On the Order of Development: A Case Study of Community-Based Natural Resource Management in Vondrozo, Madagascar

L. Jamila Haider

Abstract: Despite the omnipresence of the term ‘sustainable development’ in policy arenas, methods of its successful implementation have been less widespread. As a general research inquiry this paper addresses the question of how social and economic development can proceed alongside environmental conservation. Specifically, the paper questions whether community-based natural resource management is an appropriate means to increase the welfare of a population while simultaneously protecting natural resources. A theoretical discussion regarding sustainability, beginning with the Brundtland report, offers a critical view of the poverty-environment nexus, leading into the introduction of community-based natural resource management (CBNRM) as a method of combining development and conservation efforts. This paper draws on a case study of CBNRM in the Fadriana-Vondrozo Forest Corridor (COFAV) in Madagascar, concluding that CBNRM in Madagascar is a positive step in making the system more resilient to systemic change. Among the challenges that exist are the transfer of knowledge and complex roles of governance, which lead to an unpredictable future for CBNRM in Madagascar.

The idea that environmental degradation is linked to poverty is a dominant view held by development theorists and agencies around the world. The World Commission on Environment and Development (WCED) promoted the idea that poverty is a leading...
factor of environmental degradation in the renowned Brundtland Commission in 1987.\textsuperscript{1} It is this limiting stance – the notion that poverty must be alleviated before environmental protection can take place – that has prohibited advancement on either front among poor\textsuperscript{2} populations living on ecologically marginal lands.

The idea of conventional development, whereby poverty should be reduced by means of economic growth, is increasingly pushing the earth’s environmental limits. Many newly industrialized countries have been a success by the strictest standards of economic development, but what will happen if two or three billion more of earth’s citizens follow this conventional road to development? As the industrialized world tries to reverse the adverse effects of the industrial revolution, should it aid in leading the world’s poorest down the same path? This paper challenges the common notion of a downward spiral in which poverty eradication is necessary before environmental concerns can be properly addressed; the two must be combated in synchrony, if they are to be eradicated at all.

As a general research inquiry this paper addresses the question of how social and economic development can proceed alongside environmental conservation. Community-based natural resource management (CBNRM) will be introduced as a potential model with which to address poverty and environmental protection simultaneously. Hence, the more specific research question of this paper becomes: is CBNRM an appropriate means to increase the welfare of a population while protecting natural resources?

First, the relationship between poverty and the environment will be examined to determine if a link exists. The paper will then explore how the concept of how a downward spiral manifested itself


\textsuperscript{2} Poverty in this paper refers to absolute poverty; as the measure of the number of people living below a certain income threshold or the number of households unable to afford certain basic goods and services. For further discussion, see Martin Ravallion, “The Debate on Globalization, Poverty, and Inequality: Why Measurement Matters,” International Affairs 79, no. 4 (2003): 740.
and became the primary model of the poverty-environment relationship. The discussion of sustainable development begins with the presentation of the Brundtland report and the consequences of implementing sustainability policies. This paper will then offer a brief history of sustainable development, leading to its establishment as the dominant development paradigm of the past twenty years. A theoretical discussion regarding sustainability will aim to clarify some of the inherent contradictions that exist between development and ecological preservation. A broad discussion of participation will be provided to set up the introduction of CBNRM as a specific mechanism in which development has been combined with conservation efforts. Consequences of a CBNRM approach will be analyzed in a specific case study of CBNRM in Vondrozo, Madagascar. Finally, the governance structures involved in this type of development approach will be briefly analyzed, concluding with possible future paths of community-based development in a globalizing world.

**Poverty-Environment Link**

Despite the international ‘consensus’ on sustainable development, the meaning of the term remains contested. On the one hand, corporate leaders and politicians have used the term to further neoliberal economic growth while paying credence to the ‘green agenda.’ This perception is rather contrary to understanding sustainability as an equitable society operating within ecological limits.\(^3\) Time and again, the need to foster an ecologically-resilient global system has fallen victim to the perceived immediacy of economic concerns.\(^4\)

Over twenty years ago, the WCED published *Our Common Future*, which is more commonly known as the Brundtland Report. The report identified poverty as a leading factor of environmental degradation and suggests that alleviating poverty and protecting the

