

# Building Effective Cross-Cultural Relationships in Environmental Management:

A Review and Critique of the International Literature



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**Manaaki Taha Moana: Enhancing Coastal Ecosystems for Iwi**

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**November 2012**

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# Building Effective Cross-Cultural Relationships in Environmental Management: A Review and Critique of the International Literature

Charlotte Šunde

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Mr Garth Harnsworth

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## **Preface and Background to Manaaki Taha Moana**

This report builds upon an earlier report by the author entitled, Cultural Knowledge Systems and the Ecosystem Approach: A Holistic Interpretation, which is part of the Ngā Māramatanga-ā-Papa (Iwi Ecosystem Services) Research Monograph Series. The full title of that research project was ‘Ecosystem Services Benefits in Terrestrial Ecosystems for iwi’. It was funded by the Foundation for Research, Science and Technology (MAUX0502) and focussed on terrestrial ecosystem services in Ngāti Raukawa ki te Tonga. Various outputs continue to be produced as a result of that project including the monograph series (available for free download at: <http://www.mtm.ac.nz/index.php/knowledge-centre/publications>), unpublished reports, presentations, workshops and teaching materials that cover other aspects of the research programme. Collaborators in that project included the New Zealand Centre for Ecological Economics (a joint venture between Massey University and Manaaki Whenua/Landcare Research), Te Wānanga-o-Raukawa and Te Rūnanga-o-Raukawa.

A subsequent six-year programme was funded by the then-called Foundation for Research Science and Technology, entitled ‘Enhancing Coastal Ecosystems for Iwi: Manaaki Taha Moana’ (MAUX0907). Running from October 2009 to September 2015 and led by Professor Murray Patterson ([M.G.Patterson@massey.ac.nz](mailto:M.G.Patterson@massey.ac.nz)), MTM is conducting research primarily in two areas: Tauranga moana and the Horowhenua coast (from the Hokio Stream to Waitohu Stream).

We utilise both western science and Mātauranga Māori to assist iwi/hapū to evaluate and define preferred options for enhancing/restoring coastal ecosystems. This evaluation of options is assisted by the development of innovative information technology and decision support tools (e.g., simulation modelling, interactive mapping, 3D depiction, real-time monitoring) by WakaDigital Ltd. Action Plans will be produced for improving coastal ecosystems in each rohe. The research team aims to work closely with iwi/hapū in the case study regions to develop tools and approaches to facilitate the uptake of this knowledge and its practical implementation. Mechanisms will also be put in place to facilitate uptake among other iwi throughout NZ. The key features of this research are that it is: cross-cultural; interdisciplinary; applied/problem solving; technologically innovative; and integrates the ecological, environmental, cultural and social factors associated with coastal restoration.

The cross-cultural emphasis and the partnership with tangata whenua are facilitated by the research team including Māori researchers from each local rohe. A number of different organisations are contracted to deliver the research: Te Manaaki Awanui Trust in the Tauranga moana case study; Te Reo a Taiao Ngāti Raukawa Environmental Resource Unit (Taiao Raukawa) and Dr Huhana Smith in the Horowhenua coast case study; WakaDigital Ltd; Cawthron Institute; and Massey University. The research team endeavours to engage extensively with local communities and end users through a variety of means.

The central research question of MTM is: “how can we best enhance and restore the value and resilience of coastal ecosystems and their services to make a positive contribution to iwi identity, survival and welfare in the case study regions?” Our research therefore aims to restore and enhance coastal ecosystems and their services

of importance to iwi/hapū, through a better knowledge of these ecosystems and the degradation processes that affect them.

The first phase of the research involved a comprehensive stocktake of existing knowledge about the holistic health of ecosystems and their services in both case study regions (rohe). We are currently in the second phase of the programme, which involves detailed surveying and assessment of case studies in both rohe, and the recommendation of options for restoration of degraded ecosystems. Readers are encouraged to visit the MTM programme website (<http://www.mtm.ac.nz>) to read more about this research programme, and for copies of publications produced thus far.

This report is one in a series of reports and other outputs produced as part of the MTM research programme, and available for download from our website (<http://www.mtm.ac.nz/index.php/knowledge-centre/publications>). This report is largely a stand-alone report that was written to summarise the international literature on this topic as a basis for the capability development of researchers involved in the design and implementation of cross-cultural research, particularly on factors associated with environmental restoration with indigenous people. As such, this report is not meant to be a reflection of the views of individual organisations or researchers involved in MTM, nor is it a representation of the research approach adopted in MTM. The report is, however, an assessment of the published international literature on the topic of cross-cultural environmental research with indigenous people, up until approximately 2009. While this report summarises the (predominantly) international literature and does make some minor reference to New Zealand context, other publications have been produced that incorporate more of the literature specific to conducting research with tangata whenua in Aotearoa/New Zealand (e.g., see Hardy 2010, Hardy & Patterson 2012).

Derrylea Hardy

Project Manager/Research Officer of ‘Manaaki Taha Moana’ and ‘Iwi Ecosystem Services’, School of People Environment and Planning, Massey University

Murray Patterson

Science Leader of ‘Manaaki Taha Moana’ and ‘Iwi Ecosystem Services’

Professor of Ecological Economics

School of People Environment and Planning, Massey University

Founding Director of New Zealand Centre of Ecological Economics

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## **Part 1: Operational Issues: Structures and Processes**

*“Indigenous peoples are always on the periphery. They are never the ones who make decisions. It is our responsibility to see that one day these people become the central protagonists of their own destiny and culture. The power we feel crushing us is the power to buy, to sell, and to earn: the power of intolerance, arrogance, silence, indifference and insensitivity. I believe that there are important values, and beautiful things, that can never be bought or sold. They include the memory of indigenous peoples. They include life itself...”<sup>1</sup>*

### **1.1 Introduction**

Part 1 focuses on the structures and processes identified in the international literature as necessary to building effective cross-cultural relationships between indigenous communities and government agencies or scientific institutions. Operational issues that form barriers to developing those relationships are also discussed. This section introduces and discusses formal structures and informal networks, and addresses underlying processes that have a direct bearing on the functional effectiveness of cross-cultural relationships, such as trust and the nature of power relations. However, this section does not extend to critiques of the conservation bureaucracy or issues related to the encounter of different knowledge systems and cultural values (see Parts 2 and 3 of this report).

### **1.2 Formal and informal structures and networks**

Structures that formalise roles and rules for cross-cultural engagement are an important step in taking cross-cultural partnerships beyond minimum statutory consultation requirements. If co-management is to be successful, Natcher et al. (2005) argue that structures need to reflect cultural and value differences and to address historical and existing political situations and conflicts. Formal structures may range from memorandum of understanding and research contracts through to the negotiation of an array of co-management boards with an equal number of indigenous and government representatives in decision-making positions (e.g., in native treaty land claims settlements). However, while formal structures may provide a platform for indigenous and government partners to develop and build stronger working relationships, Carter and Hill (2006) and Lyver (2005) assert that formal structures alone are inadequate in building effective cross-cultural partnerships.

In their analysis of two case studies in Australia involving indigenous and government representatives in cross-cultural environmental arrangements, Carter and Hill (2006) explain that formal, then informal relationships and networks, facilitated the participatory process and partnership development with agencies. Formal meetings between key contacts enabled the exchange of knowledge and technical content such as mapping and modelling. However, it was through informal relationships and communication channels that knowledge and decisions arrived at in the meetings

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<sup>1</sup> Menchú, Rigoberta. 1998. “Understanding and Accepting Diversity,” *Crossing Borders*. (quoted in Dallmayr 2002: 118)

were disseminated to the broader community. Lyver's (2005) analysis of a joint environmental management project in New Zealand reports that while formal contracts guided the research partnerships, some participants suggested that higher levels of agreement did not necessarily guarantee a working relationship. Lyver (2005: 366) observes:

“...even though Memorandum of Understanding [...] indicate goodwill and the willingness to work together, the fundamental determinants of a partnership's success should include equitable involvement in the research decision-making process and access to resources to sustain that involvement.”

Carter and Hill's (2006) two Australian cases are founded on different structures. They explain that the Board of Management (BOM) situated negotiation as a space for winning and domination, whereas the community outstation resourcing agency (CORA) structure supported problem-solving approaches that sought win-win solutions. Carter and Hill (2006: 51) explain: “The BOM structure was useful for initiating formal relationships with traditional owners, but outsider access to this forum and sustained contact with members was extremely difficult.” In this case, the formalisation of processes and structures (e.g., for accountability purposes) contributed to their failure where the imposition of formal authority alienated the local informal networks. They conclude that the BOM structure led to the loss of pre-existing relations and, ultimately, to a lack of sustainable outcomes for any stakeholder.

While formal structures are useful initially, they can become restrictive. An inappropriate structure runs the risk of creating a space for dominating rather than problem-solving, and may exacerbate existing power struggles and further polarise competing interests. Carter and Hill (2006) argue that connections between formalised institutional and local governance structures need to be laid open to reflection and contestation. Stevenson (2006: 169) highlights the cross-cultural challenges this entails: “Lacking the formal structures and procedures of the state system, Aboriginal management systems must seem ephemeral and inaccessible to most state managers and technical specialists.”

Both formal mechanisms/structures and informal interactions/networks play a role in progressing cross-cultural environmental management initiatives and partnerships. Yet, informal structures and local networks are typically overlooked or downplayed, despite recognition that they are critical to the success of community-based programmes and planning processes. Lyver (2005), Natcher et al. (2005), Plummer and Arai (2005) and Carter and Hill (2006) emphasise the importance of local networks: the unintended and unanticipated community roles and encounters that create an informal space for interaction. According to Natcher et al. (2005), co-management is more about managing relationships than managing resources.

Carter (2001) explains that formal project mechanisms do not adequately capture the rich experiences and interchanges, issues and concerns of community members that enrich the data gathered. As Carter and Hill (2006: 52) point out: “Capturing the informal and everyday is lengthier, more costly and at times more frustrating, yet can reveal rich and unimagined creative problem solving and rewarding dialogues.” Where possible, informal connectivity between people should be given greater

attention to, strengthened and supported through less formalised mechanisms. For example, participatory techniques can be employed to facilitate informal dialogue, as Carter and Hill (2006: 50) outline: “Participatory techniques that generated discussion rather than eliciting responses created informal dialogue spaces, in which narratives, photographs and video footage were also key content.”

Plummer and Arai (2005: 227) explain that during initial meetings, the presence of existing networks in the community were revealed: “These networks were both formal and informal in nature, with a diverse range of complementary and opposing objectives.” Representatives were able to access contributions effectively through social transactions that were facilitated by previous experiences and trust with other group members, as well as with the larger community. Clearly there is need for better articulation between formal and informal structures, as Carter and Hill (2006: 51) advocate: “...many members of formal structures need greater capacity to negotiate the cultural and institutional interplay introduced by structures such as the BOM; and informal networks and interactions need to better articulate with these formal structures.”

Carter and Hill (2006) claim that linking the formal and informal in a well-designed process will help progress cross-cultural environmental management on terms that are equitable to indigenous people. For example, community-based approaches to resource management in the Yukon, such as the Renewable Resources Councils (which serve as the principal institution for managing renewable natural resources on non-settled lands), are recognised as: “...an institutional mechanism for cross-cultural communication that could help facilitate greater respect and cultural awareness among community members.” (Natcher et al. 2005: 241)

### **1.3 Power relations**

Even in formal co-management agreements that involve a degree of power-sharing and responsibility between indigenous peoples and the state/government, existing power relations within the community are not necessarily eliminated (Carlsson and Berkes 2005). Therefore, power inequities may continue to present a barrier to building strong and lasting cross-cultural relationships. While co-management may be considered as a means by which indigenous peoples can increase their power in land management, it does not redefine government power or recognise aboriginal title (Curran and M’Gonigle 1999). Rather, as Wyatt (2008) observes, it enshrines a decision-making relationship between indigenous peoples and the rest of society.

Rodon (2003, in Wyatt 2008) claims that it is probably most useful to think of co-management as a process and a structure (and not as an organisational model) by which First Nations are negotiating power with the government or with the industry while also influencing parties on both sides. Castro and Nielsen (2001) acknowledge that co-management offers substantial promise as a way of dealing with natural resource-based conflicts. However, they raise concerns based on experiences that suggest the result may not be power sharing, but rather a strengthening of the state’s control over resource policy, management and allocation. They conclude: “Instead of contributing to local empowerment, such arrangements may further marginalize indigenous communities.” (Castro and Nielsen 2001: 230)

Although indigenous peoples can increase their power in land management through participation in co-management arrangements, frequently such agreements include a clause whereby the government retains a final right to approve decisions made by co-management partners (Notzke 1995). As Stevenson (2006) confirms, the ultimate authority rests in the hands of government ministers who can reject co-management board decisions. However, Natcher et al. (2005: 241) point out that although decisions made by the Renewable Resources Councils in the Yukon are subject to the final approval of the Canadian Minister of Renewable Resources who can adopt, reject or modify local recommendations, those decisions "...are seldom overridden if they can demonstrate competence, credibility and effectiveness."

Nadasdy (2003) and Stevenson (2006) are concerned that such a requirement pre-determines the type of information on which these decisions are based because ultimately they must be defensible, replicable and compatible with the understandings, institutional structures and procedures of the state. By whose criteria 'competence' and 'credibility' are measured is becoming a point of increasing contention (Natcher et al. 2005). Carter and Hill's (2006: 51) research experiences in Australia confirm the concerns raised by the Canadian researchers:

"The case studies illustrate the problematic nature of engagement between environmental scientists and indigenous groups in Australia. Because formal governance structures emanate from within the state, many joint management structures perpetuate existing practices and processes and may intentionally abuse the power imbalance or exploit weaknesses in community cohesiveness."

Carter and Hill (2006) argue that if power inequities are not identified and resolved up front, then formal structures may result in a space for dominating rather than problem-solving and may lead to further polarisation and power struggles. Their analysis of two environmental partnerships in Australia shows that both study areas expressed in-principle support for indigenous participation in research, but differed in terms of their fundamentally divergent regional governance structures and markedly dissimilar outcomes with respect to cross-cultural relationships. In the first instance, the community outstation resourcing agency was established to develop local policy using consensual decision making at community meetings, and required no recourse to independent advisors. In contrast, external intervention was clearly necessary to redress power inequities introduced by the Board of Management formalities and agency staff. In the latter case, Carter and Hill (2006: 46) recommend the coordinating role of a regional community agency to: "...mediate between outside and local agencies, alleviating complex interactions across multiple actors and scales in public-private-society partnerships."

#### **1.4 Scale, scope and representation**

The implementation of Renewable Resources Councils in northern Canada proved successful in large part due to the persuasive argument made by both First Nations and non-First Nations representatives that with greater authority being exercised at the local level, environmental management would occur more efficiently. Natcher et al. (2005: 241) explain that the local scale is: "...better positioned to deal with the complexity of contemporary resource management issues..." Furthermore, they claim

that there is greater potential to: "...incorporate the knowledge and values of community members into the decision-making process..."

