

Beyond Boundaries



Zoning as a Tool to Link Conservation & Development Goals

April 2007 Draft



Photo By: Tom Hewitt © 2007

Purpose of this Brochure

- This brochure addresses the topic of zoning as a tool for linking conservation and development. It seeks to:
- Offer essential background information on zoning;
- Discuss governance issues related to zoning;
- Encourage careful analysis of why land use zoning has mitigated conflict around some areas, but worsened conflict around others;
- Outline some of the problems that arise with zoning, such as enforcement; and
- Feature three case studies on zoning from historical Palestine, Bolivia and the Philippines.

Introduction to Zoning

The extent of legally protected land has increased exponentially over the past 25 years, particularly in developing countries with high biodiversity. With this global expansion, the core mission of protected areas has increased to more than the conservation of biodiversity. Protected areas are now meant to assist in poverty reduction, mitigate conflict, and preserve indigenous cultures. These important goals have been widely embraced in principal, but in practice they are far more difficult to achieve. The majority of parks currently allow local people to use at least some resources within their boundaries. However, confusion has ensued about how to balance conservation and development objectives, which often involves negotiation of competing claims to increasingly valuable resources within park boundaries.

Collaborative Land Use Planning

Collaborative land use planning is a broad strategy that promises to forge consensus between conservation and development. Specifically, conservationists are increasingly turning to participatory zoning as a tool to address this issue. Zoning can ameliorate incompatible land uses in given areas, while allowing for sustainable resource extraction that benefits local communities. Although zoning projects differ in planning and zone designation, they consistently attempt to determine where resources will be extracted or preserved and who will claim authority and access to these areas.

Zoning in Protected Areas

Historically, zoning was used in urban settings. Translating zoning processes to a rural setting is often challenging. Zoning in rural regions often lacks institutional structures including land tenure and enforcement mechanisms. It is also innately riddled with political dilemmas and challenges to long-term strategies, funding, and assimilating community involvement. Issues in and around protected areas have brought about conflict about land and resource access and distribution. While zoning has been increasingly applied as a conflict resolution tool, it is not always successful. In some protected areas, zoning or re-zoning has heightened conflict, provoked public outcry and even violent protests. An example of local people's negative reactions to agencies' national parks legislation and enforcement was when villagers in India set fire to large areas of the Kanha National Park of Madhya Pradesh.

A more careful analysis of why land use zoning has mitigated conflict around some parks, but worsened conflict around others could assist policy makers and donors in their future efforts. Problems with enforcement should also be assessed and analyzed. Enforcement is a sensitive topic given the militaristic and abusive record of some park administrations and past emphases on people-free parks. Zoning is unlikely to achieve either ecological sustainability nor the insurance of local claims to resources unless there are established and reliable governance institutions and enforcement mechanisms.

Table 1: Potential Strengths & Weaknesses of Zoning

Strengths	Weaknesses
Simple to administer on paper	Prone to bribery
Flexible and Adaptive	Coercive
High level of compliance if state has regulatory power	Confines or contains politically marginalized groups
Low cost per area	Requires stable governance institutions



Hunting in Tanzania. Photo By: Jonathan Phillipsborn © 2007



West Papua, Indonesia. Photo By: Tom Hewitt © 2007

Organizational Approaches

Due to the promises offered by zoning to mitigate development-conservation conflicts, many leading nongovernmental conservation organizations (NGOs) advocate zoning processes in protected areas. These organizations cite similar reasons for advocating zoning, as illustrated in the table below. While many of these NGOs promote zoning, there are concerns regarding its success. These concerns have resulted in a variety of recommended methodologies and precautionary tales from NGOs to ensure that future zoning projects learn from past experience.

