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The Politics of the Biosphere:

Lessons from the Niagara Escarpment and Maya Reserve

Introduction

Biosphere reserves are generally conceived of as an important part of the current global conservation strategy. Yet how does a particular region receive such a designation and such protection? How does scientific knowledge and the interests and desires of specific groups affect these designations? In what ways do the main actors involved in these processes exercise power in order to shape the policies and protocols that govern biosphere reserves?

I will explore these questions in two parts. In the first section of this essay, I examine the concept of the biosphere reserve itself, by looking briefly at the UN's Man and Biosphere (MAB) program and some of its main features. In the second part, I investigate some of the broader questions of the politics of naming biosphere reserves by drawing upon notions of situated knowledge and framing to examine two specific cases: the Niagara Escarpment Biosphere Reserve (Canada) and the Maya Biosphere Reserve (Guatemala).

The concept of situated knowledge or 'positionality', as expressed by Sandra Harding, suggests that all knowledge is dependent on or corresponds to a context, and that it is unreasonable to hold science or scientists responsible for providing universal absolute truths. The politics of biosphere reserves provides a particularly suitable example for utilizing this theoretical perspective since so much emphasis in such cases is put on the scientific management of nature and the involvement of stakeholders.

The idea of situated knowledge is further related to the concept of "framing". Frames refer to how meaning is shaped by context so that "the frame ends up defining the centre". Briefly, this means that the determination of general parameters of reference limits possibilities of interpretation and the number of options available in specific situations. The general argument emerging from this paper is that the power to frame issues related to biosphere reserves through the use and promotion of knowledge and representations is tightly linked with decisions about how and in whose interests conservation is articulated.

The Man and Biosphere (MAB) Programme

The MAB programme was officially launched in 1971 by the United Nations to establish a worldwide network of conservation areas and to undertake cross-disciplinary research linked to policy and management issues for environmental conservation. For this reason, the MAB programme collaborates with the International Council of Scientific Unions (ICSU), a body comprised of scientific academies, institutions and associations. Although it incorporates many sub-programs, the MAB focuses mainly on the concept of the biosphere reserve.

Biosphere reserves have three main functions: conservation, development and logistics. While the first two functions are self-explanatory, the logistics function involves providing support for research, monitoring, education and information exchange related to local, national and global issues of conservation and development. The biosphere reserve zoning model, which can be visualized as three concentric circles, roughly corresponds to these three functions. The inner circle of the reserve is the "core area" where almost no human activity is allowed to take place; it is set aside for monitoring and traditional uses. The second circle is the buffer zone which is used for research purposes. Finally, the transition or cooperation zone is where human activities such as agriculture and settlements can take place. This model can be further adapted to different biomes by multiplying and juxtaposing core and buffer zones. Nonetheless, the emphasis is put on the stakeholders' responsibility for negotiating sustainable ways of living that would interconnect all of the different zones.

The biosphere reserve designation process varies significantly from country to country, as well as on a case-by-case basis. Nevertheless, a general pattern can be discerned. The first stage in obtaining a designation is to complete a biosphere reserve application. The application can be filled in by any party, such as a community, a national park staff or a government. The motivations for establishing a biosphere reserve can be anything from preserving a community's direct environment, to improving research capacities, to publicizing an existing park. The application form has two parts: the first requires a description of the general characteristics of the area and the endorsements of the concerned authorities, while the second involves a detailed description of the human, physical and biological characteristics of the area and the institutional arrangements under which the reserve would function.

Once the application is completed, it is submitted to the local national association of biosphere reserves which, in turn, submits it to UNESCO through UNESCO's National Commission. The Advisory Committee on Biosphere Reserves (ACBR) then reviews the applications and recommends which ones should be awarded designation. The approval is done at UNESCO's general conference which takes place every two years. It is important to note that the whole process frequently involves informal inputs from different scientific organizations and that policy-making does not end after the designation process is over, just as a biosphere reserve is not necessarily managed as one simply because it possesses the title. Indeed, the MAB program's heavy reliance on scientific input does not imply a straightforward process in attaining the biosphere designation. As the two following examples of the Niagara Escarpment and the Maya biosphere reserves demonstrate, there are many other political forces and influences involved in the awarding and maintaining of such a label.

