

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2005

TABLE OF CONTENTS

Introduction

This report provides a compilation of the threats to the practice and transmission of traditional knowledge (TK) in the Australian and Asian Region. As a compilation, the report seeks to provide information on the broader trends of these threatening processes, given through categorisation into what might be termed classes of threat, under which more specific trends are discussed.

This 'trends' approach has been taken due to the manifest complexity of both the threats to TK and the region involved. In regard to the region, it is the most populous on earth with an estimated population in excess of 3.5 billion people, including a large number of Indigenous peoples and Local Communities. The region also covers some 25 states, some covering vast regions, some smaller, all with diverse political systems and styles of Government and many in extremely biodiverse and culturally diverse regions.

These complexities and this diversity alone make it difficult to go beyond broad trends, and although it is attempted to substantiate arguments presented using specific examples, it is difficult to speak directly on particular populations and on particular states.

In relation to threats to TK, it also becomes quickly evident that what is initially thought to be relatively straight forward discussion is in fact a matter of great complexity. This quickly becomes evident when it is revealed there are different types of threats, those that set the conditions or environment through which TK is acted upon and secondly, those actions which have a more direct affect on TK and its practice. Both of these sets of indirect and direct threats are required to be acknowledged in order to build a comprehensive picture and it is hoped that this has been achieved in this report.

A further area of complexity is the multi-disciplinary nature of what constitutes a threat to TK, which can be seen through the variety of discussion on topics such as political forces, socio-economic climate, access to lands and others. Also, the manner in which many of these topic areas interact and sometimes synergise, is an added complexity.

These complexities are all matters that need to be dealt with however, and they do not present insurmountable issues in relation to the discussion on threats to TK. Using a trends approach, it is possible to provide to broadly overcome many of these issues, and it is anticipated that the information provided in this report presents the foundation from which specific and positive actions are able to be taken in support of the practice and retention of TK.

The nature of the topic too, that is "threats" to TK, also presents some challenges which were reflected upon in the development of this report. This term was discussed at length during the formulation of this report, with issues surrounding the negativity of the term threats and perhaps the implications that it contains of an inability to respond on the part of Indigenous peoples and Local communities. In response to this, in much discussion with Indigenous peoples and Local communities, it was preferred to talk on matters such as pressures or risks to TK, as these terms imply the ability for a response and to manage pressures and risks.

Still, it has been necessary to cast this report in relation to threats, which has the unfortunate ability to make discussion negative and expressive of crisis, which is not always the case. More important in the cases discussed in this report is the message of strategising for the management of these pressures to TK, a type of activity that Indigenous peoples and Local communities are keen to engage in, and are keen to partner with states in order to enhance sustainable outcomes.

A further matter on this issue regards the context and reading of this report as it is important to ensure that it is read in conjunction with reports from Phase I of the status and trends regarding TK. [2] This is important as while this report discusses threats and outlines activities that are deleterious to TK, it can emphasises negative aspects and actions without the balance of outlining positive activities that states, in particular, are engaged in to support TK. This balance is presented in the Phase I report, which discusses many positive programs and which when read in conjunction with this report, provides a more complete picture of the subject matter.

As to the form of the report, it is broken into two sections. The first is aimed at providing a context for which to view threats to traditional knowledge, how they are able to manifest and to gain an appreciation of how significant they may be. This is performed through undertaking a discussion which examines TK, what it is, what it is composed of, what its value is to its holders and to an extent to others, and how TK may compare to western knowledge as valid system of knowledge. This draws from existing literature and in places adds what is hoped is a useful contribution to the TK dialogue, all with the aims of enhancing the basis upon which threats to TK are discussed and understood.

The second section is an examination of the threats to TK that exist within the region, broken into classes and sub-divided into particular threats, which are then discussed. It is possible to expand greatly on the threats listed such are the pressures that are being experienced by the Indigenous peoples and Local communities of the region. As mentioned however, trends are discussed in order to provide as broad a treatment to the variety of threatening processes and actions that exist.

In compiling this report, it was noted on many occasions that the Indigenous peoples and Local Communities have much to fear in regard to their bodies of knowledge and their unique cultural ways. This is the case as although there are major efforts within each state and at an international level to provide a stronger recognition of their rights and interests, there are still a number of processes, actions and policies that continue to pressures TK. These need to be addressed and revered as a matter of priority, and it is hoped this report can assist in this.

It is hoped then, that this report, compiling information in the manner in which it does, can provide for enhanced understandings of the pressures that face Indigenous peoples and Local communities and their TK, and assist to lay the foundation for actions which respond to the unique needs and interests of Indigenous peoples and Local Communities.

The report also hopes to add to the dialogue of TK, and to the very important TK dialogue that the Convention on Biological Diversity (CBD) is able to foster. This CBD dialogue is of importance for states and Indigenous peoples and Local communities alike, as it essentially concerns sustainability, a matter of fundamental concern for all parties. As such, this dialogue should be entered into openly and used positively to enhance mutual understandings and to create agendas of mutual benefit for all concerned.

[2] This Phase I report is: Langton, M. and Ma Rhea, Z. (2003). 'Traditional Lifestyles and Biodiversity Use Regional Report: Australia, Asia and the Middle East. Composite Report on the Status and Trends Regarding the Knowledge, Innovations and Practices of Indigenous and Local Communities Relevant to the Conservation and Sustainable Use of Biodiversity'. Report prepared for the Secretariat of the Convention on Biological Diversity, Montreal, Canada. UN Doc No.: UNEP/CBD/WG8J/3/INF/4

Background on Traditional Knowledge

Prior to being able to properly realise the actions and pressures that may threaten TK and the manner in which these threats manifest, there are a number of subject areas that need to be examined in some depth. These subject areas include an exploration of what TK consists of, its characteristics, some of the dimensions of TK that are rarely recognised, the standing of TK and its value.

There is a large and growing body of literature on the topic of TK, much of which is valuable. Through its catalogue of debate, it is beginning to point to a growing and reasonably common understanding of the nature of TK. In many ways though, this dialogue, which tends to be western in origin and places occidental knowledge as an arbiter of TK systems, falls short of fully appreciating some of the more difficult to conceptualise aspects of TK. These limitations in this dialogue place restrictions on the manner in which TK is understood and appreciated, and therefore place restrictions on understandings on the manner in which threats to TK can be understood and appreciated.

It is because of this issue that there is an attempt in the opening section of this report at adding further material to this discourse from an Indigenous perspective. This is seen as important for both the general and CBD contexts of the TK dialogue, is it critical to gain a solid appreciation and enhanced understanding of TK so that both TK and therefore its associated threats can be further understood.

What is Traditional Knowledge?

Within existing literature there are a myriad of definitions for TK, reflecting the amount of work and level of debate that has been occurring at a global level on this topic. There are a number of individuals and organisations which have debated TK and who have presented definitions on the topic, all of which are wordy and many of which are complicated. This reflects the complexity of the issue at hand, and underscores the defiance of TK, or any knowledge system for that matter, to submit to a reductionist perspective that seeks to place boundaries in areas where there are none.

Although defining something such as TK is reductionist and begins to arbitrarily limit the topic, it is still useful to present a level of definition with the purpose of building understandings, rather than as an endpoint. To do this, a definition of TK by the International Council for Science from a paper presented to the 27th General Assembly of the ISCU in 2002 has been selected. This selection has been made for a couple of reasons. Firstly, it is more concise than many that are published, while still retaining sufficient breadth to begin to derive understandings of the topic, and secondly, to acknowledge the distance traveled by the science world in recognising TK. Given this definition was accepted at an ISCU congress amongst significant and vigorous debate after many years of resistance, this distance is considerable.

The ISCU definition points out several important characteristics of TK by stating that

> *Traditional knowledge is a cumulative body of knowledge, know-how, practices and representations maintained and developed by peoples with extended histories of interaction with the natural environment. These sophisticated sets of understandings, interpretations and meanings are part and parcel of a cultural complex that encompasses language, naming and classification systems, resource use practices, ritual, spirituality and worldview.*[3]

This description is useful in that it encompasses a number of the key attributes of TK. As mentioned though, providing this type of definition should only be the foundation upon which understandings of TK should be built and it is therefore important to expand this and further examine characteristics of TK as this assists in critical analysis of the actions and events that may be considered a threat to TK itself. These attributes then can be expanded as follows by stating that TK is:[4]

- **Locally based,** in that bodies of TK are situated within particular territories and environments and as such, are based on experiences and strategies generated by the people living in particular territories and environments in response to both the constraints and advantages that are presented in those territories. From this, TK can be said to spatially *in situ*, that is, practiced and transmitted within the territories and environments that bodies of TK are developed.

- **Culturally based**, in that TK, the realisations that have lead to it and interpretations that are made from it are rooted within the broader cultural traditions of the people or community who hold it. As such, TK has been developed from and is communicated and transmitted through societal and cultural norms and precepts as developed through the particular epistemology of a people or community and the cultural lens that a people or community possesses. TK then can be said to be culturally *in situ*, that is, practiced and transmitted within a cultural context.

[3] International Council for Science (2002). 'Science and Traditional Knowledge'. Report from the ICSU Study Group on Science and Traditional Knowledge. Paper delivered to 27th General Assembly of ICSU, Rio De Janeiro, Brazil, September 2002. P 3

[4] Adapted from Woytek, R. (1998). 'Indigenous Knowledge for Development, A Framework for Action'. Report 19060, The World Bank, Knowledge and Learning Centre, Africa Region pp 1 – 2

- **Temporally based** in that TK is "constantly evolving and changing, being produced as well as reproduced, discovered as well as lost. TK can "evolve, adapt and transform dynamically with time. New materials are incorporated, new processes are developed, and sometimes new uses or purposes are evolved for existing knowledge".[5] This is a quality that gives TK a 'temporal space' in that it responds to new stimuli such as environmental change or catastrophic or disastrous events as a matter of necessity, a quality that is often unrecognised. TK then, can be said to be temporally *in situ*, that is, it exists within time and the context within which a particular time presents.

- **Tacit**, and, therefore, not easily codifiable. Codifying TK may lead to the loss of some of its properties as it removes it from its territorial, cultural and temporal contexts. From a TK perspective, codifying TK may be about recording information rather than knowledge and removes cultural norms from the use of knowledge such as ritual and concepts of respect and reciprocity.

- **Transmitted orally**, or through imitation and demonstration.

- **Experiential** rather than theoretical. While based on ideas, theory and experimentation, TK is knowledge that is useful to people and communities if able to be applied and practiced. As such, TK is constantly re-tested, through experience and practice, in the rigorous environment of the survival of peoples and communities, a matter that constantly reinforces bodies of TK and traditional practice. Importantly, this should not be given to mean that TK holders do not theorise, as theory and ideas are the root of innovation, which is required in the face of changing circumstances or improving processes. Rather, noting that a characteristic of TK is that it is experiential refers to the quality that a theory or idea must be properly tested, verified and proven of value within the context of community life before being accepted and incorporated into a knowledge system.

- **Learned through observation and repetition**, which is a defining characteristic of tradition, even when new knowledge is added. Repetition aids in the retention and reinforcement of TK.

- **Broad in its scope** in that TK "… systems exist in fields such as medicine, food and agriculture, environmental management and biodiversity conservation, nutrition, and cultural objects" [6] as well as "hunting, fishing, gathering, agriculture and husbandry; preparation, conservation and distribution of food; location, collection and storage of water; struggles against disease and injury; interpretation of meteorological and climatic phenomena; confection of clothing and tools; construction and maintenance of shelter; orientation and navigation on land and sea; management of ecological relations of society and nature; adaptation to environmental/social change; and so on and so forth."[7]

- **Holistic** in that bodies of TK often recognise the relationships between the elements of a system and particular parts of a knowledge system, as well as the relationship between the biophysical and the human. This is often coupled with notions of respect, obligation and reciprocity between the spheres of the biophysical and the human.

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[5] Gupta, A. (2002) 'Rewarding Traditional Knowledge and Contemporary Grassroots Creativity: The Role of Intellectual Property' (Draft), p. 10. Cited in World Intellectual Property Organisation, (2002) 'Traditional Knowledge – Operational Terms and Definitions'. WIPO Document WIPO/GRTKF/IC/3/9 presented to the Third Session, Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, Geneva, 2002 p 13.

[6] *Ibid*.

[7] International Council for Science, *op cit*, p 3.

- **Pragmatic** in that bodies of TK deal with enabling their holders to make pragmatic decisions based on their ongoing viability and future prosperity. This is an important characteristic which replies to often romanticised notions of TK, and given that it is a fundamental aim of any society to ensure its long term survival, the ability to make pragmatic decisions to create the conditions required is a necessity.

It is probable that there are a number of other key characteristics that may be raised. However with these characteristics as a basis, it is possible to form a broad understanding of the nature of TK. Further, this broad understanding allows the commencement of discussion on other issues relating to TK that can assist both generally and in the context of the CBD. This is felt to be important as currently, many important aspects of a more viable TK dialogue appear to remain unacknowledged. If there is a commitment to properly understand what constitutes a threat to TK, then these largely unexplored aspects of TK need to be further scrutinised.

Three Dimensions of Traditional Knowledge

Possibly the most important realisation to take from the broad characteristics of TK is one that underscores the multiple spaces in which TK exists. This is opposed to the commonly perceived one-dimensional space of TK, in that it exists only in a territorial setting, but in no others. From previous discussion however, it is possible to assert that TK exists within cultural and temporal contexts as well as spatial. Developing these notions are key to developing understandings of TK and in turn, in developing an improved sense of what constitutes a threat to these bodies of knowledge. As a result, the following text seeks to develop these ideas.

Spatial Context of TK

The spatial context of TK is the simplest to conceptualise, which is probably the reason it is most often emphasised. This refers to the actual space, the territory within which a body of TK is practiced as well as the particular biophysical attributes of this territory such as unique biota or ecosystem processes. It is worth noting that these territories can be terrestrial, aquatic (marine, estuarine, freshwater) or a combination of some or all of these.

The spatial context of TK is significant given that environments are spatially dynamic, and knowledge that may be applied in one area by a people or community may not be able to be applied in another given the environmental differences that are likely to occur.

Given this description, it is possible to reemphasis that TK exists in a spatial context or space, and that a body of TKs continued viability is contingent on its *in situ* practice within this space.

Cultural context of TK

While describing TK as inhabiting as spatial ‘space’ may be relatively straight forward, the description of TK inhabiting a cultural space is a notion that is more difficult to conceptualise. Nonetheless, it is an important idea to convey in order to gain a further appreciation of matters that may affect TK in a negative manner and to consider many of the criticisms that are leveled at TK, many of which are derived from the fact that TK is very strongly rooted in the cultural traditions of the people or community that hold it.

The cultural space of TK then, refers to the notion that TK inhabits a space created and dictated by the epistemology, spiritual beliefs, worldview, society and social network of a people or community – or put simplistically, within a space largely determined by the culture of a people or community. As a result, TK is generated within, practiced within, interpreted through and transmitted through the norms and precepts that these cultural factors produce and maintain.

Describing TK as having a cultural space is a difficult notion to unpack in a manner which conveys the idea properly, particularly in light of the overwhelming opinion of Indigenous peoples and Local communities from the Asia and Australia region that TK actually represents culture, or that culture represents TK. While on the surface this may seem confusing, what it begins to illustrate is the notion that a peoples or a community's culture is integral to the processes of their knowledge and its development, interpretation, management, use and passage.

There are a many ways in which the cultural space of TK can be expressed, many of which serve to illustrate some quite significant differences between TK systems and occidental knowledge. One example is the manner in which many Indigenous peoples and Local communities embargo particular types or elements of knowledge within segments of the community, an alternative to the view that knowledge is free, open and common property. As an extension of this, knowledge is often only passed on when the holder of the knowledge believes a member of the next generation is ready or worthy to receive it as measured according to the cultural precepts of the holders of that knowledge.

Perhaps the most striking illustration of the cultural space of TK relates to the worldview possessed by Indigenous peoples and Local communities through which knowledge is generated and interpreted. A major part of this perspective is that environment (land and water) has significant value in a religious and spiritual sense, rather than a material sense, as well as the strong values of interconnectedness between humanity and land that this worldview generates. Rather than viewing land as separate then, many cultures of Indigenous peoples and Local communities describe creation from their territories, and built on this are networks of interconnectedness between people and territories as well as deeply ingrained notions of reciprocity, kinship and obligation, both actual and spiritual, to the natural environment and to the territories in which people live.

These cultural notions are fundamental to the manner in which people interpret events, generate new ideas, verify information and incorporate new knowledge into a knowledge-system. They are also fundamental, due to the values or knowledge contained within them, in the decision-making processes engaged in by TK holders, and the manner in which the cost of certain actions is measured in reaching a decision.

TK systems are uniform though. Rather, like TK being spatially dynamic, bodies of TK are also culturally dynamic with differences, sometimes small but often significant, between peoples, communities and cultures. This reflects the fact that peoples and communities have cultural differences, see the world in different ways and make different interpretations, even of the same events, according to cultural perspectives and the epistemologies and world views that this informs. Of this there is no better illustration than the significant cultural differences in the cultural traditions of western peoples and Indigenous peoples and Local communities and the resultant differences in traditional and occidental knowledge systems.

Given the notion of TK inhabiting a cultural space, it is possible to emphasis that bodies of TK are knowledge systems that operate *in situ* within a culture. This begins to expand the *in situ* notion of TK practice beyond the spatial context, and into a cultural one, and implies that disruptions to the cultural institutions of a people or community will also disrupt TK and its associated processes. This is an

important concept in considering threats to TK, as if it is considered that TK is practiced *in situ*, it begins to reveal that cultural pressures are also important to scrutinise in addition to pressures of a spatial nature.

Temporal context of TK

This refers to the notion that TK exists in time, is not fixed, but rather contains processes, which enable adaptation to new conditions, evolution of knowledge, new innovation and the formulation of new knowledge with the passing of time. This points to the notion that TK is temporally dynamic, that is, changes with time according to new influences or new innovations.

This temporal context of TK is of particular importance, as it is the quality of a knowledge system that allows a people to change to new or changing circumstances, which put simply, allows the survival and ongoing prosperity of a people or community.

This notion of temporally dynamic TK is simply a reflection of the well-understood concept that environments are also temporally dynamic, as demonstrated through fossil record and disciplines such as palaeoecology. It is not as easy to demonstrate this temporal dynamism compared to the spatial and cultural dimensions. It can be assumed that if it were possible to sample several moments in time spread over a significant time frame, it is likely that the body of knowledge of a particular culture in a particular territory would be seen to be changed through the development of new innovations and changes in circumstance such as climate and environmental change ,natural disaster or cultural contact. Once again, this temporally dynamic nature of TK reflects the temporally dynamic nature of the world itself and if peoples and communities were unable to adapt, their long-term viability would not be assured.

With this argument, it is possible to state that TK can also be said to be located *in situ* in time, in a similar fashion to its spatial and cultural contexts, with knowledge being lost and gained, realisations being made and paradigms being discarded along with times passage. This extends the notion of TK being practiced and transmitted *in situ* even further by stating that TK is practiced and transmitted *in situ* within a space (or a territory), culture and time.

Adding this idea does present the danger of creating a discussion that is abstract when it is the practical and actual that is being sought within the context of threats to TK within the mandate of the CBD. This need not be the case though, when it is considered that the manner in which disruptions occur within this temporal dimension relate to the extent to which a people or community is denied access to the culturally defined mechanisms that enable it to respond to pressures and events, and to create new knowledge to cope with these pressures. As such, when scrutinising threats to TK and considering the temporal context, it is these cultural mechanisms for response to pressures that require most consideration.

The importance of the 3 dimensions of TK

Of greatest significance when unpacking these notions of spatially, culturally and temporally dynamic bodies of knowledge is that TK can be said to exist *in situ* within all these contexts. All too often, the term *in situ* refers only to the spatial dimension of a body of TK, and fails to acknowledge the cultural and temporal dimensions of the same system of knowledge. Such a conceptualisation of TK, *in situ* in space only, fails to recognise a great portion of the qualities and characteristics of TK, and in turn leads to discussion and developments which both fail to acknowledge and to address what amounts to what should be a significant amount of the TK dialogue.