Table 2: Conservation Organization's Approaches to Zoning

Organization	Approach to Zoning
Wildlife Conservation Society (WCS)	Living Landscapes is a program within WCS that focuses on large scale land use planning in and around protected areas, with particular emphasis on the inevitable human-wildlife interaction. Conservation cannot focus solely within the boundaries of national parks, or community forests because wildlife, ecological processes, and human resource-uses tend to spill across these political borders. www.wcs.org or http://wclivinglandscapes.com/about
United Nations Development Programme (UNDP)	UNDP envisions protected areas (and the zoning that occurs therein) as tools for achieving simultaneous conservation and development gains. They advocate that more attention needs to be given to the people who live in and around protected areas. They also argue, however, that the importance of protecting humanity's long-term survival on the planet must not be compromised. www.undp.org/biodiversity/biodiversitycd/key1.htm
United Nations Educational, Scientific, and Cultural Organization (UNESCO)	Biosphere Reserves consists of three zones and serve as "learning places to explore and demonstrate approaches to conservation and sustainable development, providing lessons which can be applied elsewhere." Zoning is a tool for conflict resolution in or surrounding protected areas. The focus is on conservation, development and logistical support promoted by a biosphere reserve approach that allows for flexibility and adaptive management. www.unesco.org
World Conservation Society (IUCN)	IUCN believes that biodiversity protection is the most important goal of protected areas. They advocate zoning to protect biodiversity, as "the best way to reconcile an array of different use." According to IUCN, zoning is a tool that ensures strict protection of a core zone as part of larger multiple-use protected areas. IUCN emphasizes that zoning processes should work with relevant sectors, involve local communities, and be innovative and flexible. IUCN also mentions that zoning may provide a safe haven for indigenous people. www.iucn.org
Conservation International (CI)	Conservation International advocates zoning as a tool for land use planning that ensures biodiversity conservation and community needs using Corridor Projects to link protected areas. The corridor approach specifically examines how to incorporate migration and paths of animals in reserves and buffer zones. www.conservation.org

Challenges to Zoning

Designing parks for multiple uses by means of zoning is promising, yet holds some significant challenges. The central challenge is governance. Good governance depends on an ability to make sound decisions and have institutions in place to enforce them. A governing entity's capacity for learning, negotiation, resource allocation, implementation and participation also enhances governing abilities.

Distributional and community participation issues are another common challenge to zoning processes in protected areas. A traditional approach to biodiversity protection has been to create conservation areas that did not fully consider the rights and access of indigenous and local peoples to resources and land in these areas. Rather, these areas focused solely on conservation, and human use was strictly prohibited. Land use conflicts relating to tensions between human use and biological conservation continue, as more protected areas are created and urban development and agricultural expansion occur. There is a growing consensus that a balance in conservation areas must be achieved for the benefit of all parties, including local communities. Community participation attempts to address these concerns, and emphasizes that a shared decision-making process with committed stakeholders provides crucial insight into biological and socioeconomic issues. Community participation can also improve the likelihood of cooperation for the long term. As a result of a growing appreciation for community participation, there has been a recent trend in governance toward decentralizing authority and power from a central (often

national) bureau to more regional and local bureaus. Various local communities' cultural perspectives, knowledge, and interests in resources and land can thus be incorporated into decision-making procedures.

Another popular device for increasing community participation and addressing distributional concerns is co-management of protected areas. Co-management tends to prescribe as opposed to describe partnerships, in order to harmonize disparate demands for indigenous rights, local knowledge, and conservation. This in turn blurs differences in agendas and removes barriers that prevent participants from reaching a true consensus. There are challenges that arise with co-management, however. Co-management may be difficult to implement when trying to manage expansive ecosystems that cross political/regional boundaries. Furthermore, although the 2003 World Parks Congress mandated that national and international protected areas should be managed with cultural recognition through co-management partnerships with local and indigenous groups in conservation efforts, not all parties are interested or supportive.



