Including Aboriginal Values in Resource Management Through Enhanced Geospatial Communication

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Abstract

This paper will summarize the background, methodology, and results of a collaborative project involving Halfway River First Nation (HRFN) and researchers at the University of Northern British Columbia (UNBC). The project had the goal of evaluating and enhancing the capacity to incorporate a traditional Aboriginal worldview in modern resource management and planning using innovative geospatial approaches. We have been successful in creating the Geographic Valuation System (GVS), a system which is designed to enable First Nations to participate in resource management planning and decisions in a way that is simultaneously, a) consistent with the mapping and Geographic Information System-based approaches of government and industry resource managers and b) accommodates traditional Aboriginal values and approaches in resource management deliberations and decisions. The system facilitates and streamlines resolution of resource management issues that relate to First Nation's interests because it enables First Nations to participate as they choose in resource management and planning in ways meaningful to them and consistent with their traditional values.

Background and Relevance

First Nations use contemporary maps and mapping tools in resource management and planning and as part of a larger strategy to oppose encroachment on their traditional territories (Brody 1988; Candler et al. 2003; Gibson 2003; Chambers et al. 2004). Maps and Geographic Information System(s) (GIS) are designed to represent the world schematically for specific applications. These approaches reflect the values, perceptions, and priorities of a Western Scientific worldview. This worldview can be very different from a traditional Aboriginal worldview (as discussed and defined by Hawley et al. 2004). The current approaches used by mapping, GIS and related geospatial technologies fail to include Aboriginal values without manipulating and altering the content and context of Traditional Environmental Knowledge (TEK). Maps and GIS may actual hinder the communication of traditional Aboriginal worldviews to resource managers and planners.

This collaborative project aimed to increase HRFN capacity to address proposals for oil and gas development in the Halfway-Graham Pre-Tenure Planning area of the Muskwa-Kechika Management Area, located in northern British Columbia.

Project implementation was designed to demonstrate to policy-makers, other First Nations, and resource planners that the HRFN possesses TEK that is a legitimate source of knowledge which should be incorporated in resource management and planning. Through its focus on enhancing geospatial capabilities to communicate Aboriginal values to industry and government, this project contributed directly to the achievement of this overall goal.

Methods and Data

To achieve the objectives, we created the Geographic Valuation System (GVS). Before the GVS could be built, we first had to identify why the HRFN needed a new approach to communicating their values. HRFN requirements for geospatial communication were identified through community research methods. Community priorities and input were integrated into study design and planning and included participant observation, visits to significant sites, and map-based interviews. The approach in developing the GVS was formulated during the study itself as results from research conducted with community participants were integrated with methodology in an iterative fashion.

Analysis of results resulted in the creation of a set of principles to guide the creation of a geospatial system that would successfully meet HRFN needs. Existing approaches to geospatial representation, namely review and use of hardcopy maps and multimedia, investigation of buffer and weighted polygon approaches, development of GIS capacity and introduction of a hyperlink tool, creation of areas derived from visibility analysis, and consideration of three-dimensional terrain models, were examined and tested with HRFN participants to determine if these approaches would meet the criteria as revealed through the principles. The results provided definitive direction on the development of a geospatial approach.

Results

The research resulted in fourteen principles that directed the creation of the GVS: 1. incorporate community-based research methods to identify characteristics of the geospatial approach; 2. identify and address threats to sustainable use of geospatial tools; 3. use a mapping approach that is preferred by HRFN in order to support and increase their familiarity and comfort level with maps; 4. identify and incorporate dominant modes of communication amongst HRFN (e.g., oral language); 5. cultivate an environment where Elders and other members will recall events, experiences and values, particularly during times of the year when they may not experience the land the way they used to directly (e.g., in winter); 6. identify and record characteristics of Traditional Environmental Knowledge (TEK) while recognizing that knowledge and values may change over time and vary between individuals and family groups; 7. accommodate goals for knowledge beyond resource management through flexibility in collection, storage, and presentation; 8. situate decision-making power in the community and empower elected decision-makers to make decisions that complement traditional decision-making processes; 9. control access to TEK and awareness of the locations of

significant locales through collection, storage, and application of recorded knowledge; 10. maintain ability to incorporate relevant information from disparate sources; 11. enable HRFN to assess potential impacts of multiple resource management projects across space and time; 12. provide for compatibility with extant geospatial systems and management approaches; 13. provide supporting information to HRFN decision-makers, such as wildlife habitat polygons, in a way that does not subsume TEK to WBS Knowledge (WBSK); 14. use computer systems and software that serve the other principles and have the potential to grow with changing HRFN, industry, or government requirements.

When used in the community, the GVS supported analysis of proposed developments by HRFN members and enabled community members to assess cumulative impact. The GVS supported inclusion of TEK into resource management in a manner that reflected the spatial and temporal scales of HRFN traditional worldview. Further, the GVS engaged community members and resulted in discussion of their land and values. This knowledge, transmitted between Elders and youth, resulted in the education of future community leaders.

Conclusions

The application of the GVS involved a method developed with a First Nation for First Nations. As a methodological approach and system, the GVS exceeded the accompanying software package. Furthermore, the GVS was not designed to be a one-off, HRFN-only system. It was structured to be used by any First Nation that wishes to use it. We planned the GVS so that it could be freely and openly available, a key factor contributing to its use amongst First Nations. Following the success of the HRFN project, several First Nations are adapting the GVS for their own purposes. Current GVS projects include a project undertaken to identify and communicate cross-cultural values along a trail, capacity building and training in GVS use, data collection workshops, development of a method to incorporate existing Traditional Use Study (TUS) information, and creation of a three-dimensional viewing tool.

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