Importantly, these three dimensions of TK are not independent of each other. It is not possible to separate a territory from a culture at a particular time, as each of these dimensions of a people's or community's knowledge equally informs the other. It is for this reason, this mutual reliance of these dimensions, that it is particularly important to acknowledge that TK exists *in situ* in each of them and it does so simultaneously. As each dimension relies on the other, to attempt to isolate them leads to approaches that overemphasise one at the expense of the others, an approach that fails to appreciate the interrelationships between these basic and fundamental building block of a knowledge system and generates actions in support of TK that are in danger of missing their target through not acknowledging major elements of the issue at hand.

More significantly for the context of this report these three dimensions are critical in providing us with a context through which threats can be in the first place identified, and secondly, understood. It is common, with the narrow view that TK exists only in a territorial space, to relate threats to TK as being based solely on disrupting a peoples ability to access and maintain control over their traditional territories. While this is important, if it is considered that TK also inhabits a cultural space, it is possible to realise that actions or pressures that adversely act upon the cultural institutions of a people or community, disrupt cultural ways and lead to cultural breakdown, will also negatively affect traditional knowledge.

Similarly, if pressures are placed on a people where they are unable to access the portions of their knowledge system which allows them to evolve their knowledge with changes of circumstance, which are common and pressing in contemporary times, it is likely that bodies of TK will be threatened. It is through these concepts that threats to TK need to be realised, analysed and understood, which is reflected in the manner in which threats to TK are presented in Part II of this report.

To summarise, TK is treated as being concurrently *in situ* within the dimensions of space (or territory), culture and time, with threats and challenges to the practice and transmission of TK being measured against how an action affects one or more of these dimensions. With this approach, there has been an ability to understand and report some of the more foundational issues related to the manner in which TK is threatened, while acknowledging and continuing discussion on matters that have already been well developed.

Supplementary issues related to the characteristics of Traditional Knowledge

Having broadly discussed the definition, characteristics and dimensions of TK, it is necessary to also discuss supplementary notions relating to TK which affect the manner in which it is viewed and which support responses to issues raised in relation to TK that threaten its practice and transmission.

These following sections are presented in this report for a number of reasons. First and foremost, as a report of issues of significance raised by Indigenous peoples in their discussions on TK, as evidenced by the regional consultative workshops in both the Philippines and Australia. Secondly, these issues contain responses to many of the criticisms that are leveled at TK and assist to demonstrate that bodies of TK are not merely sets of information, but are systems of knowledge that people and communities are able to live by and prosper with. Thirdly, these issues respond to some of the issues that relate to the scope of the CBD, and offer a perspective that the mandate of the CBD should be cognisant of the seeming indivisibility of TK.

Much of the following discussion also relates closely to the previous section, and in fact augments it. In the context of this report on the threats to TK, these enhanced understandings are important, as they also allow an improved knowledge of how threats to TK may manifest, and some of the responses that may be

used by Indigenous peoples and Local communities to ameliorate negative effects and to respond to criticisms.

'Holism'

One of the characteristics of TK, is the notion that it is 'broad in its scope'. While 'broad in scope' does convey to some extent the broad nature of the elements of TK, it fails to properly represent the relationships between them. One term that is used to overcome this and to express the types or relationships referred to is the notion of 'holism' or 'holistic'. It is unfortunate that this term can be considered to be passé, which lessens its impact and causes some to ignore this important quality of TK systems. While this is true, it is still worth examining in order to generate a platform from which to respond to criticisms of TK systems.

In the absence of a better term then, bodies of TK may be described as being holistic. This idea has led commentators such as Posey to remark that "TK is far more than a simple compilation of facts. It is the basis for local-level decision-making in areas of contemporary life".[8] Instead of viewing TK as a "simple compilation of facts" then, it should be viewed as a "disciplined approach to knowing and understanding the nature of reality".[9] As this is the case, it is impossible for TK to be "separated from other aspects of daily existence, such as ethics and spirituality",[10] and that generating a truth and understanding of the nature of the environment and indeed the world in which a people or community is situated requires an understanding and "study of [the] cycles, relationships, and connections between things",[11] all of which TK embodies.

This realisation begins to support the notion that TK has a cultural space, in that it refers to ethics, spirituality and the nature of existence itself. More importantly for this part of the TK dialogue though, is that this notion of holism begins to describe understandings of the relationships between elements of the biophysical environment and the structured or disciplined nature of this knowledge. A further concept expressed by this idea of holism is the cultural value possessed by many Indigenous peoples and Local communities of a relationship and interconnectedness not just between the biophysical, but between the biophysical and the human and that these two spheres are not just closely linked, but are inseparable, and rely equally upon each other for their sustenance.

This is a marked difference from a western perspective, which often places the biophysical as 'the other', something separate and apart from people. Indigenous peoples and Local communities tend not make this distinction in favour of expressing culturally bound concepts of kinship, reciprocity and obligation to the biophysical and the natural world

TK then, is broad in its scope in relation to the information that it contains, but more importantly, it is a framework of knowing about not only the elements of information but the manner in which these elements of the natural sphere interact and relate and also how the human sphere interact and relates to this. These understandings of interactions, system function, kinship and reciprocity are of particular importance in bodies of TK, as it is with this framework of knowing that a people or community interprets events and stimuli and to make decisions in response. These decisions may of course be on

[8] Posey, D.A. (1998). 'Biodiversity, Genetic Resources, and Indigenous Peoples in Amazonia: (Re) Discovering The Wealth of Traditional Resources of Native Amazonians'. Paper prepared for AMAZONIA 2000: Development, Environment, and Geopolitics, June, 1998 Institute of Latin American Studies University of London, p 5.
[9] Higgins, C. (2000). 'Indigenous knowledge and occidental science: How both forms of knowledge can contribute to an understanding sustainability' i*n* Hollstedt, C., Sutherland, K. and Innes, T. (eds) 'Proceedings, From science to management and back: a science forum for southern interior ecosystems of British Columbia'. Southern Interior Forest Extension and Research Partnership, Kamloops, B.C., p 149
[10] *ibid*
[11] *ibid*

day-to-day matters, or matters of much greater gravity that may effect the long-term viability of a people or community in the future.

Of course it is trite to state that the ability to interpret events and to make decisions through a system of knowing is fundamental to all societies, each of which does this through their own particular way of knowing as attributed by spatial, cultural or temporal differences. In the case of TK holders though, these decisions are made using a framework, which include a broad variety of influences, from understandings of parts of a system, and how these elements interact, which is balanced with the relations and obligations between a people and their territory. Once again, this is a significant difference from Western based knowledge, which although recently grappling with such concepts as triple bottom line decision making, still tends to make decisions based on short term human benefit rather than long term vision and ideas of reciprocity.

In summary, while the term 'holism' could be considered passé and of limited impact in the TK dialogue, it needs to be recognised that TK is not just broad in its scope in that it contains knowledge on a broad range of elements within a system, but that these relate and interact to each other as well as to the human, social and cultural. This is a realisation of particular importance as it allows a realisation of some of the major aspects of a TK system, such as respect, reciprocity and obligation. It also begins to explain the reasons that Indigenous peoples and Local communities resist the segmentation of TK systems, as this fails to recognise these critical concepts that exist within TK, and hence key understandings of the knowledge systems themselves.

Segmentation of TK

In conducting work related to TK, particularly in the context of the CBD, there is often pressure to reduce TK into component parts, most commonly to the element of traditional ecological knowledge (TEK). The rationale given for this is that the mandate of the CBD relates to the natural environment and ecological processes, and broad notions of TK that speak to other elements of knowledge is beyond this mandate.

While this rationale has some merit from the CBD perspective, given that the Convention itself is constructed from the perspectives of the States who generally work within the western knowledge tradition, holders of TK often protest that this oversimplifies the subject matter of TK systems by not acknowledging their holistic nature, and thereby engaging in flawed decision making processes that omit critical information and processes. Indigenous peoples and Local communities respond to this in two ways, firstly relating to the breadth of scope of TK and secondly through citing the holistic nature of traditional bodies on knowledge.

On the first point, it has already been discussed that TK incorporates a diverse range of topics as reflected by the 'broad in scope' characteristic of TK. In examining the topic areas listed in discussion on breadth of scope, it can be noted that one of the main components of these varied knowledge sets is in fact TEK, and that many of these sets of knowledge relate directly to and rely to a large extent, directly upon TEK.

From this it can be asserted that while discussion may be occurring on a variety of TK topics such as medicine, food production, construction and maintenance of shelter or even confection of clothing and tools for example, these discussions directly relate to the TEK of a people and can actually be viewed as being the practical manifestation, of the knowledge of the properties and values of the components of the environments or ecologies within which a people or community live. That is, they are in many ways the practical application of a peoples or communities TEK.

This is an important realisation, as it allows a consideration of TEK that takes it beyond its conceptual foundation and information base and into its practical manifestation. This is a necessary step to take, and reflects the practical and pragmatic nature of TK, a context that any consideration of this topic should not

only acknowledge, but incorporate. As such, it would seem an obtuse judgment, which has it that the practical application of TEK as manifested through the variety of areas that TK exists in, doesn't directly relate to the direct subject matter and mandate of the CBD. It could be expected that such a narrow interpretation not only neglects to acknowledge the main qualities of TK systems, but also reduces the scope of the CBD to one that is only of limited use or interest to Indigenous peoples and Local communities.

A second point on this issue can be made in regard to the holistic nature of TK, and the manner in which this makes a segmented visualisation of TK systems difficult. As has been discussed, bodies of TK tend to be holistic in nature, that is, they recognise and celebrate the connections between particular elements of a system in which a people community or community are situated, and the connections between a system and the people or community that live within it.

On this topic, Indigenous peoples attending the Australian consultative meeting for the development of this report provided a visual analogy of their TK systems as akin to a web upon which particular elements of knowledge are situated. There are two powerful aspects of this analogy, the visual depiction of the interconnectedness of the elements of a TK system and how each element related to the other, as well as the tangible illustration that when one aspect of a TK system is affected in some way, the effects would be seen to ripple amongst the other elements of a system.

With such a visualisation, it can be argued that isolating one particular part of a TK system such as TEK without giving due regard to the others it is connected to and reliant upon such as cultural institutions, medicinal knowledge and food production (to name a few examples), does not properly acknowledge how negative influences in one area of knowledge almost inevitably leads to negative influences in another and in the end, how a TK system actually operates.

If a discussion on TK fails to acknowledge how they operate, and seek to emulate this rather than attempting to fit TK systems into the norms of western knowledge, it is a discussion that could not be expected to succeed. As such, Indigenous peoples and Local communities have concerns that development of policies and programs to support TK that occur from discussions such as this will have little effect due to a lack of appreciation as to the need for a more global perspective of the issues at hand.

It is due to these factors that Indigenous peoples and Local communities do not support a segmentation of TK and a narrow definition of the CBD mandate to TEK only. Not only does this omit consideration of the practical manner in which TEK is manifested through other areas of a TK system, but it also omits critical acknowledgements on how TK systems actually operate, that is, with interdependence between the broad scope of topics that knowledge exists on. It is feared that if these omissions are made and if TK is reduced to only one component part within the CBD dialogue, then the effectiveness of the CBD in actually supporting programs and measures to support and enhance the practice and transmission of TK will ultimately be ineffective, a result that is counter to the interests of both Indigenous peoples and Local communities and one would expect, the CBD itself.

A meaning of the word 'Tradition'

A further issue for discussion are notions of "traditional" and "traditionality", terms which contain connotations of bodies of knowledge that are not just rooted in the past, but belonging to the past and which are perhaps not relevant for today. Indigenous Peoples and Local Communities often challenge these assertions and point out the dynamism of TK and its continued evolution with changing stimuli and pressures. This relates directly to the notion of TK or any knowledge system inhabiting a temporal space or being situated *in situ* in time, with knowledge being temporally dynamic, and begins to expand upon how this dynamism may occur.

In response to criticisms of antiquity and past relevance of TK systems, it has been noted by Indigenous people that "what is "traditional" about traditional knowledge is not its antiquity, but the way it is acquired and used. In other words, the social process of learning and sharing knowledge, which is unique to each Indigenous culture, lies at the very heart of its "traditionality". Much of this knowledge is actually quite new, but is has a social meaning, and legal character".[12]

Essentially then, "tradition" is related to social and cultural processes of learning and knowledge sharing, rather than an unbending rule defined by or linked only to events long past. This view of tradition, as one which looks towards processes rather than as being defined by past events, implies that TK has a broader social meaning and that rather than existing as dry sets of factual information it supports a social and cultural framework through which TK can generated, perpetuated and refined through the generations of peoples and communities.

If tradition is given to refer to processes of knowledge generation and passage, it is also of importance to recognize that this also incorporates processes of innovation and verification of knowledge. As has been recognized, the term "traditional", while it "underscores knowledge accumulation and transmission through past generations … obscures [the] dynamism and capacity [of TK] to adapt and change."[13] This is an issue of some significance, and if we have it that tradition refers to processes of the creation and passage of knowledge rather than as a definitional moment of time, then it can be asserted that this same process is the social and cultural means through which a people or community can generate and verify new knowledge.

Many commentators have remarked on this topic. Posey has stated, "TEK is holistic, inherently dynamic, constantly evolving through experimentation and innovation, fresh insight, and external stimuli".[14] This sentiment is echoed by Flavier who states that TK "systems are dynamic, and are continually influenced by internal creativity and experimentation as well as by contact with external systems".[15] There are a host of other observers who have made similar remarks.

What is essential here is that the processes that are defined by tradition incorporate ways and means of developing and verifying knowledge, not just holding it or passing it on. This verification is conducted within the context of the viability of a people or community, and the ability to create new knowledge in response to new stimuli and then to subsequently verify it through culturally defined processes is a key element of TK systems that may mean the difference between a people prospering in the future or perhaps not coping with change and declining.

If "'[c]ulture', 'tradition', 'laws' and 'customs' are forever in a state of 'becoming', emerging out of the conditions in which they are embedded"[16] and "[c]hange is the enduring state common to all societies",[17] then tradition is the method and social process through which this change occurs. Once again, this is a particularly important point to appreciate, as a failure to do so leads only to erroneous conclusions relating to definitional moments for bodies of TK that occur in the past, and of knowledge systems that

[12] Four Directions Council, (1996) 'Forests, Indigenous Peoples and Biodiversity, Contribution of the Four Directions Council to the Secretariat of the Convention on Biological Diversity, 15 January 1996' *as quoted in* Posey, D. A., and Dutfield, G. (1996). 'Mind the Gaps: Identifying Commonalties and Divergencies Between Indigenous Peoples and Farmers Groups'. Draft paper presented to the 5th Global Biodiversity Forum, Buenos Aires, Argentina (1-3 November 1996), page 3

[13] International Council for Science, *op cit*, p 4.

[14] Posey, 1998, *op cit*, p 5.

[15] Flavier, J.M. et al. (1995) 'The regional program for the promotion of indigenous knowledge in Asia', *in* Warren, D.M., Slikkerveer, L.J. and Brokensha D. (eds) The cultural dimension of development: Indigenous knowledge systems. London: Intermediate Technology Publications. pp. 479-487.

[16] Bauman, T. (2002) *'Test 'im blood': Subsections and shame in Katherine*. Anthropological Forum, Volume 12, No. 2, 2002, pp 205 – 220. p 205.

[17] *ibid*

are relevant only to the past. If these social process are properly acknowledged however, one of the major issues facing TK, that is, derision based on past relevance can be properly examined, and overcome.

Knowledge or Pseudo-Science? The validity of TK systems.

The previous section leads us to perhaps one of the most pervasive issues relating to TK, its standing and perceived validity as a viable and vigorous system of knowledge rather than as a pseudo-science, as it is sometimes cast. Although many Indigenous peoples and Local communities find this type of discussion to be patronising and racist, it is worth briefly examining as this is one of the major issues confronting TK holders as they seek to maintain their lifestyles and life ways.

There are two main reasons these types of criticisms may arise in relation to TK, the strong cultural context of the knowledge which is reflected in its telling and its passage leading some observers conclude that TK is more about "superstition" than information and knowledge being one. Another is that that TK seems inert to observers who first experience bodies of TK many years after their establishment, perhaps even thousands of years, without a good understanding of the stimuli that have been responded to and the epistemological lens through which they have developed.

Such factors seem to make it difficult for western science to acknowledge the viability and importance of bodies of TK. This lack of acknowledgement then allows western-based thinkers to cast TK as a subordinate or inferior set of knowledge. This leads to subordination of TK and hence of TK holders themselves, and to a significant level of dispossession of these peoples and communities by Governments, scientists, religious groups and environmentalists, to name a few.

This is a very serious issue for Indigenous peoples and Local communities, and is the source for many of the challenges and threats that are faced by TK holders. Further, this issue is by no means a matter of the past, as dispossession through perceptions of inferiority of TK remains a significant issue in contemporary times. Accordingly, it is worthwhile responding to this issue, given that it allows a more thorough examination of TK threats and the appropriate responses to these threats

Firstly, it is interesting to note that even in the face of such perceptions of inferiority, some entities, in particular commercial interests that base their activities on western knowledge systems, have begun to incorporate TK into their work to create efficiencies and maximise profit. The Biotechnology and supplemental medicine industries are two such examples, with DiMasi noting that by using TK, "[c]ompanies like Shaman Pharmaceuticals and The Body Shop found that research and development costs could be cut by as much as 40%, which – given that a single new medicine can cost over US$200 million to develop – represents not inconsiderable savings".[18] This is just one example

To expand, in a rather dry manner, Ostergard et al observe that:

> *No longer is the traditional knowledge of indigenous people of the developing world considered the ramblings of pseudo-science. Instead, universities and corporations see indigenous intellectual property as a fountain of potential research for consumer products. The change in Western research bias is a result of the increase in evaluative technology, which allows for a more detailed examination of traditional methods. Thus the contributions and lessons of indigenous and traditional approaches are now under reconsideration. The*

[18] DiMasi, J., Hansen, R., Grabowski, H. & Lasagna, L., (1991). 'The Cost of Innovation in the Pharmaceutical Industry'. *Journal of Health Economics*, 10: 107-142 *cited in* Posey, *op cit*, p 4.

> *'shaman' is no longer a 'crazed witch doctor' but someone who possesses knowledge of interest to corporations.*[19]

In this passage, the symbolic use of the term "crazed witch doctor" points out the patronising manner in which Indigenous Peoples and Local communities have been viewed in the West. Of course, when there is money to be saved or made, these perceptions, while perhaps not put aside, are suspended to some degree and for a time, and TK and its holders become central to objectives of states and the corporate entities they house.

This growing legitimacy for bodies of TK (and subsequent rate of exploitation) by western interests in a number of fields of endeavor has lead to a critical re-examination of the strength of bodies of TK leading to a growing realisation that TK shares several important properties with other bodies of knowledge.

Still, one of the main hurdles for TK is that "despite this recognition by some members of society and academia, it is still rare that [TK] is accepted on *par* with occidental science. Unlike classic Euro-centric science, it is seldom perceived as objective quantifiable knowledge. Much of mainstream society still believes that Western scientific knowledge is "better" or more "reliable" than knowledge generated by Indigenous systems".[20]

As mentioned, perhaps one of the reasons for this is the embedment of TK within a cultural complex, a matter that makes it difficult for western scientists to properly interpret, as taken out of its cultural context and world view, it loses much of its meaning. But Western scientific knowledge is no different to this in existing within spatial, cultural and temporal contexts, and to claim it is acultural or is not derived from a cultural tradition is a misrepresentation of reality. This is stated as western science very firmly exists within a cultural complex which leads people to both apply scientific method and to make interpretations in certain ways. What is of issue however is that TK has a vastly different cultural complex surrounding it, and it is perhaps this difference that is one of the most important factors that has lead Western science to perceive it in a patronising manner.