Tanzania. Photo By Jonathan Phillipsborn © 2007

List of Zoning Challenges

Challenges to zoning may include:

- **Increased Conflict over Land and Resource Use:** In some situations, zoning helps solve land use conflicts. However, it also has the potential to create or intensify conflict.
- **Continued Ecosystem Degradation after Zoning:** Natural parks and conservation areas are often very successful in protecting ecosystems and species. However, if zoning is not implemented carefully and with support from local communities, it may have the opposite effect. For example, in the Sagarmartha (Mount Everest) National Park, resentment from Sherpas regarding the park's creation and subsequent destabilization of their traditional commons management practices led to an acceleration of forest loss in the park.
- **Enforcement:** Unless there is strong local support, zoning projects do not work without enforcement. The lack of inclusion and buy-in of local stakeholders can inhibit effective enforcement of zoned areas. A lack of adequate resources also makes enforcement of zones difficult.
- **Inadequate Administrative Resources:** Unfortunately, zoning is often needed most where it is least likely to succeed. The national agencies or organizations charged with administering these areas are often small, politically marginalized, and have limited monetary resources.
- **Identifying Customary Property Rights is Difficult and Political:** Distinguishing customary property rights involves the power to narrate history, define tradition, and in the process, make claims to land and resources. Thus, defining and identifying property rights can be a contentious process that should include multiple stakeholders in a bottom-up approach.

- **Devolution of Power:** The devolution of power to local actors is often a difficult process. On one hand, conservationist and governments may be reluctant to lose control of natural resources and protected areas. On the other hand, if control is not devolved to local actors, there may not be community buy-in for projects or inadequate enforcement of zones.

- **Equity of Access:** Zoning does not always include equitable access for different resource users. Local people may see conservation areas as an imposition on their land and rights. Furthermore, it is important to be aware of inter-community conflicts over resources and land access when creating areas of varying extraction rates and buffer zones.

- **Zoning May Not Reflect "Moving" Elements of Ecosystems:** Zoning does not always reflect transitory and moving aspects of biodiversity and conservation, such as migratory wildlife. Many groups are now advocating the use of wildlife corridors in park and zone planning.

- **Need for Good Governance:** A stable government context and enforcement of zones is ultimately needed for successful protection of biodiversity. This may be difficult to obtain with limited resources. For instance, as outlined in the Wadi Gaza Nature Reserve case study, the unstable government in Palestine weakened the enforcement mechanism and led to the loss of the entire Wadi reserve.



Norway, Photo By: Tom Hewitt © 2007

Novel Approaches

There are several promising novel techniques that may be used in the zoning process. Some approaches highlight local participation, while others feature high-tech methods. Some do both. Here we outline several examples of such methods.

Participatory 3-Dimensional Modeling & Community Integrated Geographic Information Technology (GIT): These methods emphasize community participation in the mapping and zoning process to capture the cultural importance of land as well as geographic characteristics. Three-Dimensional mapping refers to physically building 3-D maps with communities; while community integrated GIT uses technologies such as Geographic Information Systems (GIS) to capture community knowledge and perceptions of place. Detailed information on these techniques is available at: www.iapad.org/p3dm_guiding_principles.htm.

Quantitative Zoning: Sabatini et. al. (see “Resources” section) have formulated a quantitative method to “expeditiously zone” protected areas by assigning potential land uses based on land aptitude, priority of use, biodiversity conservation, and the influence of the surrounding areas. For example, a metric may be used to assess how effectively a land use pattern contributes to the maintenance of species and gene flow between landscapes.

Zoning with Satellite Images: Satellite images allow practitioners to see and compare large areas of land and to differentiate land types. In this technique, zones are delineated according to the analysis and weighting of land attributes such as type of soil, topography, hydrology, and prevalent agricultural use. For more information on this technique, see the BJORQUEZ-TAPIA article in the “Resources” section of this document.

