

Academics as Citizens — Collaborative Applied Interdisciplinary Research in the Service of Communities*

Karim-Aly S. Kassam
and Wisdom J. Tettey

ABSTRACT – The article uses two case studies from native Dené Aboriginal communities in the Canadian boreal forest and the Alaskan Arctic, to argue that university-community partnerships are essential to applied interdisciplinary research and community development. It analyzes development research in those communities, with particular reference to human ecology and the impact of chemical pollutants, as well as the empowerment of women. Employing foundational concepts of community participation and indigenous knowledge, it outlines innovative outcomes arising from collaborative research and concludes with key lessons for universities. It suggests that universities be socially responsible, institutional citizens by participating in development initiatives; provide an enabling environment for engagement with communities; and integrate research and teaching in a way that emphasizes community benefit as the essential objective. The article also argues for a redefinition of merit criteria to reward publications that may not fit an academic genre but are useful for communities and policy makers. Finally, it emphasizes support for co-production of knowledge with indigenous communities and an acknowledgement of their proprietary rights over such knowledge.

RÉSUMÉ – À partir de l'analyse de deux collectivités locales (l'une provenant de la forêt boréale canadienne et l'autre de la zone arctique de l'Alaska), cet article démontre qu'un partenariat entre celles-ci et l'université est nécessaire pour le développement communautaire et la recherche interdisciplinaire appliquée. L'article aborde les travaux sur le développement de ces régions en insistant particulièrement sur l'écologie humaine, les répercussions des polluants chimiques et l'autonomisation des femmes. En partant des concepts fondamentaux sur le savoir local et la participation collective, l'article relève les résultats novateurs des projets exécutés en collaboration et débouche sur d'utiles conclusions pour les universités. Ces dernières devraient devenir des « citoyens institutionnels » responsables qui prennent part aux initiatives de développement, créent les conditions propices à une collaboration efficace avec les collectivités et assurent l'intégration de la recherche et de l'enseignement afin de mettre en valeur l'intérêt communautaire comme objectif essentiel. L'article propose également une redéfinition des critères de reconnaissance et de légitimation des publications qui ne correspondraient pas nécessairement aux critères universitaires, mais qui seraient utiles aux décideurs et aux collectivités. Enfin, il suggère un soutien à la coproduction du savoir avec les collectivités locales et une reconnaissance conséquente de leurs droits sur un tel savoir.

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INTRODUCTION

Universities have been involved in the lives of communities since their inception. In fact, they have thrived, intellectually and otherwise, on the activities that individual scholars and groups of academics have undertaken within communities — as researchers, resource people, consultants, and so on. It is interesting to note, however, that whereas such work has been *in* communities, most of them have not been *of* the communities. As the following discussion will show, the engagement of the university with communities has generally involved a non-reciprocal, colonial relationship in which the former has tended to appropriate material and intellectual resources from the latter; exhibited an inclination for devaluation of local knowledges and intellect, even as it exploits these resources; and left communities without much, if any, share in the rewards of such engagement, while burdening them with all the detrimental consequences. In short, university researchers have tended to take away from communities in which they are involved without giving back what they have learnt in any meaningful manner.

In response to this lopsided relationship between institutions of higher learning and the communities that provide the environment for scholarly activity, calls have been made for a paradigm shift in university-community linkages. These calls are premised on an ethos of equitable and collaborative research partnerships. Such partnerships are expected to ensure that activities that bring universities into contact with communities produce mutually beneficial outcomes. Such outcomes will be the result of processes that reflect the equal valorization of the partners' voices, as well as balanced involvement of the parties in all aspects of the interaction — from conceptualization, through design, implementation, and decisions about what to do with the research outcomes.

In the following section, we will critically evaluate the dominant paradigm of university-community exchanges and the reasons why it has elicited calls for a reorientation. This will be followed by a discussion of how the proposed shift dovetails with the literature on community participation and the use of indigenous knowledge, because of its relevance to the particular communities that are the focus of this paper. Based on these analyses, we will provide an argument to support the importance of the critical-holistic approach as the framework of choice in understanding — and promoting mutually beneficial — interactions between the academy and its partner communities. The relevance of the framework will be buttressed with empirical evidence from two case studies that benefitted from such a perspective.

The case studies are based on work that was carried out in two northern indigenous communities, as a collaborative effort among the said communities, government agencies, funding organizations, and the Theme School in Northern Planning and Development Studies at the University of Calgary. They will outline the motivations behind the projects, the nature of the relationship between the partners, the realities within which the partnership operated, and the outcomes that resulted from it, particularly in regard to the concerns expressed earlier regarding university-community partnerships. Finally, we will provide a synthesis of lessons learned and suggest ways in which collaborative undertakings between Canadian institutions of higher learning (and indeed the academy generically) and host communities can be enhanced. This will contribute not only towards avoiding the defects of the traditional paradigm, but also help to ensure that such exchanges are mutually beneficial and sustainable over the long term.

I. UNIVERSITY-COMMUNITY ENGAGEMENTS — CRITIQUES AND PARADIGM SHIFTS

A. Critique of the Traditional Paradigm

As noted above, the relationship between universities and communities has traditionally been characterized by asymmetrical manifestations of power and benefits that can be described as colonial and exploitative. Individual researchers and institutions in general have been guided in their dealings with host communities by a singular desire to meet parochially-defined institutional criteria for success. There is, at best, a subordination of the interests of the "partner" communities with which they interact. As Reardon (1998, 325) lucidly points out, scholars and their institutions have become "ambulance chasers" and "carpet baggers" who used the serious problems confronting distressed communities to secure grants that generated valuable benefits for themselves and their institutions — while providing negligible resources to community residents whose cooperation made such investigations possible." The parochial interests that have defined universities' interactions with communities stem partly from the hierarchization of research goals, knowledge production, and the distribution of benefits. This hierarchization is structured in a manner that subordinates community needs and rewards. Such insidious hierarchies produce relationships in which self-aggrandizement by "experts" leads to devaluation of host communities' participation in determining which projects should be pursued, who should be involved, how they should be carried out, how proprietary rights should be distributed, and so on. Israel et al. (1998) observe that university research projects often marginalize local communities and often deprive them of access to the results of the projects. This attitude is a far cry from Friere's belief that people have a "universal right to participate in the production of knowledge . . . [thereby making research] . . . part of a process of personal and social transformation" (Smith et al. 1997, 27). The academy, because of the aggrandizement of expertise, has failed, or been reluctant, to establish a level playing field among the various actors engaged in projects (Scammel 1999, 11).

