NGÖBE CULTURAL VALUES OF CACAO AND SUSTAINABLE DEVELOPMENT IN WESTERN PANAMA

by

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(Under the Direction of Carl F. Jordan)

ABSTRACT

This thesis examines questions of conservation and development pertaining to the Ngöbe, an indigenous group in western Panama, with a focus on cacao (*Theobroma cacao* Linn.) agroforestry. A political ecology framework is applied to cacao agroforestry as sustainable development amongst the Ngöbe in a historical context. Through research based on both academic and grey literature, as well as an unpublished thesis, I discuss Ngöbe symbolic values of cacao in the context of conservation and development trends in the region. I make specific reference to the Mesoamerican Biological Corridor (MBC), a transnational conservation program which promotes cacao agroforestry in Ngöbe communities. I conclude that future conservation efforts should be directed towards the development of policies that enhance broader Ngöbe values for cacao and should not rely overwhelmingly on market-based criteria.

INDEX WORDS: cacao, agroforestry, sustainable development, Mesoamerican Biological Corridor, Bocas del Toro, Panama, Ngöbe.

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CHAPTER 1

INTRODUCTION

With general political ecology interests in the interaction of the global economy and local cultural values, and their combined impact on conservation, I originally went to Panama to participate in a native tree reforestation project. While learning about the use of native trees in shade-grown coffee in western Panama, I began to inquire into the circumstances of the Ngöbe – the indigenous population that provides the migrant labor for a great number of coffee farms in Panama. The plantation owner with whom I spoke explained that he paid his Ngöbe laborers more than the industry standard and that this was still not enough for them to live on.

Intrigued and concerned, I went back to Panama City and found out that while I had heard relatively little about them before that point, the Ngöbe had three notable features: 1) they are Panama's largest indigenous group, with the nation's largest indigenous territory – referred to in Panama as a *Comarca*[1], 2) they are the fastest reproducing demographic in Panama, 3) they are the poorest demographic, in economic terms, in Panama and 4) the *Comarca* is undergoing severe land degradation. Ethnographic work has identified population increase and declining productivity of arable lands as major problems confronting the Ngöbe and leading to outmigration from their *Comarca* (Young 2007). The Pacific portion of western Panama is characterized in conservation publications (e.g. Coates 1997) and popular national media in

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[1] Words that are of clear Spanish derivation and used most often in Spanish-speaking Panama are italicized, whereas words that are of clear Ngöbere derivation and used most often in Ngöbere are underlined.

Panama (e.g. *La Prensa* 2007) as overpopulated, highly deforested and in need of restoration. Meanwhile the Caribbean counterpart is home to largely intact forests that require conservation measures due to burgeoning – largely Ngöbe – populations and migration patterns.

These features, though not taken for granted, were what initially drew my interests to the Ngöbe as a population of study. I was motivated by a political ecological interest in resource control to critically approach some of this conventional wisdom. I was interested in the possible ways in which the Ngöbe are conserving natural resources, rather than simply depleting them. I was also interested in subsistence as not a mere act of survival intrinsically needing remedy, but rather as an alternative legitimate mode of living.

I wondered if the Ngöbe in general are *in fact* suffering or necessarily degrading the landscape, or rather that their subsistence is based on different cultural and environmental priorities. On the other hand, I thought that it is possible that the Ngöbe are in fact suffering and contributing to landscape degradation, but due to the current political economic structure, rather than their own mishandling of natural resources. The former would require a reevaluation of the perceived problem of lack of economic development. The latter would require a reevaluation of the proposed solution of further economic development. I assumed that my research would bear out something that didn't fit neatly with any one of the preceding potential explanations, but the alternative scenarios helped initiate and guide my investigation.

The Ngöbe live primarily in western Panama, and increasingly on the Caribbean slope of the continental divide where the majority of cacao is produced in the country. Through further review of the cacao literature, I learned about the growing enthusiasm in conservation circles around cacao (*Theobroma cacao* Linn) – the seed of which makes chocolate. Cacao agroforestry, which is the systematic production of cacao under a tree canopy or overstory, is a

way to generate income in tropical forests while maintaining relatively high degrees of biodiversity (Young 1994; Current and Scherr 1995; Beer et al. 1998; Duguma et al. 2001; Bright and Sarin 2003; Rosenberg and Marcotte 2005). I further learned that Ngöbe smallholders are producing a significant proportion of the cacao grown in Panama.