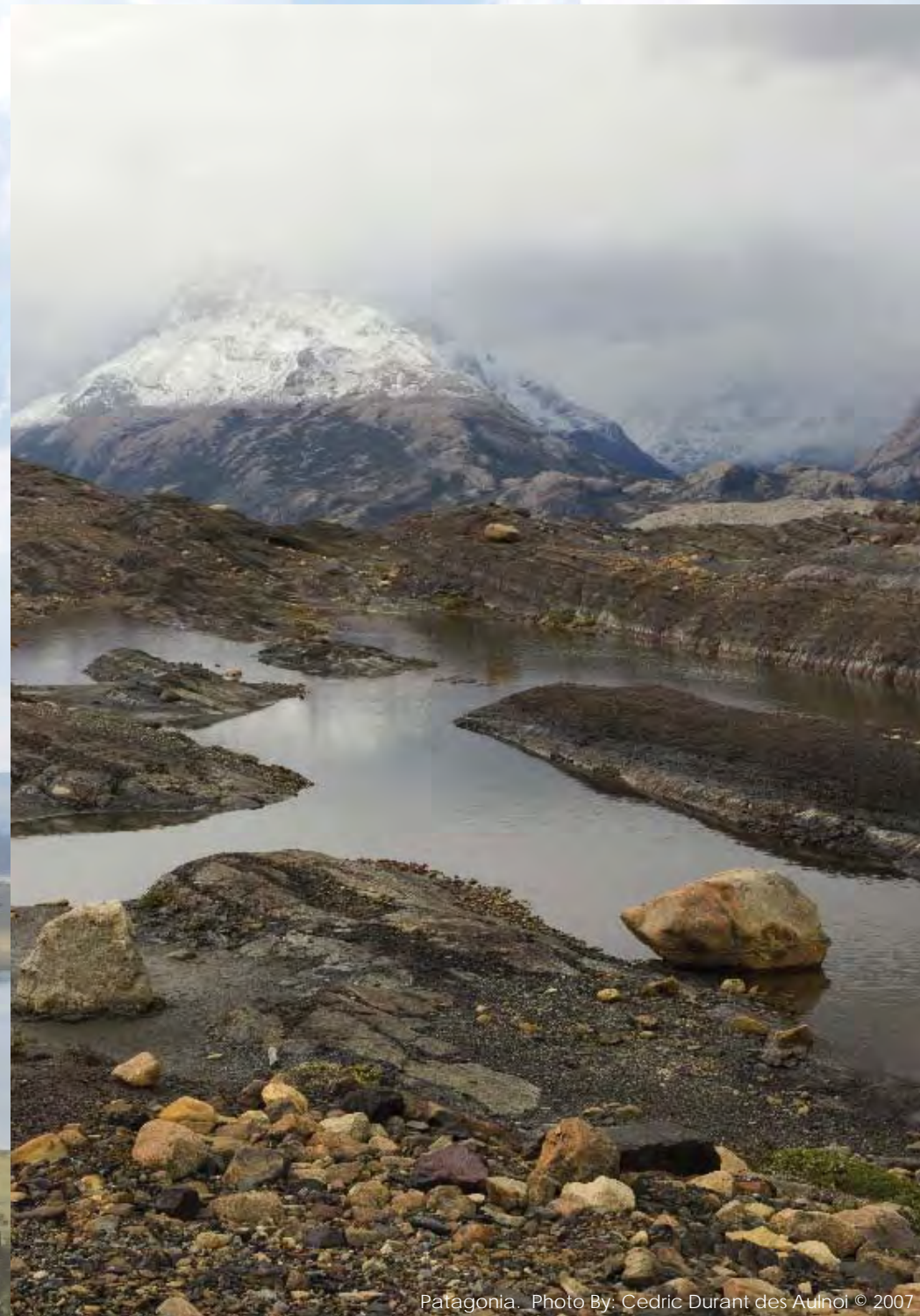




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Questions to Consider

Planning

- Is there adequate and qualified staff to carry out the planning process?
- Are funds, technical support, and equipment sufficient?
- How do local communities perceive the protected area(s)?
- Are there external pressures? For example, are there pressures to exploit the resources or features of the protected area?
- Is communication being initiated with the public and other stakeholders? How was the plan prepared and who was involved? This will often have great impacts on its success.
- How can the local community/communities or those in nearby areas affected by the zoning be best included in the process?