The local scale encourages sharing of relevant information regarding the management of traditional territories. Plummer and Arai (2005) note an example where issues about appropriate actions and who should undertake them prompted the exchange of information. This exchange enhanced overall understanding of the contemporary situation and encouraged active engagement of volunteers as participants in the process. Carter and Hill (2006) similarly acknowledge that action taken at the local scale can better gather and understand key issues and concerns that arise through informal and everyday interactions within the community, which need to be a part of the solution to environmental management.

Carter and Hill (2006) argue that many governance structures in indigenous Australia are inappropriate in the absence of cross-scale co-ordination. As a result, they purport that there is a need to connect community-based governance with regional governance through inclusive support mechanisms (Carter et al. 2006). Typically, agencies prefer to develop policy responses that operate at the regional scale, rather than the local level, for ease of service delivery. One of the fundamental barriers to the effectiveness of the cross-cultural partnership in an Australian example analysed by Carter and Hill (2006: 50), was the Board of Management's: "...inability to articulate and coordinate its structure with the desires and decisions emanating from more localized clan estate land units that have their own indigenous ways of governance..."

Furthermore, the scope of indigenous interests may be much wider than a particular project, as Wyatt (2008: 174-5) explains: "...assessment requirements are often aimed at approving a particular project or management plan; whereas, the interests or concerns of a First Nations people may be much wider (Wiles et al. 1999)." However, rather than exacerbating the tension between localism and regionalism, Carter and Hill (2006: 50) emphasise the value of cross-scale coordination:

"...new conceptualizations of sustainability require that environmental projects recognize systemic links at different structural scales that connect across sector boundaries and with communities. Without these links, participation and knowledge exchange will be impeded; and the human behaviours and governance structures required to progress environmental management will be inadequate."

While there may be representation of local interests at the regional scale, often those representatives have to negotiate on behalf of disparate and unrepresented social groups. Furthermore, typically the government response and implementation mistakenly assumes homogeneity among perspectives at the local level. As Carter and Hill (2006: 51-52) point out: "Where representatives of a formal structure are nominated by external agencies there is no guaranteed accountability to solicit or communicate information to those 'being represented'." This has contributed to the increasing tension between the local scale (i.e. indigenous communities) and regionalism (i.e. government agencies). The way that stakeholders are identified and represented in management regimes is crucial to ensure local participation (Castro and Nielsen 2001). Of legitimate concern are issues around how representatives on co-management bodies are selected from within community-based groups. Strategies that



critique the notion of representation are required, as Carter and Hill (2006: 51) explain: “While formal structures will be needed for many agency interactions, the notions of ‘genuine’ representation and accountability need to become embedded within bureaucratic culture.”

It is a mistake for government agencies to assume there is homogeneity within a given community, even in the case of communities that are geographically bounded (Hollinsworth 1996). Kraak (1999) raises an objection to the implicit characterisation of the black marginalised ‘voice’ as a singular viewpoint, claiming that the argument about marginalisation is about the right to express competing black views. Therefore, attention should be given to whether a range of local viewpoints based on differences of resource use arising from gender, class, caste, or other differences is taken into account (Castro and Nielsen 2001). When researching traditional ecological knowledge, Menzies and Butler (2006) point out that it is important that researchers talk to as many different types of people in a community in order to understand the many ways that knowledge might be differentiated. The over-simplification of a community’s perspectives into a unified voice may result from manipulative influences, as Carter and Hill (2006: 49) caution:

“Sanders (2004) argues that good governance and participation involves dispersion rather than unification. In attempting to unify traditional owner views, local politics can be aligned with agency objectives either intentionally or unintentionally (Hollinsworth 1996), which impedes community self-governance of environmental resources...”

There is some contention over whether co-management arrangements between indigenous peoples and the state/government agencies should extend to include representation of other parties and their interests, such as industry and public interest groups. Houde (2007) explains: “Competing values in the general public are currently often addressed within liberal, multistakeholder policy-making processes in which the government attempts to strike a balance among competing values and interests.” Yet, Castro and Nielsen (2001) warn that co-management arrangements may allow for too much equity among the divergent parties. They refer to Hughes’ (1996) case study of park expansion in Rusitu Valley, Zimbabwe, which documented a situation where local representatives were consistently overruled by outsiders who formed the majority. In this case, the assumed equity between stakeholders may unfairly disadvantage locals against other parties. Furthermore, Houde (2007) points out that First Nations’ organisations do not want to be considered as ‘just another stakeholder’.

## **1.5 Participative and collaborative processes**

Co-management regimes can be a source of conflict if they provide only limited bases for local participation. For example, if indigenous peoples’ participation and representation in co-management is restricted to an advisory or consultative role, this may in fact increase their sense of frustration and exacerbate existing conflict. Wyatt (2008) argues that consultative processes rarely include participation in decision-making. Furthermore, they do not take aboriginal rights fully into account, and tend to treat First Nations as just another stakeholder (Wyatt 2008). Castro and Nielsen (2001: 235) are critical of the co-management process in this regard, arguing that:

“At best the process is a modified form of top-down resource management. In the worst case scenario people find that they are members of advisory groups from which no one seeks meaningful advice. Co-management in such cases essentially co-opts local interests, providing only a venting outlet. Ironically, frustrations over being limited to a consultative role can itself generate further conflicts – especially when those in power do not seek out, or listen to, advice.”

Feit and Beaulieu’s (2001) research in Canada concludes that participation processes established under the James Bay and Northern Quebec Agreement did not satisfy Cree expectations. While the Agreement provided an important measure of self-governance and economic progress to the indigenous peoples, the co-management arrangement has been controversial. Under the Agreement, a Hunting, Fishing and Trapping Coordinating Committee was set up with equal numbers of indigenous and government representatives, and collaborative advisory boards were created. However, in a report for the Royal Commission on Aboriginal Peoples, a Cree representative expressed the following concerns:

“The structures providing for participation in wildlife management and environmental protection have themselves so far proved cumbersome and ineffective. The concept of the ‘advisory committee’ relies on assumptions, inadequately explored, about the ways in which authority is assigned and consensus is achieved. In cross-cultural settings the advisory committee concept frequently excludes or obscures native participation. Linguistic background and the technical nature of the language act as further obstacles to effective participation (Penn, 1995, p.3).” (Castro and Nielsen 2001: 235)

Although consultation and information-sharing processes fall short of providing a true partnership and decision-making role for indigenous peoples, these processes contribute to cross-cultural partnerships in other ways such as generating greater mutual understanding among indigenous peoples, governments and industry. Yet, Wyatt (2008: 174) is critical of a ‘hidden agenda’ underlying consultative exercises, claiming in one case that: “...consultation was, in fact, aimed mainly at legitimizing government and industry practices.” This brings into question differing expectations around ‘meaningful consultation,’ which Wyatt (2008) describes as effective and equal participation, resulting in decisions that respect the views of the indigenous peoples.

Castro and Nielsen (2001: 236) indicate that a move toward more participative approaches is happening: “...some recent co-management arrangements in Australia, involving aboriginal communities, and in Canada have provided institutional arrangements enlarging the scope for local [indigenous peoples’] participation in decision making over resources, while also respecting indigenous land claims.” In the collaborative environmental research examined by Lyver (2005), communication with the wider indigenous community at all stages of the research was considered crucial if the community was to actively take up the role of managing and sustainably harvesting the tītī (mutton bird) population. Lyver (2005: 367) recalls that one university scientist stated: “...if at the end of the research, the programme was still

perceived as a University agenda and not a community consensus-driven project, the fundamental benefits of the collaboration would not have been realized.”

Sanders (2004) asserts that good governance and community participation is as much about process as structure. Requirements for a robust collaborative partnership include higher-level agreements developed in conjunction with community participation in research or management. Lyver (2005: 368) explains: “Establishing an appropriate decision-making process is crucial to the successful management of a collaborative partnership and is largely determined by existing tribal governance structures and the perceived sensitivity of the research.” Castro and Nielsen (2001) similarly emphasise the importance of embracing a collaborative process with substantial scope for local participation in resource management and allocation decision making. They elaborate:

“Key variables influencing such outcomes include the nature of the negotiations, the intent and content of the agreement (including acknowledgement of local rights and decision-making powers), the institutional arrangement contained in it, the manner of implementation, and the continued commitment of the participants.” (ibid: 236-237)

Carter and Hill (2006) advocate adoption of the social learning process, guided by a framework of participation and knowledge exchange. They argue that by examining and revealing existing positions of power up front, the imbalances and distortions that prevent cross-cultural understanding can be avoided. A successful social learning process includes the awareness by all stakeholders of differing roles, goals and perceptions about environmental management (see Bradshaw 2003, Pahl-Wostl and Hare 2004, discussed in Carter and Hill 2006: 50). It aims to foster problem-solving approaches rather than produce results driven by competition.

Adopting a social learning process may bring about a number of unanticipated long-term benefits in terms of building effective environmental collaborative partnerships and joint research initiatives. In one of the Australian cases examined by Carter and Hill (2006), the indigenous community accepted the scientific outcome of the research and were willing to explore alternatives. They refer to an instance where the application made by the indigenous community for a harvesting license was denied, based on technical modelling indications. The researchers assert: “Such problem-solving in the face of unanticipated or negative project outcomes is an important indicator of participatory success and maturity in the social learning process...” (Carter and Hill 2006: 50).

Successful experiences based on strong cross-cultural relationships may also mean that the community takes an interest in ongoing collaborative research, therefore encouraging the extension of new relationships. Carter (2001: 51) affirms that following one of her research projects with an Aboriginal community in Australia, “...community members have continued to develop collaborative research relationships with students and staff at the same university since this project...” Positive experiences can open new pathways for more fluid knowledge exchange and shared aspirations, thus overcoming ‘insider versus outsider’ binary distinctions (Carter and Hill 2006).

## **1.6 Common vision and group identity**

Shared commitment to a common vision, such as working together to protect or restore a natural resource, is critical to the success of cross-cultural partnerships (Natcher et al. 2005, Plummer and Arai 2005). Instrumental in the development of a common vision is the realisation of shared values, particularly among those individuals who might come to a meeting with pre-conceived ideas about the incompatibility of diverse interests (Plummer and Arai 2005). The realisation of shared values tends to infuse enthusiasm for further participation and helps to form a sense of group identity, which is important in ensuring that collective interests take priority over individual desires. When management institutions fail to develop a collective or group identity, as Ostrom's (1992: 348) research reveals, their ability to resolve conflict is often limited.

Although group identity may be established more easily and more quickly among members who share a worldview, norms, values, and socio-cultural heritage, it might also be attained among members from diverse cultural backgrounds as a result of shared experiences that bring them together and concerns they hold in common (see Cox 1993 and Douglas 1982, in Natcher et al. 2005). How a group operates when faced with cultural pluralism will in large part depend on the recognition, value and legitimacy attributed to the diversity of knowledge and experiences that individuals contribute to the group. Natcher et al. (2005: 248) argue:

“...if group members fail to legitimize the contributions of others – including knowledge and experience that is linked to their cultural identity – it is unlikely that members will feel committed to the process and may withdraw from social interaction. However, if members feel their contributions are valued by others in the group, a heightened sense of group identity can be created which can then lead to enhanced social learning and trust, both of which are fundamental to the success of co-management arrangements.”

However, achieving group identity is not easy because it may require the suppression of socialised tendencies (e.g., individualistic behaviour). Yet, even though members may have marked differences of interest that conflict, a group identity can still be created through: “...cooperation and a shared commitment where members agree on rules that they consider to be fair and effective for solving specific problems” (Natcher et al. 2005: 248). A group identity encourages a sense of obligation to live up to the standards and expectations of the group and, if a sufficient level of trust can be established, may have an influence in altering an individual's reputation or behaviour.

## **1.7 Trust, time and resources**

Trust is highlighted as one of the critical factors determining the success of collaborative partnerships; conversely, tension that results in a lack of trust or entrenched mistrust among participants is recognised as a significant obstacle in co-management (Olsson et al. 2004). Pinkerton (1989) points out that co-management arrangements can only support new relationships. Yet, as Natcher et al (2005: 248) explain: “...it is the level of personal engagement and trust that ultimately make the benefits of co-management actually materialise.”

Factors contributing to mistrust not only include differences in objectives among the divergent participants, but also the different perceptions of others' intentions and perceived agendas. The presence of multicultural actors adds a further layer of complexity. It is important to bear in mind that trust, respect and integrity may, to an extent, be culturally determined according to different cultural values and protocol. Natcher et al. (2005) contend that failure to effectively manage group interaction (and, in particular, the multicultural interaction between members) is likely to incense inter-group tension, competitiveness, and distrust. They point out: "...research has yet to show under what conditions and at what cultural consequence indigenous representatives are able to express themselves. Nor has it been shown how cultural biases, including perceptions of the 'other,' influence group behavior." (Natcher et al. 2005: 240)

Carter and Hill's research (2006) reveals that an environment of mistrust rather than collaboration resulted when one powerful stakeholder dominated the Board of Management, thus preventing opportunities for wider participation as desired by all stakeholders. Despite the time invested in negotiation, stakeholder participation was reduced to simple knowledge exchange. Because the Board operated in an environment of mistrust, formal conflict resolution mechanisms were introduced to manage differing stakeholder perspectives. Carter and Hill (2006: 51) summarise the situation:

"The trepanng project was never seen as a shared challenge to be redefined from diverse goals and perspectives of stakeholders. The authoritarian culture of one powerful stakeholder and its singular view about the project prevented negotiatory planning and a facilitatory role of the researchers."

Plummer and Arai's (2005) research on opportunities for citizen involvement in co-management reveals that past negative experiences with collaboration and failure to fulfil commitments were critical factors presenting ongoing barriers to participation. The resulting mistrust of the other was perceived by both government representatives and citizens, and resulted in their active reluctance to engage in further collaborative processes. In order to slowly restore trust, it is strongly recommended that partners keep their promises within the timeframe agreed at the meeting (Plummer and Arai 2005).

Direct and unmediated interaction is considered necessary in order to mitigate many of the cultural differences that have long challenged effective collaboration in the past, and is particularly important in the case of new partnerships (Natcher et al. 2005). Lyver (2005) observes that all the participants involved in the cross-cultural research project between Rakiura Māori and the University of Otago emphasised the importance of face-to-face contact early in the relationship and throughout the decision-making process as critical to building trust and respect. Direct contact between scientists, iwi representatives and the local Māori community occurred through formal structures such as annual meetings, community meetings, *hui* (gatherings) and education programmes.

A high turnover of government or university staff and regular replacement of committee members can have a destabilising effect on cross-cultural partnerships,

especially as strong relationships depend on mutual trust that takes time and shared experience to establish. A survey of members of the Rakiura Tītī Islands Administering Body (RTIAB) revealed that half of the participants expressed frustration and exhaustion with the high turnover of university technical field staff (Lyver 2005). A continual re-education process in recruiting new members can be costly, consuming of limited time and energy, and can delay progress on the collaborative projects. It is also challenging for new members to be brought up to speed in terms of becoming fully informed of past decisions with a balanced understanding of the rationale that led to them.