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\(^4\) Ibid., 96.
environment are both critical to long-term economic growth.\textsuperscript{5} However, many see the challenges of poverty reduction and environmental protection as antithetical.\textsuperscript{6} Jeffrey Leonard, president of the Global Environment Fund, has noted: “As with anything that diverts even incremental energies or resources of subsistence-level people, a pause to protect or repair the environment can literally take food out of the mouths of hungry families.”\textsuperscript{7}

While poverty is generally seen as both a cause and effect of environment degradation, it is important to consider the effects of the world’s affluent minority.\textsuperscript{8} The ecological footprint\textsuperscript{9} of a rich person is much greater than the ecological footprint of a poor person. Nevertheless, the exponential human growth rate in the developing South takes its own toll on the environment. As the United Nations Environment Program has noted, “the continued poverty of the majority of the planet’s inhabitants and excessive consumption by the minority are the two major causes of environmental degradation.”\textsuperscript{10}

The strength of the poverty-environment relationship is not stable or uniform. Rather, it varies depending on the issues at hand. For example, factors that contribute to global warming on a large scale can be attributed mostly to the industrialized world, while land degradation can be traced back to the rural poor mainly in the developing South. Much of the conventional environmental literature, including the Brundtland Report, enforces this perceived negative correlation between poverty and sustainable development; poor people are seen as short term maximizers who have no

\begin{itemize}
\item \textsuperscript{5} World Commission on Environment and Development, “Our Common Future.”
\item \textsuperscript{7} Ibid., 4-5.
\item \textsuperscript{8} World Commission on Environment and Development, “Our Common Future.”
\item \textsuperscript{9} A measure of ecological footprint allows for the estimation of global overshoot and ecological deficit. Further information can be found in Mathis Wackernagel and William E. Rees, \textit{Our Ecological Footprint: Reducing Human Impact on the Earth}, (The New Catalyst: Bioregional Series, 1998), 55.
\end{itemize}
opportunity to look ahead, since they are only concerned with surviving today.\textsuperscript{11} The Brundtland Report states that “poverty reduces people’s capacity to use resources in a sustainable manner; it intensifies pressure on the environment.”\textsuperscript{12}

Although the report was monumental in that it identified the poverty-environment link as a symbiotic crisis and brought it to the attention of the global community, it failed in the fact that it did not propose any mutualistic solutions. Rather, it encouraged the eradication of poverty prior to combating environmental problems.\textsuperscript{13} The view that environmental protection depends on the reduction of poverty has led to the conception of a downward spiral.

\textbf{Downward Spiral}

\textit{Many parts of the world are caught in a vicious downwards spiral: poor people are forced to overuse environmental resources to survive from day to day, and the impoverishment of their environment further impoverishes them, making their survival ever more difficult and uncertain.}\textsuperscript{14}

The perception of a downward spiral has created the common belief that only the affluent can enforce environmental policy. Jack Hollander, author of \textit{The Real Environmental Crisis: Why Poverty, Not Affluence is the Environment’s Number One Enemy}, makes the extreme case that “poverty is also linked to violence against the environment and that a global transition from poverty to affluence is essential to bringing about an environmentally sustainable world.”\textsuperscript{15} More specifically, he argues that unorganized political societies are unable to implement environmental policies or standards to control

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\textsuperscript{12} World Commission on Environment and Development, “Our Common Future.”


\textsuperscript{14} World Commission on Environment and Development, “Our Common Future.”

\textsuperscript{15} Jack M. Hollander, \textit{The Real Environmental Crisis: Why poverty, not affluence, is the environment’s number one enemy} (Berkeley: University of California Press, 2003), 17.
\end{flushleft}
environmental degradation. Hollander refers to countries in the developing south as countries in their “first stage of development,” still struggling to overcome the immediate challenges of survival. He goes on to say that “under such conditions, people are not likely to show an interest in the environmental issues of the affluent until they themselves begin to taste the fruits of affluence.”\textsuperscript{16} In other words, he is suggesting that the world’s poor must first escape poverty and begin to industrialize in order to experience affluence similar to that in the Global North; only then can they play a significant role in environmental protection. This argument further links the local with the global, as the end goal of the dominant development by growth paradigm equals industrialized wealth. The logic of attaining a state of affluence through environmentally harmful means, where the end effect is the establishment of a policy to reverse the harm instilled, should therefore be reconsidered.