While this cultural complex has been examined, it is worth re-iterating in the context of this discussion. Once again the recent examination of this topic by the ISCU is highlighted, mainly because of the challenges that such recognition represents to the scientific community. The ISCU state that:

> *As any other system of knowledge, TK is embedded within specific worldviews*[21]

This is an acknowledgement that western science for example, is also derived from a tradition, and acknowledgement whose importance cannot be underemphasised. Also useful are further parts of this passage, which begins to develop an understanding of the difference in the western and traditional knowledge traditions, while not assigning value to either. The paper states:

> *the worldview embraced by TK holders typically emphasizes the symbiotic nature of the relationship between humans and the natural world. Rather than opposing man and nature as in Occidental thought, traditional knowledge holders tend to view people, animals, plants and other elements of the universe as interconnected by a network of social relations and obligations.*[22]

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[19] Ostergard, R.L. Jnr, Tubin, M., and Altman J., (2001). 'Stealing from the past: globalisation, strategic formation and the use of indigenous intellectual property in the biotechnology industry'. *Third World Quarterly*, Vol 22, No 4, pp 643–656.
[20] Higgins o*p cit*, p 149.
[21] International Council for Science (2002), *op cit*, p 4
[22] *Ibid*

It is apparent that this difference in worldview has been difficult for many western thinkers to reconcile with. This may be the case as western thinkers tend to follow the traditions of the European enlightenment and the development of rationalist thinking, perhaps even without knowing it, which is a perspective that seems to prefer the view of land and the environment as "the other", that is, a separate entity that is either to be rationalised, tamed and exploited or, in an interesting dualism, wild, separate to humanity, unpeopled and to remain so – a wilderness.[23]

This demonstrates but one of the stark differences between the fundamental philosophies from which traditional and western knowledges are derived. This difference however, seems to be becoming more accepted, or at least needs to be if one of the major threats to TK is to be removed, particularly with the acknowledgement that "[a]*s any other system of knowledge*, TK is embedded within specific worldviews".[24] This perspective begins to invalidate criticisms of bodies of TK based solely on cultural constructs, although there remains considerable distance to travel on this topic in the states of the Asia and Australian region.

While these growing understandings are assisting to remove many of the prejudices towards bodies of TK, it is the increasing appreciation of the internal verification systems and experience based learning of TK that is likely to have a further and positive impact on the acceptance of TK. There is a growing realisation of the dynamic nature of traditional knowledge, fuelled by realisations that "TEK is holistic, inherently dynamic, constantly evolving through experimentation and innovation, fresh insight, and external stimuli."[25]

Again this refers to the previous section and is raised again here due to the propensity of western scientific knowledge to celebrate and emphasise this characteristic within itself without recognising the same qualities in other bodies of knowledge. Bodies of TK are required to be dynamic, they are required to verify their information and change or cope with external or new stimuli, as the people that possess them are concerned, as all others, with survival and prosperity.

As a brief summary of this issue, it is possible to state that TK is not a pseudo-science, and should not be subordinated as such. There are a variety of processes that are occurring at present which is beginning to validate TK, particularly where it has some level of commercial applicability, which would not be able to occur if bodies of TK did not processes which allow them to validate innovations, revalidate existing knowledge and eject old knowledge that is no longer useful. The propensity of western interests to exploit traditional knowledge is testament enough to this.

Also, the fact that TK systems exist in a different cultural context than that of western knowledge and treat the development and transmission of knowledge in a different manner is not a justification for considering them inferior or subordinate. The west dishonestly assumes that western knowledge is acultural and completely objective when clearly it is not. Bodies of TK are viable knowledge systems that have supported and continue to support their holders even in the face of the significant challenges that the contemporary world presents. In many ways though, these pressures are no more challenging than those faced in the past, and accordingly, the ability of TK systems to support their holders, generate knowledge and innovation and allow survival and prosperity should be proof enough of their effectiveness and continued relevance.

[23] See for example Adams, W.M. (2003). 'Nature and the Colonial Mind' *in* Adams W.M. and Mulligan M. Eds (2003). Decolonizing Nature, Strategies for Conservation in a Post-colonial Era. Earthscan Publications, London, England, pp 16 – 50.
[24] International Council for Science (2002), *op cit*, p 4, emphasis added.
[25] Posey, 1998, *op cit*, p 5.

The Value of Traditional Knowledge

Although primarily concerned with a discussion on the threats to TK, it is important to place these threats within a context, of what stands to be lost when TK is threatened. It is apparent that with the growing understanding of the legitimacy of TK, its value is also being more thoroughly understood which is leading to comprehensions that TK has a great value to not only its holders, to whom it is seminal, but also humankind on a global scale. This is leading to further understandings that threats to bodies of TK have great costs not only to the societies and cultures that they serve, but also to environments and humanity on a global scale.

To support an examination of the value of TK, even western science is beginning to understand that TK makes a significant contribution to knowledge on the environment and environmental management, as well as in relation to "the fulfillment of human needs", or perhaps better put as sustainable development.[26] TK has historically been a major source of information in the fields of medicine, agriculture, taxonomy, forestry, fisheries and a broad variety of other fields,[27] and more recent acknowledgements of this history, and the fact that bodies of TK are in fact knowledge "systems" rather than pseudo-sciences is heightening awareness of the value of TK in a number of areas.

In realising and commenting on the threats to TK, it is worthwhile briefly examining some of the values that may be attributed to it, of which there are a number of discourses such as:

1. The intrinsic value of TK to the holders of the knowledge.
2. The value of TK in a developmental policy and operations.
3. The value of TK for the advancement of understandings of sustainability on a global scale.

Not all of these discourses seek to protect the holders of the knowledge themselves, and in fact, may represent a threat to TK through appropriation of knowledge and subsequent commercialisation. Also, while the question is often asked of the value of TK to science, which is a self-serving question on the part of western interests, the question of the value of western knowledge to TK is less well articulated. Unfortunately, this question is beyond the scope of this work, but is one that should be borne in mind for future work programs if it is the actual intent of the CBD parties to support the ongoing practice and transmission of TK.

While it is not possible to examine this issue here, it is still possible to state that there is a general and growing awareness of TK's value in a variety of areas, which is beginning to enhance the ability of Indigenous peoples and Local communities to negotiate a more adequate space for themselves, their societies and their futures within a rapidly changing global environment. This is a matter of extraordinary importance to Indigenous peoples and Local Communities, as, once again, a peoples greatest impulse has always been to survive and prosper, which is no different in today's world.

Value of TK to the holders of the Knowledge

From previous discussion, the value of TK to the holders and originators of the knowledge is apparent, given that it is the embodiment of a way of life and decision-making. As described previously, TK is an holistic knowledge system which provides a framework through which knowledge is created, tested, and passed on, and is the means through which the peoples and communities who hold the bodies of knowledge make decisions on day to day matters and their futures.

[26] Khor, M. (2002). Intellectual Property, Biodiversity and Sustainable Development: Resolving the Difficult Issues. Zed Books Ltd, London, England, p 16.
[27] ICSU (2002), *op cit*, p 6.

The broad nature of TK also provides practical illustration the importance of TK to those who hold it. TK provides extremely important information in regard to medicines, food production, agricultural systems, animal husbandry and many other subject matters, and as such is integrally tied to the viability of a people or community.

In regard to topics such as medicines for example, it is estimated that up to one third of the world's population do not have access to drugs developed through western scientific methods, which places a huge reliance on traditional medicines which are local and easily accessible.[28] This easy accessibility translates to 80% of the worlds population relying on TK for their medical needs[29] which in turn heavily relies on an intimate knowledge of the environment and ecologies within which a people or community live.

Similar examples are able to be bought forward in terms of food production and security, as some half to two thirds of the worlds population, and particularly that of Indigenous peoples and Local communities, are almost wholly dependent on their own food production,[30] which incorporates cropping methods, seed storage, cultivar development through experimentation, knowledge of animal behaviour and plant diversity, amongst many other factors.

While useful to broadly recognise, to speak of the "intrinsic value" of TK to TK holders does some violence to the real import of TK its holders. As discussed, bodies of TK are not merely "things" or "objects", and should therefore not be objectified. Rather, bodies of TK are systems of knowing and ways of life that peoples and communities are situated within, and as such, are beyond value for those who live within them. To speak of "value" then, is reductionist, and greatly underemphasises the true import of TK to its holders and originators. With this in mind, it is possible to gain a truer understanding of the grave consequences to societies and cultures that threats to TK actually represent.

The value of TK in a developmental framework

> *The challenge for the development community is to find better ways to learn about indigenous institutions and practices and where necessary* adapt *modern techniques to the local practices. Only then will global knowledge be rendered* relevant *to the local community needs*.[31]

With a growing awareness of the true importance of TK to Indigenous peoples and Local communities, there is a growing understanding of its importance in the development arena, that is (at least as Indigenous peoples and Local communities view it), activities that are designed to improve the living conditions and prospects of a people, community and/or state while still enabling the maintenance of ways of life embodied by peoples and communities themselves.

Much of this discussion has turned to an acknowledgement of the need to incorporate TK systems into developmental frameworks, rather than to superimpose western-based knowledge over a territory, people or culture, as strategies imposed through this *modus operandi* do not often translate well to peoples who operate within differing contexts and paradigms.

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[28] Zhang, X. (2004). 'Traditional Medicine: Its Importance and Protection'. *In* Twarog S., Kapoor, P. (eds). 'Protecting and Promoting Traditional Knowledge: Systems, National Experiences and International Dimensions'. United Nations Conference on Trade and Development, United Nations Document No. UNCTAD/DITC/TED/10, pages 3 – 6.

[29] Rural Advancement Foundation International, (1995). 'Conserving Indigenous Knowledge: Integrating Two Systems of Innovation'. RAFI and UNDP, New York, USA, p 4.

[30] *ibid*, p 4.

[31] Woytek, R. (1998), *op cit*, p 2, original emphasis.

Given previous discussion in this report, this may seem obvious – Indigenous peoples and Local communities are not going to simply cast aside the ways of life and culture they have lived within for thousands of years in favour of western practices and culture. Given the historic, and in many cases current, forces of colonialism and assimilation however, this glaring truth has not always been recognised.

In commenting on development efforts in Africa, Ole Karbolo notes that efforts are "characterized by failed development and misguided initiatives. Very often the indigenous peoples' capability and ways of doing things are ignored."[32] This is an experience that can be extrapolated to the Asian region and, although a 'developed' state, into the Australian context. It is also noted that "programs are often poorly designed, with unrealistic time frames. The local people are often treated as the participants rather than the main actors in their own development. In many cases the so-called development interventions tend to weaken or altogether replace the accumulated indigenous experience and traditional ways of doing things."[33]

With these issues evident, it is now more broadly acknowledged that the knowledge systems of Indigenous peoples and Local communities, rather than being a set of irrational superstitions which hold them back, are in fact a key part of their social capital,[34] given that they provide a basis for problem solving strategies, world view and cultural ways.

As a result, there is now a greater understanding by practitioners in the development field of the need to acknowledge and incorporate TK into development frameworks as a foundation from which to operate. This is of course, due to the fact that without this, any efforts for community development are unlikely to be socially and economically sound, and may lead to their rejection, a result that is harmful for Indigenous peoples and Local communities as well as for development agencies.

Not only is there a necessity to properly acknowledge TK to ensure the social and cultural sustainability of development works, but there is also a necessity to recognise the detailed bodies of practical knowledge on systems and environments that a people or community are situated within. To ignore this knowledge is to promote development policies that may also be environmentally unsustainable. As Indigenous peoples and Local communities rely heavily on their local environments, unsustainable outcomes in this regard could only serve to be deleterious to not only development efforts, but to the very viability of a people or community.

In a sense, the value of TK in developmental policy is a value for the holders of the knowledge themselves, given that its oversight will have a more marked and real effect on their well being than that of any development agency. Still, the recognition of TK in the 'development community' is an important indicator of the growing recognition and legitimacy of TK, which is set to have benefits for TK holders and development agencies alike.

[32] Ole Karbolo, M. K. (2004) 'Promoting Development Among the Indigenous Loita Maasai Pastoralists of Kenya' *in* Twarog S., Kapoor, P. (eds). 'Protecting and Promoting Traditional Knowledge: Systems, National Experiences and International Dimensions'. United Nations Conference on Trade and Development, United Nations Document No. UNCTAD/DITC/TED/10 p 273

[33] *Ibid*, p 273

[34] Gorjestani, N. (2004). 'Indigenous Knowledge for Development: Opportunities and Challenges' *in* Twarog and Kapoor, *op cit*, pp 265 – 272.

The value of TK for the advancement of understandings of sustainability on a global scale

With growing acknowledgement of the legitimacy and value of TK, there is a growing awareness that a dialogue with Indigenous peoples and Local communities not only informs these peoples and communities in regard to western knowledge, but that TK also informs western knowledge, particularly in relation to the area of sustainability and the development of an enhanced global sustainability consciousness.

A key point to make at this point is that there exists significant contest surrounding the notions of sustainability and sustainable development, making its simple definition difficult. For the purposes of this report however, it is useful to record that broadly, sustainability is concerned with activities or development that meets the needs of the present without compromising the ability of future generations to meet their own needs.[35]

The basis of this dialogue is that TK consists of bodies of knowledge that are strongly embedded within the environments of the places in which they exist, and therefore can contain advanced understandings of the capacity of an environment to sustain particular activities, and include understandings that directly relate to the ongoing conservation of resources to ensure the long term viability of a people and/or community.

One cautionary note is that with statements such as this and the use of the 'close to nature' argument, it is easy to romanticise bodies TK. This romanticism is also enhanced due to TK being embedded within "exotic" cultures, religions and vastly differing worldviews from the west. To offer a balance, it must be said that bodies of TK have an often unrecognised pragmatic and practical foundation. Many are shocked to discover this underlying hardness in the perspectives of Indigenous peoples and Local communities, it should come as no surprise though, given that TK is about the viability and survival of peoples and communities.

It seems this practicality and pragmatism has proven a success on many occasions, and it is accurate (rather than romantic) to state that in many cases the concept of sustainability is embedded within bodies of TK, as evidenced by the sustained practice of food procurement and production systems on the same lands for in some cases, thousands of years.[36] This evidence has lead some authors to conclude that TK systems often possess a conservation ethic, that is "an awareness of peoples ability to deplete or otherwise damage natural resources, coupled with a commitment to reduce or eliminate the consequences', [37] which seems the very essence of sustainability.

This conservation ethic is not alien to western peoples, but appears restricted by the historical and institutional hegemony that exists in western states.[38] In contrast, many Indigenous peoples and Local communities embed such notions in day to day life, and as a result, have cultural and social constraints, as well as particular knowledge, that can lead to the management of natural resources in a manner that is consistent with intergenerational equity, as well as the application of new knowledge in a manner that is

[35]World Commission on Environment and Development, (1987). Our Common Future. Oxford University Press, Oxford, Great Britain.
[36] Posey, 1998, *op cit*, p 4. Posey also cites many authors who have made similar comment.
[37] Johannes, R. E. and Ruddle, K. (1993) 'Human Interactions in Tropical Coastal and Marine Areas: Lessons from Traditional Resource Use'. *In* Price A., and Humphreys, S., (eds). Applications of the Biosphere Reserve Concept to Coastal Marine Areas. Gland: IUCN, pp. 19-25.
[38] Rose, D. (1988) 'Exploring an Aboriginal Land Ethic'. *Meanjin*, Vol 3, No 47, p 382.

consistent with the precautionary measures required to ensure this intergenerational equity is achieved and maintained.

This is performed not just through the application of what might be called wisdom, but is also a reflection of the particular worldview that many Indigenous peoples and Local communities possess. These world views are leading to critical examinations of norms arrived at through western knowledge such as the dual but opposing anthropocentric notion of land that would have it that land is to be rationalised, tamed and exploited and the eco-centric notion of land that leads to segregationist conservation policies.[39]

With this examination is a growing understanding of the importance of a dialogue between western knowledge and TK systems. As population pressures increase and the effects of major global processes such as global warming are being felt, there is a growing realisation of the need for broader understandings of sustainability, culturally based conservation ethics and alternative perspectives of lands and environments. Mutually beneficial dialogues between western and traditional knowledge systems are perhaps one course through which this may be achieved.

Concluding Remarks

Traditional knowledge systems then, are more than compartmentalised sets of information, they are systems of knowledge that exist in spatial, cultural and temporal contexts through which people interpret reality, make decisions, ensure food security, health care and plan for the future. Many bodies of TK exist, depending on the particular culture and environment of a people or community, and collectively, these bodies of knowledge allow their holders to create new knowledge, to test it and to verify it within the laboratory of daily life and survival.

These verification processes are now becoming more broadly understood, and there is an increasing realisation that TK systems are viable and legitimate systems of knowledge, and should therefore not be subordinated by western science as a result of the particular cultural space they exist in. Even so, a lack of recognition of the legitimacy of bodies of TK remains an issue, and even provides the basis for a number of the processes that threaten them.

Still, there are now better understandings of the value of TK, and in particular, the vital importance that the continued existence of these bodies of knowledge has for the peoples and communities to which these sets of knowledge belong. In addition, the value of TK is gaining greater appreciation in dialogues on global sustainability, which are are two-way and not based on the appropriation of TK,.

Of particular importance in a global sustainability dialogue is the realisation that not only have Indigenous peoples and Local communities existed in the most biodiverse environments for a great length of time, but their practices and innovations have been able to be sustained, through the application of culturally bound conservation ethics, within these environments without undue and deleterious environmental effects for this time. This is a very profound realisation, and one for which the western world would do well to gain a greater appreciation.

[39] See for example Kinnane, S. (2005). 'Indigenous Sustainability: Rights, Obligations, and a Collective Commitment to Country'. In Castellino, J. and Walsh, N. (eds). International Law and Indigenous Peoples. The Raoul Wallenberg Institute Human Rights Library, Volume 20. Martinus Nijhoff Publishers, Leiden, Netherlands as well as Langton, M. (1998) Burning Questions: Emerging Environmental Issues for Indigenous Peoples in Northern Australia. Centre for Indigenous Natural and Cultural Resource Management, Northern Territory University, Darwin, Australia.

Given this background, it is possible to begin to consider the threats and challenges to TK. As mentioned previously, these threats shall be measured and analysed against their effects within the spatial, cultural and temporal contexts of TK. It is hoped that measured against these dimensions, a greater understanding of what constitutes a threat to TK can be built, and hence improved and more comprehensive action plans to overcome these difficulties can be generated.

Threats to Traditional Knowledge

Introductory Remarks

Having conducted some background discussion on TK, its characteristics, its value as well as the profound costs associated with its erosion, there is now a context in which to consider its threats. Importantly, there is a context in which to consider the profound nature of the consequences of the threats to TK, as these threats undermine the very existence of Indigenous peoples and Local communities, their cultures, their distinct view of the world and their ways of knowing and interpreting the world and reality. Threats to TK also undermine dialogues between these peoples and communities and the western world, dialogues that can add greatly to understandings of sustainability on a global level.

When considering threats to TK, it is important to consider these matters in light of the key attributes as explored in previous sections. Most critical is the realisation that threats to TK are measured not just against affects to its spatial or territorial factors, but also against their affects on TKs cultural and temporal dimensions. This is due to the fact that TK exists *in situ* in space (or territory), culture and time, resulting in any measure of threats to TK that seek to treat is as solely *in situ* in space will omit perhaps the most significant threats.

Attempting to assess and measure threats to TK in a temporal sense is difficult and perhaps abstract, however when considering that temporal change of TK is brought about through the processes of 'tradition', that is the social and cultural processes of learning and knowledge transmission, it can be seen that the breakdown of cultural institutions is set to have a marked effect on the temporal dimension of TK.

This idea also ties in this the assessment of what constitutes a threat to TK within the cultural dimension, which also relates to the maintenance of cultural institutions and pressures that may be deleterious to these. As it can be considered that the culture and cultural institutions of a people or community is seminal to the development, verification, storage and distribution of knowledge as well as its transmission and practice, it is possible to state that pressure which disrupts cultural integrity, institutions, epistemologies and life ways will also disrupt essential knowledge processes.