Building trust in cross-cultural relationships demands a long-term commitment by a core group of permanent personnel. In the research project to which Lyver (2005) refers, communication was predominantly through a few known and trusted individuals. He explains that the strength of the relationship was the permanent core group of university researchers involved from the beginning of the programme who played a key role in ensuring that "...the institutional memory of the project was intact" (Lyver 2005: 367). In addition to time commitments, fostering informal networks to enable an informed citizenry to share their knowledge requires resourcing both formal and informal support structures (Carter and Hill 2006).

Castro and Nielsen (2001: 237) assert: "Viable and productive networks will not happen without an adequate investment of time, financial resources, and social capital." Building effective cross-cultural partnerships and sustaining long-term relationships typically demands a substantial amount of time from all parties involved. That can have a detrimental impact on other work priorities and tribal commitments. Lyver (2005: 369) points out: "Cross-cultural partnerships may require a scientist to spend up to half of their time on non-scientific issues, which can represent a significant sacrifice when careers are measured by scientific outputs (for example publications)." However, scientists' commitment may be compensated by other benefits such as the satisfaction of seeing the relevance and importance of scientific research for a community. Although cross-cultural research placed greater demands on the university scientists' time, Lyver (2005: 367) reports: "...the University team leader advised that if they were to again develop a project where similar levels of mistrust existed, they would proceed much more slowly and commit more time to communication."

Another fundamental determinant of a successful cross-cultural partnership is access to adequate financial and in-house resources that enable sustained involvement over time (Lyver 2005, Carter and Hill 2006). Plummer and Armitage (2007: 837-8) refer to critics of co-management who argue that this investment may not be worth it:

"Despite the many potential advantages of co-management as outlined above, evidence has also emerged that documents instances in which co-management has taken considerable time to be realized, led to disappointment, or worse, been counterproductive. ... For instance, concerns have been raised about efficiency as co-management may take considerable time to develop, require resources (costs), and result in a 'messy' process (Jentoft 2000; Meadowcroft 1998; etc.)."

Others rationalise that, if adequate time and sustained resources are invested in building effective partnerships wherein there is sufficient 'buy in' by the local community to resource use agreements, they may actually be cost-effective in the long run. Natcher et al. (2005: 241) recognise the potential financial benefit of the Renewable Resources Councils with respect to savings in compliance costs: "...local residents are already in place to assume a greater role in management and regulatory responsibility, thereby helping to ensure local compliance to agreed-upon rules and regulations." However, Castro and Nielson (2001) are critical of the intentions of some resource managers who may encourage participatory approaches simply as a means to off-set their own costs due to budget constraints. This is unsatisfactory in situations where communities are asked to bear the work and costs of resource management without any meaningful transfer of authority or decision making.

Often there are fewer resources available to indigenous parties to adequately represent the values, needs, rights, and interests of their communities, or to contribute equally with government managers in co-management initiatives (Natcher and Davis 2003, Stevenson 2004). In addressing this inequality and any potential disadvantage it may have on Māori participants' ability to sustain their contributions to the cross-cultural research project, Lyver (2005) explains that an average of 8-9% of the annual budget for the RTIAB was assigned to Māori members. This was allocated as part of the research design: "Directorship fees built into a research budget provided communities with the financial capacity to actively participate in the programmes..." (Lyver 2005: 369).

The targeted funding was used by Māori members to attend and deliver presentations at conferences. This financial investment was seen in a positive light by university scientists who perceived that it: "...had significantly built scientific capacity and confidence within the RTIAB over the last decade" (Lyver 2005: 367). Although in this case the Māori representatives chose not to remunerate themselves, this should not be an expectation of all formal cross-cultural partnership arrangements. Government and industry representatives are employed to attend meetings, but for many indigenous partners this may not necessarily be the case. Participating in meetings, consulting with other tribal members, and acting on decisions may place further financial burden on those individuals.

## **1.8 Summary and key ideas for practice**

Part 1 emphasised the importance of formal structures as a mechanism to provide cross-cultural partnerships with a higher degree of status and commitment over and above any existing statutory consultative requirements. It was found that formal structures need to better reflect cultural and value differences and to address historical and existing political situations and conflicts. Informal structures and local networks were also recognised as playing a critical role in progressing cross-cultural environmental management initiatives and partnerships. These include the unintended and unanticipated community roles and encounters that create an informal space for interaction. Participatory techniques were encouraged as a means to facilitate informal dialogue spaces. A key issue identified in the literature was the need for better articulation between formal and informal structures, and the recommendation that they be linked in a well-designed process. The following issues need to be considered and addressed with regard to changing existing structures:

- *Improve formal structures to reflect cultural and value differences and to address historical and existing political situations and conflicts.*
- *Identify and examine structures and processes that contribute to ‘institutional racism’ in the conservation bureaucracy, i.e. structures that perpetuate existing inequalities and further disadvantage minority groups.*
- *Provide institutional arrangements that enlarge the scope for indigenous peoples’ participation in decision making over resources, while also respecting indigenous land claims.*
- *Design processes that link formal structures and informal networks and interactions.*
- *Recognise that robust collaborative partnerships require higher-level agreements developed in conjunction with community participation in research or management.*
- *Use participatory techniques and other less formalised mechanisms to strengthen and support informal connectivity between people.*
- *Support and encourage informal dialogue spaces that generate discussion and create opportunities for cross-cultural knowledge exchange and learning.*

The importance of process issues formed the remainder of the discussion in Part 1. A concern was raised about the impact of power relations and the corresponding need to identify power inequities and resolve them up front. In the event that an impasse is reached in the communication between indigenous communities and government agencies, the mediation and coordinating role of a regional community agency was recommended. This may be useful when addressing environmental issues that cross a range of scales. Although the local scale was emphasised as appropriate for gathering information and understanding community concerns, the literature recommended the value of cross-scale coordination to connect community-based governance with regional governance. The following actions need to be taken to improve processes and the underlying power relationships:

- *Critically examine the motivations of resource management agencies and develop innovative management approaches that will create ‘possibilities of difference’, i.e., the space required for meaningful and equitable inclusion of indigenous peoples, their knowledge and institutions in environmental decision making.*
- *Identify power relations; reveal any power inequities and resolve them up front. If necessary, depend on external intervention to address the power inequities in formal structures.*
- *Introduce a role for a social scientist in formal cross-cultural arrangements, recognising the potential critical value of a ‘cultural broker’ who is able to bridge cultural differences and re-establish useful dialogue. To meet the requirements of this challenging role, such a person should ideally be well known to the indigenous community and familiar with cultural and historical patterns of resource use, as*



*well as the culture of the researchers, scientists and resource managers (Joahannes et al. 2000, discussed in Stevenson 2006).*

- *Call on a regional community agency when necessary, particularly for its role as mediator between outside and local agencies and coordinator across multiple actors and scales in public-private-society partnerships.*
- *Recognise the value of the local scale for gathering and understanding community issues, and develop processes that enable locally-sourced information to inform environmental management decision-making.*
- *Identify systemic links at different structural scales and connect community-based governance with regional governance through inclusive support mechanisms to strengthen cross-scale co-ordination.*

It was highlighted that good governance and community participation is as much about process as structure. Requirements for a robust collaborative partnership include higher-level agreements developed in conjunction with community participation in research or management. The importance of participative and collaborative processes was strongly emphasised in the literature, particularly processes with substantial scope for local participation in resource management and allocation decision making. In conducting research, communication with the wider indigenous community at all stages of the project was emphasised as critical. Adoption of the social learning process was also encouraged, guided by a framework of participation and knowledge exchange. The following participative processes should be introduced:

- *Introduce strategies that critique the notion of representation, bearing in mind that the way that stakeholders are identified and represented in management regimes is crucial to ensure local participation.*
- *Support consultation and information-sharing processes that generate greater mutual understanding among indigenous peoples, governments and industry, and respond to expectations that ‘meaningful consultation’ means effective and equal participation, resulting in decisions that respect the views of the indigenous peoples (Wyatt 2008).*
- *Maintain ongoing communication with the wider indigenous community at all stages of the research.*
- *Embrace a collaborative process with substantial scope for local participation in resource management and allocation decision making.*
- *Adopt the social learning process, guided by a framework of participation and knowledge exchange.*

Other operational issues included the importance of a shared commitment to a common vision and a sense of group identity, which may infuse enthusiasm for further participation. The challenge of effectively managing group interaction and, in particular, the multicultural interaction between members, was identified. Trust and

long-term commitment were considered critical, enhanced by direct and unmediated interaction which was considered particularly important early in the relationship and throughout the decision-making process. Furthermore, adequate resourcing of both formal and informal support structures is necessary. One recommendation was to allocate financial support and resources to indigenous partners as part of the research design. The following relevant measures to improve practice in this area need to be adopted:

- *Make sure that all stakeholders are aware of and informed about the differing roles, goals and perceptions about environmental management.*
- *Support processes that encourage shared commitment to a common vision, infuse enthusiasm and have the possibility of leading to the development of a sense of group identity.*
- *Recognise, value and legitimise the diversity of knowledge and experiences that individuals bring to a group.*
- *Manage group interaction effectively and, in particular, the multicultural interaction between members.*
- *Ensure that all partners keep their promises within the timeframe agreed at the meeting, as this is necessary for building strong relationships and restoring trust.*
- *Prioritise opportunities for face-to-face contact, particularly from the earliest stage in new relationships as well as throughout the decision-making process, as this is critical to building trust and respect.*
- *Be realistic and allocate long timeframes to establish and maintain cross-cultural relationships; proceed slowly and ensure that there is a core group of permanent personnel committed to the long-term.*
- *Set asides resources for both the formal and informal support structures. Ensure that there is access to adequate financial and in-house resources to enable sustained involvement.*
- *Allocate funds or other resources (e.g., training programmes) within the research design and be aware that indigenous communities may require financial assistance in order to actively participate.*

## **Part 2: Cultural Awareness and Knowledge Integration**

### **2.1 Introduction**

Part 2 focuses on the relationship between scientific and indigenous knowledge systems that underpin cross-cultural environmental research partnerships. There are multiple challenges presented in such cross-cultural relationships, including a need to build scientific capacity within indigenous communities and an equally urgent need to increase cultural awareness among scientists and resource managers. Issues surrounding the integration of traditional ecological knowledge and western science require that potential risks and barriers be identified and discussed up front. These include methodological issues relating to the validation of different knowledges, the misappropriation and exploitation of indigenous knowledge for commercial gain, and potential risks when knowledge is distilled, abstracted and utilised outside its cultural and ecological context. Knowledge integration is even more challenging when competing values, different power relations and different degrees of access to state power remain concealed.

### **2.2 Scientific capacity in indigenous communities**

Scientists and resource managers often lack experience in how to go about establishing positive and effective cross-cultural relationships. If scientists are unfamiliar with and uncomfortable about working with other cultural knowledge systems and practices, this can add to their reluctance to initiate or enter into new relationships, consider alternatives, and cross perceived cultural barriers. Lyver (2005: 365) explains: “Kaitiakitanga and mātauranga can be key to directing and guiding research, but may require scientists to adapt and work within unfamiliar cultural systems.” If both cultural parties acknowledge from the outset that they have mutual doubts and fears, then this may provide a common basis on which to place trust in the other and in the collaborative process. For example, in the research project between University of Otago and Landcare Research scientists in partnership with Rakiura Māori, Lyver (2005: 366) notes:

“The two University scientists reported that crossing the cultural barrier was extremely unnerving at times, although they recognized that the Rakiura Māori community were also required to place a large amount of trust in a scientific process in which they had limited understanding.”

Scientific capacity is regarded as critical in collaborative environmental research work, especially in projects where scientific knowledge and data-gathering processes predominate. Yet, it is often incorrectly assumed that all participants in a collaborative environmental research project are knowledgeable of the scientific process and possess the requisite technical skills to interpret results. If indigenous representatives have limited scientific understanding or institutional experience, then targeted training schemes and scientific education programmes can be provided to up-skill them. One lesson that Lyver (2005) draws from the Rakiura collaborative research experience is that more should be done to encourage and provide opportunities for community participation in research. However, one of the difficulties noted is that of finding local people with the capacity to participate effectively. Lyver’s (2005: 367) survey reveals:

“Almost three-quarters of Ngāti Hine and Rakiura representatives reported that their people had under-used the employment and training opportunities provided by the research.”

Although the university scientists were committed to the vision of building scientific capacity within the local community and devolving long-term responsibilities such as the role of monitoring, Lyver (2005) claims that the scientists’ expectations were too high. He argues that it is a mistake to expect individuals with no previous scientific experience to quickly pick up the core scientific competencies necessary for field technicians. Lyver (2005: 369) advises: “Scientists need to be realistic about training opportunities within a programme and communicate this early in the partnership to avoid unrealistic expectations from the community.” Furthermore, he emphasises the value of making scientific results understandable to non-scientific members so that informed decisions can be made. For example, complex results and technical models should be distilled and explained in layman’s terms, and communication tools such as non-scientific newsletters can be used to disseminate information to communities. Lyver (2005: 369) explains: “Māori representatives need to understand and feel comfortable presenting the scientific explanations back to their own people.”

When indigenous peoples invest in formal education and training programmes in the technical and specialised fields relating to resource management, Stevenson (2004, 2006) argues that this often comes at a significant cost. This is particularly evident in Canada where vast geographic distances separate First Nation communities in the north from the universities and training institutes predominantly located in the south. Stevenson (2006: 170) points out: “...obtaining such educations from distant institutions often entails tremendous personal, financial, social and cultural sacrifices (Hotchkis and Briedger 1992).” In some countries, formal schooling promotes one national culture and language, while reinforcing negative attitudes that indigenous cultures and methodologies are ‘backward’ or ‘out of date’. Education, when seen in the wider context of colonisation, directly threatens other culturally-embedded ways of learning and disseminating knowledge, as Grenier’s (1998: 5) observations attest to: “Some local people and communities have lost confidence in their ability to help themselves and have become dependent on external solutions to their local problems.”

If indigenous communities do not support their own people in obtaining western qualifications, the alternative is that they are often forced to hire outside expertise to ensure that their views are represented. This is because professional biases accord credibility to ‘experts’ with formal qualifications – often to the complete disregard of local expert knowledges. Indigenous values and knowledge are either dismissed or interpreted through a western knowledge filter which retains science as the dominant knowledge system even in so-called collaborative research. The need to ‘decolonise’ individuals with a western education may present indigenous communities with further challenges, according to Stevenson (2004: 4):

“Upon returning home, these individuals are often called upon to represent their communities in co-management processes and other arenas of interaction with the state, such as land-claims negotiations (Nadasdy 2003). However, without adequate training and skills to deconstruct western European epistemologies and ontologies, or to filter out of their formal education what is and is not in the best interests of their communities, these individuals often

wind up becoming unwitting and imposing agents of assimilation for the dominant culture.”