It was not until my second summer in the field that I gathered the remaining major pieces that would comprise this project. I discovered that cacao also has ritual and symbolic values for the Ngöbe (Quintero 1998) as they have been growing it for centuries in homegardens and managed forest systems (Linares and Ranere 1980; Gordon 1982), and that it is being formally promoted as a mechanism of sustainable development in western Panama by the transnational Mesoamerican Biological Corridor project (MBC) (PAMBC 1998). All of this led to my research questions around the particular symbolic values the Ngöbe attribute to cacao and how these values articulate or interact with national and international interests in conservation and development. This in turn led to conclusions that conservation and sustainable development do better at accounting for material values than non-material or symbolic ones (e.g. West 2005) and that rectifying this would require improved site-specific socio-ecological research.

In the case of western Panama, cacao agroforestry as sustainable development presents complications and opportunities to both to the cultural adaptation of the Ngöbe, as well as to the biodiversity conservation goals of large-scale programs such as the MBC. Ngöbe cacao cultivation for ritual use is consistent with principles of agroforesty that prioritize system features beyond maximum yield of a single cultivar. This is due to the fact that Ngöbe cacao rituals employ a host of cacao landraces[2] for various purposes ranging from curative to protective

[2] While the term 'landrace' is complex and lacking a standardized definition, I use the term to refer that Quintero (1998) calls distinct "types" of cacao cultivated by the Ngöbe. Landraces are

(Quintero 1998). I rely upon previously conducted ethnographic work (Quintero 1998) to suggest that cacao rituals could foster a cultural resilience to various disturbances that are likely to be encountered as development pressures increase in Ngöbe society. The ritual system requires a higher diversity of cacao varietals than monoculture market production, and the persistence of such systems in the face of conservation and development influences could perhaps enhance ecological – and thus economic – stability of the agroforests of the region.

Following the introduction I provide a literature review of the major thematic components of this thesis: political ecology – as an analytical framework that encompasses material and symbolic values at multiple scales; conservation and development – due to their being two preeminent issues that confront the Ngöbe; cacao agroforestry – due to its being employed as a mechanism of both conservation and development, or sustainable development; neoliberalism – due to its characterizing many sustainable development programs, especially on a large-scale, and being principally criticized by scholars for an exceedingly narrow market-orientation; and local and symbolic knowledge – due to its being an element of the Ngöbe relationship to cacao that is not as often, or easily, accounted for in recent conservation efforts. I then present the research setting in terms of both western Panama and the Ngöbe population that inhabits the region.

Following the Research Problem, Research Questions, and Methods sections, I provide

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developed through artificial selection under improved conditions rather than unmanaged natural selection or selection for maximum yield under optimized agricultural conditions. It therefore is an appropriate term for locally-specific variations developed over time in indigenous systems such as those of the Ngöbe cacao production. I utilize the more general term 'varietal' in discussion of different modes of cacao production, and 'landrace' when discussing traditional Ngöbe production. I follow the definition of landrace put forth by Zeven (1998): "an autochthonous landrace is a variety with a high capacity to tolerate biotic and abiotic stress, resulting in a high yield stability and an intermediate yield level under a low input agricultural system."

results and discussion by means of analysis of both academic and MBC grey literature. Overall I present the elements and implications of a ritual crop of a marginalized population being targeted by a transnational sustainable development program. I discuss the Ngöbe and cacao, and present the ways that they are conceptually well-suited for each other in the context of sustainable development. I present evidence of Ngöbe symbolic knowledge of cacao in the context of emergent patterns of historical interactions between the Ngöbe and increasing outside development and conservation pressures. I present the MBC in detail as a present-day example of large-scale conservation that faces the challenge of the cultural complexities beyond more widely recognized economic and ecological values. I also describe the neoliberal market orientation of the MBC, criticisms that have arisen around it, and possible implications for symbolic knowledge held by the Ngöbe. I then discuss economic relations as culturally diverse models in an effort to bridge the divide between the market-orientation of MBC cacao policies and the ritual-orientation of Ngöbe cacao practice. I finish the discussion with some general implications for symbolic and 'local' knowledge situated in a political ecological context such as this. I then conclude the thesis with concrete recommendations for improving the cultural competency of conservation, especially at a large-scale.