In those cases where some community involvement has been allowed, it has tended to be marginal. These instances seem more born out of the need to fulfil granting agency requirements than based on a genuine commitment to engaging with communities as equal partners in processes to which they not only contribute immensely, but which have far-reaching implications for their daily lives (Kone et al. 2000, 246). Tokenism, rather than true participation, becomes the best scenario that communities can hope for.

The evocation of expertise as the basis for the subordinate/superordinate relationship between universities and communities is reinforced by the fact that society confers on academics a level of credibility which gives them a higher status among funding agencies. This status then translates into a presumption of superior knowledge, and hence the power to control not only the research agenda and process, but also the financial dimensions of the activity in question (Kone et al. 2000, 246). The control exercised by universities and the attendant curtailment of community participation means that the parties' goals may not dovetail with each other and may, in fact, conflict. In these instances, the universities' priorities tend to take precedence, thus exploiting the "partnership" for their own narrow interests without taking into account the repercussions for the community (Thompson et al. 1999, 5).

Universities have also benefitted from community-related activities without extending commensurate recompense in the area of proprietary rights over knowledge that is arguably co-produced with communities. Some academics and institutions take all the credit for research results and whatever recognition accrues from projects, without as much as acknowledging the role that host

communities played in the process. Furthermore, they vest intellectual property rights exclusively in themselves, thereby denying communities the opportunity to have a share or say in whatever benefits derive from those rights. It is in light of this exploitation of local/indigenous knowledge and the inequitable distribution of proprietary rights over the outcome of university-community interventions that Kassam and Graham (1999, 193) make the following observation in the context of land-use mapping in Canadian Aboriginal communities: "Since the provenance of any traditional land use map is Aboriginal knowledge, the map's copyright and ownership have to rest with the Aboriginal community, to be used as community members see fit. To do otherwise . . . is unethical." Giving the communities an equitable role in the intervention process and its outcome means democratizing these facets of university-community engagement and legitimizing the indigenous knowledges that emanate from communities. Some academics are, however, uncomfortable ceding their place in a hierarchical structure of knowledge production by validating forms of knowledge that have traditionally been considered second rate as well as those who hold that knowledge.

The history of university-community linkages reveals another shortcoming. It is the tendency on the part of institutions to operate a schedule of development interventions that is short-term and expedient for their immediate goals (Seifer 2000, 34). Not much consideration, let alone commitment, is given to building sustainable linkages and networks that enable the partnership to survive the funding cycle or meet the long-term developmental goals of the community. However, as Citrin (2001, 74) argues in the context of the Community-Based Public Health program (a community-university partnership in Michigan), true "community partnerships are not temporary, ad hoc relationships dependent upon an individual grant, but are long-term investments made by each of the partners for their mutual and continuing benefit."

Universities' activities within communities exhibit another worrisome pattern: This involves a proclivity towards using the output of their community engagements mainly for those purposes that are valued within the academy, particularly publications. The use of such output to directly uplift marginalized groups and for empowering communities does not feature prominently on the academy's agenda. This disposition sometimes flows from the fact that "university academics [assume] a pose of scientific objectivity; the creation of new knowledge, not reform or activism, [is] their vocation" (Mayfield et al. 1999, 865). This attitude affects the way universities view intellectual activism and, thus, the evaluation of academic performance. Those whose work may directly benefit communities but does not find visibility in refereed publications are not accorded recognition by their colleagues and are, in fact, penalized for not meeting their institutions' standards of academic excellence. Lynn (2000, 650) echoes the lament of many researchers who "have found that their home institutions and their professional peers and journals do not often value collaborations with community groups" (Israel et al. 1998). Consequently, a lot of academics, particularly junior and non-tenured faculty, are reluctant to participate in collaborative projects that may have positive impacts on communities but will not meet the criteria for career advancement (Krentziger et al. 1999, 833-4, 837). In sum,

The reward system of universities discourages collaboration, and community members have to make time and even monetary sacrifices to collaborate in research, whereas academics get rewards. And in many institutions, community research/organizing is still seen as a kind of "community housework" that is not socially valued, and thus, does not receive much attention (Stoecker 1999, 843).

True partnership is based on mutual trust. Unfortunately, the record of most university-community interactions has been such as to erode any trust that may have existed originally. Communities

have consistently expressed skepticism towards universities' motives, based on disappointment at the outcomes of interventions. As noted by one community member, "we have students and reporters coming through all the time, asking neighborhood people to give their time and answer questions. And we don't get so much as a copy of a paper from them" (Stoecker 1999, 840).

B. Responses to the Traditional Paradigm

There is an increasing recognition of the historically unjust relationship between universities and communities, and this has elicited calls for a paradigm shift in the whole relationship. Among the most important advocates of this change are communities themselves. Some have put in place mechanisms to ensure that their people are not exploited by academic activities that affect them. In New York, for example, the Mohawk nation of Akwesasne, has established a Research Advisory Task Force, which is charged with responsibility for evaluating all scientific or environmental research carried out in the area. The rationale for the task force is to ensure that such research is "culturally sensitive and relevant to the participants and the community . . . [and] . . . give the people of Akwesasne an opportunity to be involved in decision making procedures and empower those involved through education, training and or authorship" (Lynn 2000, 652). Similarly, research carried out in indigenous communities in the Northwest and Nunavut Territories of Canada requires a licence from the respective territorial government. One of the criteria for issuing the licence is consultation with, and the consent of, local community institutions (Aurora Research Institute 1998).