As measured in this manner, it is revealed that threats to TK can manifest in a number of ways, including through political and socio-economic pressures that disrupt the ways of life of Indigenous peoples and Local communities, development pressures that seek to subvert the life ways of peoples and communities to more western outlooks, resource exploitation that disrupts the territories and social structures of a people or community and commercial pressures which seek to exploit TK at the expense of the TK holders.

Many of these pressures synergise to create great disruptions in the lives of Indigenous peoples and Local communities and subsequently, major disruptions to their bodies of knowledge. In other cases, one set of pressures give rise to the conditions in which a further set is able to become apparent. This makes it difficult to describe threats to TK in a linear and categorised manner, due to the close relationships and overlaps that exist between many of these threats. Even so, the following section seek to do just this in a clear as manner as possible in order to develop the needed understandings about these threats and how they may be overcome.

Additionally, it is the task of the CBD to examine threats to TK on local and national levels. Upon examination though, it is difficult to categorise these threats solely along these lines due to the manner in which they all too readily cross the boundaries between the local and the national. It is possible though,

to make comment on how threats to TK occur in relation to these two categories, also important for the development of policies and programs whose aim it is to overcome many of the challenges faced by TK holders.

Finally, having discussed TK, its value and the potentially profound costs of its erosion, it is obvious that progressive policies and programs are required and that significant effort needs to be undertaken to protect and preserve the lifestyles and bodies of knowledge that Indigenous peoples and local communities possess. This is not solely from a human rights perspective in that the holders of the knowledge have a right to the continued practice of their traditions, laws and cultures, but from a variety of other perspectives, not the least of which are improved environmental management and enhanced understandings of sustainability that can occur through a two way dialogue between Indigenous peoples and Local communities and member states of the CBD.

Classes of Threat to TK

When considering threats to TK, recurring themes were found within information collected which enables a level of organisation, which assists the manner in which these threats can be conceptualised. To reflect this, this report organises threats to TK firstly in broad classes, under which threatening processes, referred to as factors, are placed.

In some cases, this division can be seen to be arbitrary due to the interrelations and overlap between them. Even so, this manner of organisation does provide an appreciation of the more overarching issues relating to these threats, and provides a framework through which factors can be grouped and linked. This provides a clearer impression of the threats to TK, a necessary step in allowing a clear understanding of issues at hand which in turn allows a more adequately conceived set of policies or actions through which to address these issues.

The classes of threats listed and discussed are derived from literature reviews and discussions with Indigenous peoples and Local communities, most notably during workshops in the Philippines (April 27 - 29, 2005) and Australia (August 16 – 18, 2005).

Based on the Asia and Australia region, threats to TK have been broken into the following classes:

1. Political Pressures
2. Social and Economic Pressures
3. Territorial Pressures
4. Exploitation of Traditional Knowledge
5. Development Policy
6. Globalisation and Trade Liberalisation

Each of these threats is summarised and then explained in greater depth in the following section (Table 1). The threats listed in this table and in the following sections are a broad representation of the threats to TK that may be able to be raised and discussed. It is likely that there are many more that could be discussed in the same manner. Further, there are cases where the level at which they manifest (i.e. local or national) is somewhat arbitrary. Even so, this table gives an idea of the topic matter to be discussed and the level at which each threat manifests.

Table 1: A Summary of Threats to Traditional Knowledge by Class and Level

Class and Factor of Threat to TK	Local, National, International
Political Pressures	
Recognition and Standing of TK	National
Recognition as Distinct Polities	National
Involvement in Policy and Legislative Development	National, sub national
Conflict, Militarisation and Human Rights Abuses	National
Social and Economic Pressures	
Assimilation	National and Local
Poverty	National and Local
Education and Education systems	National and Local
Unemployment	National and local
Marginalisation of Women	National and Local
Language Loss	National and Local
Organised Religion	National and Local
Alienation from Traditional Environment and associated Biological Resources	
Deforestation	Local
Overfishing and unsustainable fishing practices	Local
Protected Areas	Local
Forced Displacement and Migration	Local
Exploitation of TK	
Bioprospecting	National and Local
Incorporation of TK into environmental management processes	National and subnational
Objectification	Local
Development Policy	
Agricultural Practice – Introduction of New Varieties and High Input Crops	Local
Agricultural Practices – The Methods of Agriculture	Local
Globalisation and Trade Liberalisation	International

With this summary, it is possible to now expand this with further discussion on these threats.

Discussion on Threats to TK in the Asia and Australia Region

Political Pressures

The political environment in which an Indigenous people or Local community are located has possibly the most fundamental effect on the practice and transmission of TK. This is because the political outlook and philosophy of a state and/or its government, whether conservative or liberal, democratic, imperial or authoritarian, creates the environment in which a range of threats to TK can manifest.

In scrutinising political impacts on TK, it is worth reflecting that many of the States of the region are in many cases, relatively recent in origin. In some cases they have resulted from European colonialism, which involved the invasion, and usurping of previously existing states, monarchies and Indigenous territories, and the subsumption of their laws and customs. The peoples of these colonies, were able to re-assert themselves and form the states we know today, which in many cases, this has occurred through armed conflict rather than the simple cessation of colonial control. In some, colonialism was not at issue, with contemporary states being brought about through revolutionary uprising and civil war, resulting in the overthrow of previously existing governments and the installation of in some cases, radically different government structures.

In many cases, these new states have resulted in a departure from the more traditional division of territory, with the redrawing of modern state borders performed in the favour of the groups that are able to assert control, often dividing the traditional territories of Indigenous peoples and Local Communities between them. This has caused, and continues to cause, major disruption to the socio-political circumstances that Indigenous peoples and Local communities now find themselves within and is a matter worthy of some attention.

In many cases, the internal orderings of many of these states are still evolving and being worked through, which is equally true for so called “developed” states such as Australia, as it is for “developing” states. This can create disruption for many, especially those in minority groups such as Indigenous peoples and Local communities, whose interests are often not acknowledged in the interests of the majority or authoritarian rule.

The effects of the political situation on Indigenous people or Local Community are fundamental to the practice and transmission of TK, because the manner in which a Government makes decisions which sets the conditions under which the interests of Indigenous people and Local Communities are considered. In many cases, these interests seem not to be viewed in a positive light and may be seen as conflicting with the broader national interest. This in turn paves the way for governments to make decisions and implement policies that are deleterious to the interests of Indigenous peoples and Local communities, or which allow other interests to take precedence over those of Indigenous peoples and Local Communities.

To extrapolate this, if a peoples or communities interests are not properly recognised or protected through by Government and there is little or no recourse for peoples or communities to have their interests considered, it can be stated that the particular political system they find themselves within will place significant pressure on a people or community, their territories and/or their cultural institutions.

The political situation in which an Indigenous people or Local Community are situated then, can represent a major threat to their bodies of TK, not only through acting directly on their interests, but by setting the circumstances through which a variety of other threats are able to become apparent.

Recognition and Standing of TK.

The manner in which TK systems are recognised as legitimate and their standing within a state, its Government and within its majority population has a fundamental affect on the political situation in which a people or community live. This is the case as the regard which is afforded to Indigenous peoples and Local communities and their bodies of knowledge will provide the pre-conditions for a variety of political and socio-economic pressures which can either protect or threaten TK.

Already there has been an examination of historic and contemporary attitudes towards TK, and that on many occasions these attitudes lead TK to be cast as an inferior set of knowledge, as subordinate to western based knowledge with western knowledge seen as 'better' or more reliable. This attitude is one that fails to see bodies of TK as valid sets of knowledge systems unto themselves, can generate a significant amount of misinformation on TK and creates perspectives that undermines not only the importance of TK, but also its ongoing viability.

TK and Indigenous or Local cultures having a poor standing within a state can lead to a number of outcomes that can have negative effects on both the societal fabric of a people or community and their cultural institutions, resulting in actions that pose very direct threat to TK. In some cases, it is possible that a poor regard for Indigenous peoples and Local Communities and their TK can result in such things as:

- A justification of racism and racist, policies, programs and practices within governments and majority ethnic groups;
- The enhancement of assimilationist policy and practice;
- Lack of regard for the distinct rights, interests and needs of Indigenous peoples and Local Communities;
- Educational programs that do not offer viable outcomes for Indigenous peoples and local communities;
- Erosion of TK due to perceptions that such things as traditional medicine and agricultural practices are inferior to western practices, which is tantamount to the denial of Indigenous peoples and Local communities of their major sources of health care and food security, and;
- The imposition of methods of agriculture, natural resource management and development policy that can have negative impacts on the people and environments they purport to protect and enhance.

There are also further effects, which will be examined in this report. The issue at hand is essentially that the non-recognition of TK and casting bodies of TK as well as Indigenous peoples and Local communities as inferior provides simple justification at a political level for all manner of policies, programs, legislation and decision making processes that are deleterious to their distinct interests, needs and rights. That is, it creates the pre-conditions through which direct threats to TK are able to manifest through generating the political space in which other interests can and are considered of greater importance, and are considered at the expense of those of Indigenous peoples and Local Communities.

Recognition as Distinct Polities

This issue is an extension of the standing of TK in a state, but concentrates on Indigenous peoples and local communities themselves. Manifesting at a national level, due to it being subject to national level politics, this issue relates to the recognition of Indigenous peoples and Local communities as being unique and distinct cultural entities with existing sets of law and custom that govern their societies, and rather than this law and custom being overridden and invalidated by a state through assimilation policies, being respected and given a place within the governance of the state.

This is a topic of particular interest to Indigenous peoples and Local Communities who assert that Indigenous peoples and Local communities have distinct sets of rights, interests and needs that should be recognised within the governance of a state in order to protect their life ways, cultures, societies and of course, their TK.

Recognition as a distinct polity within a state is a mechanism that begins to recognise the distinct interests, needs and rights of Indigenous peoples and Local communities, as well as protecting them within constitutions, legislation or policy. When a people are not recognised as a distinct polity, these interests needs and rights tend to be placed into what is akin to a position of competition with other peoples, mainly majorities. When this occurs, it is almost inevitable that the interests of Indigenous peoples and local communities will be overridden by the majority or ruling group.

In essence, a people or community that is recognised as a distinct polity within the governance of a state has a level of power within the processes of Government to protect its interests, one that is not at the mercy of Government and political forces. This is a critical factor in ensuring that a people, community or minority is able to have some protection from forces that are generally not in their interest.

Like the standing of TK within a Government or a state, this is not one that acts directly upon TK, but rather creates the pre-conditions in which direct threats are able to develop. Acknowledging the idea of conditions that give rise to or allow direct threats is one that is of great significance as in many cases, the treatment of a direct threat to TK will not be sustainable or effective if the conditions that allowed it to arise are also dealt with.

To expand on this point, if a people or community are not able to represent their interests in a state, the pre-conditions are likely to be set for the development of policies and legislation that discriminate against Indigenous peoples and Local communities through not adequately factoring in the interests, needs and rights of these groups. Further, if discriminatory policy and legislation is able to be developed as a result of a people or community having very little power within a political system, it creates conditions through which significant pressures can be placed upon the societies and cultures, and hence TK, of a people or community.

Lack of recognition can occur for many reasons. In some cases, states hold the philosophy that they have cultural uniformity, and invest in processes that are designed to promote unitary notion of identity and culture within a state. In other cases, it is more a matter of majority politics where recognition as a distinct polity for minority groups such as Indigenous peoples and Local communities is rejected due to perceptions that it places minority interests before the interests of the majority. Of course this ignores the concept of manifest equity which would have it that all peoples should be represented in some way within their states, irrespective of relative population size, and instead plays on notions of favoritism in which minorities are somehow given an unfair advantage over the majority, even if they are for all intent and purpose, powerless and discriminated against.

The manner in which Indigenous peoples and Local communities are recognised is generally not positive within the region, although treatment does vary from state to state. In some cases, the issue is more fundamental with basic recognition as citizens of a state being at issue rather than how that people or community might fit into the political system. In the north of Thailand for example, where many peoples

from what are termed the "hill tribes" (a collective term for a number of distinct peoples) are faced with deportation to other states if they are unable to prove a long historic link with the area. An inability to prove this association will render them unable to gain citizenship and stateless, and being deported into neighboring states as illegal immigrants.[40]

This statelessness and possible deportation will relegate these peoples to refugee status, placing them into camps and so disrupting life ways and the practice and transmission of TK which will occur by firstly removing them from the lands upon which they practice their TK and secondly by placing pressure on their societies and cultural institutions as is experienced in times of trauma such as forced deportation and internment.

In other states, citizenship is not at issue, rather, the recognition of Indigenous peoples and Local communities as unique cultural groups with their own norms and life ways is, a matter that is prevalent in a number of states and is a reflection of both colonial and recent history. Taiwan for example, provides no real recognition of the Indigenous peoples of the lowland areas, which are more densely populated and developed, believing them to be essentially assimilated as opposed to those Indigenous peoples in the highland regions.

Indonesia has had mixed feelings about the existence of Indigenous peoples within its state borders, and in recent comments in the Permanent Forum for the Worlds Indigenous People, makes partial recognition through stating that Indonesia is made up of "500 ethnic groups with their own languages and dialects".[41] In both Taiwan and Indonesia, it is interesting to note that Indigenous peoples assert themselves in a more overt manner than the state in which they find themselves. This lack of recognition is a denial of the uniqueness of Indigenous cultural groups, and results in policies and practices that have significant negative impacts on their bodies of TK.

It must be said in relation to Indonesia that there appears to be a significant and positive political shift and a level of recognition of people and communities as distinct polities. This is no more apparent than in Aceh, where peace agreements have been reached between the Federal Indonesian government and separatist factions.[42] It is understood that part of this peace agreement has been political reform with a level of autonomy negotiated for the governance of the region, an outcome that may satisfy the demands of the Acehnese to be recognised as distinct peoples, a distinct polity and to self govern, as well as the demands of the state to maintain its territorial integrity.

From the states perspective, the political economy of such a peace agreement is obvious, and rather than maintain a rigid position of cultural and political uniformity, the Government of Indonesia have chosen to undertake a level of political reform that in many ways, begins to evolve the very governance of the state into one that perhaps both acknowledges and better reflects its underlying social realities. This type of reform is difficult for any Government to take, and as such, the Indonesian Government needs to be commended for taking an approach that will hopefully prove sustainable.

In some states there are levels of formal recognition of Indigenous peoples, however this tends to be more symbolic rather than the proper incorporation of Indigenous perspectives, interests and needs into the policies and legislation of a state. When this recognition is legislative and not placed within the constitution of a state, it is easily removed a case in point on this issue is within Australia.

[40] See for example Macan-Markar, M. (2003) 'Thailand: Fear of Expulsion Haunts Hill Tribes' Asia Times, July 30, 2003.
[41] United Nations Information Service (2005). 'Permanent Forum Considers Links between Indigenous People, Millennium Goals, Forests, Natural Environment', 19 May, 2005.
[42] See for example CNN.com International (2005) 'Aceh: Peace welcomed, fears remain', Tuesday August 16, 2005.

In 2005, the elected peak Australian Indigenous body, the Aboriginal and Torres Strait Islander Commission (ATSIC) was abolished by the federal Government. Claims of ineffectiveness and a lack of accountability over a sustained period allowed Government to gain a significant level of non-Indigenous public support for this move, one which it undertook after the Opposition party made it clear that it intended to undertake the same action if elected to Government, making the ATSIC abolition an act with little political cost.

While many Indigenous people in Australia agreed that ATSIC required a significant level of reform, its abolition was felt to be excessive. It also serves as a stark contrast to the Indonesian example, which looks set to provide at least some increase in political power for the Acehnese, and instead has stripped Indigenous people within Australia of their substantive and formal political representation and replaced it with a Governmentally selected advisory committee which many doubt the integrity of.

The dynamics of the representation of Indigenous peoples and Local Communities and their needs varies from state to state, and where there are significant populations of Indigenous peoples and Local communities, such as in Sabah in Malaysia, representatives in the provincial and federal assemblies from this area can be expected to have a higher Indigenous proportion. In these cases, particularly at the provincial level, it is more likely that legislative and policy formulations will more adequately reflect the interests of Indigenous peoples and Local communities.

In consultative workshop with members of Indigenous peoples and Local communities from the Asian region, it was very strongly apparent that a lack of recognition of the cultural distinctiveness of peoples and communities within states, and hence a lack of recognition as a polity was a major issue for attendees. This gives rise to a significant set of issues for Indigenous people and Local Communities in modern states, mainly that a lack of recognition of their cultural distinctiveness and pre-existing laws in favour of a perspective of cultural homogeneity leads to a lack of recognition of their distinct interests, rights and needs.

Recognition of Indigenous peoples and Local communities as distinct polities is seen as an issue of particular significance within the region, as if this recognition is lacking, it is unlikely that a state will move to protect the distinct interests, needs and rights that Indigenous people and Local communities possess. Rather, these interests, needs and rights will be cast as oppositional to the broader national interest or there will be little political will to support them, and will be subverted in favour of the majority of people in a democratically based Government, or in the interests of the ruling parties in an authoritarian based Government.

To conclude, while the lack of recognition as a distinct polity within the Governance of a state is not a direct act upon a peoples or communities TK, it is a direct act against a peoples or communities culture and society. Its effects manifest through the manner in which it sets the preconditions for direct actions against the interests of Indigenous peoples and Local Communities to occur.

In further sections of this report, a great number of threats to TK will be discussed, almost all of which would be able to be avoided if states made a political decision, similar to Indonesia in relation to Aceh, to prevent them. As it stands, many states do not recognise Indigenous peoples and Local communities as polities, and they therefore have very limited power to seek protection of their interests, needs and rights. This in turn allows direct threats to TK to manifest with little recourse.

In many ways then, the actual power to ameliorate direct threats to TK resides within the states with whom the power lies to deal with some of the more fundamental or pre-condition issues that have been discussed both in this and the previous section. At a very basic level, this requires the recognition of the existence of Indigenous peoples and Local Communities, as well as their distinct cultures, identities, interests, needs and rights through their recognition as polities. This may be a political reform that is

difficult for some states in the region to achieve, but it is not one that is likely to diminish the integrity of a state itself, and rather, as Indonesia has demonstrated, be in its interests.

Involvement in Policy and Legislative Development

One of the many issues that manifest as a result of poor recognition of TK and of peoples and communities as polities is a low level of influence over law and policy making. The inability for an Indigenous peoples or Local Communities to properly participate in the development of policy and law that affect their interests, needs and rights will most often mean that they are cast as subordinate and subsequently not protected, or even legislated out of existence. This in turn creates a policy and legislative framework within a state that does not seek to protect, or only provides symbolic protection of the rights and interests of Indigenous peoples and Local Communities.

In general, Indigenous peoples and Local communities throughout the region have significant concerns that they are unable to properly participate in the policy and law making processes, which results in such things as:

- Restriction and prohibition on customary activities which results in a diminution of Traditional Knowledge;
- Criminalisation of customary practices resulting in arrests and violations of rights;
- The generation of conflicting systems of law between Indigenous peoples and Local Communities and Governments leading to conflict;
- The Government co-option of customary governance and justice systems thereby weakening them;
- Government imposition of structures over Indigenous peoples and Local Communities that do not recognise their unique cultural identities and therefore interests, needs and rights;
- Governments routinely generating policy and law that allow easy access to Indigenous peoples territories, forests, community gardens and resource areas;

These issues can arise both at national and local levels, with national and provincial governments having the ability to generate both policy and legislation that may negatively affect people, communities, their cultures and TK at a broad level, or very directly at a localised level through their implementation.

Development of policy and legislation that does not adequately factor the interests, needs and rights of Indigenous peoples and Local communities has the potential to be a direct threat to a people or communities TK. This is the case as policy and legislation provides the environment within which actions are sanctioned that directly threatens the practice and transmission of TK or in other cases, simply outlaw or greatly constrain the practice and transfer of TK.

This occurs in many different ways through the Asian and Australian region. The Australian *Native Title Act (1993)* for example, was amended in 1998 in a manner, which validates a host of non-Indigenous land titles, and confirms that these titles, irrespective of whether they have historically been removed from an area of land, extinguish native title. With claims from the then Deputy Prime Minister that these amendments would offer non-Indigenous Australians "bucket loads of extinguishment"[43] of native title, it is difficult not to conclude that these amendments were not only put in place without a fulsome consideration of Indigenous interests, but were in fact intended to curtail them.