### **2.3 Cultural awareness in the conservation bureaucracy**

Scientists and other conservation staff argue that a lack of scientific and technical capacity among indigenous participants is a serious obstacle to building effective cross-cultural partnerships in environmental management. Yet, a lack of understanding and competency among professionals in the conservation bureaucracy with regard to wider social and cultural factors is seldom accorded the same degree of criticism. Carter and Hill (2006: 47) assert that while there is an expectation that indigenous communities understand ‘scientific jargon’, “...there is no corresponding trend by agencies to understand community viewpoints and needs (McIntyre-Tamwoy 2004), and in particular their desires to practise environmental management on their own terms.” They further argue that the pressure on indigenous peoples to unify their views in line with government agencies’ objectives acts to directly impede community self-governance of environmental resources. Stevenson’s (2006: 170) personal observations affirm this:

“...most meetings I attended of the SEBBCC [a co-management board in northern Canada] in 1992-3, devoted considerable effort to educating Inuit hunters on the various concepts, procedures and nuances of ‘wildlife management’ (conversely, very little time and effort was expended on educating committee biologists about Inuit ways, management philosophies or practices).”

Stevenson (2006) argues that resource managers need to develop a professional literacy that will assist them to deal more effectively with existing and emerging social, cultural, economic, and political realities in which co-management takes place. Carter and Hill (2006) advocate strategies to educate agency staff on the relationship between indigenous people and their environmental management philosophies and practices. For example, increased awareness of local cultural issues and concerns and critical intercultural communication skills may be gained through targeted cultural education workshops and field days. Displaying a willingness to learn may lead to other opportunities such as invitations to attend cultural ceremonies and local community events. Such approaches require individual members of the conservation bureaucracy to engage directly with indigenous peoples in ways determined appropriate by the latter. Nadasdy (2003, cited in Stevenson 2006: 176) affirms:

“Some Aboriginal peoples point to such lack of understanding as a fundamental deficiency in the ‘toolkits’ of resource managers, advocating that the latter need to spend less time in their offices and more time out on the land with Aboriginal peoples to really understand their points of view and ecological relationships.”

A further concern is that professionals in the conservation bureaucracy may be ignorant (or prejudiced) about local history. Therefore, they may not consider the impacts of colonisation on indigenous cultures as relevant to contemporary resource management issues and the current state of cross-cultural relations. Lambe and Tekaronianeken (2002) point out: “It is very difficult to learn about others’

differences, let alone respect them, if one is not exposed to them. The fact that most non-Native people have not been exposed to the history or aftermath of the colonial process is a major challenge in respectful cross-cultural dialogue.” They assert that non-indigenous people have a responsibility to learn about the past, in addition to current issues, and to support policies that seek to reconcile injustices and address inequities. Lyver (2005: 369) advises scientists to gain a wider understanding of the challenges facing the indigenous research community and to be aware of the history of past conflicts with the government:

“When determining the motives for distrust and the pace at which a programme should proceed, scientists might need to consider one or more factors such as the community’s history of colonialism, the relevance of the resource to the people, a different set of value judgements, the level of science capability within the community and previous experiences the community might have had with government, industry or scientific organizations.”

Some criticise academic programmes (particularly at the undergraduate level) as contributing to this situation on the basis that they do not encourage professionals to critique conservation philosophy and practice from other cultural viewpoints. Lambe and Tekaronianeken (2002) explain: “[Some Native people] feel that disrespect and ignorance have continued and transformed with academic disciplines such as anthropology and other scholarly pursuits...” To an extent, this underpins the distrust that some indigenous people express with respect to the motives of non-indigenous researchers who seek to work with or learn from indigenous cultures (Deloria 1996). Stevenson (2006) asserts that mainstream education in environmental resource management does not equip students with an understanding of the human (and cultural) consequences of the decisions they make and the advice they give. As Howitt (2001) confirms, professionals in the conservation bureaucracy develop technical skills in isolation from an understanding of the social, cultural, political, economic, and ecological context. Stevenson (2006: 176) elaborates:

“The simple fact of the matter is that the field of ERM [environmental resource management] is dominated by hierarchical, utilitarian, reductionist, bureaucratic and technocratic approaches to resource management that emphasize skills in these areas to the virtual exclusion of professional competencies in the social, cultural and political (and arguably even ecological) contexts in which co-management takes place (Howitt 2001, Usher 1986).”

While strategies to improve individuals’ cultural awareness may bring benefits in terms of improved interpersonal cross-cultural relations, often the overall ‘culture’ of a workplace is overlooked with respect to the wider impacts of its structures, systems and processes on indigenous peoples. Ultimately, the capacity to embrace social change within the context of collaborative environmental relationships must be approached at the institutional level. Carter and Hill (2006: 50) comment: “Despite their intellectual and technical capacity, participants felt that further involvement in environmental management was unlikely without ... decolonization of work practices in the park.” Thus, a significant challenge is the identification and examination of structures and processes that contribute to ‘institutional racism’ in the conservation bureaucracy. They explain: “Institutional racism occurs when routine processes and

apparently 'fair' structures perpetuate existing inequalities and systematically disadvantage minority groups (Hollinsworth 2006)" (ibid.: 52). This points to a critical need for principles of cross-cultural environmental management to become embedded within bureaucratic culture (Carter and Hill 2006).

## **2.4 Integrating indigenous knowledge and western science**

The recent research focus on traditional ecological knowledge as an alternative source of information and potentially valuable resource management tool is related to increased interest in the ecosystem-based management approach (Menzies and Butler 2006). As Berkes (1999: 52) confirms: "The rediscovery of ecosystem-like concepts among traditional cultures in many parts of the world was an important stepping stone in the appreciation by ecologists of traditional holistic understandings of nature." Menzies and Butler (2006) explain that the traditional livelihoods of indigenous communities depend directly on the land and local resources. Their close contact with nature has led to an in-depth understanding of the complex interrelationships between plants and animals and the functioning of the ecosystem as a whole. Although colonisation, global economic development forces and global environmental change pose radical challenges, many indigenous tribal peoples continue to use and rely on traditional ecological knowledge to sustain themselves within ecological limits (notwithstanding exceptions, as discussed by Diamond 1997, 2005).

Menzies and Butler (2006: 5) observe: "This type of small-scale yet system-wide understanding is the approach that resource managers are turning to in order to better manage natural resources and the environment as a whole." Traditional ecological knowledge is seen as having the ability to complement and supplement mainstream resource management – and even to guide biological science (Menzies and Butler 2006). Some indigenous peoples welcome this belated acknowledgement of their knowledge systems, stating optimistically that it will mean western society must re-establish linkages based on natural systems thinking (Michel 2002). Others view the balance of traditional with modern methods as the 'best blend', explaining that it brings together local expertise (indigenous knowledge, skills and practices) with scientific and government approaches to resource management (Castro and Nielsen 2001).

One of the ways in which traditional ecological knowledge has been effective in gaining recognition within mainstream resource management is as a supplement or guide to biological science in Environmental Impact Assessment (EIA). Sallenave (1994) explains that in northern Canada, EIAs are limited by a lack of adequate ecological baseline data and an adequate framework or method to link ecological and social components of the environment. Furthermore, EIAs are essentially reductionist in their approach: they break down each study into biophysical components, measure and evaluate them independently, and treat 'human components' separately from biophysical ones. He believes that indigenous peoples in those territories should play a significant role in the EIA process; both in terms of integrating their vast knowledge of the natural environment into the EIA process as well as taking on a decision-making role with respect to EIA research and policy. Menzies and Butler (2006: 5) endorse the benefits of traditional ecological knowledge in sustainable management approaches:

“TEK can provide both the appropriate questions to ask about natural resources and ecosystems and the missing answers to some existing questions. Furthermore, TEK can provide the appropriate structure for sustainable local resource management.”

If traditional ecological knowledge is formally integrated into contemporary resource management, Menzies and Butler (2006: 13) argue that it must be validated and that: “This validation should be community-based and rigorous.” Furthermore, Castro and Nielsen (2001) caution that expectations about the contributions and viability of indigenous knowledge must be realistic. In some cases, the effects of colonisation and land alienation have profoundly undermined indigenous peoples’ knowledge systems, resulting in fragmented traditional knowledge. Armstrong (2002: 14) observes: “Most of the people on the street don’t understand science buzzwords. In the same way, many Indigenous people are not schooled in traditional ecological knowledge practices.” Menzies and Butler (2006) refer to the observations of Chippewa law professor John Borrows who points out that while indigenous knowledge is important, it is not perfect. To attain a successful environmental management system, Butler (2006) supports a preference for one in which multiple sources of knowledge are consulted and integrated.

## **2.5 Risks involved in and barriers to knowledge integration**

In the closing discussion of the 2001 conference in Canada on ‘Linking Indigenous Peoples’ Knowledge (IPK) and Western Science in Natural Resource Management,’ four areas were identified as the main obstacles to integrating indigenous peoples’ knowledge and western science: different world views; different cultures; different power relationships to management; and different criteria for ‘proof’ and ‘evidence’ (Lertzman 2002). Nadasdy (2006) similarly highlights key differences between First Nation and non-First Nation members on a co-management board in the Yukon, and concludes that knowledge integration was impaired by methodological differences, divergent and sometimes competing values, different power relations and unequal access to state power.

Sallenave (1994) outlines three barriers to the integration of traditional ecological knowledge in the environmental impact assessment (EIA) process, including: perceptual barriers (the cultural and historical context of a society determines its reactions and perceptions); scientific scepticism (the methodological variance between ‘hard’ scientific data and what is perceived or dismissed as subjective or anecdotal aboriginal knowledge); and political obstacles (whereby policy makers may object to the significant alterations required to the EIA decision-making process in order to accommodate the use of traditional ecological knowledge). Each of these barriers will be addressed in the following discussion.

### **2.5.1 Methodological differences and the validity of knowledge**

Nadasdy’s (2003, 2006) ethnographic investigation of the Kluane community in the Yukon led him to challenge the concepts of knowledge and property that underpin co-management as being incompatible across cultures. His observations of the Ruby Range Sheep Steering Committee (RRSSC), a multi-stakeholder co-management



body in the Yukon established in 1995 to monitor the population of Dall sheep on the Ruby Range and to make decisions on their management, led Nadasdy (2006: 129) to question: “Why, if everyone involved in the RRSSC process endorsed the idea of knowledge-integration (and they did), was there only one instance in which they actually succeeded in doing so?” The diversity of knowledge and range of experiences among the diverse committee members should potentially have been valued as one of the RRSSC strengths, given that members comprised First Nation representatives, wildlife biologists, government resource managers, and outfitters (big sports game hunters). Yet, as Nadasdy (2006: 139) observed: “Rather than ‘integrating’ what they knew about sheep, RRSSC members struggled with one another over whose knowledge they should use to set the [sheep population] target level.”

There are several ways of identifying the obstacles that contributed to what Nadasdy (2006) refers to as a ‘failed’ co-management example. He discerns three key differences that created barriers to knowledge integration between the indigenous and non-indigenous members: (a) methodological differences whereby committee members disagreed on what constituted valid knowledge; (b) value differences that resulted in struggles between those who see animals as trophies and those who see them as food; and (c) power differences where outfitters (big game sport hunters) and First Nation people have very different degrees of access to state power.

Nadasdy (2006: 129) points out: “The prevailing view is that the integration of science and TEK [traditional ecological knowledge] is hampered by the difficulty of collecting TEK and by qualitative differences in the *form* of scientific versus traditional or local knowledge – which supposedly makes them at least somewhat incommensurable.” He refers specifically to the concerns raised by a wildlife biologist who doubted the basis for knowledge integration on the grounds that the nature of traditional ecological knowledge is subjective, too fluid and open to change over time. Furthermore, the biologist argued that indigenous knowledge is dependent on individuals and therefore often varies according to the hunter or elder with whom you talk. Nadasdy (2006: 145) summarises the dilemma scientists face:

“Scientific knowledge must be reproducible; it must be true for everyone, or it cannot be considered ‘knowledge’ at all. When biologists are confronted by inconsistent and conflicting testimony by elders and hunters, some assume that this testimony is unreliable. Others recognize the complexity of the problem but are unsure of how to make use of such knowledge.”

Traditional ecological knowledge is a body of knowledge and beliefs about the relationship of living beings with one another and with their environment (Berkes 1993). It has been accumulated over a period of time and handed down through generations by cultural transmission. It is based on the unique first-hand experiences of many individuals and draws on the collective wisdom and lessons derived from the insights of revered elders and spiritual leaders. To a large extent, indigenous knowledge is ‘coded’ in that it only makes sense in relation to the wider cultural and ecological interrelationships and the worldview context in which it is embedded. Berkes (1999: 6) describes: “It is what Levi-Strauss (1962) [*The Savage Mind*] has called the *science du concret*, the native knowledge of the natural milieu firmly rooted in the reality of an accumulation of concrete, personal experiences, as opposed to book-learning.”

In contrast, scientific knowledge strives for a universality of truth determined through a logical research process and methodology that subjects knowledge to rigorous testing and the repetition of experiments. Notwithstanding the quantum revolution in physics which shattered the illusion of an observer's claim to 'objectivity' (Heisenberg 1958), Howard (1994: 3) points out: "The legitimacy of the authority of the technical experts is based on the assumption of the superiority of science as an objective, impersonal, rational, and universal knowledge system." Sithole (n.d.: 1) draws exception to the inference that science is 'Western' and that Western science is universal: "The aim is to unpack our constant reference to knowledge as universal, on the one hand, and our reference to science as Western, on the other hand."

Rigney (2001: 3) argues that: "The notion that science is 'authoritative', 'neutral' and 'universal' privileges science. It gives science the status of a standard measure against which all other 'realities' may be evaluated and judged to be either 'rational' or otherwise." Rigney, an Aboriginal Australian, goes on to explain that because Aboriginal Dreaming has no rational explanation and appears to defy the logic of science, it is deemed irrational. This disrepute has had a devastating impact on "...Indigenous Australians whose realities are informed by the logics of Dreaming" (ibid). Typically, indigenous knowledge is de-legitimised or dismissed outright by those who maintain that science has a universalistic claim to truth; indigenous knowledge embedded in ritual and myth remains an anathema to them. Howard (1994: 3) exclaims: "Many of these knowledge systems are not even recognized as knowledge but viewed as superstitious beliefs or irrational behaviour." Rigney (2001: 4) regards this as essentially a racial issue:

"Indigenous intellectual traditions and knowledge transmission, which sustained Indigenous cultures and humanity for thousands of years, were not considered worthy science or even science at all. 'Race' theories laid the firm foundations for determining whose knowledge was valid and whose science was legitimate. More importantly, they determined who could do science and who could be a scientist."

In a collaborative research project involving a Māori community and Western scientists and researchers, Lyver (2005) points out that science was the dominant knowledge system used. However, his questionnaire which was put to those involved in the research reveals that some noted that *mātauranga* (Māori knowledge) could have played a larger role. However, one member was sceptical of the potential for *mātauranga* to be used in the research conclusions, and claimed that government and non-government conservation organisations would lack trust in the process if *mātauranga* were the dominant knowledge system used (Lyver 2005). Berkes (1999: 12) states that some see it as a "duty of the scientist to remain sceptical", especially when faced by indigenous knowledge that "...does not easily lend itself to scientific verification."