The pressure for change has found resonance among funding agencies, which now require applicants to demonstrate the relevance of their research to the communities in which they are carried out and emphasize that provisions for community partnerships will enhance the success of grant applications. The tricouncil of Canadian research funding agencies (the Social Science and Humanities Research Council, the National Science and Engineering Research Council, and the Canadian Institute for Health Research) emphasizes the importance of these criteria for the success of applications. The Tri-Council's ethics guidelines for research into human subjects also address some concerns regarding the way research is conducted and what happens to the output of that research. In the United States, the National Institute for Environmental Health Sciences, for example, has emphatically "stipulated . . . that some of its large research center grants include projects that 'demonstrate a specific, existing linkage to a community-based organization and specific involvement of community members in the development, conduct and interpretation of the research'" (Lynn 2000, 649).

Academics are also contributing to the redefinition of university-community linkages in the form of copious literature on community participation and indigenous knowledge systems. A common thread in this literature is participatory models that call for academic projects to involve community members in project teams and acknowledge community contributions. Kone et al. (2000) opine that effective partnerships need not only the active participation of the community, but also a sense of ownership and control over the intervention. As noted above, academics have historically gained rewards for their work in communities without a corresponding benefit to those in the communities who have given of their time and other resources. Within the context of the proposed paradigm shift, therefore, academics and their institutions are being urged to enhance the capacity of their host communities by recruiting from within them and training those recruited in ways that leave them with useful skills. Nyden et al. (1997, 4) provide a succinct rendition of the core elements of this paradigm shift when they state, among other things: "Academics and non-academics work together in identifying the research issues, developing the research design, collecting the data, analyzing the data, writing up results, and even working with policy makers and practitioners in designing programs

and policies." Evidence from projects that incorporate these elements shows positive impacts, such as better-designed instruments, higher response rates, and new insightful findings (see Eng and Young 1992; Lynn 2000).

Straus (1999) suggests that in order for true partnership to exist between communities and their counterparts in universities, a core requirement will be a reconceptualization of the temporality of the relationship. Relationships have to be cultivated prior to the commencement of particular projects or the reception of grants. Under such circumstances, a foundation of social capital is laid, involving trust and mutual understanding of community and university needs and expectations. Furthermore, the academics' appreciations of the intricate socio-political sinews of the community will be enhanced in ways that help them to approach the collaborative endeavor effectively, appropriately, and sensitively. After all, universities should not be seeking knowledge for its own sake. They should be applying it for the empowerment of communities and marginalized groups within them (Kassam and Graham 1999).

C. The Critical-Holistic Paradigm

On the basis of the preceding discussion, we decided to adopt Wright's (2000) critical-holistic paradigm as the lens through which to view our case studies. It provides an analytical tool that helps us understand the complexities of the partnership that was forged with the relevant communities and parties, as well as offer a policy framework for designing interventions that involve not only university-community partnerships, but other collaborative efforts in the context of development.

The critical-holistic paradigm has as its basis a dialectical framework, which allows us to understand the various socio-economic and political factors that shape the nature of the relationships between communities and external agents, as well as within the communities themselves. The critical component of this fused paradigm, which draws on critical theory, allows us to analyze relations of exploitation, domination, and suppression as they affect the interests and influences of the partners. It also incorporates an examination of the dialectical forces that determine potentials for community empowerment in the context of the relationship. The holistic strand in the paradigm flows from the premise that the nature of projects, and relationships of inclusion and exclusion, as well as their outcomes, can only be fully appreciated if we see them as products of a multidimensional process. This process involves interactions among the economic, social, political, and cultural milieux in which the activities take place. It is particularly apposite in the context of the indigenous communities covered by our case studies, because they share the holistic view of development being advocated here (Wright 2000).

The critical-holistic paradigm also incorporates elements of the participatory approaches discussed above, in order to raise the consciousness of communities, get them to discuss and define their problems, and take action to deal with them on their own and in collaboration with others. Finally, the efficacy of the paradigm in promoting university-community relations in a low-income Brazilian community as well as in Washington, DC (Wright 2000, 823) brings credibility to it as a useful approach to understanding the issues covered by this paper.

II. TWO CASE STUDIES¹

A. Case 1: Human Ecology Project with the Iñupiat of Wainwright, Alaska

Human ecology describes the relationships between people and their habitat. It includes the relations between humans and other animals, plants, and their habitats. *The Human Ecology and the Impact of Chemical Pollutants on Arctic Marine Communities Project*, of which this case study is a part, is a collaborative Canada/US research initiative. In consonance with the holistic strand of the critical-holistic paradigm, our objective was to understand the nature of human-habitat relationships in order to determine the impact of chemical pollutants diffused via marine pathways. The partner communities are Holman, Northwest Territories, Canada, on the western extent of Victoria Island in the Beaufort Sea; Wainwright, Alaska, USA, located on Alaska's north slope within the US National Petroleum Reserve; and Novoe Chaplino, Russia, located in a highly-militarized zone on the Chukotka Peninsula. The project involved semi-structured interviews and visual mapping of harvested food resources to examine the impact of chemical pollutants on the human ecology of the three indigenous arctic marine communities whose livelihoods and food sources depend on marine resources. The project team consisted of researchers from the University of Alaska, the Alaska North Slope Borough Department of Wildlife Management, Environment Canada, and the Theme School in Northern Planning and Development Studies of the Faculty of Communication and Culture at the University of Calgary. Nine undergraduate and graduate students also participated in the project. A fundamental feature of this research is building capacity within the community. The team thus forged partnership agreements with indigenous community organizations in the three study areas. Consequently, a total of ten community members were trained to collect scientific information in the form of plant and animal tissue samples, and indigenous knowledge in the form of traditional land and marine use data.