What is even more disturbing is the fact that although the harmful impact of many modernization schemes are now well-known, similar patterns are being implemented in the developing South. Kate Willis, a developmental theorist, writes of the history of development schemes in the twentieth century: “long-term environmental problems were disregarded in favour of the goals of economic growth and development.”\textsuperscript{17} We need only look at the newly industrialized countries or large-scale top-down development projects such as the Narmada dam\textsuperscript{18} to demonstrate this ‘grow now, clean up later’ attitude.\textsuperscript{19} These top-down projects have not only proven to be environmentally destructive, but they also take power

\textsuperscript{16} Ibid., 23.

\textsuperscript{17} Kate Willis, \textit{Theories and Practices of Development} (New York: Routledge, 2005), 149.

\textsuperscript{18} A series of dams constructed along the Narmada River, India beginning in the late 1970s displaced hundreds of thousands of people and great expanses of land were lost. The grassroots opposition to the enormous infrastructure project is perhaps one of the most celebrated environmental justice movements in developing countries. For more information, see Subodh Wagle, “The Long March for Livelihoods: Struggle against the Narmada Dam in India,” in \textit{Environment Justice: Discourses in International Political Economy Energy and Environmental Policy}, vol. 8, edited by John Byrne, Leigh Glover and Cecilia Martinez (Edison: Transaction Publishers, 1997), 71-3.

\textsuperscript{19} Willis, \textit{Theories and Practices of Development}, 150.
out of the hands of the people through centralization. Shiva, in *The Violence of the Green Revolution*, says that large development projects often centralize power, thus creating a new source of conflict and resistance.²⁰

Rural populations often resist large-scale development schemes and violate imposed rules, thus undermining conservation efforts. These apparent deficiencies of top-down strategies have led policymakers to seek alternatives, with the challenge being to find a way to conserve the environment while at the same time improving the local economic situation. One resulting alternative is community-based natural resource management (CBNRM).

The movement towards an alternative means of development began in the mid-1980s, when natural resource management agencies in Africa began to realize that they lacked the financial and human resources to effectively prevent resource degradation.²¹ At the same time, democracy was becoming increasingly popular in sub-Saharan Africa. Many of the newly elected governments were forced to consider the demands of local communities for greater recognition and improved access to ecosystem services.²² At the international level, the need for people-centered conservation strategies was established at the United Nations Framework Convention on Climate Change in 1992. The reason for this change in attitude was that policymakers began to accept that top-down decision making in resource management often precipitates a spiral of conflict that places natural resources at risk. CBNRM, as a policy approach, was created to promote better resource management through local-level control, ultimately leading to better environmental stewardship.²³ It was argued that better land-use

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²² Ibid.

practices, policies and management systems could halt environmental degradation. CBNRM can be defined as:

The management of natural resources under a detailed plan developed and agreed to by all concerned stakeholders. The approach is community-based in that the communities managing the resources have the legal rights, the local institutions, and the economic incentives to take substantial responsibility for sustained use of these resources. Under the natural resource management plan, communities become the primary implementers, assisted and monitored by technical services.

CBNRM presents a management scheme in which poor people living on the margins of ecologically-fragile land are made responsible for the management of natural resources. Within this new conservation paradigm, rural poverty is considered a major hindrance to the sustainable utilization of natural resources. This nexus between sustainability and development will be further explored in the following section.

**Sustainable Development**

Approaching conservation and development issues through a common lens is encapsulated in the term ‘sustainable development.’ The term first appeared in the *World Conservation Strategy* drafted by the International Union for Conservation of Nature and Natural Resources with the help of United Nations Environmental

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Programme and World Wide Fund for Nature (WWF). This document was pivotal in projecting development and conservation under a common lens. The paradigm shift from conservation to sustainability theory was solidified by the Brundtland Report. The terms ‘sustainable’ and ‘development’ quickly became the components of a new catch phrase for academics, governments and non-governmental organizations alike. Despite its popular use in these fields, the theoretical basis of ‘sustainable development’ is at times ambiguous and even contradictory. How can development, which is based on growth, be paired with sustainability, which implies preservation? These two words are practically opposite in meaning, yet the oxymoron resulting from their union has become the predominant socio-economic paradigm of the last twenty years.

The Brundtland Report defines sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” This is a lofty and inspiring definition, but remains problematic. Wolfgang Sachs, researcher and author, questioned: “Are the needs in question those of the global consumer or the enormous number of have-nots?” This is indeed a pressing question, but for the purpose of the topic at hand, this research paper is concerned about how this paradigm meets, or fails to meet, the needs of the so-called ‘have-nots.’