Political Ecology

Political ecology is an interdisciplinary field, broadly defined as examining human-environment interactions with a focus on control over – and access to – resources, and driven by a "normative understating that there are very likely better, less coercive, less exploitative and more sustainable ways of doing things" (Robbins 2004:12). In this respect, political ecology seeks to contribute to both improved environmental management and to the greater welfare of

disadvantaged social groups (Zimmerer 2000). The term originated in the neo-marxist work of Eric Wolf (1972) who employed it as a world systems framework to represent how power mediates human-environment relations. Political ecology engages larger networks of explanation (regional, national, and international) for problems, such as land degradation, experienced on the local level (Blaikie and Brookfield 1987). Perhaps resulting from the ambitiousness of its attempt at broader causal linkages, or its emphasis on intersections of previously disparate disciplines (Greenberg and Park 1994), political ecology has been criticized in some cases by its own proponents for insufficient treatment of politics (Peet and Watts 1996), and ecology (Vayda and Walter 1998), and in other cases that it is ethnographically too 'thin' (Ortner 1995).

The concern of political ecology with power and resources has more recently come to include symbolic and other non-material forms. Political-economic struggles are increasingly interpreted by scholars as enmeshed with struggles over meaning and representation (Biersack 2006), thereby linking politics of distribution with politics of recognition (Peet and Watts 1996). Recent studies within the field have examined the circulation of images, values and meanings through transnational circuits (Biersack 2006). Resulting from work of this kind, many resources and the problems that surround them can be understood as socially constructed rather than naturally given. This helps to explain intensely divergent perspectives on concepts such as 'conservation', 'development', and 'sustainability' as held by resource stakeholders from different sectors and scales. Such divergences require political ecological approaches to environmental problems that go beyond monistic, and even binaristic techniques, and instead employ complex analyses of how nature-culture, local-global, symbolic-material and structure-agency dynamics mutually condition each other.

Conservation and Development

Biologists have noted increasing conflict between "human welfare and biological conservation" (Chan et al. 2007). One of the greatest challenges facing conservationists is how to protect tropical biodiversity within the agricultural landscapes that increasingly dominate the tropics and continue to encroach upon remaining forests. (Daily 2001; McNeely and Scherr 2003; Harvey 2007). Integrated Conservation and Development Programs were implemented in the late 1980's and early 1990's as part of 'third wave' of conservation attempting to reconcile tensions of agriculture and livelihood issues (Zimmerer 2006). While their perceived failure led to a reversion to strict reserves (Dove 2006), the possibility of achieving both conservation and economic development goals has persisted in the context of regional scale sustainable development initiatives. The nature-society couplings that characterize the new conservation areas, which Zimmerer describes as "second nature," include concepts such as "parks-with-people, man-and-the-biosphere, ethnoecology-for-conservation, conservation-with-development, and sustainable development" (2000:356).

Though terms such as 'sustainability' are still disputed due to definitions which vary according to stakeholder perspectives (Peet and Watts 1996; Norton 2005) the concept is being used to marshal political will and associated resources. In preparing for the 1994 Summit of the Americas, the Central American governments proposed that Central America be designated a "world pilot zone" for sustainable development (Coates 1997:249). The traction of sustainable development is founded in a strong positive association between between poverty and degradation (Adams et al. 2004). This fosters a "kill two birds with one stone" strategy and can

advance economic development as integral to environmental safeguarding, or environmental conservation as essential to poverty reduction. As a "win-win" scenario, sustainable development has been called a "philosopher's stone" (Murdoch and Clark 1994) and an "article of faith" within the World Bank and International Monetary Fund (Bryant 1997) largely since the World Conference on Environment and Development in Rio de Janeiro in 1992. Biodiversity (a measure of conservation) has been used resultingly to generate wealth (a measure of development). This, however, greatly simplifies relationships between poverty and biodiversity (Frazier 1997; Agrawal and Redford 2006). The lack of concrete definition has contributed to a great deal of confusion surrounding precisely what is being sustained or developed, for which parties, and by what means. It also often leaves unanswered logically prior questions of why certain resources need to be sustained or developed (Orr 1994). Skepticism of sustainable development, however, has come from the extreme camps – those overwhelmingly concerned with biodiversity conservation, as well as from counterparts concerned overwhelmingly with promoting rural livelihoods (Adams et al. 2004).

Cacao Agroforestry

Agroforestry is defined as the simultaneous production of annual or perennial agricultural crops along with timber on the same land unit (Somarriba 2001). Agroforestry encompasses practices ranging from extensive silvopastoral systems through the intentional modification of natural forests to intensively managed home gardens (Montagnini et al. 2003). Agroforestry systems stand out as having a particularly high conservation potential, due to their structural complexity, high floristic diversity and close resemblance to forest ecosystems (e.g., Ruf and Schroth 2004; Harvey 2007).

