

ADVANCING HUMANITY IN BELIZE

Learning Community

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INTEGRATED NATURAL RESOURCE MANAGEMENT IN CONTEXT

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Belize is unique among its Central American neighbors for reasons concretely rooted in its colonial history. While under British rule from 1862 to 1981, no policies of agricultural expansion or large-scale settlement were ever pursued. This approach contrasted starkly to both Guatemala to the east and Mexico to the north where the Spanish and later independent governments encouraged the clearing of large tracts of land for agricultural use to support growing populations.

As a result of British rule, Belize today has a significantly lower population density than either Guatemala or Mexico, even though in recent years the overall population has rapidly increased due to immigration from other Central American countries. Also in Belize, despite periods of uncontrolled deforestation in its past, the British colonial government began an effort to conserve intact forests long before anywhere else in Central America (Platt, 1998). Thus when Belize gained its independence from Britain in 1981, it had escaped much of the deforestation that plagued most of Central America. Though certain species have suffered and remain endangered, the Belizean forests remain largely intact with subsistence agriculture existing on the borders of managed conservation areas. Belize, thus, has chosen to develop its economic foundation on the ecotourism industry and to focus on continued preservation and management of its natural resources.

Shortly after its independence, Belize established the National Park System Act which provided the legislation for the development of national parks, natural monuments, wildlife sanctuaries, and nature reserves. Yet today the lack of improvement in the quality of life within subsistence agricultural communities and the subsequent management of large tracts of conservation areas with minimal resources threaten the viability of both the indigenous people and their most valuable natural resources.

In partnership with Programme for Belize, which manages the Rio Bravo Conservation and Management Area, and a growing number of residents and organizations on the periphery of the preserve, Defiance College is working to improve environmental conditions for all using the multidisciplinary framework of Integrated Natural Resource Management (INRM) developed by the Consultative Group for International Agricultural Research (CGIAR). This framework has been used by Izac and Sanchez (2001) to conduct agroforestry research, as well as by the McMaster Belize Learning Community as an organizing framework for our initiative in Belize since 2005. The Rio Bravo, a 260,000-acre conservation area, is struggling to maintain itself with a labor force that decreased from 13 to 9 rangers between 2005 and 2006. Our work on the periphery shows evidence of the constant struggle of small indigenous agricultural communities, such as San Carlos, San Felipe, and St. Paul's Bank, to move from a subsistence livelihood relative to food production toward a more economically secure existence through better education. The INRM framework has helped us clarify our project goal: To promote the consideration of all stakeholders to achieve sustainable development that will facilitate both the preservation of the environment and the humanity that must dwell in communion with it.

As this 2006 initiative broadened from our 2005 efforts to include not only an environmental focus but also community-based research component, we explored (a) the potential impact that humans have on the conservation area, (b) how those same communities could work to support the preserve, and (c) how the conservation area and the researchers it attracts can work with local communities to improve the quality of their lives.

The principles underlying the Defiance College initiative demand interdisciplinary work in partnership with the local community. Seventy years ago, Aldo Leopold challenged us to develop the science of integrated natural resource management:

One of the anomalies of modern ecology is that it is the creation of two groups, each of which seems barely aware of the existence of the other. The one studies the human community almost as if it were a separate entity, and calls its findings sociology, economics, and history. The other studies the plant and animal community and comfortably relegates the hodge-podge of politics to the liberal arts.... The inevitable fusion of the two lines of thought will, perhaps, constitute the outstanding advance of the present century.
Aldo Leopold, 1935 (Sayer & Campbell, 2004)

Leopold clearly understood the need for shared knowledge across disciplines and between stakeholders in order to develop an understanding of the range of adaptable practices that can facilitate maximum gain with minimal negative impact. Information dissemination, the product of the majority of our research, is the basis for this understanding.

The cost associated with a failure to collaborate is “the progressive deterioration of the agricultural, forestry, and fishery systems upon which all life depends” (Sayer & Campbell, 2004). This cost is evident to Programme for Belize as they, out of necessity, are learning to rely on a developing cooperation with periphery communities. And in response, the periphery is beginning to recognize the benefits of a cooperative rather than an adversarial relationship with the preserve as well. Progress can be gauged by the developing “interdisciplinarity” of the work conducted during this initiative and the cooperation that is emerging when we are not on the ground in Belize.

In December 2006, our work in San Carlos with farmers and the school initiated formal dialogue between Programme for Belize through Ivan Gillett and the San Carlos Government School through the principal, Mr. Lopez. As there had been no close contact with Programme for Belize, San Carlos students were curious about the American researchers (McMaster Fellows and Scholars) that for the previous two Decembers had run a boat up on their shore. We brought books and testing equipment, worked in their fields sampling soil and testing the water in their wells, and joined them in celebrating the Christmas season. They fully understood we came from the United States, but they had no concept of the Hillbank Research Station and what had initially brought us to Belize. Ivan Gillett, ever instrumental to our efforts in Belize, contacted us in May 2007 and through collaborative efforts, we were able to help support an educational outreach day that brought all 43 of the students of San Carlos Government School by boat to the Hillbank Research Station to experience for themselves resources in their own neighborhood. It was a remarkable success and a significant step toward an

increasingly seamless partnership between the preserve and its periphery.

INRM challenges the group to work toward enhancing ecosystem functions, productivity, and human well-being. Natural capital is the soil, water, climate, and biodiversity of the region--the features directly tied to ecosystem functioning. It is immaterial whether concern for these ecosystems is rooted in a conservation ethic or in the fact that poverty and famine results from degraded ecosystems. Our objective is not sustainability (i.e., maintaining the status quo). Rather, our goal is sustainable development as we work to improve human livelihoods at all levels, including environmental, while maintaining options that will allow for adaptation to change.

While any one of the disciplinary focused research projects might initially seem to be anchored in one perspective of INRM, what we found as the Belize project evolved in 2006 was that no project was limited within the parameters of a single perspective. This illustrates the fact that research in the context of reality requires a transition from being multidisciplinary to interdisciplinary if we want to consider all stakeholder perspectives.

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