For the purposes of this article we will focus on research carried out in partnership with the Iñupiat community of Wainwright, Alaska. Wainwright, Alaska (70°59' N, 160°07' W), is located 136 km southwest of Barrow, Alaska, on the Chukchi Sea. The community lies 480 km north of the Arctic Circle and is inhabited by a mix of *Kuugmiut*, "people of the Kuk River," and *Utuqqa'miut*, "people of the Utuqqaq River." Both groups are Iñupiat (Braund et al. 1993, 13). Wainwright, originally known as *Ulguniq* by the Iñupiat, is one of seven communities belonging to the North Slope Borough, which acts as the political subdivision or municipal government for northern Alaska (Albert 1988, 18; Bodfish 1991, 32). The population of Wainwright is approximately 550 residents, with close to 91 families (DCED 1999).

B. Case 2: Women's Empowerment Project with the Dene Women of Hay River, Northwest Territories

The Empowerment of Women: The Role of Indigenous Women in Forestry Development is a collaborative project between the Women's Studies Centre at the Department of Sociology, University of

1. The information documented here is derived from two publications, *Passing on the Knowledge: Mapping Human Ecology in Wainwright, Alaska* (Kassam and Wainwright Traditional Council 2001) and *So That Our Voices Are Heard: Forest Use and the Changing Gender Roles of Dene Women in Hay River, Northwest Territories* (Kassam and Soaring Eagle Friendship Centre 2001), which served as reports of research results to the community members and community institutions who participated in the projects. As a part of the research partnership process, no peer-reviewed academic publication could be produced without first sharing the research results with the communities that participated in the research. This paper is the first so-called "academic product" of the two research projects described below.

Mysore, India and the Theme School in Northern Planning and Development Studies, University of Calgary. It examined the changing gender roles of indigenous women in two forest communities in India and Canada. The aim of the research project is to derive concrete outputs that will have practical application in policy and practice for women's participation in forestry activities in the two countries. Consequently, mapping of the traditional and current forest use practices has been utilized for the development of sustainable income-generating activities for Kunbi women in Karnataka, India, and Dene women in Hay River, Canada. A total of four community researchers were trained in both communities, and validation of research has been completed and published. Twelve graduate and undergraduate students have participated in research activities involving this project.

For the purposes of our discussion, we will focus on the Hay River project. Hay River (60°49' N, 115°47' W) is located in the Subarctic region of the Northwest Territories, on the south shore of Great Slave Lake near the mouth of the Hay River. This relatively remote region is at the northern edge of the boreal forest, which is characterized by dense, low-lying woodland, permafrost, bogs, and glacial deposits. The Hay River divides the community geographically. The majority of the 3400 inhabitants live in the town spread along the west bank of the river, while the Hay River Reserve is situated on the east bank. The town was moved to its current site from the old Dene village at the river mouth on the opposite bank in 1963, by federal government decree, following extensive flooding on both sides of the river. The reserve was established by the Hay River Dene Band (South Slavey Dene) in the mid-1970s. The Hay River Dene Band has approximately 400 members, and of these just over 260 live on the reserve. Hay River is accessible by road and has a number of federal, territorial, municipal, and reserve services. It has a growing business sector encouraged by the development of resource-based industries, physical infrastructure, and government services.

The specific objectives of this research project, which was conducted in collaboration with the Soaring Eagle Friendship Centre in Hay River, were to examine traditional roles of indigenous women; to investigate the current participation of women in forest use activities; to assess the roles of women in the control and use of forest resources; to identify women's practical and strategic needs; and to make concrete and practical recommendations to meet these needs (Kassam and Soaring Eagle Friendship Centre 2001).

C. Guiding Concepts: Community Participation and Indigenous Knowledge

As indicated earlier in the discussion of the critical-holistic paradigm, the projects covered by these two case studies employed an integrated framework that encompassed community participation, as well as the incorporation and validation of indigenous knowledge. The framework then provided the basis for traditional land and marine use mapping. In the ensuing discussion, we will demonstrate how and why the core elements of the paradigm were employed to achieve project goals.

Community participation is the foundation underlying all the other concepts in the critical holistic paradigm and, therefore, is fundamental to understanding the aims of the Human Ecology and Women's Empowerment projects. In essence, community participation is the axis from which the other concepts branch. There are obvious benefits to employing a community participation orientation in the human ecology and women's empowerment projects. First, it facilitated the gathering of information on human ecology — that is, the relationship the Dene women have with the forest in Hay River and that between the Inupiat in Wainwright and the wildlife species they harvest. Second, it enabled effective use of local resources with the support of the research partner organization, which coordinated the research process, helped set the research priorities, recommended qualified trainees as potential community researchers, identified community members who may be

interviewed, and provided the organizational infrastructure to carry out the research. Third, it ensured that short-term benefits accrued to the community through honoraria for community researchers as well as proceeds from food purchases and accommodation by visiting research team members. Research results are also being applied to the benefit of the communities. Fourth, it has helped build institutional capacity within the partner organizations through management of a major research initiative. It has also assisted with individual capacity building by facilitating the training of community researchers in various research skills such as interviewing and mapping. Finally, it has promoted empowerment, by placing control of the knowledge collected securely in the hands of the community (Bamberger 1988; Chambers 1991; Kassam and Graham 1999). The community organizations, in this case the Wainwright Traditional Council and the Soaring Eagle Friendship Centre, jointly own and are responsible for application of the research results.

The holistic dimension of the critical-holistic paradigm allows us to explore the multiple facets of the communities' lives and how they intersect to create particular knowledges and world views that are specific to their milieu. These indigenous knowledges are the fundamental contribution by the community to the Human Ecology and Women's Empowerment projects, thereby constituting the basis for the research collaboration. In its essence, indigenous knowledge is about insights gained from the experience of living within a specific context. It reflects the cosmologies of these groups of people and is intimately linked to the spiritual and ethical fabric that manifests itself in their day-to-day practices (Agrawal 1995; Battiste and Henderson 2000; Ellen and Harris 2000; Johnson 1992; Kalland 2000; Kassam and Maher 2000; Sillitoe 1998; Stevenson 1996; and Warren et al. 1995).