The central issue with respect to methodological differences between indigenous knowledge and western science is the validation of knowledge. Nadasdy (2006: 139) explains: "Whether or not they trusted the accuracy of the First Nation testimony, biologists simply could not accept that testimony as a basis for action because they had no way of independently verifying [it]..." Scientific doctrine demands that

knowledge be subjected to hypothesis testing and the repeatability of results. Yet, it may be considered disrespectful to subject elders' or tribal authority to a scientific process of falsibility. Lyver (2005: 369-370) notes: "This issue remains both an environmental and political challenge for partnerships because [indigenous] community rules about how traditional knowledge is filtered or scrutinized are rarely declared or made obvious to outsiders (Newman and Moller 2005)." The upshot is that in situations where there are very different cultural methods of validating knowledge, such as that encountered by the Ruby Range Sheep Steering Committee in the Yukon, methodological obstacles are invariably biased in favour of scientific knowledge. Nadasdy (2006: 139) confirms:

"Given the sensitive political nature of [the resource conflict], and the much greater weight accorded to scientific evidence than to First Nation testimony by the powerful interests involved, biologists needed to be able to back any recommendations with scientific evidence. As a result, biologists could not (and did not) accord the testimony of elders and hunters the same status that they did their own survey data."

### **2.5.2 Questioning the relevance of traditional ecological knowledge**

A further barrier to the integration of indigenous knowledge and western science is the argument that traditional ecological knowledge (TEK) is limited to the past and is therefore not relevant to contemporary complex challenges that invariably involve multiple user groups across a range of scales. Furthermore, some claim that indigenous knowledge has restricted value because its application is limited to the specific ecological area in which it was constructed and the cultural context in which it is embedded. Butler (2006) observes that much of the current literature on indigenous knowledge treats traditional knowledge as a valuable source of information only with respect to pre-contact resource management practices.

Agrawal (1995) argues that one of the factors contributing to this misconception is the misrepresentation of indigenous knowledge and western scientific knowledge as diametrically opposite. He argues that there are numerous similarities across the two knowledge systems and that, in fact, there may be greater differences within them. Butler (2006: 124) explains: "The rigid dichotomy of Indigenous versus Western keeps Indigenous knowledge trapped in history – Western knowledge is thereby modern and dynamic." Menzies and Butler (2006) contend that the polarisation of traditional ecological knowledge and science as a means of comparison is overly simplistic. It emphasises differences and often presents them as incompatible, whereas Menzies and Butler (2006) argue that there are many points of similarity and common principles that could be better explored in cross-cultural environmental relationships. Sithole (n.d.: 4) asserts: "In our opposition of science and indigenous knowledge we are responsible for creating authoritative spheres of stagnation." The impact of the confrontation between modernity and antiquity (i.e. dominant and declining knowledge forms) is particularly damaging for communities in developing countries whose knowledge has been relegated to the status of 'museum artefacts', as Kraak (1999: 1) describes:

"Visvanathan characterised the impact of post-Second World War western science on third-world societies such as India as the 'museumization' of

indigenous knowledge and scientific endeavour. The term is a 'genocidal' portrayal of the role of western science in obliterating all other forms of knowledge. It entails the relegation of indigenous knowledge forms as obsolete artefact, useful only for historical display."

A different perspective on traditional ecological knowledge is provided by Menzies and Butler (2006: 7-9) who define its manifold attributes as: cumulative and long-term, dynamic, historical, local, holistic, embedded, moral and spiritual. In contrast to claims that traditional knowledge has little or no contemporary relevance or value, Roué and Nakashima (2002: 337) stress its dynamic nature and strategic value: "...far from being frozen in tradition and unchanging, it enables its possessors to carry out predictive analyses of remarkable precision." Some of the confusion may have been generated by the choice of words used to describe this rich body of knowledge, as Berkes (1995: 5) clarifies: "...traditional does not mean an inflexible adherence to the past; it simply means time-tested and wise." Indigenous knowledge is not static; it is dynamic, cumulative and open to change (Nakashima 1998, Butler 2006). According to Berkes (1999), indigenous knowledge is also adaptive and enduring, as demonstrated by the incorporation of new ideas and technologies into the complex fabric of existing practices and understanding.

Menzies and Butler (2006: 1) assert: "One of the major failures of mainstream resource management has been a lack of attention to the long-term implications of resource extraction practices." Crampton (1991, discussed in Stevenson 2006: 171) highlights the obvious irony in some scientists' bias against traditional ecological knowledge, stating that: "Western scientists should not criticize what they see as unsubstantiated judgements in native science that are based on several generations of experience, when they are speculative about their judgements based on few measurements made over a short time-frame." It is the long-term scale of indigenous peoples' experiences and knowledge that Butler (2006: 125) regards as particularly valuable to understanding the problems of current management strategies:

"Indigenous knowledge is necessarily a knowledge of change; through considering Indigenous experiences and resource knowledge, we are given a picture of the rapid transformations that have been wrought on the landscape and natural resources during the centuries of colonial settlement. Indigenous knowledge's spanning of the precontact past, the processes of colonization, and contemporary circumstances is the key to understanding the problems of current management strategies."

Countering the argument that traditional ecological knowledge has limited relevance beyond the local context, Menzies and Butler (2006: 1) instead regard the site-specific, generational knowledge held by indigenous peoples as uniquely valuable and vitally important to contemporary conservation efforts: "The local-level ecological knowledge held by people like the Gitxa'ala, rooted in an intimate and long-term involvement in local ecosystems, can be a crucial tool and source of knowledge for long-term sustainability and immediate resource conservation." Roué and Nakashima (2002) similarly endorse the contributions that indigenous peoples can make to environmental impact assessment. Their analysis of Cree knowledge reveals the wide application of indigenous knowledge in environmental assessment, and its innovative and interdisciplinary nature. Yet, Stevenson (2004: 6) presents an argument that

indigenous knowledge per se may have little to offer mainstream resource management, but a lot to offer in terms of understanding relationships with place:

“[The knowledge of Aboriginal peoples] evolved to inform ways and understandings of life very different from those in which these paradigms emerged. In this light, and contrary to the claims of many environmental resource managers, academics, and even Aboriginal peoples, TEK may have little to offer conventional ERM [environmental resource management]. However, the knowledge of Aboriginal peoples may have much to contribute to understanding and developing sustainable relationships with the natural world.”

### 2.5.3 Misappropriation of culturally specific knowledge

Indigenous knowledge is recognised as essential to development (Agrawal 1995) and of potential universal benefit, as Mazzocchi (2006: 464) suggests: “Beyond its obvious benefit for the people who rely on this knowledge, it might provide humanity as a whole with new biological and ecological insights...” The World Conservation Union (1986) acknowledges the potential value of indigenous knowledge in the management of natural resources, conservation education, development planning and environmental assessment. The feasibility of applying traditional ecological knowledge to contemporary resource management problems was also outlined in the report of the World Commission on Environment and Development, *Our Common Future* (1987), as highlighted in these passages:

“Tribal and indigenous peoples’ ... lifestyles can offer modern societies many lessons in the management of resources in complex forest, mountain and dryland ecosystems (WCED 1987, 12).

“These communities are the repositories of vast accumulations of traditional knowledge and experience that link humanity with its ancient origins. Their disappearance is a loss for the larger society, which could learn a great deal from their traditional skills in sustainably managing very complex ecological systems. (WCED 1987, 114-15).” (quoted in: Berkes 1999: 4-5)

The WCED report alludes to the alarming rate that traditional knowledge is being lost, corresponding to growing international concern over the loss of cultural and biological diversity. Given its importance to development, Agrawal (1995) notes that it is often suggested that indigenous knowledge must be gathered and documented in a coherent and systematic fashion. Berkes (1999) affirms that the response of some researchers in the past was to document traditional ecological knowledge for the sake of cultural preservation. The primary strategy for conserving indigenous knowledge is through *ex situ* conservation methods; that is, isolating, documenting and storing it in international, regional and national archives (Agrawal 1995). However, Agrawal (*ibid.*: 2) contests the rationale behind this approach, arguing that: “...the strategy of archiving and disseminating indigenous knowledge runs contradictory to the very conceptual basis of what is seen to be ‘indigenous’ in indigenous knowledge.” He refers to persuasive arguments that traditional ecological knowledge can only be conserved *in situ*, based on the following key reasons:

“First, if indigenous knowledge is inherently scattered and local in character, and gains its vitality from being deeply implicated in people’s lives, then the attempt to essentialize, isolate, archive and transfer such knowledge can only seem contradictory. ... Second, because of the dynamic nature of indigenous knowledge and its changing character against the background of the changing needs of peoples, the strategy of *ex situ* conservation seems particularly ill-suited to preserving indigenous knowledge. ... However, the ultimate irony in the attempt to valorize indigenous knowledge may lie in the willingness to adopt the methods and instruments of Western science.” (Agrawal 1995: 4)

Wenzel (1999) confirms that virtually all ecologically framed research on Inuit adaptation now draws extensively on traditional ecological knowledge, among other information sources. However, political concerns are being raised about how indigenous knowledge is accessed by outsiders/researchers and used by institutions, as Wenzel (1999: 113) observes: “In the contemporary research environment of Nunavut, TEK is now a political (as well as scientific and cultural) concern.” Wenzel (1999) and Stevenson (2004) note that Inuit and others express uneasiness about the conduct of research in their territories and the potential for misappropriation of culturally specific knowledge. Agrawal (1995) argues that *ex situ* preservation of indigenous knowledge creates a mausoleum for knowledge which benefits the richer, more powerful constituencies. The Mātaatua Declaration (1993) is one response, presented at the first International Conference on the Cultural and Intellectual Property Rights of Indigenous Peoples, to concerns about ‘biopiracy’ whereby some biophysical scientists in the food and drug industry have prospected traditional knowledge for potential commercial benefit (Nakashima 2000).

First Nations elders are worried about the risks associated in giving away information without qualification (Michel 2002). They fear that traditional ecological knowledge, if taken out of context, may be misinterpreted or misused (Stevenson 2004) and that sacred knowledge may even be abused (Marsden 2003). Lyver (2005) acknowledges that the release of knowledge into the public domain can be contentious. For scientists, professional critiques of their work and the publication of results in peer-reviewed journals is essential to career development. However, with indigenous peoples, traditionally information is censored so that not everyone within the community has the authority (or birthright) to access different forms of knowledge – particularly knowledge of a sacred and sensitive nature. Lyver (2005: 370) confirms: “Historically for Maori, access to knowledge even within their own traditional societal structures has been restricted to privileged individuals...” Menzies and Butler (2006: 12) urge researchers to be aware of and respect indigenous peoples’ concerns and to gain an understanding of the reasons for their reluctance to allow their knowledge to be documented:

“...community members may be reluctant to have their knowledge recorded. Some communities have suffered further loss of resource control by participating in research that records their traditional harvest areas and processing methods. Furthermore, traditional structures of resource stewardship and ownership often influence who is able to use and even talk about specific areas. It is extremely important that researchers understand these concerns and these traditional censures when trying to document the area and extent of particular resource utilization.”

#### 2.5.4 Distillation and de-contextualisation of indigenous knowledge

Indigenous peoples are also concerned about the scientific community's misunderstanding of how indigenous knowledge fits in a western scientific paradigm. Michel (2002) explains that there is a danger in viewing indigenous knowledge as the same as western science, and vice versa. He recognises that this misunderstanding occurs when indigenous intellectual property is treated as a commodity: "...another bit of knowledge that becomes part of a larger scientific database" (Michel 2002: 4). Stevenson (2004) explains that the typical approach employed is to select or 'cherry pick' specific elements, such as environmental knowledge, from the broader indigenous system of knowledge. This implicitly assumes that such knowledge is an 'intellectual product' that can be isolated from its social context (Nadasdy 1999, Dudgeon and Berkes 2003). It also assumes that indigenous epistemologies treat ecological knowledge as a separable body of knowledge; a misunderstanding that Berkes (1999: 23) challenges: "...in contrast to Western science, there is little or no separation between such knowledge and other spheres of culture. Knowledge of the biophysical environment is embedded in the social environment."

Stevenson (2006) is highly critical of this approach to Aboriginal peoples' participation in state-sponsored projects, which he argues leads to the progressive loss of information, knowledge, and context. He identifies the "...conversion of the knowledge of Aboriginal peoples into a form [of] 'currency' that the state can understand and use..." (ibid.: 172), as a particularly effective way of disempowering Aboriginal peoples. That is because, as Stevenson (2004: 3) argues: "TEK holders are increasingly separated from knowledge that they constructed and once owned, controlled, and were responsible for, effectively excluding them from any role in decision-making."

Typically, the evaluation of indigenous knowledge is based on how it can contribute to the practice of western knowledge and whether it conforms to existing resource management theory and strategies (Grenier 1998). As Lambe and Tekaronianeken (2002) observe, indigenous knowledge is often determined relevant only in relation to a Western standard. Stevenson (2006: 1723) observes: "Specific 'factual' and technical (e.g., geographical) information is then singled out for its contribution to existing 'scientific' data sets, maps and established ERM procedures." Butler (2006: 122) warns that the issue of 'evaluating' indigenous knowledge intended to complement mainstream scientific data could easily become "an act of colonization", in that it is evaluated according to non-indigenous measures and standards. The real danger is that traditional ecological knowledge could be appropriated as a tool of western science, rather than a complementary approach to resource management (Menzies and Butler 2006). Hence, Menzies and Butler (2006: 12), among others, insist: "...TEK should not be translated, distilled, or abridged in order to make it fit predetermined, external data requirements."

Agrawal (1995) points out that there are substantive differences between indigenous and western knowledge with respect to their history and distinctive characteristics. Traditional ecological knowledge is richly contextualised and layered with complex social and cultural functions, meanings and values (Stevenson 2006). Menzies and Butler (2006) define traditional ecological knowledge as holistic, qualitative and

intuitive, and point out that much indigenous knowledge exists primarily in oral form. However, when this knowledge is 'integrated' into science-based resource management research, the results tend to be categorised, written, quantitative and analytical (Nadasdy 2006). First Nation members on a number of Canadian co-management boards express exasperation that while their community's research priorities remain unaddressed, the wisdom inherent in indigenous knowledge is translated into facts and figures that a biologist can use to benefit scientific research projects (Menzies and Butler 2006).