[43] See for example Commonwealth of Australia (1998). Official Senate Hansard, Tuesday 7 April 1998, Thirty Eighth Parliament, First Session, Sixth Period, p 2140, 2145 and 2150.

In other states, steps have been taken to enshrine the interests of Indigenous people and Local communities into legislation, a set of actions that is commendable. It seems though that it is more the norm to place considerable limitations on these interests, which appear to stem from the regard that the interests of Indigenous peoples and Local communities are, at their root, in conflict with the broader interests of the state. In Sabah in Malaysia for example, where there is a level of recognition for customary titles given through the *Sabah Land Ordinance (1930)*, there remains a significant number of qualifications for the establishment and continued enjoyment of this customary title such as a 15 acre limit, the legislative enforcement of non-traditional fallow periods and the non-consideration of native title if land is to be taken for a public purpose.

Indonesia has a constitutional recognition of traditional political entities, although it has been argued that these constitutional protections were greatly undermined during the Suharto Government to the extent that Government structures were imposed via Government regulation at regional and local levels, which served to undermine traditional and customary law.[44] It seems that in the case of Indonesia however, there has been considerable progress made in the manner in which Indigenous peoples and Local communities are regarded, and it may be that the situation illustrated here is currently being ameliorated to a significant extent.

It is also common for national policy and legislation to criminalise traditional activities upon which the practice and transmission of TK is dependent. Obviously, if a people or community is prevented from practicing their TK due to its criminalisation, it is in threat of not being transmitted. There are many examples of this throughout the region in all states, and in particular, through the declaration of protected areas without due regard to Indigenous peoples and local communities, which often prevents a people or community from carrying out customary activities.

In Indonesia for example, members of Indigenous peoples and local communities have been arrested and jailed for carrying out customary activities on lands that were declared conservation forest.[45] This is an action that is paralleled in many other states such as in Thailand where it was reported that on "23 July 2004, 34 men and 14 women from Pang Daeng community were arrested and charged with forest encroachment and illegal entry into the Chiang Dao national reserved forest. Some 200 officers from 11 government agencies were involved in the mass arrest, including army, police, and forestry and local administrative officials."[46]

In the context of the following, these actions seem heavy handed and arbitrary:

> authorities claimed that the arrested persons were encroaching on the forest illegally under the National Reserved Forest Act (1964). However, the community was officially established in the early 1980s, when the relevant authorities issued documents of land title. In fact, the community leaders settled in the area some 50 years ago. The people had also participated in government programs for protection of the forests, and had been given assistance by government agencies in connection with these projects[47]

[44] See Alcorn, J.B. and Royo, A.G. (Eds) (2000). 'Indigenous Social Movements and Ecological Resilience: Lessons from the Dayak of Indonesia'. Peoples, Forest and Reefs Program Discussion Paper Series, Biodiversity Support Programme, Washington DC, USA.
[45] See for example Anon (2005). ' Item 15: Indigenous Issues Written Statement to the 61st Session of UN Commission on Human Rights, March-April 2005'. UNHCR.
[46] Asian Legal Resource Centre (2005). 'Right to food in Thailand'. A written statement submitted to the Sixty-first session of the Commission on Human Rights. UNHCR.
[47] *Ibid*

These actions are not isolated, and it is perhaps unfair to single out Thailand and Indonesia to illustrate the point when this happens in virtually all states of the Asian and Australian region. What is important here is that it can be clearly envisaged that actions such as these, irrespective of the state in which they occur, will place pressures on peoples and communities by preventing them from practicing their TK when it is perhaps more appropriate to recognise peoples and communities, and develop negotiated agreements with them that are sustainable for the long term.

Irrespective of what occurs in particular states then, it is clear that not being involved in, or able to represent interests, needs and rights in the development of legislation and policy can easily lead to legislative and policy settings that are deleterious to a peoples or communities TK. This can occur through the limitation or outlawing of TK and the practices that support it, or by placing pressures on a peoples ability to access their territory, practice culture and continue their way of life.

Once again, this is a threat that can be overcome by states through the development of new approaches which are more inclusive of Indigenous and Local community polities in the development of policy and legislation, which will enable a higher level of consideration of the interests, needs and rights of these peoples and communities. It is in essence an approach, which seek to negotiate border crossings between the interests of the state and the peoples or communities without the assumption that these sets of interests are in conflict. It is felt that with this approach, it will be possible for states with peoples and communities, to develop policy and legislation that is both in the interests of the state and does not directly provide a threat to TK.

Conflict, Militarisation and Human Rights Abuses

It is difficult to separate these topics, as conflict and militarisation most often leads to human rights abuse, particularly in relation to minority peoples, namely Indigenous peoples and Local communities. This region has a long and ongoing history of conflict, militarisation and the attendant abuses these facilitate, which are very obvious and overt actions resulting from a lack of recognition of Indigenous people and Local communities, their rights and interests, and are often aimed at the political and economic gain of the majority or elite.

Conflict, militarization and attendant rights abuses lead to an atmosphere of oppression and fear, and directly and adversely influence the practice and transmission of TK through the major disruptions that they cause to the societies and cultures of Indigenous peoples and Local communities. Often, they are also aimed at hostile take over, that is, invasion of the territories of Indigenous peoples and Local communities and the assimilation of Indigenous cultures. This makes it extremely difficult for Indigenous peoples and Local communities to access the lands and territories upon which they rely and places huge pressures on cultural institutions. Both of these matters constitute a very significant level of threat to TK where conflict, militarisation and their attendant human rights abuses occur.

In Vietnam, activities are undertaken that both criminalise and terrorise Indigenous peoples and Local communities, with evidence that "human rights violations have continued unabated since protests for land rights and religious freedom began in February 2001".[48] This results in imprisonment, coercion, confiscation of lands and in many cases, the forced swearing of "brotherhood" between communities and Government in what is essentially an effort in assimilation and cultural absorption, a key indicator that members of this people and community are not given recognition as a culturally distinct group and a direct threat to the practice and transmission of TK.

[48] Human Rights Watch, (2003) 'Vietnam: New Documents Reveal Escalating Repression', Human Rights Watch Briefing Paper, April 2003

While Indonesia has been seen to be undertaking a significant and positive reform process, as evidenced in the Aceh peace agreement, it also continues to have many hot spots within its territories that remain unresolved, many of which are the result of historic policies that have not recognised and respected Indigenous Peoples and Local communities and has had negative effects on their TK.

The "Transmigration Program" for example, which commenced with a voluntary resettlement program in the 1950's and evolved into a forced settlement program, mainly of the poor, was one of these policies. It was essentially a colonialist practice in which people from the densely populated island of Java are resettled on other islands within the Indonesian Archipelago, often with grants of land or with other economic inducements.[49] This program has had major effects on Indigenous peoples and Local communities at transmigration sites, not the least through provisions such as clause 17 of Indonesia's *Basic Forestry Act (1960)* which states that "the rights of Traditional law communities may not be allowed to stand in the way of transmigration sites."[50]

This has a direct and negative effect on Indigenous peoples and Local communities, and as could be expected, it has had heavy impacts on their TK in resettlement areas. In many cases this has created conflict between settlers and populations of Indigenous peoples and Local communities.[51] Perhaps the most notable of these conflicts have been in West Papua and until recently Aceh, although similar conflicts exist in other areas.[52]

Perhaps the most potent example of a state undergoing the effects of conflict and militarisation, is in Mayanmar or Burma, whose militarisation places great pressures on Indigenous peoples and Local Communities. Within the conflict associated with Burma's militarisation, there have been a variety of human rights abuses such as the killing and execution of many Indigenous people, forced imprisonment of political activists forced labour, forced military service, forced village relocation and the appropriation of community land for village camps and military bases.[53]

One of the most significant effects of militarisation and conflict is the forced displacement of peoples and communities. A recent Human Rights Watch (HRW) report notes that:

> *The scale of the IDP [Internally Displaced People] problem in Burma is daunting. Estimates suggest that, as of late 2004, as many as 650,000 people were internally displaced in eastern Burma alone. According to a recent survey, 157,000 civilians have been displaced in eastern Burma since the end of 2002, and at least 240 villages destroyed, relocated, or abandoned.*[54]

This HRW report records a litany of abuses against minority communities by the military of Burma and the impunity with which they act, with particular reference to the Karen people of South East Burma. It also records that the two main causes of displacement are:

- *Displacement due to armed conflict as a direct result of fighting, or because armed conflict has undermined human and food security and livelihood options; and*

[49] See for example Transmigration section of "Building Human Security in Indonesia" website at http://www.preventconflict.org/portal/main/background_transmigration.php accessed 16 June, 2005.
[50] Quoted from *ibid.*
[51] *Ibid*
[52] See for example Australia West Papua Association (nd). West Papua Information Kit. Australia West Papua Association, Sydney, Australia and Amnesty International (2000). 'Indonesia: Impunity persists in Papua as militia groups take root'. Amnesty International
[53] Amnesty International (2005). 'Myanmar: Myanmars Political Prisoners, A Growing Legacy of Injustice'. Amnesty International
[54] Human Rights Watch (2005). '"They Came and Destroyed Our Village Again": The Plight of Internally Displaced Persons in Karen State'. *Human Rights Watch*, June 2005 Vol. 17, No. 4(C), p 8.

- *Displacement due to human rights violations, particularly land rights caused by Tatmadaw* [the Burmese Military] *and militia confiscation of land and other violations of land rights, especially in the context of natural resource extraction, such as logging and mining. Other rights violations, such as forced labo[u]r, killings, torture, and rape, also cause displacement.*[55]

These conflicts and the actions taken by Government Military and militia, have created immense pressure for Indigenous peoples and Local communities to simply maintain an existence let alone work towards generating policy and legislative frameworks that protect their distinct interests. The conflict that exists in Burma and the oppressive conditions that it creates fundamentally disrupt day to day activities, inhibits peoples activities to produce food, to conduct and maintain their societies and cultural ways in a dignified manner and accordingly, to practice and maintain their TK.

Similar conditions, have and still continue to prevail in other states within the region – Tibet, Vietnam, Cambodia, Nepal is currently under martial law and the Philippines has a continuing conflict with separatists in southern areas, in which other peoples and communities are often caught.[56] In Bangladesh, a peace accord struck with the Indigenous peoples of the Chittagong Hill Tracts, who have endured decades of colonialism, massacre, extrajudicial execution, torture, arbitrary arrest and detention in an ethnic cleansing exercise by the Bangladeshi Government, appears to have generated some stability, although there remain reports of oppression and conflict.[57]

Having raised the issue of internally displaced peoples, it can also be raised that a further major feature of conflict is that it creates refugees, often thousands at a time, people who fear persecution in their homelands and therefore seek asylum in neighbouring countries. This is not a small issue within the region, and in some cases it is likely to be accurate to state that refugees flee from their land in tens of thousands to escape the despotism they are often exposed to. This is not always welcomed by the states who are their recipients, who often place them in camps with poor conditions, arbitrarily detain them and undertake other activities that subject them to further abuses.

It is obvious that within the types of conditions that conflict, militarisation and human rights abuse generates, there are great disruptions to the societies, cultures, territories and hence the TK of Indigenous Peoples and Local Communities. These types of conditions have a fundamental effect on a peoples or communities ability to practice and transmit TK due to the disruption that is experienced in their daily lives, the pressure placed upon cultural institutions and the alienation from territory that occurs. It is relatively self evident that an environment of conflict and militarisation will disrupt a peoples or communities life so fundamentally, that the concurrent disruption to the practice and transmission of TK represents a major threat.

These situations though are very difficult to resolve, and are far more complicated than simple platitude can address. It is hoped however, that signatory states to the CBD can recognise the disruption that conflict and militarisation represents, as well as the attendant threats to TK that these produce, and work towards generating peace in areas where there is conflict for the benefit of all parties.

[55] Human Rights Watch (2005), *op cit*, p 9.
[56] Tauli-Corpuz, V. and Alcantara, E.R. (2004). 'Engaging the UN Special Rapporteur on Indigenous People: Opportunities and Challenges'. Report from the Philippine Mission of the UN Special Rapporteur on the Situation of Human Rights and Fundamental Freedoms of Indigenous People, Tebtebba Foundation, Baguio City, Philippines.
[57] Amnesty International (2000). 'Bangladesh: Human Rights in the Chittagong Hill Tracts'. Amnesty International.

Social and Economic Pressures

Concurrent with the political pressures that are placed on Indigenous peoples and Local communities, often manifested through a lack of rights, little protection of interests and direct oppression, there exists significant social pressures on both peoples and communities which place significant pressure on bodies of TK. While these social pressures, when they are not directly caused by conflict and militarisation, can be viewed as more moderate, their results are nonetheless the same in that they threaten the cultural fabric and weaken the cultural institutions of Indigenous peoples and Local communities and hence the practice and transmission of TK. Some of the ways in which this occurs is through:

- Weakening of kinship ties;
- Value change in the face of assimilationist and developmental pressures;
- Loss of language;
- Less practice of cultural expression such as folk dance, song, music and ritual;
- Pressure to reduce people practicing traditional use of biological resources for medicine and agriculture;
- Premature loss of elders and the institutions which provide and enhance the systematic use and transmission of TK, and;
- Breakdowns in intergenerational transfer.

It is interesting to note that while the preconditions for these issues to arise are often set at a national level through political forces, these social pressures tend to manifest most sharply at the local level. This was certainly reflected by the participants in the consultative workshops in the Philippines and Australian, who often spoke of social pressures as the major body of issues at the local level. This is not a surprising outcome, and is a reflection of the social units of many Indigenous peoples and Local communities occurring at a localised level and within a reasonably well-defined locality or territory.

In addition, to many Indigenous peoples and Local communities, these social pressures are very tangible at the local level, and often consume the efforts of those who seek to address them. As such, they are very highly emphasised in the dialogues and considerations of peoples and communities on the issue of threats to TK, all of whom seek to maintain their societies, cultures and bodies of knowledge, but all of whom come under considerable pressure from the factors described in this section.

Assimilation pressures

A major social pressure placed on Indigenous peoples and Local communities is an assimilationist mindset within Government and majority populations of states. Often, this mindset is directed towards Indigenous peoples and Local communities who in many cases are regarded as an uncivilised and inferior, a perspective that leads to basic denials of their rights and interests.

There are broad perceptions within Indigenous peoples and Local communities that assimilationist pressures are alive and well within the region. Assimilation pressures that are felt through conflict and colonialism such as that experienced in Borneo, Bangladesh and as a result of Indonesia's Transmigration program are some examples.

Authors such as Cheingthong[58] discuss examples of assimilation in Thailand, Vietnam and the Lao PDR while Indigenous peoples and Local Communities in the region often make statements against assimilationist pressures. The Baguio Declaration from the Philippines[59], the Chang Mai Affirmation of Indigenous Peoples from Thailand[60] and comments by Patrick Dodson in Australia[61] are just a few of these.

Assimilationist pressures manifest in a number of ways. They create institutionalised racism and discrimination by Governments and their bureaucracies, state media, schools and the dominant society, it results in one language policies at a state level which contributes to the breakdown of Indigenous languages, it generates cultural insensitivity within Governments and majority populations, all of which combine to create enormous social pressure on Indigenous peoples and Local Communities to conform to a norm that is set externally from their communities.

What is most critical about assimilation is that it pressures Indigenous peoples and Local communities, through force, negative reinforcement, education or other policies and actions, to cast aside their culture and cultural ways in favour of those held by majority peoples or ruling elites.

If we have it that one of the major dimensions of TK is culture, it is apparent that forcing a people or community to turn away from their culture is also forcing them to abandon their TK. This is a very overt and obvious threat to peoples or communities TK, and one that is unfortunately, common in the region.

Similarly to previously discussed threats to TK, assimilation pressures seem to originate from the Governments of a state and stem directly from a lack of regard for TK and the non-recognition of Indigenous peoples and Local Communities as polities. As such, this is a threat to TK that is well within the abilities of member states to address. What it requires however is the acknowledgement that a state contains a number of different peoples, and the development of systems that seek to accept this, and to ensure that governments work for all of these various peoples. Far from being a negative development, this may serve to increase the legitimacy of governments within all peoples of a state, and ensure that their interests, needs and in particular, cultures and TK are protected.

Poverty

Poverty and impoverishment are significant factors that threaten TK, its practice and its transmission, due to the pressure that it places on the social fabric of the people or community in question. There is significant debate over the definition of poverty and its causes. What has been referred to as perhaps a benchmark definition of poverty however, is as follows:

> *Individuals, families and groups in the population can be said to be in poverty when they lack the resources to obtain the types of diet, participate in the activities and have the living conditions and amenities which are customary, or at least widely encouraged or approved, in the societies to which they belong.*[62]

[58] Chiengthong, J. (2003). 'The politics of ethnicity, indigenous culture and knowledge in Thailand, Vietnam and Lao PDR'. *In* Kaosa-ard, M and Dore, J. Social Challenges for the Mekong Region. Chang Mai University, Chang Mai, Thailand, pp 147 – 172.
[59] Baguio Declaration of the 2nd Asian Indigenous Women's Conference, March 8, 2004, Baguio City, Philippines available through www.tebtebba.org, accessed 17 June, 2005.
[60] The Chang Mai Affirmation of Indigenous Peoples available through www.wcc-coe.org, accessed 17 June, 2005.
[61] Dodson, P. (2004). 'Practical reconciliation' ignores the problems of Indigenous identity'. Published in the Sydney Morning Herald, January 26, 2004.
[62] Townsend, P. (1979) Poverty in the United Kingdom, Penguin Books, Harmondsworth, United Kingdom.

This definition includes the ideas that poverty is about not being able to meet basic needs, and that these needs are socially determined, and therefore relative to each state within the region. Poverty is studied from a variety of different frameworks and perspectives, all of which offer a varying set of methodologies and understandings in its measurement.[63] The actual causes of poverty are also varied, and can be listed as such things as:[64]

- Structural inequalities – in which there are strong forces 'embodied in economic and social institutions and values that restrict how resources and opportunities are distributed in ways that entrench poverty and the processes that give rise to it.'[65]
- Events, combinations and accumulations - the manner in which individual effects such as unemployment, ill-health or other things that may otherwise be overcome individually, combine and accumulate until they are unable to be overcome and cause poverty.
- Choice and opportunity – in that a lack of choice and opportunity to participate in a society through structural inequalities, racism, poor education, poor health and other factors can cause people to be subjected to poverty.
- Bad luck – people can be propelled and trapped into poverty through no choice of their own with events such as the liquidation of their employer, drought, natural disaster, illness, disability through accident or through a variety of other reasons.
- Policy failure – that is, Government policies that are misguided, failed to acknowledge real causal effects of poverty and therefore were or are ineffective and exacerbate the effects of poverty.

A further cause that is not overtly explored by Saunders, given that this work is based on poverty in an industrialised nation, is that of the removal and subsumption of the customary rights to land of Indigenous peoples and Local communities, and the forced removal of people from their lands and into marginalised or fringe communities. This could possibly be categorised as a structural inequality, one which has it that the state grants interests over traditional lands to other groups, often by force, and removes the ability of a people to trade against land or to derive any level of sustenance from it.

This has been prevalent in Australia, where native title is seen as a bundle of rights to land rather than an interest in it, and in many other states in the region that seize the lands of Indigenous peoples and Local communities. In these cases, no longer are peoples or communities able to derive any real or economically valuable outcomes from their lands, and hence can be cast into a cycle of poverty.