Based on our research collaboration, it is clear that neither the knowledge nor its holders are homogeneous. From a critical-holistic perspective, it can be argued that indigenous knowledge, like many knowledge systems, is sufficiently complex that it does not lend itself to terse and easy characterizations. The degree to which an individual within a group may hold this knowledge varies with age, gender, social class, and even interest in the subject. Appreciating these multiple dimensions of the communities' existence through respect for the knowledges that emanate from them is crucial to any feasible intervention that can result from university-community collaboration of the types covered by the case studies.

Traditional land and marine use maps represent the interconnected cultural and physical elements of the indigenous world view, laid out and given spatial, temporal, and representational form within a topographic map. Traditional land and marine use maps portray the relationships between people, their communities, and the surrounding and supporting biotic and abiotic systems by providing a graphic representation of how indigenous people within a specific geographic region utilize resources derived from the land and sea. The themes of these maps may be broad, depicting ethnographic, historical, and current information on land and marine use patterns. They may also represent specific ecological knowledge by providing information on hunting, fishing, herding, trapping, the utilization of plant species, forestry practices, wildlife migration patterns, and locations of sacred sites, all of which remain of socio-cultural significance and economic importance to contemporary indigenous communities (Kassam and Graham 1999; Kassam and Maher 2000).

While incorporating conventions used within modern cartographic productions, they do not rely for their accuracy or authority on appeals to scientific, cartographic standards. Their legitimacy, rather, is derived from the lived experiences and accumulated knowledge of the indigenous peoples who participate in their creation. They rely significantly on personal narratives and oral histories in their construction. Firmly embedded within these narratives is the thread of lived experience and the wisdom derived from the practice of living from the sea and land (Berger 1977; Brody 1998; Freeman 1976a, 1976b, 1979; Riewe 1992; Robinson et al. 1994; Robinson and Kassam 1998).

The two research projects utilized topographical maps of the Hay River and Wainwright. Mapping, combined with interviews, has a whole range of benefits. First, participatory mapping is a group activity. Second, it takes attention away from an individual's gender, ethnicity, or social class and places it on the issue or topic at hand. The participant is not judged; instead, what has been placed on the map is considered for its relevance and value. Participants focus on common interests. Third, participatory mapping removes control from the outsider and places it within the community that holds the indigenous knowledge. The researcher acts as a catalyst to begin the process and then steps back to let the community participate. Fourth, it enables the marginalized members of a community (possibly women, children, elders, or the handicapped) to participate without having to speak up in a public forum. Fifth, there is room for a diversity of views and overlapping of ideas as different aspects of indigenous knowledge are brought to light. Sixth, the process enables validation and cross-checking of information. Seventh, the maps are portable. They can be taken to various locations in a community for discussion in small groups, or brought to community members who are unable to leave their homes for medical or other cultural reasons and returned with detailed and specific information (Chambers 1997; Kassam and Graham 1999).

III. PARTNERSHIP IN RESEARCH

A. Partnership Formation

A partnership for a research initiative is formed between individuals and sustained through institutions. Institutions provide the organizational infrastructure that enables the research to be carried out effectively. The steps in partnership formation are first, to identify a community and a credible organization within this community with which to establish a partnership; second, to have a dialogue with the community organization on our objectives and research methods; third, to have an open meeting with community members to explain project objectives and scope; and finally, to establish an equal partnership between the research team and the community institution (Kassam and Soaring Eagle Friendship Centre 2001; Kassam and Wainwright Traditional Council 2001).

In order to identify potential communities to work with, we undertook several secondary literature reviews of various communities. These were discussed by the research team consisting of social and natural scientists. In addition, we sought advice from leaders of regional aboriginal organizations representing indigenous communities. This required that we have or establish contacts and visit these organizations. This was challenging for our research budget but was achieved through funding from governmental institutions that provided accommodation and other support. The Arctic Research Facility at the National Arctic Research Laboratory in Barrow, Alaska, provided considerable assistance and was a base of operations in the North Slope of Alaska. In other instances, we lived at homes of friends and colleagues and relied entirely upon their generosity.

The process of identifying community and other relevant organizations was time consuming but, ultimately, very valuable to a healthy and flourishing partnership. In the case of the Human Ecology project in Wainwright, Alaska, we met in Barrow, Alaska, for several days with Inupiat leaders to discuss potential partner communities. With the advice of the Arctic Slope Native Association located in Barrow, Alaska, and its introduction of our research team to the Wainwright Traditional Council, the first step of identifying a community and a credible local organization was achieved. Similarly, the Dene Cultural Institute located in Hay River, Northwest Territories, provided guidance in the choice of a community and an organization to work with.

In addition to regional community organizations providing an introduction to the local community institution, meetings were arranged with the selected local bodies to discuss expected outcomes.

The research philosophy of community participation was also articulated clearly and in a language that avoided academic jargon. This approach was essential to securing the partnerships in our two cases. Our case was helped by a focus on issues of practical relevance to the communities with regard to the impact of chemical pollutants and the needs of women. Furthermore, an established reputation of service to, and relevant research production for, indigenous communities on the part of some research team members helped demonstrate the team's dedication to the methodology of community participation (Robinson and Kassam 1998). This brought credibility, and hence community support, to the projects.

The research team established general guidelines for identification of a community to partner with. This was necessary in order to ensure an efficacious relationship. These guidelines included the following:

1. The community must have a strong local institution with whom we could engage in a partnership.
2. The community institution must have similar research concerns to those of our research team and may expand the research agenda to suit its needs.
3. The community must be accessible by regular transportation networks, making travel possible within the limits of the project budget.
4. The community must be noted for its social stability, to facilitate a partnership with the community on the basis of our common research concerns.
5. There should be potential for a long-term collaborative relationship with community organizations.