The Niagara Escarpment (Canada)

With its diverse forests, wetlands, plains, recreational areas, historic sites and cliffs, the Niagara Escarpment is one of Canada's most scenic landforms. Serving as habitat to rare and endangered animals and being a part of Ontario's historical heritage, the escarpment was designated as a biosphere reserve in 1990 after almost two decades of independent provincial conservation measures. Public concern over the escarpment emerged as early as the late sixties, prompting a provincial task force to investigate potential means of protecting the escarpment and its vicinity from inappropriate and uncontrolled development. At that time, and still today, the main threat to the escarpment consisted in the rapid growth of the aggregates industry. This industry benefited from large sand and gravel deposits dating from last stages of the Wisconsin glaciation and the escarpment's proximity to two major cities: Toronto and Hamilton.

Acknowledging the threat these quarries posed to an exceptional geological

formation, the Ontario government passed the Pits and Quarries Control Act (PQCA) which prohibited the establishment of new quarries on the escarpment. After much public debate, the Niagara Escarpment Planning and Development Act (NEPDA) was eventually passed in 1973, thus setting the stage for the preparation of the first environmental land-use plan in Canadian history: the Niagara Escarpment Plan (NEP). What is exceptional about both the Act and the Plan is that they take precedence over other special or general Ontario laws. However, since quarries already existed on the escarpment (as aggregates are needed for development and the industry provides numerous local jobs) the quarries were grandfathered into the Niagara Escarpment Plan. The potential threats posed by the quarries are now manifesting themselves anew.

The Niagara Escarpment Commission (NEC), along with a special working group named the Joint Agency Review Team (JART), is currently reviewing a proposal for the expansion of the aggregate production operations which have taken place in this reserve since its beginnings. In order to promote its project, the proponent, Dufferin Aggregates, has used various discursive strategies which are aimed at convincing the review team and the public of the necessity and sustainability of its proposal to expand the existing quarry. To do so, the aggregate company emphasizes its status as a "good corporate citizen" and the various partnerships it maintains with community organizations. Moreover, it advocates the need for further aggregate production and the importance of the quarry for local employment. By stating the amount of aggregates needed for various projects, it gives the impression further development is desirable on the escarpment. Dufferin Aggregates' case overlooks whether or not more development is beneficial to the public and life on the escarpment. The case for the extension of the quarry largely relies on the proponent's image as a leader in site rehabilitation as well as on its corporate environmental record.

There is no doubt that the financial resources needed to develop such an extensive expansion project are considerable when compared with those of local citizen groups. Nevertheless, Patano (2002) demonstrates how local actors on the Escarpment have been able to promote counter-discourses designed to undermine the proponent's oversimplified claims to necessity and sustainability. To gain legitimacy for their counter-discourses, citizens opposed to the quarry expansion raised significant concerns regarding their quality of life, property values and the natural environment. The accuracy of the knowledge and representations put forward by the proponent then came under wider public and media scrutiny. This put pressure on the JART and the NEC responsible to decide the proposal's fate.

Patano (2002), for example, highlights a particular case in which citizens were able to establish the dangers the project posed to endangered species. She also notes that citizens were concerned by the fact that the quarry was using its buffer zones to expand, which jeopardized the integrity of the biosphere reserve. A worried citizen was also able to make a case against the safety of the water quality measures established by the proponent. Other issues raised included the hazardous nature of diesel fumes emitted by the trucks, traffic flow and road conditions. These concerns illustrate the detail-oriented nature of citizen concerns and the situatedness of each party's knowledge. The proposal was portrayed by the public as being an oversimplified case in favour of the development project. Still, what is of critical importance is that the need to mine in the reserve is contrasted by the fact that the same material is abundantly available in other nearby areas not located in the reserve; thus questioning the biosphere reserve designation's significance.