Part of the poverty dialogue also has some proponents stating the idea that poverty is behavioral, and is self-induced rather than something that occurs for the above reasons. This is an argument, which has gained significant traction within the region, particularly within Australia, but is one which fails to explain why countries with a higher proportion of social spending have less poverty, and why people living in poverty are trying to escape it.[66]

In any case, while the causes of poverty are varied and complex, its effects are widely felt within the region, with the Asian Development bank stating "the magnitude of the task of addressing poverty in the Asian and Pacific region is immense. Poverty remains a serious condition for what now is approaching one billion people, many of whom live on less than one dollar a day."[67] In Australia also, Indigenous peoples are several times more likely to be living in poverty that non-Indigenous peoples[68], which is just

[63] See for Example Chapter 3 in Saunders, P. (2005) The Poverty Wars: Reconnecting Research with Reality, University of New South Wales Press, Sydney, Australia.
[64] Adapted from *ibid*, pp 83 – 101.
[65] *Ibid*, p 86 – 87.
[66] *Ibid*, p 95.
[67] The Asian Development Bank www.adb.org accessed 21 June, 2005.
[68] Saunders, *op cit*, p 43

one measure of the disadvantage that Indigenous are placed at in Australia, irrespective of its wealth and level of industrialisation.

As poverty is a massive issue within the region, it is important to acknowledge some of its effects. One of the most obvious effects is that people are forced to go without, that is, in order to make ends meet, people are required to make significant sacrifices in terms of both their lifestyles and basic necessities. At its most acute level, which is common within the region, this can sometimes mean going without adequate food, clean water, basic housing, medicines and a number of other necessities that would be considered as fundamental for human life.

Some of the consequences of this are quite marked and there are considerable effects on many areas of life. One of the most marked is that of the health effects of poverty, which through mechanisms of poor nutrition, lack of access to adequate health care and poor public health facilities makes people more susceptible to disease.[69] This can cause low life expectancy, increased child mortality and a lesser ability to engage in productive activities that would assist to break the poverty cycle. The despair that is often associated with poverty can also provide the conditions in which such things as substance abuse, violence and crime can occur, which only serve to place further pressures on peoples and communities.

Poverty has marked effects on children, which due to the enormous financial and emotional stresses that a family is placed under can result in a child not being able to be fed or clothed adequately, or perhaps not being able to be provided with a positive parental role model due to poor morale or depression. Children in poverty are also more susceptible to high infant mortality, poor health and susceptibility to disease and eventually, a lower life expectancy.

In terms of Indigenous peoples and Local communities, amongst whom poverty is endemic, these individual and family pressures in turn place great strain on their social fabric and cultural institutions. This may cause break down in the cohesiveness of peoples and communities, their abilities to practice cultural traditions and expressions, the early mortality of important knowledge holders prior to them being able to pass on knowledge or the marked decline in younger generations due to infant mortality (for example), which will affect how easily knowledge can be transmitted.

Poverty has broader effects in that it often forces Indigenous peoples and Local communities to relocate away from the territories their TK is practiced in. This can involve the main income earner moving away from the home to take up employment, which has effects of weakening institutions through the removal of culturally important individuals who hold significant sets of knowledge. It can also involve all members of a family, people or community relocating, which takes the members of a people or community outside of their territory and into new environments where there TK may not apply, and where they may not have any rights to access land and resources. Obviously, in this situation it is difficult for a people or community to maintain cultural practice and transmit knowledge.

In some cases, relocation caused by the effects of poverty and impoverishment can lead to urbanisation, which has very obvious effects in that it takes people out of both their cultural and territorial context, and can lead to a complete break down in the practice and transmission of TK, a topic that is briefly addressed in a further section of this report.

The great pressures that poverty places on people, and the resultant causes of essentially not being able to make ends meet, provide significant threat to TK and its transmission. This occurs to a great extent by providing the backdrop through which events occur that enhance the breakdown of cultural institutions and by weakening the social fabric of a people or community. As discussed, this can be a variety or combination of pressures such as poor nutrition, poor health, poor housing and other effects such as substance abuse and violence that can be caused by the despair of the poverty cycle.

[69] *Ibid*, p 122

This may not be the only effect of poverty though, as the pressures that it presents may force people from their territories and into alien environments where their TK is no longer applicable, cannot be practiced and is therefore eroded with ongoing isolation from territory and community.

The scale of the poverty issue throughout the region is huge, and even with the Millennium Development Goals of the United Nations remains a very significant issue[70], especially for Indigenous peoples and Local communities who are often the most marginalised of any state. It is common for the response for poverty pressures to be more about assimilation and mainstreaming rather than such things as the recognition of customary rights to land to a level that is actually economically valuable to peoples and communities.

Of course this is but one possible action, and the solutions to poverty are many and varied. One thing is certain however, poverty is a significant threat to TK in the region, and there needs to be a greater level of activity from states, in partnership with the people most affected, to begin to overcome these problems and develop sustainable futures.

Education and Education Systems

The role of education is one that is seminal in the development of a nation or within a population of Indigenous people and Local community. This includes key learning's in respect to a variety of knowledge, and the development of a formal schooling system through which to attain this learning.

For Indigenous peoples and Local communities, one of the most significant issues in relation to education systems is the extent to which it is geared to western knowledge. If an education system is geared too closely to western knowledge, and fails to respect the importance of localised knowledge and TK, it becomes a tool for assimilation rather than for advancement, and can contribute to the breakdown of key cultural tools such as language.

To reflect this, there are a number of issues that arise in relation to education systems within the region, in particular, associated with the emphasis placed on western knowledge and lack of emphasis that is in many places placed on TK and cultural knowledge. In their report to the SCBD for Phase I of the work program on the status and trends of TK, Langton and Ma Rhea note that the emphasis on western based knowledge:

> *… poses many problems, particularly in postcolonial countries where Western-style education systems are seen as having failed indigenous peoples and local communities. Ma Rhea and Teasdale (2000) discuss the hierarchical school system that has been denounced for promoting only a narrow, memorised form of learning. This situation places indigenous learners in the position of being able to reproduce western knowledge, but lacking the skills to critically analyse or test such knowledge. Similar observations have been made about European aid, development and, colonisation, where western-based education systems have traditionally required indigenous learners to know more about the geography, history and culture of the colonising people which tends to be regarded as 'better' tha[n] locally-focused knowledge.*[71]

[70] See for example UN Department of Economic and Social Affairs and the UN Department of Public Information (2004). 'Millennium Development Goals: Progress Report'. Available through http://www.un.org/millenniumgoals, accessed 26 July, 2005.

[71] Langton, M., Ma Rea, Z. (2003) *op cit*, pp 98 – 99 citing Teasdale, G.R., Ma Rhea, Z. (Eds.). (2000). Local Knowledge and Wisdom in Higher Education. UK: Elsevier Pergamon.

This raises some specific issues in relation to education systems, in particular the subordination of bodies of TK and the lack of contextualised, culturally based learnings – the learnings that are required for success within Indigenous Peoples and Local Communities. There are concerns that this supplants TK within the community in exchange for western-based knowledge, which may have little or no applicability for the situations within which Indigenous peoples and Local Communities exist.

There are fears that this type of educational outlook and this supplantation of TK contributes to its breakdown, as well as contributing to changes in social outlook amongst Indigenous peoples that are unlikely to be useful for the sustainability of peoples and communities. Anecdotal evidence suggests these changes in outlook encourage individuals to move away from their communities, contributing to further erosion of traditional and customary institutions, and hence a weakening of the practice and transmission of bodies of TK that peoples and communities possess.

A further issue in relation to education and educational policy is the practice of non-local schooling. This was raised by many of the participants of both the Asian and Australian consultative workshops, and echoed by individual participants external to these forums.[72] This issue involves the requirement of children to move away from home in order to receive an education, normally western based, which tends to isolate children from their communities, traditional lands and practices for extended periods, even years at a time.

This occurs at a time when much of the customary learning and teaching of TK generally occurs, which includes specific knowledge on biota and practices and also cultural values and knowledge. It is feared this learning of TK through the requirement of moving away from the community environment can lead to a direct breakdown in the transmission of TK.

It is also reported that when required to return to community, children find themselves culturally disorientated, given the assimilation forces they have been subjected to within their schooling, have difficulty re-adjusting to the lifestyle of their home people or community and may even hold the knowledge base of their people of community in lesser regard. This can have further effects in that it may lead individuals to leave their people or community, leading to an inevitable community decline, the progressive dismantling of cultural infrastructure and the consequent effects that this will have on the practice and transmission of TK.

It must be said that these issues are being recognised in many states, particularly with the growing recognition of the importance of TK within the dialogue of global sustainability as well as the recognition that TK forms a large part of a peoples or communities social capital. It is important to add the qualification that along with the extent to which educational policies and programs contribute to social dysfunction and cultural breakdown, the extent to which progressive policies are being developed to overcome these issues is difficult to ascertain.

What is clear is that educational policies can place considerable pressure on bodies of TK through reducing access to it and alienating people from both community and TK. In some states, this is being acknowledged and responded to while in others: it is not. What is required across the region is a full acknowledgement of this issue, and responses that enable TL to be taught within an education system, or at least along side it, and a cessation of the requirement of children to move away from their people or community for extended periods of time. These two measures alone could be expected to have significant results, and with continued study and review, further actions may be able to be brought into place though which to advance the improvement of education systems in favour of Indigenous peoples and Local Communities.

[72] For example Jannie Lamisbang, *pers comm*, April 2005.

Marginalisation of Women

Women hold significant bodies of traditional knowledge, which are now being fully acknowledged and reflected in a variety of forums such as research[73], the CBD[74] and in other UN forums[75]. Sources such as these also raise the issue that in many cultures, it is women who are responsible for the procurement of the majority of the caloric intake of families and children, and are also the source of the major portion of medicinal treatments, through holding a significant amount of plant knowledge.[76]

These facts are now becoming widely understood, however, it remains an issue that women are marginalised or are not accorded the appropriate level of recognition they should be within peoples and communities, within states, within research, within development programs and within projects that seek to enhance and protect the continued practice and transmission of TK.

This marginalisation and lack of recognition constitutes a significant threat to TK. If women, as major TK holders, are deliberately marginalised or are not properly acknowledged for their contribution to knowledge, community and culture, then it is apparent that not only is a great portion of a system being overlooked, but that this marginalisation could lead to actions against women that contribute to pressures that are placed on the practice and its intergenerational transfer of TK.

In seeking sustainable outcomes for TK, the fact that women hold a significant amount of TK places them in an important position for the design and implementation of programs and policy. It is apparent that if women are overlooked through negative gender politics or for other reason, major portions of knowledge systems will be excluded from any such works leading to outcomes that are likely to achieve their desired goals.

It is of utmost importance then, for women to be recognised as critical holders of TK, and critical in the processes of practice and transmission of these bodies of knowledge. As such, women need to play a role in the policies and programs that are designed to protect and enhance TK, and therefore proactive and positive steps need to be taken to ensure their inclusion, support their role and to overcome some of the barriers that have been placed before proper and fulsome participation. In particular, states, development agencies and the CBD can generate actions to promote involvement of women from Indigenous and Local communities, and that such actions stand to greatly enhance the practice and transfer of TK

Language Loss

There is a significant amount of current work on the links between language and TK retention, essentially resting on the proposition that within language is encoded critical cultural understandings, concepts and knowledge, and when these are lost, so too are the concepts that they encode.[77] In addition to this, there is significant attention being paid to language retention as it is a source of great cultural pride to Indigenous

[73] See for example Brockman, A., Masuzumi, B. and Augustine, S. (1997). '"When All Peoples Have the Same Story, Humans will Cease to Exist" Protecting and Conserving Traditional Knowledge'. A report prepared by the Dene Cultural Institute for the Biodiversity Convention Office.
[74] In "Gender Related Aspects" on web page of the Secretariat of the Convention on Biological Diversity http://www.biodiv.org/programs/socio-eco/traditional/linkages.asp accessed 9/9/05.
[75] For example WIPO in their "Women and Intellectual Property" programme at http://www.wipo.int/women-and-ip/en/programs/tk.htm accessed 9/9/05
[76] See for example UN Commission on Science and Technology for Development (1995) 'Missing Links: Gender Equity in Science and Technology for Development', IDRC, Ottawa, p. 29.
[77] See for example the work performed by Terralingua at www.terralingua.org. Accessed 12/08/05.

peoples and Local communities, is used as a signifier of cultural strength, and is a matter that is strongly emphasised by many Indigenous and Local community leaders and philosophers.[78]

This loss of language, due to language holding critical understandings and knowledge, is seen as a significant threat to TK. Language loss is seen to be facilitated by assimilation pressures, education systems and a number of other social pressures which cause the removal of members of Indigenous peoples and Local communities away from their territories, people and communities, and into situations where their language is unable to be understood, and is therefore no use to them.

While this is undeniably an issue, and it can and has been demonstrated on many occasions that language holds often profound philosophies and knowledge that is very difficult to translate into other languages, there is also discussion, particularly in Australia, that language loss does not automatically equate to a loss of culture and TK.

This has particularly been demonstrated in the context of native title, where many Indigenous peoples have taken to the stand in a courtroom to argue the existence of their customary land title using English. While this is certainly not ideal, it has been demonstrated through such case law that Indigenous peoples in Australia retain a significant amount of cultural and traditional knowledge, from such things as broad philosophies, land management practice and cosmology to specific knowledge on species and the interrelations of elements of an ecosystem. The critical act in this knowledge transfer has not been language speaking, but continued practice, demonstration and repetition.

To equate the loss of language to an automatic loss of culture and then TK is a faulty assumption, as there are a variety of ways in which Indigenous peoples and Local communities express culture and knowledge – the spoken word is but one. Even though this is a faulty assumption, it is one that colonial forces and assimilation based governments are seeking to use against Indigenous peoples and Local communities throughout the Asian and Australian region, and this is a matter that proponents of the direct language loss/cultural loss and therefore TK loss proposal should be cognisant of.

Still, it is far preferable, particularly from the perspective of a member of an Indigenous people or Local community, that cultural ways, ideas and knowledge are expressed in Indigenous and local languages. It is reasonable to state that in many cases, cultural ideas and specific knowledge can be explained with far greater economy and with greater accuracy in a language that contains the words that have been designed to express them. This is of course, a matter that greatly enhances the transmission and retention of TK and is a strong argument for language programs for and with Indigenous peoples and Local communities in order to support the practice and retention of TK.

Organised Religion

Historically, organised religion has played a major role in the disruption of the traditional lifestyles of Indigenous peoples and Local Communities and has contributed greatly to the breakdown of TK systems. It has done this through being a foundation for colonialism and assimilation, and through supporting aggressive missionary programs that have sought, and continue to seek, to alienate Indigenous peoples and Local Communities from their belief systems and TK.

In Australia for example, one of the major effects of organised religion has been what is termed the ‘stolen generations’, the state sanctioned removal of Indigenous children from their parents and their

[78] See for example Alfred, T. (1999). Peace, Power, Righteousness. An Indigenous Manifesto. Oxford University Press, Ontario, Canada, pp xii and xv.

placement onto Christian missions, where they were subject to harsh conditions and often mistreated.[79] This was a devastating time (until c 1970) for Indigenous peoples in Australia, where both the state and the Christian church were complicit in designing a system whose purpose it was to assimilate Indigenous children into white society and to alienate them from their culture, language and to break down their TK systems.

There remains a significant presence of missionaries in the region, and there remains a justification of colonial practice and assimilation pressures based on ideas of the major organised religions, and the conversion of peoples and communities who adhere to an 'inferior' or 'blasphemous' belief system and way of life to one that is in line with the colonial people or force. This places very real pressure on TK systems, given that this type of conversion often calls on the holder of knowledge to cast aside their cultural beliefs in favour of another, placing in threat significant portions of TK systems as given through the cultural context in which they exist.

Aside from colonial pressures, it can also be argued that organised religion is another example of assimilation pressure, already briefly discussed in an earlier section, that seeks to alienate peoples and communities from their traditional life ways to those of a dominant culture or people. In this, the effects of organised religion are not dissimilar to that applied by the global scientific community, who often regard TK as inferior and unreliable, although it must be stated, as evidenced through the ICS, that science is beginning to acknowledge the validity and standing of TK,

Organised religion then can play a major and very negative role in Indigenous peoples and Local communities, and the colonial and assimilative processes that it often supports presents significant threat to TK. This is enhanced throughout the region by the influence of religion in many of the Governments in the region, irrespective of whether they profess this influence or not, and irrespective of the faith that is dominant in a particular state.

It would seem that a great deal more tolerance of the cultures, worldview and TK of Indigenous peoples and Local communities is required by organised religions to remove the threat to TK that they present. This is occurring in some places with the development of inter-faith dialogues, but these will need to be robust, accepting and tolerant of the fact that Indigenous peoples and Local communities have different beliefs and life ways, and that the choice to continue these, as well as the bodies of knowledge that are associated with them, is positive and necessary rather than negative and an affront to the norms of dominant religions.

Concluding Remarks

There are a wide variety of social and economic factors that affect TK in a negative manner, some of which are covered here and some of which are not. Additionally, the manner in which these pressures act is often extremely complex, and difficult to describe. Difficulties also arise when it becomes clear that the manner in which these pressures act is often in synergy with other pressures in ways, which are unexpected, or can come about as a result of other pressures, also in ways that may not have been anticipated.

What is clear about these social and economic pressures however is that they act most significantly on the cultural dimension of TK. This occurs through the significant pressure that is placed on the social fabric

[79] Human Rights and Equal Opportunities Commission (1997). Bringing them Home: Report of the National Inquiry into the Separation of Aboriginal and Torres Strait Islander Children from Their Families. Human Rights and Equal Opportunities Commission, Sydney, Australia.

of a people or community, which in turn places pressures on the cultural institutions, which facilitate the practice and transmission of TK.

It is hoped that to some measure this has been able to be portrayed, and rather than threats to TK being about simple and linear notions of actions placing pressure on TK in a cause and effect manner, that threats to TK are complex and often social and economic in character. These can be very difficult to measure, and can be complex to act against. Nonetheless, it is important that states who are signatory to the CBD recognise the social conditions that an Indigenous people and Local community are placed in, will have major negative effect on the practice, retention and transmission of TK, and that a significant level of socially proactive programs that target simple improvement in social condition are required to reduce these effects.

Alienation from Traditional Territories , Lands and Biological Resources

This topic deals directly with the territorial dimensions of a peoples or communities TK and their ability to practice and transmit TK in the territory in which it has developed. In most cases, the factors listed in this section are caused by those discussed within the section on political pressures as it is these issues which lead governments to enact legislation and develop policy which have a direct impact on a peoples or communities' ability to remain connected to their territory. Additionally, all of the factors listed in this section have ensuing social and cultural effects, which intersect with earlier discussions.

While there is a good deal of convergence with earlier sections, this topic is easier to deal with as, while the causes vary, the effect is the same, that is – part or entire alienation of people from their land. This differs greatly from social or political pressures, which can act in a variety of ways, in which single pressures may have little effect but which can synergise with other pressures to create larger effects, and which can have effects that are extremely difficult to anticipate. As such, it is easier to conceptualise the impact of alienation from lands on a peoples TK, on which there has already been some discussion relating to the spatial dimension of TK, and how when a peoples or communities practice is removed from a territory, knowledge can be lost through a lack of ability to practice it.

There are a number of mechanisms through which alienation from traditional territories can occur. Some of these are:

- Non-recognition of traditional titles and customary land tenures – land rights and the recognition to a peoples right to land and its natural resources is seminal to the protection of tradition, cultures and TK;
- Displacement through sustained conflict as well as forced relocation by Governments and authorities – as discussed in previous sections;
- Declaration of protected areas and so called "paper parks", both terrestrial and marine – which is an issue that is prevalent in the region, and includes the declaration of parks and reserves that are eco-centric in their management, do not provide adequate recognition of traditional land access needs and land rights and even cause the forcible removal of peoples and communities from their lands.
- Grant of land to external parties such as trans and multi-national corporations for the purposes of resource exploitation, namely logging and mining;
- Take up of land for other purposes such as military installations;
- Dams and Mega-dam projects;
- Urbanisation – the growth of urban areas over traditional lands, as well as the development of infrastructure that impacts upon lands such as roads and industrial areas, and the downstream effects of this urban expansion in relation to pollution and other downstream effects.
- Sustained environmental degradation resulting in species loss and ecosystem dysfunction;
- Alienation of land from traditional estates for the purposes of Industrial development for heavy industry as well as for plantation forestry and monocultural agricultural development;
- Privatisation of lands, and;
- Take over of lands by external settlers through colonial policies in states.
- Creation of reserves under resource legislation for example Fisheries legislation that protects fish habitats

Each and all of these issues can be expanded at length, given the very real and manifest effect they have on forcing Indigenous peoples and Local communities away from their lands and therefore their practice of TK. The approach that is taken here, however, is to highlight what are possibly the largest issues, and

to seek that given their effects are the same, that is the alienation of people from their lands, that member states conduct work which seeks to document and quantify the extent to which these threats exist.

