Transboundary Surface Water Management: Framework for Cooperation?

Introduction

Increased watershed use, population growth and subsequent urban development, are pressuring surface and groundwater resources. Management of transboundary water resources creates dynamic governing scenarios, as mismatched levels of government create regulatory fragmentation within nations and 'scalar mismatch' of powers between international governing bodies (Norman and Bakker 2005). As a result, cooperation between nations regarding transboundary resource management may be difficult to formulate. There are several theories regarding methods by which transboundary watershed management should occur between nations in response to watershed degradation or to avert conflict over watershed use. Several scholars write on the merits of transboundary watershed cooperation, and how it is the responsibility of nations to cooperate when managing environmental resources (Draper 1997, Kenney 1999, and Leach and Pelkey 2001). However, under what framework this cooperation should occur is not as apparent.

It appears that incentives for cooperation, outside the general health of a watershed, are necessary to promote cooperative watershed management. For my thesis I propose to address the question of cooperation between sovereign nations or states-provinces over common watershed resources, specifically focusing on the Fraser Lowlands area of British Columbia (B.C.) and Washington State (WA). I wish to address the question of under what framework can this cooperation be facilitated? This paper examines the underlying theories of transboundary environmental management pertaining to cooperation over common resources, and examines organizations and tools currently utilized to manage existing transboundary watershed issues.

Borderland Region

The theory of borderland regions is important to the idea of environmental transboundary cooperation because acceptance/recognition of borderland regions could help facilitate transboundary

environmental cooperation (Scott 1998). The Fraser Lowland area is a homogenous geographical environment, linked across the border socially, economically and culturally (Alper, 1996). This area of distinct regional identity and strong north south interconnectedness often removes the idea of an international boundary from one's mind (Konrad 1992). Morris's (1999) description of 'borderland regions' as an area in which borders are mentally erased by individuals, creating a like transboundary regional identity could be applied to the Fraser Lowland geographical region. Borderland regions necessitate government interaction between states and nations as ecological, environmental and economic resources are shared (Alper 1996, Widdis 1997, Scott 1998 and Sparke 2000).

Scott (1998) addresses the idea of cross-border regionalism as a new form of governance for borderland regions. The idea of sub-national governments operating at an international level to facilitate cooperative cross-border cooperation is also echo by Alper (1997). The idea of cross-border regionalism is the result of regulatory operatives working at regional spatial levels unlike traditional international arrangements. In doing so, local, regional, and central stakeholders become involved. However, it is important note that cross-border regionalism is significantly dependent on the individual variables of a given region and that institutional forms of cross-border regions are unlikely to be successful (Scott 1998). Overarching upper level organizations designed to facilitate cooperation on small watersheds may be in effective do to a lack of connection to regional ecosystem issues (Mitchell 2004).

However, there are several instances of Canadian and U.S. organizational transboundary cooperation. Organizations such as the International Joint Commission or the North American Commission on Environmental Cooperation have been successful at the Federal level as well as the Committee for Environmental Cooperation and the Columbia River Treaty at the provincial/state level. NGO's and stakeholder groups have also lead many local initiatives often transcending borders exchanging information and creating international linkages.

Transboundary Management Approaches

Within the literature discussing transboundary watershed management, the common underlying theme identified is cooperation between stakeholders affected by the resource use. Draper (1997) describes the duties and obligations of sovereign nations when discussing transboundary watershed sharing. Sharing implies a friendly agreement over watershed use rather than necessity resulting from conflict. Sovereign nations or states, when entering discussions concerning watershed 'sharing' have four responsibilities including; "...the duty to operate and negotiate in good faith...the duty to prevent unreasonable harm...the duty of equitable utilization and the duty to exchange data and information..." (Draper, 1997). These duties and laws are guidelines laid out by various international laws that nations are meant to follow when forming international water management agreements (Draper, 1997). By following these international obligations it appears that cooperation would be automatic. To maintain cooperation in transboundary ecological management, cooperation needs to be formalized through memorandums of understanding and by focusing on clear regional issues (Pedynowski 2003, Mitchell 2004). Formalized cooperation should result in trust in outcomes, increased information sharing, long-term continuity between stakeholders and regulatory agencies, across borders, and a commitment of government resources to collaborative management processes (Pedynowski, 2003).

In addition to the examples given above, current examples of cooperative aggrements between Canada and the United States concerning transboundary environmental management are the International Joint Commision and the Commission for Environmental Cooperation, both under the North American Free Trade Agreement (Norman and Bakker, 2003). At the Provincial-State level the Environmental Cooperation Agreement was formed in 1992, a symbol of B.C and WA commintment to transboundary environmental cooperation (www.env.gov.bc.ca). Resulting from the formation of this agreement was the Environmental Cooperation Council through which several taskforces were formed

in response to growing transboundary environmental concerns (www.env.gov.bc.ca). Two task forces formed that relate to transboundary environmental management are the Nooksack River Task Force and the Abbotsford-Sumas Aquifer Task Force (www.env.gov.bc.ca). These governmental organizations designed to facilitate environmental cooperation primarily represent a top down management approach. Despite their top-down approach, it should be noted that the Task Forces under the ECA do involve regional grass roots stakeholders in the formation of management solutions.