A decision favourable to the expansion project could set a precedent, opening the door to other questionable "sustainable development" projects on the escarpment. Ironically, the burden of proof is rarely placed upon proponents to prove that a project is truly sustainable. Rather, the reverse is true and opponents with far fewer resources at their disposal find themselves all too often in a position where they must prove that a project is ultimately unsustainable. Alternatives, too, are rarely mentioned; for example, the fact that the same mineral extracted on the escarpment is found outside the biosphere reserve.

Although the final decision regarding the case has not yet been officially made, this case study exemplifies many of the problematic issues associated with Northern biosphere reserves, as well as with conservation areas more generally. Let us now turn to the Maya biosphere reserve which illustrates some of the issues dealt with in Southern biosphere reserves.

The Maya Biosphere Reserve (Guatemala)

The Maya biosphere reserve is located in the Guatemalan rainforest region of Peten. Representing a third of the nation's territory, it is Guatemala's least occupied area and consists mainly of highly forested lowlands. Despite these favourable environmental factors, the Peten area has been affected by some of the highest rates of deforestation in Central America. In an attempt to address this problem, the Maya biosphere reserve was established in 1990 by the Guatemalan government. So far, it seems these efforts have not been very successful due to weak governmental support of conservation strategies, neglect of the socio-historical causes of deforestation, lack of grassroots support, economic and political opposition and other difficulties attributed to development efforts in the South.

After looking at the Maya Biosphere Reserve, Sundberg (1998) noted that the biosphere reserve model tends "to depoliticize the landscape by neglecting politics as a shaper of ecologies". In this sense, it seems the biosphere reserve model, which seeks to address some of Guatemala's national parks' model's shortcomings has also failed. Here again, the discourse perspective is useful to analyze the emergence and polarization of identities. However, contrary to the Canadian case, government and NGOs are not selling an image, but rather a discourse which attributes deforestation and land degradation to the activities of local farmers. By defining deforestation in oversimplified terms, certain institutions have contributed to the perpetuation of the root causes of poverty in that they buy into the migrant-as-culprit discourse which ultimately affects land distribution patterns. Sundberg also demonstrates how Guatemalan authorities, along with their partners USAID and CONAP, have been responsible for the development of conflicting socio-economic activities.

The intense colonization and development campaigns of Guatemala's Peten area and brutal dismantling of the organization responsible in leading them have resulted in many forms of social instability. Guatemala's development agency (FYDEP) has focused on colonizing the Peten for 28 years and now that this institution is dismantled, dispersed NGOs and government institutions with limited resources lead and manage projects taking place within the reserve. Sundberg refers to

this phenomenon as the "balkanization of the landscape". It is by correlating deforestation with migration as well as picturing peasants as backward individuals who are ecologically unconscious and ignorant of sustainable agricultural techniques, that the various funding and management institutions were able to attribute deforestation to the latter group. Their "migrant-as-culprit" discourse also mistakenly constructed the Peten's environment as being unsuitable for swidden agriculture. The authoritative fact-like status achieved by this discourse is another manifestation of the power and resource imbalances mentioned in the previous case study.

Despite the powerful promotion of discourses by various governmental and non-governmental institutions, strong alternative discourses emerged resting upon the adaptation of migrant farmers to new environmental conditions, their agroforestry knowledge and their innovative coping strategies. The question which remained was whether the alternative discourse could prevail or at least induce doubts about the legitimacy of the dominant discourse. The counter-discourses pointed to more complex causes of deforestation such as types-of-use systems and the intensity and frequency of use. This in turn re-politicized deforestation by alluding to the economic and social realities of actors: situated knowledge.