Perhaps some of the most pervasive issues that have a marked effect on the TK of peoples and communities through alienation from land are that of logging and deforestation and the forced migration of peoples, which is a re-emphasis of a previous discussion. As these are major issues within the region, both are examined in greater depth

Deforestation

In the period of 1980 – 1995, Asia and Oceania is estimated to have lost some 60 million hectares of forest.[80] At the end of the same time period, 4 Asian countries were ranked in the top 10 deforesting countries in terms of percentage of annual loss of total forest cover, with the Philippines (1, -3.5%), Thailand (4, -2.6%), Cambodia (8, -1.6%) and Burma (10, -1.6%).[81] More recent figures show a deforestation rate of 3.3% in Bangladesh.[82]

This level of deforestation has lead to staggering losses of rain forest cover. The Philippines has already lost the vast majority of its primary forests, in Indonesia forest cover has declined from 82% in the 1960's to 53% in 1995, it is estimated that if logging continues at current rates in Malaysia, primary forests in Sarawak will disappear by around 2015, Cambodia's primary rain forest has reduced from around 70% in 1970 to around 20% today and most of Thailand's primary forests have also already been lost.[83] In Vietnam, although 60 % of forest cover was destroyed in the US war, deforestation continues at a rate whereby it is estimated that if this rate continues, there will be no substantial forest cover by 2020.[84] In Laos, forest cover has dropped from 70% of the land area in 1940 to less than 40% in 2001.[85]

There are many causes of deforestation, and it is common when scrutinising this topic that disproportionate attention is bought to the agents of deforestation rather than their root causes. In many cases, particular emphasis is placed on people who engage in unsustainable agriculture and firewood collection, although this does need to be acknowledged as a source of deforestation. It is probably more accurate to state however, that the political and social conditions in which people find themselves, as well as the high levels of poverty, displacement and other socio-economic factors are the root causes of this type of deforestation, and the people who undertake the actual activities are just agents of the underlying causes, which have often manifested with state sanction.

Another major cause of deforestation is illegal logging, which occurs at a staggering rate and in many cases, with impunity within the region. It is estimated that in Indonesia for example, up to 80% of the timber sourced each year is illegally cut.[86] In Cambodia the problem is far greater, with sources stating

[80] Roper, J. and Roberts, R.W. (1999). 'Deforestation: Tropical Forests in Decline'. Canadian Forest Advisers Network Forestry Issues Discussion Paper. Available through www.rcfa-cfan.org, accessed 29 June, 2005.
[81] *Ibid*, citing FAO (1997) 'State of the World's Forests 1997', Food and Agriculture Organization of the United Nations, Rome, Italy, p.200
[82] World Rainforest Movement, http://www.wrm.org.uy accessed 29 June, 2005.
[83] Figures from Butler, R.A. (2003). Countries Appendix on website www.mongabay.com, accessed 29 June, 2005, citing the Food and Agriculture Organisation and the CIA World Factbook.
[84] Environmental Investigation Agency and Telepak Indonesia (2001). 'Timber Trafficking: Illegal Logging in Indonesia, South East Asia and International Consumption of Illegally Sourced Timber'. Report from Environmental Investigation Agency and Telepak Indonesia, p 10.
[85] *Ibid*, p 9.
[86] Environmental Investigation Agency, www.eia-international.org, accessed 29 June, 2005.

that the volume of illegally harvested logs is ten times that of the legal harvest[87] while in Laos, a large proportion of the loss of forest cover in the last 6 decades can be attributed to illegal logging activities.[88] Major causes of illegal logging include corruption, unclear legislation and weak law enforcement.[89]

Deforestation has some very obvious effects on Indigenous peoples and Local communities in that it directly effects the ability of forest dependent communities to use the lands, territories and biota they are dependent on for their day to day needs and cultural lives due to the complete removal of forest within their territories. Not only is there a direct loss within the area deforested though, deforestation has a number of significant downstream impacts such as erosion on a very large scale, siltation of rivers, mudslides and flooding, such as those experienced in the Philippines in the late 1980's and the early 1990's. These compound the direct environmental effect of deforestation, and cause further disruption within the territories of Indigenous peoples and Local communities in areas that may be remote from initial logging activities.

One of the most marked effects of deforestation is the loss of biodiversity and decline in ecosystem function. This also places very direct pressure on the practice and transmission of TK within Indigenous peoples and Local communities, as it removes elements of the system upon which much TK is based. Obviously if there are local or broader extinctions of biota or even of complete ecosystems, any knowledge of that particular biota or ecosystem is in danger of being lost.

A parallel situation arises in aquatic environments where over-fishing and unsustainable fishing practices reduce the availability of traditional target species to Indigenous and Local communities. Loss of target species forces Indigenous and Local communities to target other species and it also leads to an erosion of the traditional fishing knowledge held by those communities.

Forced Displacement and Migration

While this topic has been mentioned in previous sections, it is worth re-emphasising given the magnitude of the issue within the region and hence the very significant negative impacts that it generates in relation to the practice and transmission of TK. It could also be classed as a political or social issue, but is treated here due to its direct relationship with alienation from land.

Previously, there has been discussion on forced displacement as a result of conflict as well as poverty. There are however, other causes of displacement which often include environmental degradation, pollution, natural disaster, and alienation from land as a result of grants to other parties such as mining and logging companies, dam projects, declaration of protected areas, forced resettlement, encroaching urban development and other factors. These effects are most likely to be local in scale, although it is likely that significant areas could be affected by these causes.

Irrespective of the cause, within the region there is a significant level of displacement of Indigenous Peoples and Local Communities as evidenced by the following statements from the Global IDP (internally displaced peoples) Project:[90]

It is estimated that, by the end of 2004, some 3.3 million people were displaced within Asia-Pacific region due to conflicts. This figure does not include displacement related to natural disasters or

[87] Centre for International Forestry Research, CIFOR Fact Sheet http://www.cifor.cgiar.org/docs/_ref/aboutcifor/factsheet/illegal_logging.htm, accessed 29 June, 2005.
[88] Environmental Investigation Agency and Telepak Indonesia (2001), *op cit*, p 9.
[89] Centre for International Forestry Research, CIFOR Fact Sheet, *op cit*.
[90] Global IDP Project, *Internal Displacement in Asia & the Pacific*, Mach 2005. Available through http://www.idpproject.org/regions/Asia_idps.htm, accessed 15 July, 2005.

large-scale infrastructure projects, both of which are major causes of displacement in the region. The Indian Ocean tsunami disaster, which struck in a dozen countries in the region on 26 December 2004 killed more than 280,000 people, injured half a million and left up to 1.2 million homeless … Countries where people were newly displaced by conflict and fighting during 2004 include Nepal, Indonesia (Aceh, Maluku), Pakistan, Burma (Myanmar) and to a lesser extent Afghanistan and the Philippines. In addition, large numbers of people remain unable to return after many years away from their homes.

If displacement is an issue, then the sheer number of people represented in these figures shows the magnitude of this issue in the region.

Forced displacement has the effect of isolating and separating members of Indigenous peoples and Local communities from their lands and resources, which directly affects those attributes of TK that are territorially based. While there may be opportunities for members of peoples and communities to continue cultural expression, this may be out of context in new environments and may be diminished with time unless displacement is reversed. In other cases, where a body of TK relates specifically to an area of land and can only be applied in a particular environment, this type of continued practice may not be available, in which case knowledge is likely to be lost.

Once again, displacement is a complicated issue that has many causes. Further, while it is intensely manifested at a local level, many of the causal factors are those that can be controlled or at least ameliorated by the state, with the exception of course, of natural disaster, drought and other non-human pressures, although effective and well executed state based responses to these misfortunes can accomplish a great deal in terms of the integrity of a people or community on their territory in a time of need.

Like other issues, glib recommendation serve little purpose, however it is important that member states of the CBD acknowledge displacement of peoples and communities as the threat to TK that it is, and seek to address its variety of causes in a serious and integrated manner.

Concluding Remarks

In general, the effects of factors that directly alienate people from their territories will have very direct and tangible effects on TK through disrupting its spatial dimension. This occurs not just through alienation from lands and territories, through lack of recognition of customary land rights, but also through the direct loss of diversity and ecosystems when events occur that result in environmental degradation.

Exploitation of TK

There are a number of concerns relating to the exploitation of TK from external sources. One such concern is the manner in which TK is objectified, which diminishes the significance of TK as functioning and holistic bodies of knowledge. Another is the use of elements of bodies of TK for commercial gain without the proper prior informed consent of Indigenous peoples and Local communities from whim the knowledge is derived, and without benefit sharing arrangements for commercial developments derived from the knowledge, innovations and practices of TK peoples and communities.

Bioprospecting

Bioprospecting is a particular area of concern in relation to TK, in that it exploits elements of the bodies of knowledge, innovations and practices that are possessed by Indigenous peoples and Local communities, most often without adequate prior informed consent and benefit sharing arrangements, for commercial gain. It is perhaps most ironic in the discussion on TK, that while in most cases bodies of knowledge held by Indigenous peoples and Local communities are cast as subordinate and inferior, in the case of bioprospecting, TK is used as a mechanism upon which "advances" in western science are based, or which provide huge savings due to increasing efficiencies due to leads that TK provides.

In discussions on bioprospecting, there is a large emphasis placed on pharmaceutical research. It would be more accurate however to state that bioprospecting activities are undertaken by a diverse set of industries such as the:

- Pharmaceutical industry;
- Complementary medicines industry;
- Agricultural industry;
- Bush foods industry, and;
- Cosmetics industry.

Bioprospecting in these fields is the search for new varieties of plant for increased food production, the physical and chemical properties of plants for medicines, agricultural development and cosmetics and the genetic properties of plants, also for pharmaceutical and medicinal development, amongst other uses. While Indigenous peoples and Local communities are not inherently opposed to these types of development, the activities of bioprospectors, generally western based organisations in appropriating and exploiting TK, debases it, turns the sacred into the profane, and commodifies knowledge and natural resources that in the view of TK holders, should be treated with a higher order of dignity and respect.[91]

Bioprospecting has been a major source for crop variety development for the green revolution as well as the current biotechnology revolution, a biotic alchemy if you like. These have lead to great abuses and major exploitation of TK, almost exclusively for the financial return of the exploiter. Khor states:

> *Quantitative estimation of the economic value are scarce, but some figures suffice to illustrate the enormity of the contribution [from developing countries]. More than two-thirds of the world's plant species (of which at least 35,000 are estimated to have medicinal value) come from developing countries. At least 7,000 medical compounds used in Western*

[91] Colchester, M. (1996). 'Indigenous peoples' responses to bioprospecting' *in* Baumann, M.; Bell, J.; Koechlin, F.; Pimbert, M. (Eds). The Life Industry, Biodiversity, People and Profits. World Wide Fund for Nature and Swissaid. Intermediate Technology Publications Ltd, London, England, pp 114 - 119

> *medicine are derived from plants, and the value of germplasm from developing countries to the pharmaceutical industry in the early 1990 was estimated to be at least US$32 billion per year. Yet developing countries were paid only a fraction of this amount for the raw materials and knowledge they contribute.*[92]

On agriculture, Khor adds that

> *In agriculture, according to one estimate cited by RAFI, genes from the fields of developing countries for only 15 major crops contribute more that US$50 billion in annual sales in the United States alone. RAFI itself also estimates that the contribution of germplasm held in the international agricultural research centres of the Consultative Group on International Agricultural Research (CGIAR) to crop production in developed countries is at least US$5 billion per annum; almost all the germplasm has been collected in developing countries.*[93]

These types of figures demonstrate the enormous gains that western based countries make from developing countries, and particularly from the knowledge, innovations and practices of Indigenous peoples and Local communities. Scant attention is paid to the fact that the resources that western science is able to gain is not from an environmental or knowledge commons that is open for plunder, but from generations of development from Indigenous and Local community farmers. Accordingly, it is more accurate to state that the "genetic resources gleaned by science and industry are not the gift of nature – they contain centuries of labour by the people from whom these resources were appropriated."[94] Even so, it is common that "[g]enetic resources leave the fields of farmers and indigenous peoples as 'common heritage', but once they pass through corporate and academic laboratories they become commodities that must be paid for."[95]

This raises one of the most significant fears in relation to bioprospecting, for whatever purpose it is performed, that of intellectual property rights. In particular, there are many cases of corporate entities taking the seed stock, germplasm, innovations and practices from Indigenous peoples and Local communities and claiming their intellectual property for corporate gain, both without due regard to the originators of the knowledge and practices, and without their prior informed consent.

This has manifested through patent applications on such things as neem, varieties of soybean, maize, potato, wheat and turmeric as well as patents on actual traditional uses such as anti-diabetic properties of the banana plant, used in the Cordillera region of the Philippines, the process of making tempeh, based on the fermentation of soy beans, a process possessing a documented practice for hundreds of years in Indonesia, and many other traditionally based processes.[96]

The very idea of claiming patents over such things is repugnant to many Indigenous peoples and Local communities, who consider this practice as a profanity in that it separates an element of what is considered an indivisible whole from its interconnections, meaning and context for the sake of the exploitation of the developed world, a matter that greatly alarms Indigenous peoples and Local communities.

In addition to this moral assault, bioprospecting and patenting may also place very practical constraints on the practice of TK where patent holder seeks to inhibit the use of the patented process or commodity,

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[92] Khor, M. (200). *Op cit*, p 15 – 16.
[93] *Ibid*, p 16.
[94] Kloppenburg, J. (1996). 'Changes in the genetic supply industry', *in* Baumann, M.; Bell, J.; Koechlin, F.; Pimbert, M. (Eds), *op cit*, p 27
[95] *Ibid.*
[96] Khor, *op cit*

irrespective of whether it is an integral part of the existence and practice of Indigenous peoples and Local communities.

This can have a number of effects. Firstly, action against the holder of TK to prevent the use of processes that are now patented is a direct act against the continued practice and transmission of TK, which can effect basic things such as food security and health care, denying peoples and communities their very basic rights to maintain an existence according to tradition and custom. Secondly, fear of exploitation has an effect whereby peoples and communities become closed about their knowledge, even within their communities, placing pressure on the normally practiced routes of transmission of TK and in some cases, creating division within peoples and communities regarding the sharing and passage of knowledge. This is a matter that may lead to breakdown in the transmission of TK, as well as a reduction in the normal cultural practices of innovation, development and adaptation.

In some cases, TK that has been redeveloped into new strains of plant or chemical applications is re-sold back to Indigenous peoples and Local communities in the name of development, creating monocultures and promoting high external input farming practices as well as changing medicinal treatment. This places further pressure on TK through fostering systems of farming and medicine that even though expensive, force the abandonment of customary practice.

There are likely to be many other effects of bioprospecting. The issue at stake at this point, however, is that the attendant pressures on traditional practice, society and the environment this activity produces are factors that threaten the practice and transmission of TK. As discussed, by taking the knowledge away from the people who developed it, exploiting it and making claim to its origin makes vulnerable the inherent cultural processes of development, adaptation and transmission of knowledge. It also does violence to the practice of TK, in that in some cases, practice or the selling of commodities based on TK may be sought to be prevented by the corporate entities who seeks to exploit it.

Objectification

Objectification is a practice by which dominant cultures set a term of reference about what defines Indigenous cultures, how they operate and how they should represent themselves. It is a process of "othering", that is, where Indigenous Peoples and Local Communities are placed into a particular space, as applied by the perspective and knowledge system of a dominant culture, which separates traditional cultures from their temporal dimension of evolution and reinvigoration. This is a colonial practice that seeks to place traditional cultures into a space that is defined by moments of the past, rather than allowing them an existence and relevance for the present.

The tourist industry is one such industry which can indulge in this practice through the commercialisation of culture and cultural forms of expression for national and international audiences. This industry often seeks to present traditional cultures as exotic and as placed within the past, a practice that does not acknowledge the ongoing adaptation mechanisms to new circumstances that traditional cultures possess, and one that denies traditional cultures an existence within the present.

This type of objectification creates circumstances in which in order to survive, Indigenous peoples and Local communities are denied the mechanisms their cultures possess for renewal and adaptation, and only allows peoples and communities to be socio-economically involved in contemporary society in terms defined by the dominant culture, often the point of "first contact" many hundreds of years ago. Another example of this may be the exploitation of art forms and folk art, which may degrade the meaning of important forms of cultural expression to a means to an end, rather than important elements of a cultural system or knowledge transmission.

There are some interesting examples of this objectification from all states in the region. In Thailand for example, while threatening people of many individuals of the "hill tribes" in the north of the state with deportation and regarding them as an inferior people who degrade the environment, Government has no objection to the development of a tourist industry which exploits on notions of "traditional culture" and "traditional forms" of cultural expression, and places pressure on these cultures not to adapt to modern circumstance.

Indigenous peoples have responded to this issue, with a notable response showing the general Indigenous mood being contained within the Baguio Declaration, which states that "current forms of tourism make Indigenous peoples and women objects of display and commercialisation."[97] Such responses object to the commercialisation of cultural forms of expression, which diminish the cultural meaning of these forms of expression and can alienate its practitioners and younger generations from its practice.

This issue is an interesting counterpoint to notions of development, in that rather than allowing people to evolve their cultural practices and traditional economies, they are cast into a finite and stagnant space which offers only basic denial of a peoples or communities right and desire to come to grips with the circumstances that the modern world presents.

Importantly, this issue should not be read as Indigenous peoples and Local communities not desiring to continue to practice and re-invigorate their traditional ways of expression, celebration and ceremony, and it is apparent that a global effort exists within the worlds Indigenous peoples and Local communities to do just that. What is important however is that when these cultural expressions are exploited in this manner, it diminishes the true meaning and significance of cultural forms of expression as well as forcing peoples and communities not to evolve their practices using the means that their cultures provide them.

It also need to be noted that there are Indigenous peoples and Local Communities who dissent from this criticism of the tourist and art industries in particular. Reasons for this include that they allow people the opportunity to re-invigorate cultural practice and gain wider acceptance of TK as well as to participate in mainstream economies. This is no doubt a useful set of functions, but this also goes beyond exploitation by providing useful devices for people and communities. Where these devices are absent however, it could be expected that the concerns of Indigenous peoples and Local Communities remain.

The denial of an ability to adapt through exploitation of cultural expressions is an inherent threat to TK through the forced denial of a people or community from being able to access their culturally defined processes that are used to evolve TK and practice to ensure that it maintains relevance to changes in environment or circumstance. If a society is denied this through such forces of exploitation that objectification presents, then it is apparent that in time, inhibition of the adaptive and evolutionary processes that traditional cultures possess may render it obsolete.

[97] The Baguio Declaration, *op cit*.

Development Policy

While development policy and practice have begun to recognise the importance of TK systems, there is still a significant set of issues surrounding the manner in which it is incorporated. In particular, there are significant issues within agricultural practice surrounding the implementation of "green revolution" practices and bioengineered crops, which generally require high external inputs, in the place of diverse Indigenous agricultural systems.

These pose a threat to TK as in many cases, there is a strong advocacy for the replacement of crops and agricultural practices that have been developed over thousands of years, crops and practices that are suited to local environments, ensure pest and disease resistance and provide an adequate amount of diversity to cope with seasonal variation. Further, these crop varieties and agricultural practices have provided food security for Indigenous peoples and Local communities for a great period of time, and ironically, the introduction of new high input varieties and practices may have negative impacts on this.