The focus on minimalism in the WCED definition of sustainable development is deeply unsatisfying; therefore, this paper draws on resilience theory, which provides a more dynamic and inclusive

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30 Resilience is the magnitude of disturbance that can be tolerated before a social-ecological system moves to a different state controlled by a different set of processes, and is often closely related to sustainability. For a further discussion of this concept, see Stephen Carpenter et al., “From Metapho to Measurement: Resilience of What to What?” *Ecosystems* 4 (2001): 765.
definition. Renowned ecologist, C.S. Holling, not only provides a functional definition of this term, but also defies the seeming contradiction of sustainable development:

Sustainability is the capacity to create, test and maintain adaptive capability. Development is the process of creating, testing and maintaining opportunity. The phrase that combines the two, “sustainable development,” thus refers to the goal of fostering adaptive capabilities and creating opportunities. It is therefore not an oxymoron but a term that describes a logical partnership.31

This definition emphasizes the adaptive element of sustainability. Key to developing states is the adaptive capacity of populations to stringent environmental protection schemes while furthering development at the same time. Environmental protection can encompass various issues, but a prominent concern in the developing South and paramount to the Madagascar case study is that of deforestation and the consequent loss of biodiversity. Much of the world’s extreme biological diversity is found in areas of extreme poverty. This makes biodiversity not only a local, but also a global good. The WWF works with local communities to protect biodiversity for the well-being of local, as well as global, populations. A major problem with this approach is that the protection of biodiversity is not a marketable resource, making it an inherently difficult objective in a market-driven world. For this reason, CBNRM is theoretically an effective approach, since it speaks to the intrinsic value of biodiversity to the marginalized poor. However, as the Madagascar case study will display, the proper implementation of such a project on the ground encounters various barriers.

**Biodiversity**

Biodiversity has become a buzzword within the conservation-development field, especially in Madagascar. This is a term that requires further explanation, given that it weighs heavily in the

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discussion of biodiversity protection as an element of CBNRM. Biodiversity can be defined as “the sum total of all living things on Earth, taking into account their great variety in structure, function and genetic make-up.”

It has been mentioned earlier that biodiversity is a local and global good, but what makes it worthy of preservation while the surrounding population suffers from extreme poverty and malnutrition? Gretchen C. Daily of Stanford University states that unless humanity is suicidal, it should want to preserve, at the minimum, the natural life support systems and processes required to sustain its own existence. Therefore, even for the most technocratic of attitudes, biodiversity provides humanity’s lifeline at the local and global level.

Many proponents of the free market system, such as Indur Goklany and Merritt Sprague, argue that states could trade biodiversity for greater productivity to just below the minimum threshold necessary for the continuance of natural life support systems. However, due to the dynamic and unpredictable nature of the natural environment, such a management scheme would involve great risk of flipping into an inhospitable steady state.

To achieve this harmony, described between people and nature, one needs an effective machinery to carry and convert the sustainable development model from theory to practice. This machinery is effectuated through multiple scales of good

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35 See arguments put forth from the resilience literature, such as Carpenter et al., “From Metaphor to Measurement.”

governance. At the state level, this requires the government to enable their people to exercise the right of participation through the guarantee of civil and political rights, including freedom of association, an independent judiciary and freedom of information. Sound governance depends on social development and a shared conservation vision. Likewise, robust biodiversity conservation requires an integrated, dynamic governance scheme. This approach requires an alternative perspective of development, one that considers more than monetary achievements.

The influential economist Amartya Sen describes development as freedom. Sen states that society is not free so long as future generations are denied a sustainable environment. Frighteningly, rather than scaling back, the rampant capitalist system is in fact increasingly borrowing, in economic and resource terms, from future generations. Sen identifies five distinct sources of variation between “our real incomes and the advantages—the well-being and freedom—we get out of them.” One of these sources of variation is environmental diversity:

Variations in environmental conditions, such as climatic circumstances, can influence what a person gets out of a given level of income. The presence of infectious diseases in a region alters the quality of life that inhabitant of that region may enjoy. So do pollution and other environmental handicaps.