Stevenson (2006: 173) describes traditional ecological knowledge as: "...nested within an integrated, comprehensive system of knowledge possessing political, social, cultural, economic, spiritual and other meanings, from which it attains its full meaning and value..." It is difficult to interpret and use traditional ecological knowledge without understanding its cultural context (Menzies and Butler 2006), given that such knowledge is often an integral part of the local culture (Berkes 1999). In this respect, Wenzel (1999: 117) regards traditional ecological knowledge as "qualifiably special" in that it is not separate from its possessors' lives, but is integral to the individual. Menzies and Butler (2006: 9) summarise:

"TEK is part of a particular cultural context. It is specific not only to an ecosystem, but also to a way of understanding the world. ...It is important to emphasize that there are many traditional knowledges, each one attached to a different Aboriginal culture. A community's TEK is embedded in the matrix of its unique local culture, history, and traditions."

Mazzocchi (2006: 464) argues that it is not possible to simply reduce indigenous knowledge to practical knowledge, but that there should be a serious attempt made to "embrace their specific worldviews", including studying indigenous belief systems. Berkes (1995: 55) elaborates: "As Reichel-Dolmatoff (1976) pointed out, the researcher needs to study the worldview as the organizing concept behind the cultural ecology of a group, without which the logic of many traditional management systems would be difficult, if not impossible, to access." Berkes (1999) explains that traditional systems tend to have large moral and ethical context. Their relationship to nature is non-dualistic in that there is no obvious separation between nature and culture; nature is imbued with sacredness. Indigenous peoples insist that their practical knowledge derives from and reflects a spiritual relationship with the land and resources (Menzies and Butler 2006). It is 'sacred ecology' in the most expansive, rather than in the scientifically restrictive, sense of the word 'ecology' (Knutson and Suzuki 1992, Menzies and Butler 2006).

### **2.5.5 Different values and access to power**

Nadasdy's (2006) reflection on the failure of the RRSSC co-management board (in the Yukon) as an effective cross-cultural decision-making body led him to identify the different values held by board members as an obstacle to their willingness to share and integrate knowledge. He argues that the difference in values resulted in struggles between those who see animals (in this case, the Dall sheep) as trophies and those who see them as food. Berkes (1999) points out that western experts and aboriginal experts have different political agendas and relate in different ways to the resource in question. Armstrong (2002), a First Nation Canadian, underlines the importance of



examining philosophical and social values in order to gain an understanding of how indigenous peoples' values are positioned in terms of the overall picture of what mainstream society values. She highlights a value bias inherent in the terminology of natural resource management, attributing this to the dominance given to economic values in modern society:

“For example, when we use words like ‘non-timber’ values, then everything in that forest is classified as a non-timber value. What is that saying? It is saying that the only thing that is of value in the forest is the timber value, and the use for the lumber industry, and everything else is measured against that value. I’m not saying that is how we look at the forest, but that is an example of how natural resource management is positioned in this country. One of reasons that it is positioned in this way in this country is that timber values are a source of various kinds of economic and societal values.” (Armstrong 2002: 12)

Nadasdy (1999) is critical of the way in which technological and methodological obstacles have dominated the debate on knowledge integration. He aims his criticism specifically at researchers of traditional ecological knowledge whose preoccupation with methodological obstacles, he maintains, has obscured attention from the power relations that underlie the entire process of knowledge integration and co-management (Nadasdy 2006). For example, in the case of the RRSSC co-management board, power differences between the outfitters (big game sport hunters) and First Nation members were evident in the fact that they had very different degrees of access to state power. Nadasdy (2006: 145) contends that methodological obstacles are used as an excuse for the retention of state power in the management of resources: “The fact that ... [traditional ecological] knowledge is not used (even by biologists who recognize its validity) because it does not fit easily into the practices of bureaucratic wildlife management emphasizes the biases inherent in the project of knowledge integration.”

Stevenson (2006) and Natcher et al. (2005) argue that when scientists and resource managers pay ‘lip service’ to indigenous knowledge or dismiss the culturally validated terms used by indigenous peoples because they regard them as anecdotal, unscientific or incompatible with resource management and western law, they enforce existing power relations that favour the state and its agents. Agrawal (1995) asserts that the critical difference between indigenous knowledge and scientific knowledge lies in their relationship to power, and that it is not the holders of indigenous knowledge who exercise the power to marginalise. While different expressions of power may be wielded to different effect, the power to de-value or de-legitimise another culture’s knowledge system can have far-reaching consequences and, in some cases, may even threaten the cultural survival of marginalised peoples. Natcher et al. (2005: 246) explain:

“While the articulation of power can involve the control of financial, institutional, and political resources, for the CRRC this more often involves the determination of whose knowledge is of most value to the management process and how such knowledge is or is not used in decision-making. This includes the representation of reality and the particular ways of legitimizing and delegitimizing systems of knowing.”

Stevenson (2006) underlines the need to be cognisant of the implications of privileging and maintaining existing power relationships and institutional structures, which have an undermining and marginalising impact on Aboriginal ways of knowing and relating to their lands and resources. Nadasdy (2006: 129) argues that the practice of knowledge integration and co-management ends up taking for granted existing Aboriginal-state relations and perpetuating – rather than transforming – unequal power relations. Nakashima (2000) is sceptical of scientists who promote the integration of scientific and indigenous knowledge as ‘blending the best of two worldviews’. He questions whether such arrangements are really of mutual benefit: “Given inherent imbalances of power in favour of science, how often does scientific cooperation transform into the co-optation of the indigenous system?” (ibid.: 432).

Thus, Nadasdy (2006) and others (see Plummer and Armitage 2007) advocate the necessity of considering the broader political process in which culturally derived institutions are embedded. Furthermore, indigenous knowledge issues are becoming more closely aligned with political struggles, including progressive ideas about indigenous culture, sovereignty and difference. Butler (2006: 121) states emphatically that indigenous knowledge is: “...not simply a body of knowledge, but a political discourse.” Dealing with traditional ecological knowledge has become politically volatile (Berkes 1999), and Butler (2006) warns that its entanglement with political issues further complicates the potential for successful incorporation of indigenous knowledge into management strategies. Yet, indigenous people have been forced to engage with political and legal structures in order to protect their rights and access to traditional lands and resources, otherwise emergence of new indigenous knowledges will be drastically curtailed, as Agrawal (1995: 5, my emphasis) summarises:

“If indigenous knowledge systems are disappearing, it is primarily because the pressures of modernization and cultural homogenization, under the auspices of the modern nation-state and the international trade system, threaten the lifestyles, practices and cultures of nomadic populations, small agricultural producers and indigenous peoples. The appropriate response from those who are interested in preserving the diversity of different knowledge systems might then lie in attempting to reorient and reverse state policies to permit members of threatened populations to determine their own future, thus facilitating *in situ* preservation of indigenous knowledge. In situ preservation cannot succeed unless indigenous populations and local communities gain control over the use of the lands on which they dwell and the resources on which they rely. Those who are seen to possess knowledge must also possess the right to decide on how to conserve their knowledge, and how and by whom it will be used.”

## **2.6 Ideas for overcoming barriers to knowledge integration**

Part 2 focused on the challenges involved in attempts to integrate scientific and indigenous knowledge systems in cross-cultural environmental partnerships. These include the challenge of building scientific capacity within indigenous communities as well as that of increasing and improving cultural awareness among scientists and other conservation staff. The risks involved in knowledge integration have also been discussed in Part 2, including barriers attributed to methodological, value and political differences. A number of ideas for overcoming such barriers are highlighted in relevant literature. These include support for educational strategies that target

improved cross-cultural understanding and calls to reform mainstream conservation training and academic programmes. Recommendations that indigenous communities control the use of their knowledge, and that non-indigenous researchers respect and adhere to indigenous protocols with regard to how indigenous knowledge is interpreted and used, are gaining greater attention in relevant resource management literature. Similarly, an intercultural approach to knowledge integration is gaining wider recognition and support.

### **2.6.1 Education strategies and academic programme reform**

Part 2 focused on the importance of providing opportunities to participate in education programmes to all members involved in cross-cultural environmental research. It was recommended that education strategies be introduced and supported in order to address the scientific knowledge shortcomings within indigenous communities, particularly when environmental management projects are driven by western science. As a minimum requirement, scientific training for individuals should enable indigenous communities to adequately contribute to scientific research projects. Key issues to consider and actions to take include:

- *Identify gaps in knowledge capacity and experience necessary to work effectively across different knowledge systems.*
- *Provide work training schemes and scientific education programmes to up-skill those with a limited scientific understanding or institutional experience.*
- *Ensure that educators are made aware of the personal sacrifice, financial and other costs borne by indigenous communities who invest in post-secondary educations in natural resource management or the natural sciences.*

Literature reviewed in Part 2 also emphasised the urgent need for scientists and other conservation staff to improve their general cultural awareness and appreciation of cultural values and indigenous knowledge systems. To be effective, cross-cultural understanding must extend beyond individual efforts and be realised and supported by institutions and the conservation bureaucracy at large. Relevant measures could include:

- *Introduce strategies to educate scientists and government staff on the relationship between the local indigenous community and their environmental management philosophies and practices.*
- *Embrace policies and practices that support social change at the institutional level in concert with cultural awareness programmes directed at individuals.*
- *Embed cross-cultural environmental management principles within the bureaucratic culture, across all levels of authority including managers, scientists, researchers, technicians and administration staff.*

The strategies outlined above focus on actions that can be implemented in the short-term to bridge gulfs in understanding across different cultural knowledge systems.

However, longer-term measures are required to address serious underlying inadequacies in the mainstream education system. Critics point out that education institutions and their programmes do not adequately prepare scientists and resource managers to effectively engage with indigenous peoples. Recommendations to tackle these deeper concerns include:

- *Reform educational programmes and institutions so that they produce graduates with professional capacity in cross-cultural facilitation methods and professional literacy to critique conservation philosophy and practice from other cultural viewpoints.*
- *Broaden university science education, targeting the undergraduate level, by exposing all students to interdisciplinary perspectives in social, cultural, economic and ecological programmes.*
- *Secure input from indigenous peoples to ensure that western education institutions support initiatives that effectively accommodate the best from indigenous and western scientific knowledge traditions (see Howitt 2001).*

Some indigenous peoples are highly critical of science, alleging that it has played a key role in their colonisation and is closely aligned with the policies and priorities of the nation state and business in the knowledge economy (Rigney 2001). Indigenous communities are increasingly concerned that indigenous scholars who undergo western academic training are so profoundly influenced by the schooling experience that they require ‘decolonising’ to re-centre within an indigenous worldview. To address this concern, they propose to:

- *Provide training and skills to indigenous scholars to deconstruct western European epistemologies and ontologies.*
- *Filter out of formal education what is and is not in the best interests of indigenous communities (see Stevenson 2004).*

Steps to ‘decolonise’ the indigenous scholar might include:

- *Understand the basis of Western ontological and epistemological principles on which science stands.*
- *Critique the origins of Western scientific rationalism.*
- *Understand how Western scientific rationalism has contributed to the colonisation of indigenous knowledge systems in order to understand the current position and actions to improve it.*
- *Recognise a process of liberation from the colonising aspects of Western scientific traditions.*
- *Investigate scientific methods that move beyond Western cultural models.*

- *Recognise and support the development of contemporary indigenous research approaches and methodologies.*

## **2.6.2 Community control and protocols for indigenous knowledge use**

Indigenous peoples around the world are becoming more and more politically organised and assertive in reclaiming control over the use of their cultural knowledge systems. Concern about the misappropriation of indigenous knowledge by multinational companies for commercial profit has raised questions about who benefits from the recording of other cultures' knowledge. This has contributed to a focus on issues of ownership and the establishment of indigenous property rights. Furthermore, as Berkes (1999) points out, reclaiming indigenous knowledge has become a major strategy in indigenous peoples' revitalisation movements throughout the world. Many indigenous communities and groups involved in research with external parties assert that indigenous peoples must have decision-making authority regarding the use of the results of research that involves their traditional knowledge. Indigenous community protocols and priorities should direct the way that indigenous knowledge is made available for use in cross-cultural environmental partnerships. Steps to be taken in support of this position include:

- *Ascertain who decides what, and how, indigenous knowledge is used in collaborative research partnerships.*
- *Transfer appropriate decision-making power to those at the source of the knowledge to be used.*
- *Affirm that indigenous communities have the right to use their knowledge as a source of power to protect the environment, culture, and their traditional way of life.*
- *Empower indigenous groups to carry out their own research; indigenous researchers based within the local community should be recruited in research projects of relevance to their communities.*
- *Encourage broad participation that involves women, men, and children (Grenier 1998).*

Various research guidelines and protocols have been proposed by indigenous research organisations in response to the need for the provision of direction and guidance for non-indigenous researchers who wish engage in collaborative research partnerships with indigenous communities. For example, the Inuit Tapirisat of Canada offered twelve principles for community-controlled research; the Dene Cultural Institute (DCI) guidelines outline detailed procedures for a community-managed and community-controlled research project; and the International Institute of Rural Reconstruction (IIRR) guidelines offer general rules and procedures for collecting, recording, and documenting indigenous knowledge (Grenier 1998: 87-99). In New Zealand, the Centre for Social Research and Evaluation *Te Pokapū Rangahau Arotake Hapori* (Ministry of Social Development 2004) designed a set of guidelines to

facilitate ethical and culturally appropriate practices for research and evaluation with Māori.