Implementation:

- Are decisions stated in a firm manner, rather than as tentative recommendations?
- Is sufficient attention being given to budgetary questions?
- Are management capacity expectations realistic?
- Are objectives and priorities clearly and precisely formulated? The "ends" and "means" must be clearly delineated.
- Has responsibility for implementing plans been allocated?
- Are commitments specific, and do they provide a basis for on-the-ground change?
- Is there political, financial, or managerial instability that will dampen the success of the project? If so, can this be addressed, and how?

Distributional Consequences

- Is the sale of land voluntary on the part of the landholder?
- Was compensation received by the parties that use or own the land that is now restricted? Did the transfer result in welfare improvement for the seller, or did they lose wealth and employment?
- What effect is land access restriction having on community members?
- To what extent are private and regulatory transactions increasing land grabbing or landlessness?
- Is there equal access to information about land and equal bargaining positions among buyers and sellers?
- Does land registration increase land tenure security? For whom?

Case Study Highlights

Case studies were prepared to illustrate some of the promises as well as the challenges and limitations to zoning. As noted above, conflicts arise from people living in spaces that conservationists aim to conserve. Some such challenges include indigenous people's ancestral claims to land and the lack of or weak institutions. Zoning approaches attempt to balance objectives while acknowledging the necessity to integrate land use conflict tools. Below are concise summaries of the three case studies chosen to best convey zoning trends and challenges, including, but not limited to: stable governance structure, varying levels of community participation, funding constraints and large business disruption.

Each case comes from a different region around the globe representing a distinct governance structure as well as other possible obstacles to success. The first is the Kaa-lya del Gran Chaco National Park (KINP) which is a project largely led by the Wildlife Conservation Society. The second is the Mt Pulag National Park in the Philippines researched by a land use regional planning doctoral candidate at the University of Wisconsin – Madison. The third is the Wadi Gaza Nature Reserve which was a USAID funded project.

Kaa-lya del Gran Chaco National Park (KINP), Bolivia

The KINP Park in Bolivia was sectioned into four areas, three of which are integrated management areas. The 10-year project focused on improving biodiversity and enhancing habitat protection as a conflict resolution measure among the various indigenous groups in KINP area and between the indigenous groups and ranchers and farmers. These areas ultimately incorporated both conservation and socioeconomic development successfully and were provided to the indigenous communities to ensure their well-being and traditional lifestyle. This was largely due to the Government of Bolivia adopting a new approach to Protected Areas in 1992 known as “parks with people.” A legal structure was provided ensuring effective and efficient management of the Protected Areas, as well as guaranteeing the integrity of the ecosystem and the rights of the indigenous populations. Again, stable and enforceable governance institutions are key factors.

The KINP provides an exemplary case of zoning where a bottom-top and participatory approach increased local empowerment and ownership in conservation and conflict resolution. However, political and financial support is vital in order to ensure that projects do not cease in their initial stages. For instance, the administration and management of KINP has had to operate on anticipated funds that were promised and assigned for 2007. This is a result of the many changes in presidents and ministers and National Park Service (SERNAP) directors, which has prohibited the extension of the original 10-year agreement.



Wadi Gaza Nature Reserve, Palestine. Photo From: http://www.usaid.gov/wbg/story_0.htm



Mt. Pulag in the Philippines. Photo from: <http://www.trekearth.com/gallery/Asia/photo210093.htm>

Case Studies Continued

Mount Pulag National Park, the Philippines

Despite the benefits of zoning in Mt. Pulag National Park, it was not ultimately a perfect solution from a governance or ecological standpoint. The current zoning situation there does not specifically address the problems surrounding the multiple claims for ancestral domain rights by the multi-cultural indigenous communities who live in or near the protected area. While the current system in place does allow community entrance into the core protected zone for religious ceremonial use, there still exists a void of conflict resolution methods regarding which indigenous groups will actually receive these ancestral rights. Though the park's management plan recognized ancestral claims and customary practices, it does not delineate authority of these institutions in relation to other state-sanctioned levels of government.