In our two cases, institutional infrastructure at the university was key in terms of managing finances as well as providing the facilities needed to tap into a wide variety of resources. For instance, even though funding for the Women's Empowerment Project was delayed for over a year, the support of the executive director of the Arctic Institute, Michael Robinson, enabled us to engage in the partnership search, through deficit financing. This support also allowed us to pay a modest allowance to our graduate and undergraduate students. In our experience, it is indisputable that a supportive institutional infrastructure, both at the community and the university levels, is essential to sustainable research partnerships.

B. Preparation

Community researchers were key members of the project team. They facilitated cultural understanding and trust between the visiting researchers and the community. Community researchers also helped define which questions were appropriate to ask in the community, and they conducted interviews. Effective community researchers were respected members of the community, capable of undertaking interviews and engaging in friendly discussion. They had to be familiar with the culture (or cultures) of the community and have practical knowledge of the subsistence lifestyle. They needed both a working understanding of the local language(s) and fluency in reading and writing English. They also had to be able to work flexible hours and help to develop the interview questions.

The research team developed a training framework, with practical exercises for each of the projects. The training was a two-way process: the university team learned and sought advice from the community researchers and, in turn, the visiting researchers imparted specific qualitative skills. The training sessions forged strong working relationships between community researchers and our researchers.

Two copies of maps were prepared for each community, one for the community partner and one for the researchers. The researchers' map is held in trust so that a new map may be made in case

the community copy is damaged or destroyed. Furthermore, permission was obtained from the community members interviewed to use the maps for educational purposes, thereby establishing strong connections between the research projects and the university's curriculum.

In the context of community-based research, creative arrangements had to be made to facilitate the collaborative process. In the Women's Empowerment project, for example, the research was going to be carried out in both the reserve and the town. It was, therefore, decided, based on sound advice from the Dene Cultural Institute and the Soaring Eagle Friendship Centre, that the benefits from living expenses of the project team should be equally divided between the town and the reserve. Furthermore, it was decided that the presence of the lead investigator's wife and children during the project would contribute toward establishing a sense of trust and facilitate access to women that could participate in the research work. The researcher would be perceived not as a displaced individual intruding within the community, but as a man with a family seeking to work with community members. University- and community-based engagements inevitably extend beyond the boundaries of professional lives as relationships in communities are more personalized than academic committees or classroom lectures. When in the community, both the students and their teachers lived in an extended family structure of sorts.

C. Research — Interviewing and Mapping

This is the stage where our projects took on a life of their own, as both research partners were now entirely dependent on the response of community members to participate and to share their insights and knowledge. In the Human Ecology project 50 interviews were conducted, and in the Women's Empowerment project 40 interviews were undertaken. While we had developed an initial list of interviewees, often one interview led to another, based on recommendation. The community researchers played a key role in facilitating this process. All interviewees signed a consent form giving permission to use their information for the specific purposes of each of the research projects and for educational use. The consent to be interviewed was completely up to the participating community members, and they did not request or receive any remuneration for their time and efforts. In the Human Ecology project, we did receive a request from the community leadership of Novoe Chaplino to receive remuneration for the interviewees. We consulted with our project partners in Holman, Northwest Territories and in Wainwright, Alaska, whose boards unanimously agreed to make the exception for Novoe Chaplino, given the financial condition in the Russian Arctic. With hindsight, we recognize that while community participation is in itself a core value, reasonable remuneration for interviewees can be appropriate. It will, therefore, be a budget item in our future grant applications.

D. Validation

On behalf of the project partners, we made a commitment to return to the community to validate all the information after completing our analysis of the interviews. The validation meeting with the partner organization marks a key milestone in the university-community engagement. It illustrates the contribution made by community members as well as recognizes the value of the knowledge shared by them.

Much is made in universities about peer review of scholarly works, and the concept has tremendous merit, for it seeks to enhance the quality of the information and knowledge being put forward by critical reflection and questioning. A fundamental feature of the process is that those undertaking the review are knowledgeable in the field that is being reviewed. For us, therefore, the validation process

was a peer review of our analysis of the research results derived from the maps and interviews. Our partner organization and community members constituted the knowledgeable experts who could judge the information we collected. They were going to be the users and beneficiaries of this information, not just the local experts of indigenous knowledge.

For instance, in the Women's Empowerment project, we held two sessions to validate the information, from 2:00 to 5:00 p.m. and from 7:00 to 9:15 p.m. The two sessions allowed women to choose a time to participate according to their work and home responsibilities. Children were welcome to attend with their mothers, and childcare facilities were provided at the Friendship Centre. Transportation was also offered to those who required assistance in coming to the validation meeting. The Soaring Eagle Friendship Centre advertized the event on the *Green Screen*, a local television channel that lists community events, and every participant received a telephone call from the Friendship Centre staff as a reminder. The research results were collectively reviewed, as women made specific changes and, together, discussed the accuracy of the information and analysis. Furthermore, the validation meeting provided the stage for deliberating on the next steps of these collaborative projects — that is, deciding on recommendations for action, publication, and dissemination of research results.

E. Action

A key aspect of taking meaningful action has been to share research results. In our two case studies, each participant received a copy of the maps and analyses that were published in accessible language, devoid of academic jargon, and reflecting the information and insights shared and validated by community members. The intellectual property rights firmly rest with the people from whom this information and knowledge were obtained. Each participant is featured in the preliminary pages by name and picture, thereby acknowledging their contribution to the research project. The two publications that resulted from the projects are *Passing on the Knowledge: Mapping Human Ecology in Wainwright, Alaska* (Kassam and Wainwright Traditional Council 2001) and *So That Our Voices Are Heard: Forest Use and the Changing Gender Roles of Dene Women in Hay River, Northwest Territories* (Kassam and Soaring Eagle Friendship Centre 2001).