Furthermore, Sen moves away from the conventional theories of economic development and suggests that we must include the freedom of democratic choices. These freedoms allow people to make rational choices about quality-of-life issues, such as the

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37 Good governance implies that people have the rights and responsibilities to participate in the decisions that affect their lives and those of future generations. For further information, please see Sharp, "Organizing for Change," 54.

38 Sharp, "Organizing for Change," 61.


40 Amartya Sen, Development as Freedom (New York: Alfred Knopf, 1999), 70.

41 Ibid.
environment. The following case study from Madagascar demonstrates various levels of machinery that converts sustainable development theory into practice using alternative development indicators, including environmental well-being. A rural case study was chosen for two reasons: the potential for fundamental systemic change is greater at the fountainhead of development, in societies where the global economic forces have yet to have significant impact, and the author has conducted field work in the rural region of Vondrozo, Madagascar.

**Case Study**

Madagascar's unique ecosystems, viewed by many as the hottest of the Earth's biodiversity hotspots, are on the verge of collapse.\(^{42}\) Having separated from the African continent 165 million years ago, Madagascar hosts a unique evolutionary legacy.\(^{43}\) This endemism persists in remarkably little habitat; only 10 percent of the island's original forest-cover remains. The leading factor of habitat loss is deforestation, which is largely attributed to the traditional slash-and-burn farming methods of rural peasants.\(^{44}\) Approximately 1,500 years of human occupation has dramatically altered the natural heritage of the island. However, it is not only nature that is being adversely affected by this deforestation and degradation. Madagascar is also one of the poorest countries in the world, with per capita GDP of $290 USD in 2005.\(^{45}\) Approximately 70 percent of the country's population lives below the poverty line.\(^{46}\)

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Consequently, Madagascar faces immense external and internal pressure to focus on poverty relief and economic development.

The inherent contradiction between biodiversity and extreme poverty makes Madagascar a particularly interesting country in which to study sustainability. Over two-thirds of Madagascar's population of 17 million is rural, a further two-thirds of which practice subsistence-oriented agriculture. This exerts intense pressure on the land.\textsuperscript{47} Rural peasants, who suffer from chronic malnutrition, depend on rice cultivation to survive and their main concern is the soil degradation attributable to the omnipresent landscape burning. Shifting cultivation, including \textit{tavy}, has been ubiquitous since the first Indonesian and African settler's arrival approximately 1500 years ago.\textsuperscript{48} \textit{Tavy} is an ancient farming practice, where the forest is cut and burned to grow crops such as manioc and hill rice. After two to three years, the land is abandoned and regenerates into bush and thicket. In ideal conditions, the land can be used again for agricultural crops after a ten-year fallow period.\textsuperscript{49} Due to increasing population pressure, however, fallow periods have become shorter. Much of the land has subsequently become degraded to the point where no crops can be planted and it becomes secondary grassland or is invaded by weeds. This cycle has led to lower crop yields and further pressure on the forests.

Madagascar’s government took a firm stance against both biodiversity loss and poverty by presenting a plan to combat these problems at the 2003 World Parks Congress in Durban. Within the framework of this congress, popularly known as the ‘Durban Vision,’ then-president Marc Ravalomanana\textsuperscript{50} pledged to triple Madagascar’s

\textsuperscript{47} Kull, \textit{Isle of Fire}, 29.
\textsuperscript{48} Ibid., 15.
\textsuperscript{50} Late in 2008, Ravalomanana’s government approved a deal with South Korea’s Daewoo Logistics Co., in which Daewoo would lease 1.3 million hectares of land in Madagascar (half of the island’s arable land) to grow food crops. This deal led to the ousting of President Ravalomanana on March 17, 2009, by Andry Rajoelina. Rajoelina subsequently ended the agreement with Daewoo. For further analysis, see BBC News, “Madagascar leader axes land deal,” March 19, 2009, http://news.bbc.co.uk/2/hi/africa/7952628.stm.
protected areas. The Corridor Fadriana-Vondrozo (COFAV) is one such newly protected area with temporary status. Ravalomanana’s policy highlights a well-established challenge that exists in promoting both conservation and development in social-ecological systems. Strict conservation is often not an option, especially in the developing world where the rural poor live on the frontiers of vulnerable protected areas. The mutual relationship between sustainable development and conservation has forced a shift from fortress-style conservation\(^{51}\) to a more people-centered approach, often through integrated conservation and development programs. Inherent to these programs is an emphasis on CBNRM.