From a conservation standpoint, the lack of funding for

the Mt. Pulag zoning program has impeded the creation of physical borders between zones. Without a concrete way to determine a zone's exact location, the ability of the zone to act as a specific type of protected area is severely compromised. The absence of physical borders between zones, coupled with understaffing in the park and a lack of rule enforcement, could lead to accidental, inappropriate resource extraction or worse, an actual decrease in the overall sustainability of the park. It is important to keep these types of caveats in mind when addressing the use of management zoning in protected areas; otherwise the costs could outweigh the benefits.

Wadi Gaza Nature Reserve, Palestine

In Wadi Gaza, zoning was initially established to conserve wetlands by halting or slowing natural resource and biological diversity degradation while promoting future rehabilitation measures. The first zoning plan was prepared through a top-down approach which created conflict within the site boundaries amongst the local community. One of the mistakes made during the implementation of zoning was demarcating a few zones by fencing them to prevent any accessibility. The process was incorrectly perceived by the local communities, who thought that other zones would be accessible and no regulations would be applied to the remaining zones. This created new conflict with the local communities who subsequently resumed extraction of resources without permission from the reserve management team.

After one year, the reserve boundaries were reduced

without considering its original small size. The new site boundaries and zoning categories were based on local community participation, as well as consultation with other governmental entities, NGOs, and international organizations; such as the USAID and the United Nations Development Programme (UNDP). This initiated the second set of management zones which were used to solve conflict among the local community caused by prohibition to resource access. The new plan aimed to protect the vegetation and habitat while allowing community access to their lands, largely used for agricultural purposes. Zoning categorization was established for developing a reserve integrated management plan while adhering to the national guidelines.

There were successes that resulted from the zoning implementation plan. Further ecosystem deterioration on the site was prevented, and resource extraction was reduced. During the implementation, biodiversity and habitat protection improved by cleaning solid wastes and building debris from the site, implementing re-vegetation activities and reducing chemical usage. One of the main indicators for such improvements was the reduction of eutrophication and the disappearance of blooming algae by limiting the nutrient content of water entering the wetland zone. Hunting was also prevented in the mentioned zones and this led to enhanced biodiversity richness such as an increase in threatened waterfowl species.

However, after program completion there was a dramatic drawback. The site lost more than 80% of its habitat within one year of project completion. This was due to the deterioration of the political situation and the lack of enforcement mechanisms.

Highlighted Resources

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Guidelines for Marine Protected Areas, IUCN, 1999. This document focuses on zoning in marine areas, but most of the steps and information are applicable to land sites as well: http://www.iucn.org/bookstore/HTML-books/BP3%20Guidelines_for_marine_protected_areas/Pag-003/cover.html

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Glossary of Terms

Buffer Zones

The concept is most directly traceable to UNESCO's 'Man and the Biosphere Programme' (MAB) biosphere reserve model, first proposed in 1968. "...Areas surrounding the core zone where only low impact activities are allowed, such as research, environmental education, and recreation, or on a larger scale, surrounding a protected area."

<<http://www.iucn.org/themes/wcpa/wpc2003/pdfs/programme/workshops/newways/ilr2.pdf> >

Community conserved areas (CCA)

One of four types of governance which uses indigenous peoples to manage protected areas. <<http://www.iucn.org/themes/ceesp/CCAlegislations.htm>>

Conflict Mitigation

Efforts used in attempts to reduce or eliminate risks that could be created by any source of activity. They aim to generate opportunities in conflict areas by improving and expanding support systems for those who are affected by the conflict, and promote community-based initiatives.

<http://www.usaid.gov/np/programs/cm_main.html>

Conflict Resolution

A process of working through opposing views in order to reach a common goal or mutual purpose.

<<http://www.aacn.org>>

Core Zone

"Strictly protected areas with very little human influence which are used to monitor natural changes in representative ecosystems and serve as conservation areas for biodiversity."