Education of regulatory agencies and stakeholders, on resource-use issues causing concern in neighbouring nations, facilitates cooperative management of the resources (Draper, 1997 and Norman and Bakker 2005). If individuals are educated on the negative outcomes resulting in conflict over common resources, Ali (2003) argues that environmental degradation and conflict will be averted. In an effort to avoid conflict, methods to educate individuals about effective watershed techniques can be done through local grass root community initiatives (Litke & Day, 1998).

Kenney (1999) theorizes that watershed management is most effective when driven by watershed initiatives. These local stakeholder groups can facilitate communication and information sharing with regulatory agencies, who in turn inform policy developing governing bodies. It appears that this method of bottom up, or at minimum linear management is most effective when attempting to manage transboundary watersheds as one ecological entity. Cooperation through partnerships, such as, advisory groups, councils and committees composed of stakeholders and regulatory agencies, is a way to bring together educated individuals and promote cooperation without external incentives (Manring, 1998 and Leach & Pelkey, 2001). According to Manring (1998), watershed partnerships enhance cooperation and consensus building on how to manage watersheds prior to the development of a problem.

The presence of regulatory agencies within the partnerships garners success, as they provide managerial assets, one of the most important steps for a successful partnership (Leach and Pelkey

1999). This approach differs from Alper (1997), Litke, and Day's (1998) ideas, whereby management should occur through a bottom-up process with grass roots and NGO organizations providing information to government agencies. Similarly, successful management can be instigated by grass root individuals under the guidance of regulatory agencies (Mitchell 2005). While the literature differs on which approach is the most effective method for efficient resource management, drivers and barriers to cooperation nevertheless need to be identified. By doing so, a framework for efficient management to occur through may be formed.

Drivers and Barriers for cooperation between nations have been identified (Norman and Bakker 2004). Drivers include sufficient funding, adequate networks, and good interpersonal relationships (Norman and Bakker 2005). Leach and Pelkey (1999) state that drivers utilized at the local level allow for issues to properly emerge prior to governmental regulatory agency involvement. Watershed organizations are then able to share local understanding of the environmental resource with similar cross border organizations without worrying about the international implications that political agencies would have to. This information can then be shared with regulatory bodies' to further cooperation.

The theory that watersheds should be managed from an ecological standpoint comes from the idea of integrated water resource management. A holistic, ecosystem approach is often more comprehensive in its understanding of the linked ecological issues ingrained within watersheds. With an integrated management approach regulators can understand differences in respect to the management of the various ecological parts of watersheds (Mitchell, 2005). Land and water resources should be integrated for environmental management purposes, as development of one will impact the other (Mitchell 2005). However, integration of land and water resources for management purposes does have negative implications.

When one approaches the watershed ecosystem as a whole rather than each individual piece one or more key variable can be missed (Mitchell 2005). However, it appears that this could be negated

by approaching the individual variable first, gaining an understanding, then retreating back to look at the system as a whole. Governmental regulatory agencies often have overlapping responsibilities and a lack of interconnectedness. The 'scalar mismatch' and fragmentation described by Norman and Bakker (2005), results. Incentives for cooperation combined with education could be a method to overcome the lack of interconnectedness between management plans. As history demonstrates, a nation/state could potentially use resources inequitably leading to conflict. Incentives for cooperation could be central in avoiding conflict (Leach and Pelkey 2001).

Conclusion

Transboundary watershed cooperation or sharing, according to Draper (1997) is a duty and obligation of nations. However, equitable use and cooperation between nations concerning transboundary water resources is not always the case. While there are existing organizations and memorandums of understanding between Canada and the United States concerning water resources, these tools often are too broad and over arching for small regional watersheds. Grass root stakeholders, NGO`s and all levels of government need to cooperate in order to equitable and effectively manage transboundary resources.

Cooperation and communication within and among nations appears vital to successful transboundary watershed management. Cooperation and communication should instil trust between nations, by removing fear over loss of sovereign control over resources, from management equation. Ones competitive sense to protect one's own resources prior to protecting or enhancing another's must be removed in order to successfully manage any transboundary resource. Federal governing bodies need to allow NGO's, and grass roots organizations voices to be heard, so that individual transboundary regions can be managed horizontally or from the bottom up, therefore utilizing policy developed by those who actually have a physical influence on the stewardship and use of a watershed.

The framework or structure by which this cooperation should occur is not very apparent. However, the importance of cooperation and involvement of all stakeholders and agents in the cooperative process is echoed by many. (Draper 1997; Norman and Bakker 2005; Leach and Pelkey 2001; Manring, 1998; Mitchell 2005;, Litke & Day, 1998, and Kenney 1999). If cooperation can be facilitated, aversion of conflict over common resources will be averted (Ali 2003). Further examination of international watershed management agreements and the resulting success or failure of their intended resultsis neccessary to determine if frameworks for cooperation do exist. A framework to facilitate integration and cooperation between agents is necessary (Mitchell 2005, and Norma and Bakker 2005).

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