### **2.6.3 An intercultural approach to knowledge integration**

While decision-making control for the use of indigenous knowledge by others should remain with the indigenous communities to whom that knowledge belongs, in cross-cultural environmental research partnerships where both indigenous knowledge and western scientific knowledge are involved, an intercultural approach to knowledge integration is strongly recommended. Rist and Dahdouh-Guebas (2006: 474) argue: "...an intercultural perspective is the most adequate way of relating different forms of knowledge because it encompasses the highest potentials for cooperation based on mutual respect maintaining the autonomy of the different processes of knowledge production." Furthermore, an intercultural perspective implies the establishment of the broadest possible field of interaction between different types of knowledge. Suggesting an intercultural relationship between different forms of knowledge raises several critical issues that need to be acknowledged and addressed:

- *The interrelated dimensions of practice, values and worldviews must be taken into account.*
- *There must be open acknowledgment that the integration of traditional ecological knowledge in western resource management processes is not simply a matter of transferring information from one culture to another.*
- *An intercultural approach to knowledge integration must be based on a process of deliberation which may involve a long process of community consultation, interviews, and several levels of data review.*
- *There must be a mutually accepted understanding that intellectual property rights and protection of the integrity of indigenous peoples' knowledge systems are vital issues in cross-cultural environmental partnerships.*
- *The different cultural partners should reach an acceptance that issues of intellectual property and the protection of sacred knowledge can best be dealt with through collaborative research and management partnerships.*
- *Educate researchers to understand indigenous peoples' concerns around issues of traditional censoring of knowledge, and to be sensitive to cultural prerogatives when trying to document the area and extent of particular resource utilisation.*

Guiding frameworks and appropriate research structures for intercultural research, including research methodologies and ethical principles, need to be negotiated, agreed on, and implemented through a process of cross-cultural dialogue. Menzies (2001) explains that documenting, evaluating, and implementing indigenous knowledge for resource co-management requires a research structure that is developed and implemented by the community. The necessary structures for collaborative research with indigenous communities would enable community members to define relevant data, identify local experts, evaluate data appropriately, and define the ways in which

their indigenous knowledge may best be integrated with scientific data for co-management needs. The following actions and considerations should be adopted:

- *Develop, in collaboration, a guiding framework for cross-cultural engagement that all research partners endorse and agree to adhere to in practice.*
- *Identify shared questions on fundamental issues that are of common interest and establish a dialogue around them.*
- *Develop and use appropriate participatory research methodologies that serve the indigenous group as well as the researcher; tailor research methods to indigenous cultures, their abilities and requirements.*
- *Develop multiple research methods so that an optimal combination of methods can be called upon to access knowledge that is concealed in cultural norms or political issues (Grenier 1998).*
- *Recognise that the relation between science and indigenous knowledge depends on specific ethical positions.*
- *Reach agreement on fundamental ethical principles before embarking on intercultural dialogue.*
- *Develop very clear guidelines, principles, and codes of conduct for collection, data access, knowledge release, and benefit sharing from the outset.*
- *Endorse core values associated with doing indigenous knowledge research, including respect, reciprocity and relationship (Grenier 1998).*
- *Adopt the 'cultural precautionary principle' as an ethical approach to research involving traditional ecological knowledge.*
- *Accept that in a strong collaborative partnership, scientists and managers may be required to abide by another culture's ethical constraints and customs.*

Accepting an intercultural approach to knowledge integration is less likely to be a challenge for indigenous peoples who have had colonial structures and processes imposed on them for a number of generations and, as a result, have been forced to work with another cultural knowledge system. Rather, it is non-indigenous researchers, scientists and politicians who are more likely to respond to the challenges of cross-cultural dialogue and collaborative research partnerships as a radical intervention. The mainstream resource management structures privilege western knowledge systems almost to the exclusion of other cultures' ways of knowing and relating to the natural world. An inherent danger in advocating an intercultural approach to knowledge integration is that this may be received by those who maintain the position of status quo as simply a matter of information transfer (i.e. inserting indigenous knowledge into mainstream resource management paradigms). The most formidable challenge facing an intercultural approach to knowledge integration will

undoubtedly be the fundamental change to the mind set of policy makers and of many in the scientific community. In this regard, the following considerations are critical:

- *Non-indigenous researchers who partake in indigenous knowledge research should adopt an appropriate attitude and self-critical openness so that biases in the research approach are recognised (e.g., the use of scientific, urban, high-tech knowledge) (Grenier 1998).*
- *An appropriate attitude should be grounded in mutual respect for the other and their legitimate ways of knowing.*



## **Part 3: Worldviews, Cultural Values and Environmental Ethics**

### **3.1 Different paradigms and cultural values**

A major challenge for cross-cultural environmental partnerships is to acknowledge that the knowledge systems of both indigenous people and resource managers are based on particular sets of values (Houde 2007) and operate within two profoundly different social realities (Notzke 1995). If co-management or other types of cross-cultural environmental partnerships are to offer real alternatives to mainstream resource management approaches, then their success ultimately depends on understanding the cultural conditions that underlie such arrangements. Natcher et al. (2005: 241) explain: “This cultural understanding necessarily includes the values and beliefs participants hold regarding social and ecological relationships, how they are prioritized and linked to each other, and the conflicts that often arise from their differences.”

In Wyatt’s (2008) research on joint forestry management ventures in North America, he points out that First Nations and forest managers each have their own ‘forest paradigms’ associated with different cultural values and norms that influence ways of understanding and approaching social and ecological relationships. Chapeskie (1995) explains that members of the Anishinaabe First Nation of northern Ontario in Canada conceive of the landscape and resource management in very different terms from the Euro-Canadian scientists and officials with whom they interact. Houde (2007) acknowledges that different worldviews, values, and environmental ethics may be difficult to accommodate on the same land and within the same management system. According to Wyatt (2008), indigenous paradigms and management systems have typically been overlooked, ignored, or replaced by mainstream forestry. Similarly, the resource management processes that underlie co-management structures in Canada are, as Stevenson (2004: 2) points out, “...entrenched in the institutional and epistemological values, assumptions, and structures of the Canadian state and western European cultural traditions.” To date, there has been very little attempt, if any, to accommodate different worldviews in environmental governance.

Plummer and Armitage (2007) confirm Natcher et al.’s (2005) assertion that ‘cultural distance’ can be a formidable obstacle to successful inter-cultural collaboration. Cultural distance refers to the extent to which the norms and values of group members differ because of distinct cultural backgrounds. Castro and Nielsen (2001: 234) describe the cultural differences between members on co-management boards in terms of “cross-cultural incommensurability” that separates their ideas, practices, and expressions of interest. As Natcher et al. (2005: 248) explain: “...it is culture that forms perceptions, guides group behaviour, and ultimately implements management decisions.”

Osherenko (1988: 102) suggests that both cultural groups stand to gain by creating co-management regimes that “meld the two systems.” Yet, it is this very process of ‘integrating’ the two systems, derived from dissimilar worldviews, which has proven to be the most problematic (Stevenson 2006). Houde (2007) points out that the participants in co-management arrangements often mistrust alternative models derived from other cultures. If, as Bohm (1996) suggests, the partners put aside the initial

assumptions they hold about how the world works in order to co-construct new models, Houde (2007) warns that this could place aboriginal peoples at further risk in that they may, "...lose what sets them apart and gives them authority in participation in co-management processes, i.e., their specific worldview and set of values."

Through contact and conflict, many First Nations' institutions have been forced to adapt to imposed changes and respond to challenges with new ideas, knowledge, and practices. Wyatt (2008) affirms that even in the face of mainstream forestry and resource management institutions, indigenous peoples have maintained their own beliefs, knowledge, practices and institutions. Referring to King's (2004) work with the Nisga'a First Nation, Wyatt (2008) maintains that aboriginal management systems have proven remarkably resilient. Although it is typically expected that the indigenous partner must change to acquiesce with mainstream management approaches, in a genuine and strong cross-cultural partnership openness and willingness to listen to and learn from other cultural values and approaches should be two-way. Lyver (2005: 369) explains:

"In a strong collaborative partnership, scientists and managers may be required to abide by another culture's ethical constraints and customs. However, this does not involve surrendering one's own values or identities, but rather recognizing the validity of a partner's reality or worldview (Moller 2001)."

For cross-cultural relationships to be effective and meaningful, it is critical that each cultural partner recognises and respects the validity of the other's worldview. This can be challenging, as Notzke (1995: 190) observes that neither cultural partner, "...have held each others' resource management systems in anything but high regard and commonly have failed to acknowledge the other as having any legitimacy." However, Charest (2001, discussed in Wyatt 2008) believes that most First Nations peoples are willing to share their land and resources with non-aboriginal people, but only in partnerships that respect their rights and interests. This calls for an exploration and negotiation of new kinds of cross-cultural environmental partnerships that are: "...flexible and adaptable to reflect the needs of First Nations and to provide control over both the resources and the institutions..." (Wyatt 2008: 174).

### **3.2 Cultural bias of resource management language and concepts**

The terms and concepts that underpin natural resource management are not value-neutral; rather, they are underpinned by western cultural values conceived within the modern worldview. In environmental management arrangements that include indigenous peoples, Stevenson (2006) points out that the terms and conditions on which such partnerships are based are invariably set by the conservation bureaucracy. In a view that some resource managers might regard as extreme, Rodon (2003), Stevenson (2006) and Wyatt (2008) argue that indigenous peoples' participation in co-management projects that are sponsored and led by the government actually contributes to their marginalisation and disempowerment.

In order to engage with scientists and resource managers, indigenous peoples are expected to adopt the institutional language, concepts, and procedures that define the discourse of natural resource management (Stevenson 2004). That discourse is almost

entirely defined by western values and scientific assumptions about the natural world (Stevenson 2004, 2006; Wyatt 2008). Indigenous peoples who participate in co-management are forced to use terms that are foreign to their traditions and often antithetical to their own cultural values, concepts and understandings (Stevenson 2004). Terminology such as ‘resource’, ‘wildlife’, ‘stock’, ‘harvest’, ‘quota’, and ‘replacement, growth and death rates’ do not have equivalents in many indigenous languages. Stevenson (2006: 170) elaborates:

“Article 5 of the Nunavut Final Agreement (INAC 1993), for example, introduces concepts so alien to traditional Inuit values and understandings (e.g., ‘total allowable harvest’, ‘basic needs levels’, etc.) as to be a recipe for the destruction of Inuit culture, as they wish to preserve it, if the provisions of the article are implemented to the letter.”

Wyatt (2008) notes that ‘development’ is not a neutral term; rather, it is loaded with culturally-constructed meaning. The aspirations of indigenous communities, including their cultural views on ‘development’ and ways of distributing economic benefits, often conflict with those held by government and the forestry industry. Similarly, the concept of ‘management’ is regarded with suspicion by the Elders (Michel 2002). As Stevenson (2006: 167) points out: “These cultural constructions were simply not part of Aboriginal epistemologies or lexica prior to the coming of colonial settlers.” The Western legal concept of ‘ownership’ is particularly offensive to indigenous people who insist that they do not ‘own’ the land, but rather that they *belong* to the land and have an inherited, inalienable obligation to care for the land. The cultural distance underpinning the differing ways of relating to the environment is significant.

Benjamin Lee Whorf’s (1956) instrumental work on language reveals that language reflects the way we see, describe and understand the world around us; however, it also shapes and narrows our vision. Howitt (2001: 11) asserts: “Language ... reflects and constructs power, while rendering invisible many things important to other peoples.” These critical observations lend support to Stevenson’s (2004) argument that the dominance of the western resource management discourse has played a pivotal role in marginalising and muting Aboriginal systems of management, knowledge, authority, and responsibility. Stevenson (2006: 175) goes so far as to describe the uncritical use of resource management terminology as a form of ‘institutional violence’:

“...most resource management professionals continue to employ language and concepts that exact a certain violence on Indigenous cultures. Every time a resource manager or researcher uses such language uncritically in reference to Indigenous peoples, s/he favours the interests of the Eurocentric synthesis, while denying their fundamental rights to self-determination.”

Indigenous peoples have responded in different ways to the expectation that they adopt resource management ‘speak’. Natcher and Davis (2003) allude to a situation in Canada where indigenous participants expressed their frustration at meetings through direct forms of resistance such as refusing to use the language, terms, and concepts of the state managers. For example, Inuit hunters on the Southeast Baffin Beluga Co-Management Committee explained that there is no equivalent word in Inuktitut language for the term ‘stock’, and therefore refused to use or consider the concept. However, Stevenson (2004) cautions that indirect methods of resistance, such as non-

engagement and non-attendance at meetings, may be too subtle and risk being misconstrued by state managers. Silence, for example, should not be interpreted as consent. He concludes that neither direct nor indirect forms of resistance have proven effective in getting across the viewpoints of indigenous participants who seek meaningful changes to current co-management practice.

Stevenson (2004, 2006) insists that the cultural bias inherent in the institutional language of resource management forms only part of a larger pattern of state domination and cultural assimilation. Nadasdy (2003) explains that in adopting resource management thought and speak, indigenous people are, in turn, forced to accept the structures, procedures and institutions that give those concepts meaning and efficacy. Thus, as Nadasdy (2003) and Stevenson (2006: 171) reveal: "...in order to have their voices heard in co-management, Aboriginal peoples have had to think, speak, act and organize themselves differently, developing bureaucratic behaviours, relationships, approaches and institutional structures modelled after the state." As a result, indigenous peoples are put at a considerable disadvantage in their interactions with the state. The wider cultural impact has far-reaching consequences, as Stevenson (2006: 175) points out:

"The adoption of the language, concepts and procedures of ERM [environmental resource management] by Aboriginal parties to co-management, whether coerced or not, has served to disarm them in their engagement with the state by inculcating in them: 1) a belief in the rationality, objectivity and superiority of ERM practices, and the western scientific knowledge and economic reasoning that informs them, and 2) a conviction that their own ways of knowing and relating to the 'natural' world are inferior, backward and in need of significant reform (Howard 1994; Stevenson and Webb 2003)."

### **3.3 Perceptual differences pertaining to the environment**

A further consequence of resource management language imposed on indigenous participants is that it has forced them to think, speak and act towards land and animals in very different and unfamiliar ways. Natcher et al. (2005) assert that foremost among the cultural differences between members on the co-management board are the perceptual differences pertaining to the environment and associated values. Those perceptions are culturally constructed; non-indigenous and indigenous representatives perceive the environment in fundamentally different ways – one being benevolent and the other having sentient qualities. The researchers observe that both cultural partners have had considerable difficulty accepting the position of the other given the significant differences in their values and cultural experiences. Natcher et al. (2005: 245) explain: "...by failing to share a common understanding of the environment, reaching consensus on management issues has proven to be a formidable task."

It is essential that key differences between non-indigenous and indigenous people's perceptions of the environment are elucidated and understood by all parties involved in cross-cultural environmental partnerships. Such awareness must go beyond simple explanations to a deeper appreciation of the historical foundations and epistemologies underpinning worldviews. This requires a critical understanding of scientific ideology as grounded in the western intellectual tradition and defined by rational determinism

and utilitarianism. Wyatt (2008: 174) explains: “In this context, planning, management, and use of natural resources are viewed as technical activities, based on economic benefits and positivist, scientific, and rational criteria (Lane 2001).”

Dualistic thinking has contributed to a compartmentalisation of the environment and the division of knowledge into ever-more specialist domains (Šunde 2008). Reductionist approaches to resource management are exemplified by wildlife biologists and population ecologists who study ‘parts’ in the environment in isolation to each other and to the whole (i.e. the ecosystem). The rift between humans and nature widens; relationships to the environment become mediated through resource inventories, wildlife assessments, management programmes, policy initiatives and administrative procedures (Natcher et al. 2005). As Usher (1986) observed, and Stevenson (2006: 168) elaborates:

“For many state managers, it is easy for the resources they ‘manage’ to become ‘management units’, or entities of and to themselves, i.e., to appear as if they are substances or things created (and therefore manageable) outside of ecological, social/cultural, political and other realities of which they are a part (Howitt 2001: 7).”

Natcher et al. (2005) describe the ideology underpinning the environmental perceptions of the First Nations representatives on the co-management board in very different terms to those of the non-indigenous representatives. They reveal that the indigenous partner’s interactions with the environment are guided by traditional law and a moral system of reciprocity and exchange that governs each person’s conduct. Stevenson (2006) explains that relationships – not specific resources, habitats or even ecosystems – were the focus of management and the nexus around which indigenous peoples traditionally constructed their knowledge bases and implemented their ‘management systems’ and practices. Natcher et al. (2005: 245) confirm: “Rather than an overt form of environmental management, Doo’Li [traditional law of the Little Salmon Carmacks First Nation of the Yukon] is a means by which social relationships, both human and non-human, are maintained and respected.”