The implementation of the Maya Biosphere Reserve has worsened and perpetuated social and economic inequalities in Peten. The poor links between the governing authorities (governmental and non-governmental organizations) and the Guatemalan population have caused significant social disruption, dissent, unjustified arrests, fear and anger. For instance, the supervision of local participation to the reserve's activities by NGOs has resulted in the selection of individuals fitting specific Western ideals. This has caused social tensions since community leaders, who have authority and the respect of their peers, were left out of the process. Hence, the Maya biosphere reserve, with its lack of coordination and other distorting factors, was essentially shaped to fulfill the needs and aspirations of NGOs. This meant that local the population's demands were not considered to be conservation or development-oriented. The narrow definition of these terms and the blame attributed to migrant farmers allowed various agencies to pursue their conservation experimentation on Guatemala's Peten. It then seems that NGOs have and will continue to benefit from the reproduction of the socio-political and historical forces that had triggered deforestation and the biosphere reserve designation in the first place.

Knowledge Issues in Biosphere Reserves

According to Harding (1996), science and knowledge do not exist in a vacuum; rather they are always situated. "Scientific bias" manifests itself in various forms in the two case studies presented here. Whether it is through the over-representation of Western scientists or science, the centrality of Western ideology with respect to conservation or the privilege given to experts and big science, this "scientific bias" is instrumental in the emergence of closed circles of experts who tend to share the same visions and interests. This often results in the devaluation of local knowledge.

The most obvious, and yet the least questioned, ideological component of the MAB programme is its cornerstone: the concept of the biosphere reserve. However, the biosphere reserve concept ought to be questioned in fundamental ways. On the one hand, it assumes that conservation, in spite of buffers and transitional zones, can be achieved through a network of disconnected islands; such an assumption is problematic as it neglects the importance of linkages and diverts attention from the islands of activity. In fact, national and international research networks and facilities tend to privilege the study of natural phenomena within the reserves as opposed to the physical and social aspects of the interactions between the cooperation zone (and its extension) and the reserve.

Furthermore, the rhetoric surrounding biosphere reserves tends to underestimate the ecological impacts of eco-tourism. It is seldom mentioned that biosphere reserves' staff are encouraged to advertise the reserves as being part of the prestigious World Network of Biosphere Reserves. This in turn encourages intensive use, fostering conservation areas to become laboratories for recreational and tourism activities and threatening to undermine the objectives that motivated the nomination of conservation areas in the first place. At this time there are few studies dealing accurately with the impacts these activities have on the environmental integrity and biodiversity of reserves. This is in large part due to the lack of funding and staff (especially social scientists) in national research facilities. On the other hand, the concept of biosphere reserve privileges a Western conservation ideology which fails to recognize that many cultures do not make such spatial separations when dealing with resource use and conservation issues. The representation of conservation as the biosphere reserve's zoning model then precludes other issues from being put on the policy agenda.

The kind of cultural specificity described above also exists in the policy-making that follows the "biosphere reserve" designation. The political priorities addressed in biosphere reserves tend to overlook the needs and concerns of local communities instead privileging industrial interests, scientific research and NGO interests regardless of the impacts they can have on property values, regional growth, socio-cultural interactions, benefit distribution and land value. This neglect of local concerns can be attributed to inherent power imbalances and the difficulty of reaching consensus within diverse "resistance coalitions". It is unavoidable that interest groups benefit differentially from the establishment of biosphere reserves, but the fact that some groups are consistently able to influence decisions in their favour can be problematic.

Conclusion

The point here is not to completely dismiss either science or biosphere reserves as valid tools to manage environmental problems, but rather illustrate their situated character. It seems biosphere reserves still embrace a green developmentalism ideology which assumes there is a universal currency that can be used to value resources, often reducing them to commodities. Contrary to this ideology, this article demonstrates that perspective plays an important role in determining the relevance of knowledge in specific situations. I believe that we now have to find innovative ways to deal with conservation issues while acknowledging these multiplicities. Environmental and social education emphasizing genuine discussion processes aimed at better understanding the positions, interests and values of all stakeholders is a path that must be explored. It is crucial that all be receptive to other points of view in order to preserve environmental and social diversity. Finding different ways to address local expectations of conservation schemes

and making local knowledge a legitimate part of policy-making thus seem to be the first steps to alternative conceptualizations of conservation.

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Vulgar Towers, photo by Fredéric Ménage