With the overarching goal to conserve biodiversity while furthering social and economic development, the government imposed a strict restriction on slash-and-burn agriculture, a regulation to which many peasants had difficulty adjusting. Since tavy has been outlawed, new economic, social and ecological conditions have emerged. In the COFAV region, where the majority of the population consists of subsistence farmers, the policy has had particularly severe socio-economic impacts. Due to the failure of top-down conservation regimes in the 1980s and 1990s, a community-based approach was introduced in Madagascar.

CBNRM as a policy approach in Madagascar was created to promote better resource management through local-level control, leading to more responsible environmental stewardship.\(^{52}\) In this case study, the community-level forest association is called Association de Communauté de Base (COBA) and consists of local forest users, in particular local residents who use forests for firewood, timber, medicinal plants, food and cultural practices.

As COFAV is state-owned and has national forest status, in theory, the state is responsible for its management; however, the state does not have either the human, material, or financial means to do so. The government therefore calls on various international,

\(^{51}\) Also known as the Yellowstone model, the Fortress conservation model defines conservation as separate from the development of human communities. Under this model, natural areas are protected from exploitation, but “nonconsumptive” uses are allowed. For further information, see Klein, Conservation, Development, and a Heterogeneous Community, 452.

\(^{52}\) Kull, Isle of Fire, 244.
national or local bodies to contribute to the management of these forests while complying with the legal framework. The WWF was the first organization in the region to take on this challenge of combining forest conservation with community support. The overarching objective of WWF’s project is to contribute to the conservation initiative in the forest corridor by “making local communities responsible for the sustainable management of natural resources and the development of the welfare of the local population.”

Fikret Berkes, who holds a Canada Research Chair in Community-Based Resource Management, finds that to a large extent, maintaining patterns of resource use that facilitate the continued renewal of ecosystems (such as traditional systems of forest use) are essential to the maintenance of the world’s biodiversity. While development is a priority among the people, they realize that their livelihoods depend on the maintenance of the forest corridor. Therefore, although the COBA is a structure imposed by the WWF, the ideas that govern the association are largely bottom-up. Each COBA is responsible for the land and forest surrounding its community. The farmers manage this land through dina, which are laws unique to each community outlining forest-use regulations, and are enforced voluntarily by community members.

In theory, the transfer of management from state to community should occur smoothly and successfully. However, technical barriers prevent successful implementation of CBNRM in the Vondrozo corridor. First, the community finds it difficult to carry out the technical aspects required by external ideas of conservation, such as zoning and forest inventories, due to the comprehensive prioritization and planning required. Second, enforcement of the dina suffers from a lack of human resources and unclear delineations of jurisdiction. Third, the competitive nature among the farmers prohibits adequate transfer of knowledge to occur or new

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55 Observation based on personal notes made in the field.
56 Stephanie Reed, “Sustainability and Conservation,” 36.
agricultural techniques taught by the WWF. Few farmers are actually able to attend the trainings, and those who do are reluctant or unwilling to share the knowledge obtained.\textsuperscript{57} A final major hurdle in the Madagascar case study is the limited involvement of women within the village organization. As the majority of farmers in poor countries are women, gender and environmental issues are interrelated. Women are also the main gatherers of food, fuel, water, medicinal plants and other resources.\textsuperscript{58} Although many of the farmers in Madagascar are women, they are often excluded in training and development initiatives because of local taboo.

A closer look at the governance structure involved in the implementation of CBNRM leaves much to be desired. In addition to Madagascar’s looming environmental and economic problems are its fragile democracy and weak governance. Numerous cross-scale influences exist among structures of governance in the focal area. Co-management, guided by subsidiarity and participation, is the dominant governance preference for this protected area.\textsuperscript{59} A long chain of command exists, involving a federal government ministry (Department of Water and Forests), a private organization called the National Association for the Management of Protected Areas (ANGAP), a donor (Swedish International Development Agency) and WWF officers who execute the project in COFAV. The COBA is touted as a grassroots association; however, it is in reality a product of a lengthy chain of command.

Clearly, there is much room for improvement. COBAs often suggest development actions such as capacity building, networking, technical training and infrastructure as mechanisms to improve the WWF conservation and development project in the corridor.\textsuperscript{60} A tighter governance structure and its corresponding institutional architecture are key elements for the eventual success or failure of

\textsuperscript{57} Observation based on personal notes made in the field.