In part, these issues arise from a lack of recognition of the environmental sustainability of the agricultural practices of Indigenous peoples and local communities. This occurs in two ways, firstly in the sense that there is a lack of recognition that crops and production systems have been developed which stay within the assimilative capacity of the environments in which they are situated, and rather than this recognition being made, are seen to produce too little food. Secondly, agricultural practices such as swidden agriculture have been seen by the west as environmentally destructive, although there is now evidence to suggest that this perspective is not entirely valid.[98]

Agricultural Practice – Introduction of New Varieties and High Input Crops

The "green revolution", with its development of hybrid crop varieties, as well as the new "biotechnology revolution", have been developments promoted as assisting in increasing food production in developing states, as well as securing food supplies making redundant instances of food shortage.

The manner in which this was to be accomplished was through western science and technology based assumptions that this science and technology was able to produce crops varieties that were "unconstrained by nature's limits"[99] and that "nature is a source of scarcity and technology is a source of abundance."[100]

Evidence suggests that in many cases this has not been the outcome, and replacing seeds carefully selected by farmers for thousands of years has resulted in many negative outcomes for the people this action was purported to assist. To a large extent, this is due to the fact that green revolution plants and new biotechnology plants, requiring high external inputs of fertilisers, pesticides, water and energy. It is thought that perhaps this high input has been based on increasing profits for their manufacturers rather than the welfare of the farmers themselves, their agricultural systems and the people who rely on them.

This may arise from the developers of hybrid varieties having little or no concept of the symbolic and real relationships between plants, soils, waters and energy, which is a stark contrast from Indigenous peoples and Local communities who rely on agriculture for their food security. Rather, a reductionist perspective is encouraged that sees only the production of quantities of food in isolation from the environmental,

[98] See for example Kleinman, P.J.A., D. Pimentel, and R.B. Bryant. (1995). 'The ecological sustainability of slash-and-burn agriculture'. *Agriculture, Ecosystems and the Environment*, Vol 52: 235-249.
[99] Shiva, V. (1996) 'The losers' perspective', *in* Baumann, M.; Bell, J.; Koechlin, F.; Pimbert, M., *op cit*, p 130.
[100] *Ibid*

human and social costs that are incurred in their growth, which is counter to the ideas of respect and reciprocity that is a major feature of many TK systems.

Perhaps one of the most marked effects associated with the introduction of high external input green and biotech revolution plants is the encouragement of monocultures and the reduction in crop diversity. Of course, this relates to farming systems, which is discussed in the following section, but as it relates directly to the introduction of high input crop varieties, , this topic is dealt with here.

Crop diversity has been a most effective strategy to ensure food security for a great period of time. It provides insurance against disease, pests and drought, as well as other impacts, through the cultivation of a number of varieties and species of crop. This assurance is provided through the certainty that irrespective of the difficulties that arise, there is likely to be one or some of the varieties or species planted that remains productive.

The green and biotech revolution appears to encourage the perspective that technology can overcome any of the hardships that the natural world presents, all that needs to occur is the application of a chemical or other treatment, and problems are solved. It is probably truer to state that risks can be reduced using these methods, but never removed. If monocultures are widely taken up then, there is the possibility of greater susceptibility to catastrophic events which, if there is an almost complete reliance on one variety or species, could be ruinous for the people or community who have been induced to modify their farming methods away from the manner in which their TK prefers.

This type of outcome not only presents the possibility of increased exposure to catastrophic events, it also seeks that Indigenous peoples and Local communities turn away from their TK, their ongoing development of varieties, their adaptation to new circumstances, and to become slavish subjects of multinational corporations who supply both seed (often originally sourced from Indigenous peoples and Local communities in any case), and chemicals. This places direct pressure on a peoples or communities TK, and therefore represents a threat to it, through discouraging its practice and disrupting its transfer, and seeking a change of cultural value away from respect and reciprocity to one which more closely matches the one required to encourage the sale of hybrid seeds and chemical.

High input methods have also been shown to have other costs for peoples and communities, direct economic costs which place further pressure on them. In the Philippines for example, survey showed that while farmers saw a 70% increase in yield from new varieties, this was offset by a 50% drop in sale price and a 358% increase in the costs of external inputs such as fertilisers and pesticides, resulting in a 52% drop in farm income.[101] Such income reduction places people in danger of poverty, the effects of which have been discussed in earlier sections.

This drop in farm income appears a common occurrence throughout the region, aided by agricultural workers of Government who engage in extensive promotion of hybrid crops without due regard to the lack of market for these new varieties and the massively increased financial and social costs that are involved in their production.

The increase of external inputs also places significant pressure on the environment, pressures that may further alienate people from their traditional lands and TK as a result of environmental degradation. Figure 1 on the following page is a pictorial depiction of these attendant costs.

These downstream effects shown in Figure 1, which can be seen to be many and varied, have been described as creating scarcity rather than abundance. Commentators have raised instances of these effects, with the Punjab region of India being a particular example.

[101] Bell, J. and Pimbert, M. (1996). 'Introduction' *in* Baumann, M.; Bell, J.; Koechlin, F.; Pimbert, M. (Eds), *op cit*, p 14.

Two decades later [since the introduction of green revolution crops], the Punjab has been left with diseased soils, pest infested crops, water logging, and indebted and discontented farmers. Green Revolution technology required heavy investments in fertilizers, pesticides, seed, water and energy. This intensive agriculture generated severe ecological destruction, created new kinds of scarcity and vulnerability, and resulted in new level of inefficiency in resource use. Instead of transcending the limits placed by the natural endowments of land and water, the Green Revolution introduced new constraints on agriculture by destroying land, water resources and crop diversity.[102]

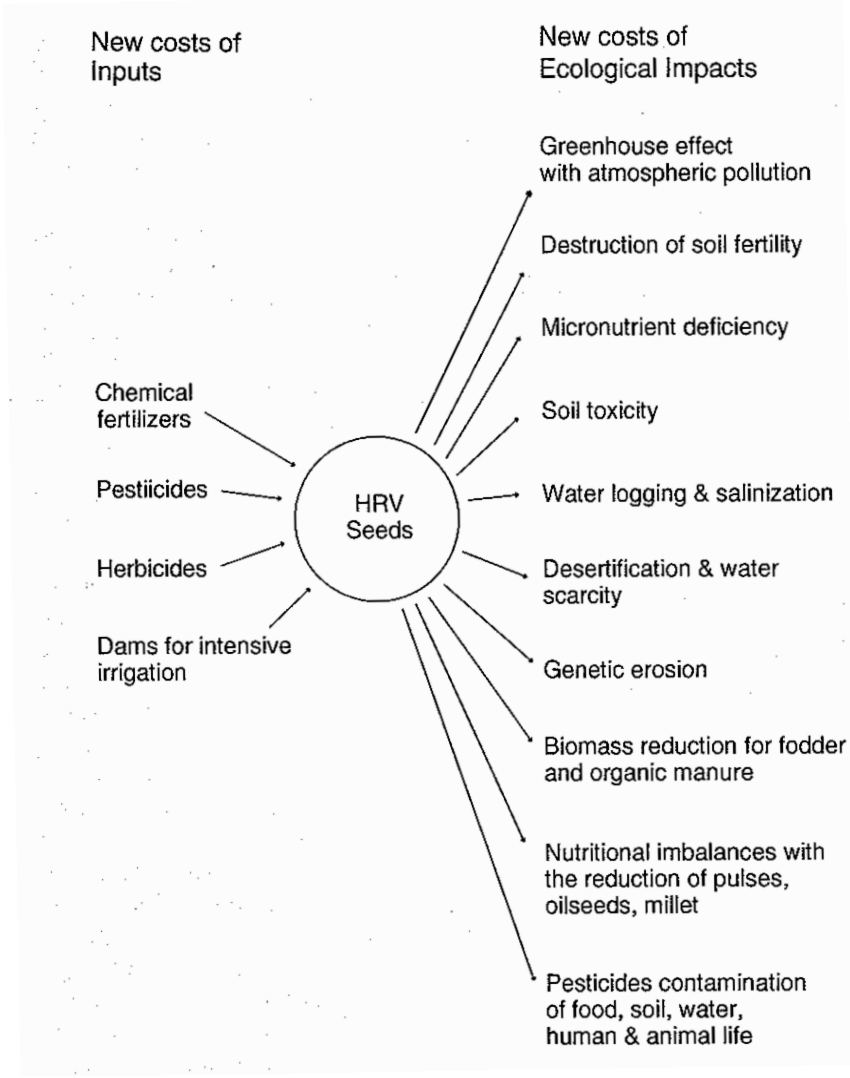

Figure 1. The New Costs of High External Input Farming Systems[103]

This introduction of new high input crop varieties can be seen to have the following effects:

- A reduction in the diversity of crops developed by Indigenous and local community farmers;

[102] *Ibid*, p 130.
[103] Sourced from Shiva, V (1996), *op cit*, p 132.

- The introduction of an outlook that is reductionist in that it views food production as an output rather than a sum of costs;
- Reductions in efficiencies through increased resource use and external input;
- Increased environmental harm through pollution of soils, waterways and environments though fertiliser and pesticide use;
- Increased costs and lower returns, reducing farm viability;
- Increased vulnerability to pest and disease through the use of hybrid plants and monocultures.

All of these factors places pressures on TK in that they:

- Encourage Indigenous peoples and Local communities to move away from customary and traditional practice;
- Encourage peoples and communities to abandon diverse crop varieties, developed over great lengths of time;
- Can lead to reductions in locally based innovative processes and development;

The pressures that these factors place on TK, could be expected to lead to its alienation and disruption in favour of development and agricultural practices that may in fact leave peoples and communities in a worse position. This disruption of knowledge processes and practices, and the social and economic pressures they create, are matters of particular alarm for Indigenous peoples and Local communities, and are seen as being particular threats to TK, its practice and its transmission.

Agricultural Practices – The Methods of Agriculture

While the introduction of particular varieties of green and biotech revolution plants is a matter of concern, so too is the pressure on local communities to change their farming practices to suit the latest knowledge that western science and technology is promoting. This is seen as a threat as there are political pressures, which use mechanisms such as economic inducements, to change farming towards practices that peoples and communities feel are not sustainable, either culturally, socially, environmentally or economically.

One such example is pressure on fallow periods in some states. In Sabah,Malaysia for example, through the *Sabah Land Ordinance (1930)*, has generated policy through which agricultural outreach workers do not recognise the fallow periods that the Indigenous communities feel are most appropriate to ensure the long term sustainability of their agricultural system and long term food security. Pressure is placed on Indigenous farmers by Government through the spectre of losing their customary land title if land is inspected during a fallow period, whereby land is deemed to be vacant and forfeited.[104]

Swidden agriculture, which has also comes in for particular attention, has been labeled unsustainable and has been the subject of a significant amount of effort by the development community, who essentially sought Indigenous peoples and Local communities to abandon the practice. More recent research has begun to show that peoples and communities with a long association of the practice have developed a number of strategies which reduce harmful impacts often drawn to attention by its critics.[105]

This is not to acknowledge the fact that there are a number of issues associated with swidden agriculture which manifest due to factors such as population pressure and non recognition of required fallow periods. However, forcing people away from these practices due to a western view that they are destructive is a factor that threatens bodies of TK within the groups that practice this type of agriculture sustainably.

[104] Jannie Lamisbang, (2005), *pers comm*.
[105] Kleinman, P.J.A., D. Pimentel, and R.B. Bryant. (1995) *Op cit*.

As discussed in the previous section, the encouragement of monocultures and the manner in which this seeks to change traditional farming practice is also a matter that can be considered a threat to TK through the manner in which it seeks to draw people away from their traditional practice and knowledge which disrupts its practice and transmission. This is ironic given that, as mentioned, much of the seed stock and germplasm sourced by the west in the development of green and biotech revolution plants, is the direct result of the innovations and practices derived from the traditional farmers of Indigenous peoples and local communities.

In general, while replacement crops place pressures on TK, so too does replacement farming methods. As discussed previously in association with green revolution and high input farming issues, these changes in farming methods cause serious disruption to bodies of TK not just through loss of practice, but through environmental degradation and economic hardship, which places significant pressure on the societies and cultures of Indigenous peoples and Local communities.

Concluding Remarks

It is true that this section has dealt solely with agriculture, and what might be termed development policy deals with a much broader and diverse set of topics. What this reflects though, is the overwhelming emphasis placed on agriculturally based issues within development policy, particularly within the Asian consultative meeting in the Philippines in April of 2005. As such, it was decided to report this to reflect the level of concern.

These are major issues for states and development agencies to acknowledge, and while there may be some advantage in conducting research that seeks to increase food production for example, it cannot overlook that the strength of traditional farming systems is crop diversity, low cost through low input and the use of tried and true agricultural methods that have long since proven sustainable.

Pressures and projects that seek to replace these rather than to build on them, are perhaps exercises in developmental colonialism. Exercises based on this may not only be less effective than anticipated, but may also endanger the huge crop diversity that Indigenous peoples and Local Communities have developed. This diversity is arguably the backbone of the world's agricultural production, which is a compelling argument for ensuring that traditional agricultural practices, and the TK that supports and continues to develop them, are protected.

Globalisation and Trade Liberalisation

An issue of particular importance to Indigenous peoples and Local communities is that of the globalisation movement and trade liberalisation. There are two major types of concern, firstly that Indigenous peoples and local communities will be subject to major westernising influences which will serve to undermine their cultures and societies and alienate bodies of TK and secondly, that they will be more open to abuses from multi-national and trans-national companies who seek to exploit reduced trade barriers to force themselves into agricultural and health care systems in a manner that serve western and corporate interests rather than local ones. These concerns can be seen in such statements as the Baguio Declaration[106] and the Chaing Mai Affirmation of Indigenous Peoples[107] and are echoed in a variety of critiques of globalisation and trade liberalisation.[108]

The discussion of globalisation and trade liberalisation incorporates much of what has already been discussed in this report. From a cultural perspective the concerns surrounding the increased penetration of western and multi-national companies into local areas include:

- Growing push towards westernisation;
- Growing values of individualism;
- Homogenization of lifestyles, culture and world views;
- Change in consumption habits away from customary and traditional goods and services to those promoted by the west, and;
- Growing consumerism.

All of these factors, aided by modern media, are seen as assaults on traditional custom, culture and societies. This is particularly due to the promotion of the west as the cultural and social better of developing states and their Indigenous peoples and local communities, as well as the promotion of the values of individualism, materialism and consumerism at the expense of responsibility, reciprocity and sustainability, two major features of the cultures of Indigenous peoples and Local communities.

Probably the biggest fear amongst Indigenous peoples and Local communities is the break down of diversity, both in a human and environmental sense, and the assault on Indigenous epistemologies and life ways that may be undertaken by globalisation forces. This perspective is often held due to the cultural erosion that is being experienced as a result of the promotion of consumerism and moves towards individualistic society, a move that is often counter to the basis of traditional societies that are based on resource sharing and common rights.

One of the major ways in which this manifests is through the alienation of youth from their cultures as a result of westernising influences. This causes issues surrounding the transmission of knowledge as, if younger generations do not see TK as relevant, they can be unwilling to receive it. This in turn leads to a gradual erosion of the knowledge of cultural institutions and traditional life ways, as well as customary practice and knowledge.

In particular, Indigenous peoples and Local communities feel they are on the forefront of the assault of globalisation and trade liberalisation, given that in general they live in environments that are diverse, have diverse crops and knowledge and have abundant natural and genetic resources. This makes their territories attractive to multi and trans-national corporate entities, who seek to profit from the exploitation

[106] The Baguio Declaration, *op cit*.
[107] The Chaing Mai Affirmation of Indigenous Peoples, *op cit*.
[108] See for Example Susan George, Noam Chomsky and Vandana Shiva in Gibney, M.J. (ed.) (2003). Globalizing Rights: The Oxford Amnesty Lectures 1999. Oxford University Press, New York, USA.

of these resources. It is possible that this level of exploitation may increase as a result of the reduction in trade barriers and inducements to Governments to trade the resources of the state, which in many cases can mean the state taking advantage of the resources and capital of Indigenous peoples and Local communities, whether these resources are lands or intellectual properties.

A further issue raised with the onset of globalisation, is the increasing pressure that is likely to be placed on Indigenous peoples and Local communities to take up hybrid and genetically modified (GM) crops which require high external input. It is expected that with the lowering of trade barriers and inducements to further participate in the free flow of capital, the Governments of developing states will be enticed to participate, in the name of raising capital, in what are more or less experimental agricultural practices in the interests of large corporate entities based in the west.

Already this type of threat, that is the introduction of high external input crops, has been discussed, as has its effects. The possibility of extensions of this practice, with increasing pressures to abandon locally developed and diverse crops and to engage in monocultural agricultural activities can be expected to be a very major concern for Indigenous peoples and Local Communities.

The fears that Indigenous peoples and Local communities have in regard to globalisation are probably well founded. Already, these peoples and communities have borne the brunt of the colonialism of the past several centuries, and have been cast aside from their lands and seen it degraded and destroyed, mined for their knowledge, medicines, innovations and practices and then alienated from the societies that have evolved as a result of this experience.

The globalisation movement is similarly seen as one of colonialism, as while western nations are no longer able to exercise unrestrained hegemony in a political sense over these states, they still require cheap labour, lands, resources, biodiversity and knowledge in order to continue to maintain western living standards and to find competitive advantage in an almost uniformly capitalist world. As such, capital inducements are likely to see the Governments of the states of the Asian and Australian region enter into arrangements and agreements, as well as develop policy and legislation that not only does not recognise the unique rights, interests and needs of Indigenous peoples and Local communities, but which seeks to extinguish them to facilitate capital gain.

Globalisation then provides many avenues for Governments and corporate entities to continue to perpetrate the abuses that they have been conducting against Indigenous peoples and Local communities. This is a major concern for peoples and communities, and these are avenues which provide further stresses and threats for their cultures, societies and bodies of knowledge. It is of course, an extremely complex area which deserves a considerable amount of scrutiny, particularly if CBD signatory states are serious about ameliorating threats to TK. In particular, it may be useful to start from the point that facilitating protection of TK isn't in fact 'protectionism', but is a necessary step that needs to be taken in order to assist fair dealings and a level of security when Indigenous peoples and Local communities are faced with the corporate behemoths of the west.

Conclusion

As evidenced in this report, and when measured against spatial, cultural and temporal factors, it is revealed that threats to the practice and transmission of TK within the Asian and Australian region are diverse, significant and ongoing. In particular, this places some emphasis on the political environment as well as the social and economic setting in which an Indigenous people or Local communities is situated, as these factors provide major threat to TK through the pressures they place on cultural institutions, and provide the foundations through which other threatening processes are able to occur.

It is interesting to note that the standing of Indigenous peoples and Local communities and their TK within Governments and majority populations of a state has a major bearing on how the rights and interests of a people or community are protected and therefore how their TK is protected. This regard of course, creates a whole raft of other issues for TK holders, most of which are most likely to be avoidable.

The major issues, created by conflict and displaced people, are of too great a magnitude and are too common in the region to ignore. Conflict and displacement place such significant pressures on the social fabric of Indigenous peoples and Local communities, as well as facilitating the removal them from the territories in which bodies of TK have developed and adapted, that it can be clearly stated that peace is one of the major prerequisites to the practice and retention of TK.

Other issues such as poverty and impoverishment are also too large to ignore, and, while not a direct action against TK, place grinding pressure on a people or community and may force them to abandon their life ways in an effort to support family and meet the sometimes unreasonable challenges that contemporary times presents. What is particularly tragic in regard to poverty is that in many cases people are impoverished through systemic failure rather than breakdown in their ways of life. It is hoped that with the millennium goals and global poverty actions that this can be reversed. It would seem difficult though, in the face of processes such as globalisation, of which it is feared will only serve to enhance the divide between the developing world and the industrialised west.

In general, many Indigenous peoples and Local communities remain resolute in their determination to maintain their cultures, distinctive societies and their bodies of knowledge. The value of facilitating this is great, as is the potential value of this TK dialogue through CBD forums. As the majority, if not all of the threats discussed in this report, are able to be ameliorated or prevented with progressive and positive action, the signatory states of the CBD are called upon to enter this dialogue in a positive manner, and to generate partnerships with Indigenous peoples and Local communities to protect the practice, transmission and retention of TK. If nothing else, this will greatly serve a global sustainability dialogue, a dialogue that is likely to have untold benefit for the west, and surely this is a matter worthy of the highest consideration.