At the launch of these publications, community members made poignant remarks regarding the value of this collaborative effort. For example, in Wainwright, when the name of an elderly hunter who had passed away was announced, a moment of silence was observed. His family members and community leaders expressed their gratitude for having his insights included in the book and thereby preserving an aspect of the indigenous knowledge of the community. In Hay River, as well, many women repeatedly observed that whilst they had been part of studies in the past, they had never heard of the outcomes, let alone received a publication acknowledging their contribution. The number of women making this observation was disturbing as it reflected the women's negative perception of previous university researchers. In February 2002, the Women's Empowerment project was formally acknowledged in the Legislature of the Northwest Territories and the Soaring Eagle Friendship Centre arranged to have the publication given to each member of the Legislative Assembly (Northwest Territories 2002).

The two research projects have been the first step towards purposeful action and empowerment. The community partners and the university research teams are at a new phase in their relationship. The university partner must now transform from being a research partner to an activist development partner in order to empower the community organization. The interest of the university partner must necessarily become secondary to that of the community's needs, as

identified and expressed through the research. We are now in the midst of articulating our new role as community development partners. Whatever steps are taken for action in Hay River or Wainwright, the local institutions and community members themselves will be the key players in this process.

IV. RESEARCH OUTCOMES

A. Fostering Trusting and Lasting Partnerships

Generally, the intended outcomes for the Human Ecology and Women's Empowerment research were met not just in terms of a concrete research product but an established partnership that survived institutional realignments and career changes among both partner institutions. Furthermore, a mode of operation and a common vocabulary of purpose and trust have been established at both the individual and institutional levels. In the Human Ecology project, we felt it was essential that leaders of our community partner institutions meet with us in homes and in our places of work as we had done in the communities. They met with students and fellow professors as we undertook a workshop at the University of Calgary. Our team received support from the university's special project fund and the Faculty of Communication and Culture for this event. It must be pointed out, however, that institutional commitment may not always be strong because the university is a large bureaucratic institution and several encumbrances could hamper relations unless concerted efforts are made to address them.

Because climatic changes in sea ice conditions are potentially dangerous to subsistence harvesting activities in Wainwright, Human Ecology research became the impetus for another joint research project between the Traditional Council of Wainwright and our research team. Research on community knowledge of climate change was initiated in June 2000, when the two groups met to validate the Human Ecology research data. In this instance, we applied the lessons acquired from our previous project by budgeting for paid informants in a new grant application. In keeping with the principle of partnership, our project partner, the Wainwright Traditional Council, suggested that they contribute half. Each interviewee received \$US40. The administration of payments and finances was undertaken by the Traditional Council. As we had already built capacity in terms of research skills, the same community researchers participated in our joint project.

B. Promoting Community Development

The Women's Empowerment project has achieved what it set out to accomplish — that is, to understand the changing gender roles of indigenous women within a boreal forest community and to make meaningful recommendations based on an informed understanding of women's needs. Priorities for further action were:

1. Holding a regular event to honour young women in order to draw attention to their contributions and raise their profile in the community;
2. Establishing childcare infrastructure (such as a building, equipment, and locally-trained personnel to run a community childcare centre) to ease the burden on women;
3. Educating young boys to respect women; this is perhaps the most strategic and profitable investment in the long run, as mothers are the primary educators of the next generation, irrespective of gender;
4. Transmitting cultural and traditional knowledge in the form of historical narratives that honour the contributions of both Dene men and women; and

5. Establishing a women's craft cooperative as an important first economic initiative from which other business ventures could emerge.

This research also indicated other areas of research that could be carried out with the participation of the people of Hay River. These include compiling oral histories and narratives of elderly Dene men and women who are the guardians of indigenous knowledge and have lived through, and participated in, times of great change; examining the changing gender roles of men; and developing sustainable microeconomic initiatives for women.

C. Cross-Cultural Communication

The most difficult task of a participatory research project is the establishment of a common vocabulary so as to communicate concerns, interests, and questions. The effort put into collectively documenting the animal and plant species, outlining the sacred sites, designing icons with the support of local artists, and mapping are examples of a meticulous commitment by both project partners to develop appropriate symbols to establish a common vocabulary for mutual understanding.

For example, in the Human Ecology project, the university research team and community partner agreed upon Iñupiat, scientific, and common English names of plants and animals that correspond to the icons representing plants and animals harvested within the community. This created a basis from which the scientists could apply their knowledge and experience to explain the significance and importance of the research, and describe complex notions such as bioaccumulation of pollutants in specific animals. Such discussion and dialogue between scientists and community members establishes the basis for collecting, testing, and analyzing samples. Community members then undertake the collection of samples, knowing precisely what species and specific parts of plants and animals are required by the field sciences. Having collected and analyzed these samples, the field scientist is then able to communicate the results back to the community. Together, both the university team and community institutions then apply the knowledge they have collectively assembled.

The aim of the construction of the traditional land and marine use map is, therefore, not simply to create a shared metaphor that represents indigenous knowledge onto the topographical map, but also to correlate these signs and symbols in order to convey this assemblage to a wider audience. The consensus facilitates communication between community members, between our research team and the community, and ultimately with those outside the project partnership such as policy makers, other scientists, diverse communities, and students. While the original intent of the human ecology research has been to trace the impact of chemical pollutants by marine pathways, the community is also able to use the traditional land and marine use maps to illustrate their traditional rights and the impact of resource development on their subsistence harvesting lifestyle. This is particularly significant as corporate and government forces unite to exploit oil reserves in northwest Alaska.

D. Experiential Learning

Students are not just consumers of information but producers of insight. Since its inception, students in the Theme School in Northern Planning and Development Studies programme are not only expected to undertake classroom learning but to apply their knowledge as contributing citizens to the practical needs of communities and their organizations. Over 21 undergraduate and graduate students were involved in the Human Ecology and Women's Empowerment projects and countless others have learned about the projects indirectly. The two projects inform the core of a number of Development,

Canadian, and Northern Studies courses at the second-year university level. Furthermore, in the Fall 2000 semester, at the request of the Dean of the Faculty of Environmental Design (graduate faculty), a course was set up just on the Women's Empowerment project to explore issues between economic change, gender analysis, indigenous knowledge, and community development.