Most definitions misconstrue indigenous management systems by assigning them to roles in the conservation/resource management regime, i.e. as ‘conservators’, ‘stewards’ or ‘managers’ of ‘resources’ and ‘wildlife’. Stevenson (2006: 168) points out: “The idea of ‘conservation’, that restraint today will confer rewards in the future, has strong underpinnings in Puritanical and capitalist thought and tradition (Langdon 2002).” Similarly, the notion of ‘managing’ plants or animals is completely foreign to indigenous people’s traditional ways of thinking and relating to their environments. Stevenson (2006: 169) explains that while indigenous peoples traditionally manipulated their physical and social environments for desired ends, the idea of humans ‘managing’ other species was inconceivable as it could jeopardise the reciprocal relationship with all living things that indigenous peoples have been entrusted to maintain since time immemorial. He affirms Natcher and Davis’s (2005) observations that:

“...the idea of ‘managing resources’ is not only presumptuous, but ... potentially hazardous by demonstrating a sense of arrogance towards the

sentient world, (thus) rather than jeopardizing this moral exchange, First Nations members ... in many cases reject any notion of managing wildlife.”

Stevenson (2006: 169) suggests that ‘relational sustainability’ (Langdon 2002, 2003), is probably closer to what indigenous peoples attempted to manage and sustain traditionally. There is obvious convergence with the concept of holism (Smuts 1926), which regards the whole as more than the sum of its parts, and the realisation that ‘parts’ (or entities) *are* only insofar as they are understood relationally (Šunde 2008). Yet, indigenous peoples’ perceive relationships beyond material flows of energy, as studied in ecology, and include spiritual interrelationships – or what Berkes (1999) refers to as ‘sacred ecology’. Appropriate behaviour is thus guided by ethical concerns, as Roué and Nakashima (2002: 345) explain: “A principle of moral responsibility emerges from this social relationship between humans and animals, whereby humans are beholden to animals who provide them with food ... Through their undertakings, human beings must not destroy animals, not only because they are needed by present and future generations, but also on basic moral grounds.”

### **3.4 Exploring alternative models: the ‘two-row Wampum belt’**

Stevenson (2004, 2006) asserts that the concepts, terms and procedures of environmental resource management must be up for negotiation, and alternative solutions outside conventional paradigms explored. Wyatt (2008) is critical of efforts so far at constructing an indigenous model of forestry, arguing that they are limited to minor modifications and improvements to existing models of forestry. He explains that such models integrate First Nations into the existing mainstream forestry regime, rather than establish them as alternative models with “...a new form of forestry based on aboriginal values, systems, and paradigms...” (ibid.: 178). There are risks in promoting so-called ‘alternative’ models that, in fact, are covert forms of cultural assimilation: incorporating elements from one culture into another locates these elements in totally new contexts which can produce very different and unexpected outcomes (Kalland 2003). Furthermore, while they may provide a ‘mediatory interface’, they risk undermining or replacing true alternatives that have genuinely endogenous origins.

Wyatt (2008) argues strongly in favour of ‘Aboriginal forestry’ as forestry in which First Nations peoples have re-established their own institutions for managing the use of forest lands. To enable the full contributions of indigenous peoples and their knowledge systems to be realised, a ‘space’ for reinstating traditional codes of conduct and forms of governance needs to be created. Stevenson (2006) contends that this requires more than just a competent literacy in both indigenous and European knowledge systems and management practices. Moreover, he insists that critical skills are necessary to deconstruct western European epistemologies and ontologies, and to filter out what is and is not in the best interests of indigenous communities.

In offering an alternative model for co-management (Stevenson 2004, 2006) and forestry management in North America (Wyatt 2008), Stevenson (2006) refers to the ‘two-row Wampum belt’ (see Millar 1980) as an analogy that illustrates the co-existence of indigenous and scientific approaches in environmental governance. Stevenson (2004: 6) explains that the Iroquois gave the two-row wampum belt to early European settlers, and suggests that its symbolic significance has relevance for

contemporary cross-cultural relationships: “The two rows symbolize the courses on the river of life for canoes of each great nation to navigate down, each with its own laws, customs and traditions, neither trying to steer the others’ vessel.” Furthermore, he claims that the gift embodies: “...mutual respect, recognition, and partnership ... based on a nation-to-nation relationship that acknowledges the autonomy, authority, and jurisdiction of each nation.”

This ‘mid-course correction’, as Stevenson (2006) refers to it, provides a symbolic opening for the two cultures, each with their own values, knowledge, and traditions, to contribute to environmental understanding and cooperative planning, decision making, and action. Purportedly a model for co-existence, Wyatt (2008) explains that it has the potential to re-establish indigenous management systems on forest lands that complement, rather than compete with, mainstream systems. Stevenson (2004) concedes that while this concept is attractive in principle, implementing it will be difficult. It will require structures, such as co-management and other partnerships, that provide space for indigenous people’s management (Stevenson 2006; Wyatt 2008) and support more equitable relationships between First Nations and forestry managers (Natcher et al. 2005). In conclusion, Stevenson (2004: 6) implores:

“We have much to learn about developing sustainable relationships with the natural world by empowering Aboriginal peoples to rebuild and apply their systems of management, and the knowledge that informs them. But we must create the space for this to happen. We have nothing to gain, and much more to lose, by jumping into each others’ canoes.”

### **3.4 Moving beyond exclusion, inclusion and parallelism**

The exclusion of indigenous peoples and their knowledge systems, cultural values and practices in environmental management structures and decision-making processes is unacceptable. Yet, on the whole, resource managers and scientists have displayed little consideration or support for building effective cross-cultural relationships with indigenous people. This *exclusivism* has bred an attitude of intolerance and, at times, outright contempt for other cultures, their values and knowledge traditions (Panikkar 1999). This is evident in the scepticism of some scientists when faced with knowledge that cannot be proven or verified scientifically, such as indigenous people’s relationships with and knowledge of the sacred (as discussed in Part 3.5.1).

Equally untenable is the rhetoric of *inclusivism*, which may appear to be tolerant and accepting, yet is merely superficial in this regard (Panikkar 1999). While an inclusive approach to ‘integrating’ different knowledge systems purports to embrace different thought-systems, the premise is that they are subsumed within a superstructure defined by the ‘superior knowledge’ of science. Thus, the underlying attitude is essentially monistic or universalistic. This has become evident in the appropriation of traditional indigenous knowledges and the reinterpretation and assimilation of aspects of that knowledge into mainstream scientific structures, processes and practices. An intercultural approach to ‘integrating’ knowledge systems is beginning to expose and address the risks associated with this attitude to knowledge integration (as discussed in Part 3.6.3).

A number of critics (including Stevenson 2004, 2006; Nadasdy 2003, 2006; Natcher et al. 2005; Wyatt 2008, among others) have pointed out the potential pitfalls of both *exclusivism* and *inclusivism* in attempts so far at cross-cultural resource management partnerships, such as co-management. However, few critics have offered realistic alternatives or a deeper philosophical critique. The symbolism behind the two-row wampum belt (Stevenson 2006) is appealing at one level, yet on closer analysis may be considered as too simplistic. While he acknowledges different canoes (i.e. cultures and their distinct traditions) navigating the river of life, the recommendation that we avoid “jumping into each others’ canoes” denies the multiple interrelationships (some of them mutually beneficial) between cultures. Agrawal (1995) argues that theories that draw a strong dichotomy between scientific and indigenous knowledge are fraught with inherent contradictions – particularly as the diversity within each knowledge system may be just as great. Furthermore, an increasing number of individuals who claim indigenous heritage also self-identify pluralistically in relation to their multiple ethnic origins and emerging forms of intercultural identity.

The model that Stevenson (2006) put forward as an alternative way of approaching environmental partnerships between indigenous communities and scientists/resource managers may offer a number of positive advantages, such as non-judgement and non-interference in each others’ affairs. However, what is presented as a model of mutual independence and cultural preservation might be characterised more accurately by the term *parallelism* (Panikkar 1999). The major limitation of this model is that ultimately it seeks to contain or restrict growth and reform within so-called ‘cultural boundaries’, thereby eschewing the real, pressing issues that define our times. Visvanathan (in Kraak 1999) argues that anti-development rhetoric, including revivalist or romantic calls for a return to traditional solutions, are naïve and not sufficient to deal with the full political and economic onslaught of globalisation. Panikkar (1999: 8) summarises further limitations with this model:

“First of all, it seems to go against the historical experience that the different religious and human traditions of the world have usually emerged from mutual interferences, influences, and fertilizations. It too hastily assumes, furthermore, that every human tradition has in itself all the elements for further growth and development; in a word, it assumes the self-sufficiency of every tradition and seems to deny the need or convenience of mutual learning or the need to walk outside the walls of one particular human tradition – as if in every one of them the entire human experience were crystallized or condensed.”

Panikkar (1999) asserts that we must go beyond approaches that display an attitude of *exclusivism* (i.e. science as delivering the ‘absolute truth’), *inclusivism* (i.e. science embracing or assimilating all other forms of knowledge), and *parallelism* (i.e. scientific and indigenous knowledge systems operating in independent domains). An attitude of *interpenetration*, as presented by Panikkar (1999), is an open process that recognises elements of each tradition as mutually complementary: the other may challenge and enrich our own, may complement or even, in some cases, supplement my traditions. To ensure that such ‘mutual enrichment’ or ‘synthesis’ does not become simply another form of universalism, it must be guided by a frame of reference in which each cultural tradition retains a sense of its own unique identity. Stevenson (2006: 175) agrees:



“The extent to which Aboriginal peoples can retain the fundamental core values and features of their own management systems while embracing the complex, often contradictory, realities of the modern world and engagements with the state will also factor significantly in [their] success...”

### **3.6 Cross-cultural dialogue and understanding across worldviews**

This brings us to the challenge of dialogue between scientists and indigenous peoples which, in this context, must go beyond an exchange of ideas about the environment or a discussion about values and traditional practices, although these have a role to play in building trust and understanding in cross-cultural environmental relationships. Unlike meetings between resource managers/scientists and interest groups, dialogue with indigenous people is unique because it involves dialogical partners from different worldviews, i.e. their ways of knowing and approaching reality are typically radically different. The distinction is that of *pluralism* as opposed to the quantitative notion of ‘plurality’, as Panikkar (1995: 95) explains: “Pluralism goes a step further than the recognition of differences (plurality) and varieties (pluriformity). Pluralism has to do with radical *diversity*.”

Dallmayr’s (2002) exploration of ‘civilisational dialogue’ highlights the immense difficulties and challenges of dialogue across worldviews – challenges that are practical-political (as discussed in Parts 2 and 3) as well as ontological and metaphysical. Underpinning such dialogue are the dual dangers of universalism and particularism, which necessitate steering a path between “...a hegemonically imposed universalism, governed by one idiom or voice, and an array of self-enclosed, ethnocentric particularisms where no voice would be willing or able to listen to others” (ibid.: 32). The threat to cultural diversity is readily apparent, as Dallmayr (2002: 68) acknowledges: “...how is it possible to resist or counteract oppressive inequalities in the global arena – without promoting a bland homogeneity?”

The aim of cross-cultural dialogue is to reach an understanding by not ‘winning over’ or coercing the other into total agreement. Panikkar (1999: 10) insists that such dialogue must be “permanently open” in order to “...bridge gulfs of mutual ignorance and misunderstandings between the different cultures of the world, letting them speak and speak out their own insights in their own languages.” The dialogue between scientists and indigenous people, therefore, must go beyond the statutory requirement for ‘consultation’; it is not merely a dialectical inquiry, rhetorical speech or demonstrative discourse. Rather, cross-cultural dialogue can be deeply transformative: it can become a tool for social cohabitation, binding people and societies together. Thus, Mazzocchi (2006) suggests that it be based on a sense of profound hospitality because it arises from different identities and traditions, each interested in exchanging their perspectives and experiences.

Dallmayr (2002: 2) raises a critical question: “Can dialogue proceed automatically and without conditions, or does it need to be fostered and prepared in many ways?” The need to avoid roles and rules, structures and boundaries is important in ensuring that dialogue does not become mere dialectics focusing on predetermined outcomes. Rather, dialogue should remain open, yet this should not be taken for granted –

genuine openness needs to be fostered and approached carefully, with utmost humility. Therefore, preparing for dialogical interaction should include the following:

- ***Acknowledge inequalities and past suffering.*** Dialogue presupposes or requires a certain ‘civic equality’ among participants. Therefore, proponents of dialogue need to face up to the enormous inequalities and disproportions existing in the world today, including inequalities in power, wealth, and culture (including scientific and technological knowledge). This is necessary as a stepping-stone to social recovery, the rectification of grievances, and progressive democratic empowerment (Dallmayr 2002: 5-7).
- ***Dialogue cannot be abstract, but must be locale-specific.*** Genuine dialogue cannot operate on an abstractly postulated universal level or be supervised from ‘on high’ (a ‘view from nowhere’), but can only function and take wings through an initial attentiveness to the historical and geographical location of participants (ibid.: 2).
- ***Dialogue starts from pre-judgments; this requires openness.*** Participants have to proceed modestly and soberly: by taking their departure, at least initially, from their own distinct perspective or vantage point, that is, by remembering and bringing to bear their own cultural-historical ‘pre-judgments’ – while simultaneously guarding against any form of cultural or ethnic self-enclosure (ibid.: 17). According to Hans-Georg Gadamer, every dialogue has to start from the sedimented ‘pre-judgments’ of participants, pre-judgments that are meant to function not as prison walls but rather as launching pads for excursions into unfamiliar terrain.
- ***Dialogue includes questioning and the experience of being questioned.*** In Gadamer’s view of dialogue, dialoguing involves: “...not only an act of questioning but also the experience of being questioned or being ‘called into question’ – often in unsettling and disorienting ways. The openness of dialoguing means precisely the readiness of participants to allow themselves to be ‘addressed’ and challenged by the other: particularly the stranger, the different, the exile.” (Dallmayr 2002: 27)
- ***Take ‘otherness’ seriously: be patient and listen to the other.*** Martin Buber considered dialogue not merely an exchange of words but “a response of one’s whole being to the otherness of the other” (in ibid.: 3). Differences and distances must be respected, not simply ignored or talked away. “What is needed here is a patient reticence, a willingness to listen to the other – often in silence.” (ibid.: 28)
- ***Reciprocity of understanding is required.*** “It is not only up to others (‘them’) to understand ‘our’ perspective, but it is equally up to ‘us’ to grasp things from ‘their’ perspective.” (ibid.: 40)
- ***Intra-cultural dialogue.*** “The definition of an adequate relation between indigenous and scientific knowledge cannot be limited only to an *intercultural* dimension: Without an *intracultural* effort of the parties involved aiming at coming to higher levels of reflexivity leading to more clarity about the ontological foundations of their own forms of knowledge, a dialogue in equal conditions would be difficult to achieve.” (Rist and Dahdouh-Guebas 2006: 488)

- *Scientific work has to adopt a multicultural perspective.* This implies that scientists make an effort towards understanding the ‘others’ in order to open up the possibility of learning about others and ourselves, of questioning and borrowing, of connecting with them, all to the end of altering and enlarging ourselves and them (ibid.: 488).

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