\textsuperscript{58} Matthew R. Auer. "Women, the environment, and development assistance." \textit{International Politics} 36 (1999): 373.


\textsuperscript{60} Reed, “Sustainability and Conservation,” 36.
COFAV and CBNRM in general. Community-based natural resource management is clearly a step in the right direction but in many cases it remains dependent on the larger scale national and international political climate.

Combined sustainable development and conservation projects are essential for a sustainable future; however, they require an integration of efforts on the ground. Perhaps most important is a stable government to oversee such transfers of management. Communities in COFAV have taken the protection of the rainforest seriously, as they themselves directly suffer the consequences of a rising water table and eroding soils. Undoubtedly, these communities face incredible challenges and the associations are far from perfect. But with support from the national and local governments, as well as international donors, the protection of the vulnerable rainforest by communities is becoming a common and fairly successful management practice.

In line with a CBNRM approach, the COBA is not only successfully protecting the forest, but is also linking the ability to use environmental goods and services to the overall health of the community. Communities also linked the protection of the forest to the ability of future generation to benefit from local natural resources. In economic terms, it is unclear whether or not COBAs are benefiting directly from the formal CBNRM approach. While the agricultural training and support provided by the WWF is intended to have positive economic effects, the limited markets for agricultural products have resulted in minimal economic growth. Furthermore, the degree of resource protection by communities has been brought into question.

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62 Ibid.

63 Ibid.
Unfortunately, national political unrest has recently facilitated the illegal exploitation of the remaining rainforest. Foreign businesses are organizing thousands of illegal loggers and animal traders, who in turn are stripping the forests of any remaining rosewood and ebony, smuggling out rare animals, and in so doing, destroying the habitat of endangered wildlife. The current situation has park staff and communities discouraged by the non-existent state support. In fact, it seems that the state-armed militia in Madagascar is supervising the transportation of the wood.64

Despite the potential for local peoples’ drive to form the basis for a global movement, they cannot focus their energies on nurturing a global social movement from the grassroots as they are struggling to survive.65 Alcorn and others argue that support for local-indigenous people’s survival and social movements could nurture allies for a global social movement to recouple earth’s societies to ecological feedback across local, national and international scales.66 This case demonstrates that no matter how effective a community organization is in managing natural resources, the local level must have the support of state and global actors as well. The discourse that was emerging among local people regarding environmental protection in Madagascar has disappeared. It is the responsibility of national and global actors to reengage with this local discourse and protect not only the vulnerable ecosystem but also the local livelihood to which it is necessarily coupled.

Conclusions

This paper has clarified common misconceptions regarding sustainable development and proposed CBNRM as a viable option for the sustainable development of present and future generations in


the developing South. Among the challenges that exist are the transfer of knowledge and complex roles of governance. In their book *Beyond the Limits*, Donella Meadows, Dennis Meadows, and Jorgen Randers state:

> To us those conclusions spelled out not doom but challenge—how to bring about a society that is materially sufficient, socially equitable, and ecologically sustainable, and one that is more satisfying in human terms than the growth-obsessed society of today.\(^{67}\)

The challenge therefore is to move away from development centered strictly on unlimited growth and approach development holistically. This paper has shown that with a focus on social and ecological capital rather than economic growth alone, poverty and environmental degradation can be combated simultaneously. It should be noted that this analysis is unique to Madagascar, and is therefore limited in scope. Nevertheless, the theoretical underpinnings and case study have shown that neither poverty eradication nor environmental degradation can be approached without regard for the other. While CBNRM in Madagascar has generally been a positive step in making the system more resilient to systemic change, it also displays the interplay between local, national and global policy. Whether or not CBNRM contributed to the resilience of the COFAV social-ecological system after the national political turmoil would be a worthwhile future study.

As the case study in Madagascar has demonstrated, complex governance structures with their roots deeply embedded in an ever-globalizing world has impeded the grassroots success of such community organizations. It is for this reason that this paper argues the global system must be receptive to local governance structures and initiatives, such as CBNRM. Global systemic change is dependent on critical thinking and ingenuity, which may take decades to achieve. However, when this change does occur and when the growth-obsessed society of today changes course, local movements

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such as CBNRM must be ready to mobilize. It is for this reason that CBNRM is a keystone approach to development, creating a bridge between the local and global scale and between social and environmental systems.

Bibliography