E. Intergenerational Transfer of Knowledge

In the long run, the lasting impact of the research undertaken in these projects is the intergenerational transfer of knowledge. All of the indigenous communities involved in the research have identified this as an important outcome of the partnership. For instance, in the Iñupiat community of Wainwright, Alaska, the information derived from the research is going to be used as teaching material for young Iñupiat students. In fact, the use of school facilities in Wainwright during the project was contingent upon the use of research products by the North Slope Borough School District. The president of the Wainwright Traditional Council, June Childress, in her foreword to *Passing on the Knowledge*, the publication containing the research results, notes:

Passing on the Knowledge is a tool for communicating knowledge between generations. I hope that it will create a desire among young people to write down the knowledge they get from their elders. This report is a model that young people can use to write their own family histories. I hope the maps and analysis will be used not only for this research project, but in the schools and by community members as well (Kassam and Wainwright Traditional Council 2001, ii).

The publications geared to the communities with the analysis and maps provide not only access to the knowledge of their ancestors, but also an impetus for a younger generation of indigenous people to interpret and reinterpret this knowledge and to make their own contribution to this growing body of knowledge. In our opinion, a fundamental role of universities is to act as conduits for the retention of memory and flow of knowledge across generations. This gives the institution a sentient organic quality — not just a self-aware repository of historically-accumulated insight, but a conscious storehouse that puts this collected wisdom to purposeful use and action.

CONCLUSIONS AND LESSONS FOR UNIVERSITIES

Application of the critical element in the critical-holistic paradigm shows that the claims of some academics to objectivity are erroneous. Universities are, in fact, implicated in the politics of communities in which they exist or work, through their explicit or implicit acts of commission or omission, and the consequences that they engender (Mayfield et al. 1999, 867). It therefore behooves institutions of higher learning to take a clear stance vis-à-vis the deprived of society. There is the need for them to become responsible institutional citizens. This requires that they commit to enhancing the lot of the peripheralized elements in societies, and demonstrate concrete action in that regard. This is necessary, even if it means rupturing the pretence of objectivity that the "ivory tower" confers, or upsetting the forces that benefit from the silences and inaction of universities, including their benefactors.

By embarking on political projects that promote the cause of development and allow for the integration of a social justice ethos into research and teaching programs, the universities will be contributing towards building socially-responsible and better informed epistemic communities

within the academy. This is the basis of the two case studies discussed above. Such an orientation also underlies two community-university initiatives in Chicago. These are the University of Illinois at Chicago's Neighborhood Initiative and the Policy Research Action Group, a consortium of four universities working in concert with community groups. One commendable feature of the programs is that the university partner

does not view its involvement as either charity or public relations, although charitable service is done, and hopefully, good press comes from its involvement; rather, it sees the project as integrally related to informing the university's research and teaching while benefiting the community (Mayfield et al. 1999, 872).

It is important, therefore, that universities provide the necessary infrastructure and environment to support such community engagements. As noted in the case studies, the support of some senior administrators and university units was crucial to the survival of the projects during certain trying moments when funding was not forthcoming.

A supportive environment also allowed the participants in the Human Ecology project to transpose themselves into the world of the academics, thereby breaking down the myth of the university and the intimidating atmosphere associated with it. The result was a constriction, if not elimination, of the hierarchies that such perceptions engender and the power imbalances that come with them. Such positive developments are important for building trusting relationships between communities and universities.

Another way in which universities can contribute to the building of efficacious partnerships is through a redefinition of merit criteria for academics to incorporate valorization of the kind of work entailed in the case studies. Even though the publications and other outcomes of the projects do not fit the format of the academic genre or what is considered meritorious research, there is no doubt about their significance for the participating communities. These are laudable outcomes which the university as an institutional citizen should not stifle. But for such work to continue and thrive, academics have to be assured that their development-support work will not only count as "community service" but will be recognized and rewarded as a valuable part of their intellectual production. Just as teaching and learning in the classroom are recognized intellectual activities, so must the learning, teaching, and attendant capacity building initiatives in communities be accorded merit. After all, such undertakings provide the basis for knowledge production and experiential learning, which are key ingredients in most forward-looking university curricula, not only in Canada, but across the world.

The preceding discussion has underscored the importance of being sensitive to community needs, priorities, and values, when it comes to the design and implementation of joint projects. As the example of engaging both the town and the reserve in the Women's Empowerment project shows, such sensitivity is a natural outcome of participatory processes that genuinely involve communities and value their input. This also means that university-community projects should incorporate enough flexibility so as to cater for unanticipated developments and knowledge that will ensure maximum benefits for all partners. Rigid adherence to pre-determined agendas and ways of doing things will not augur well for the success of collaborative undertakings. It is also important that universities take into account the convenience of their host communities in the design and implementation of projects, rather than be fixated on selfish agendas. It is in this respect that the two time slots given to the Dene women to validate the research findings demonstrated a commitment to true community participation.

It is also critical that universities engage in medium- to long-term partnerships with communities to ensure sustainable interactions that serve the interest of both parties. This helps build the kind of trust and working relationship necessary for facilitating collaborative engagements. Ad hoc, self-serving forays into communities just reinforce patterns of colonial exploitation of local knowledge and resources, and breed cynicism and animosity among host populations. To ensure sustainable partnerships, universities have to rethink issues of patenting and copyright. The new paradigm should embrace the principle of sharing products of collaborative work equitably among the partners, vesting appropriate rights in the communities that co-produce knowledge and other outcomes, and returning some of the gains of collaboration to them. It is the commitment to such an understanding of partnership among indigenous peoples that won the trust of the communities covered by the projects, and thus allowed the initiatives to proceed.

University-community partnerships hold much promise and many benefits for all parties, but their realization requires certain enabling attitudes, mindsets, and institutional supports. These have been outlined above and we hope that Canadian institutions of higher learning and the communities that they interact with will draw lessons from the foregoing discussions that make partnerships mutually rewarding.

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