<<http://www.iucn.org/themes/wcpa/wpc2003/pdfs/programme/workshops/newways/ilr2.pdf>>

Corridors (biological)

"Area of suitable habitat, or habitat undergoing restoration, linking two or more protected areas (or linking important habitat that is not protected) to allow interchange of species, migration, gene exchange, etc."

<<http://iucn.org/themes/wcpa/theme/categories/summit/papers/papers/Forestprotectedareas6.pdf>>

Extractive Zones

"Areas zoned for a particular use, specifically, extraction of certain natural resources. Limitations may be placed on the type and quantity of resources extracted from these zones, as well as those with the right to do the extracting. Often, industrial extraction is prohibited in these areas." <http://www.iucn.org/en/news/archive/2005/11/pp_comments_ifc.pdf>

Governance

"The means by which society defines goals and priorities and advances cooperation; be it globally, regionally, nationally or locally. Most fundamentally, it is the means to an end, not an end in itself."

<<http://www.iucn.org/themes/law>>

Indigenous People(s)

"Indigenous peoples have the right of self-determination. By virtue of that right they freely determine their political status and freely pursue their economic, social and cultural development", form Article 3 of the Declaration on the Rights of Indigenous Peoples; <<http://www1.umn.edu/humanrts/instreet/declra.htm>>

Land Stability Assessment (LSA)

A formal decision-making technique which considers the principles and welfare of the stakeholders to determine the health and suitability of the land. LSA seeks to reduce conflicts by isolating activities that are not compatible in use.

Land Tenure

The relationship, whether legally or customarily defined, among people, as individuals or groups, with respect to land (for convenience, "land" includes other natural resources located on or within the land, such as water and trees); It is also an institution that determines who can use what resources, for how long, and under what conditions.

<<http://www.fao.org/DOCREP/005/Y4307E/y4307e05.htm> >

Natural Resource Management (NRM)

The process of managing natural resources for their most efficient and optimal societal use while maintaining the integrity of natural systems, and considering social, biological and physical aspects.

<<http://www.ag.ndsu.nodak.edu/nrm/aboutus.htm>>

Protected Areas

"An area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources and managed through legal or other effective means."

<<http://www.iucn.org/themes/wcpa/wpc2003/pdfs/programme/workshops/newways/ilr2.pdf>>

Stakeholders

A group of individuals, agencies and organizations that have an interest or stake in a certain project or institution.

<<http://www.iucn.org/themes/spg/Files/tailor.html>>

Transition Zone

"The outer zone where sustainable use of resources by local communities is encouraged and these impacts can be compared to zones of greater protection."

<<http://www.iucn.org/themes/wcpa/wpc2003/pdfs/programme/workshops/newways/ilr2.pdf>>



West Papua, Indonesia., Photo By: Tom Hewitt © 2007

Acknowledgements

Future Research:

The topic of zoning as a tool to link conservation and development tools calls for substantial additional research. Currently, research is being performed by the Land Tenure Center of the Nelson Institute at the University of Wisconsin – Madison on many of these topics.

Given the enormity of this topic, more information is forthcoming through a Land Tenure briefing.

Special Thanks To:

Lisa Naughton, Associate Professor, Department of Geography at the University of Wisconsin; Harvey Jacobs, Professor of Urban and Regional Planning, University of Wisconsin;

Kurt Brown, Communication & Project Coordinator, University of Wisconsin;

Sandra Pinel, PhD Candidate, Department of Geography at the University of Wisconsin;

Andrew Noss and Marianna Varese of the Wildlife Conservation Society;

Kathy Callahan, Region 2 Deputy Regional Administrator for the Environmental Protection Agency and Adjunct Lecturer of International and Public Affairs, Columbia University.

Zoning Text Prepared By:

Brook Jackson, Eliza Kretzmann, and Sami Qadan, Environmental Science and Policy Program at Columbia University, and Lisa Naughton, Associate Professor, Department of Geography at the University of Wisconsin.

Case Studies Prepared By:

Leanna Dakik, Meghan Schloat, and Sami Qadan, Environmental Science and Policy Program at Columbia University.