Cacao (*Theobroma Cacao* Linn.) is an understory species, which can be grown in both shaded agroforestry and shadeless monoculture systems. In an agroforestry system, where it is planted beneath up to 80% shade cover provided by an overstory of taller trees, cacao can remain productive for twice as long as a shadeless system (up to 50 years) though with lower annual yields (Duguma et al. 2001). Modern industrial cacao production has often been a vehicle of forest *destruction* in Latin America, Africa and most recently Southeast Asia, as it is largely based on shadeless systems which yield earlier in the life cycle of the tree; however they require large chemical subsidies, and are more susceptible to disease than their shade-grown counterparts (Ruf and Schroth 2004).

Figures 1 and 2: Cacao agroforests in Bocas del Toro, western Panama. (Photo Credit: Jeff Stoike).

In an agroforestry system, cacao is capable of generating income while maintaining a significant overstory of shade trees as well as associated biodiversity and ecosystem services (Rosenberg and Marcotte 2005). Numerous studies indicate that shaded cacao plantations, and other multi-strata agroforestry systems can sometimes conserve high numbers of plant and animal species, in some cases even rivaling the species diversity found in neighboring forests

without a known record production or extraction (Perfecto et al. 1996; Moguel and Toledo 1999; Rice and Greenberg 2000; Ruf and Schroth 2004; Somarriba et al. 2004; Van Bael et al. 2007). Duguma et al. (2001) has shown that, under a wide range of socio-economic circumstances, cacao agroforests are economically viable, but with significant reliance on income generated by timber and fruit trees incorporated into the system. These findings have contributed to cacao agroforestry being "one of the most important forms of land use" in developing countries in the humid tropics (Beer et al. 1998:139).

The word "cacao" is a Spanish adaptation of the Nahua *kakawa-tl* and generally refers to the species *Theobroma cacao*, although among the Maya of Mesoamerica, it is sometimes used to refer to as *T. bicolor* (McNeil 2006). Cacao is from the family Sterculiaceae, which has just one other genus of major economic importance – Cola, the primary source of flavor and caffeine for cola drinks (Foster 1992). Perhaps an incentive for either its symbolic or material use, cacao contains a moderate amount of theobromine (a molecule slightly different from caffeine but possessing the same stimulant properties). For at least 100 years the center (or centers) of origin of *T. cacao* in the western hemisphere tropics has been a matter of contention (Holdridge 1950). In his revision of the genus *Theobroma,* Cuatrecasas listed a wide range of localities in the New World where *T. cacao* sensu lato was found outside of cultivation. (Cuatrecasas 1964). South American indigenous populations utilize the pulp coating cacao seeds as a refreshment and at times discard the seeds altogether in the creation of a fermented beverage. Alternatively, indigenous groups in Mesoamerica devised what we consider chocolate, which became a central component of Mesoamerican culture and commerce (Young 1994).

Figure 3: Cacao pods after harvest. **(**Photo Credit: Jeff Stoike)

Figures 4: Opened cacao pod (White pulp surrounds the seeds). (Photo Credit: Jeff Stoike)

Figure 5: Cacao seeds (used to make chocolate). (Photo Credit: Jeff Stoike)

Theobroma cacao is an outcrossing species with pollination carried out in nature by several species of ceratopogonid midges (Young 1994). Accurate definitions and documentation of such crosses were not maintained by breeders, and seeds from random crosses between cacao trees quickly became known as "hybrid" seeds. Quotation marks are used here since all cacao plants that are not vegetatively propagated or produced from seeds resulting from self-pollination may be loosely termed as "hybrids" (Hunter 1990). Due to the fact that conventional classification of cacao types is based on morphology and geographical distribution, genetic analyses are needed to determine which, if any, of the numerous varieties fall into the three agricultural races: *criollo, forastero*, and *trinitario* (Young 1994). While the three primary groupings have been used *de facto* in the agricultural sector, molecular analysis could demonstrate a pattern of continual variation, rather than discrete forms in *Theobroma cacao* (Young 1994).

The earliest record of cacao production in what is now western Panama comes from Agustín de Ceballos who, in 1610, reported abundant cacao in the Sixaola Valley, which comprises a portion of the MBC priority region of Bocas del Toro. His report that cacao production there was the “best of the realm in quantity and quality” (Rosés Alvarado 1982) seems to confirms Vázquez de Coronado’s earlier report of the indigenous cacao cultivation in the Talamanca Valley which is shared by the Province of Bocas del Toro and southern Costa Rica. There are additional 19th Century accounts of shade management of cacao orchards by indigenes on the Nicoya Peninsula of modern day Costa Rica (McNeil 2007).

Neoliberalism

The approaches taken by conservation organizations to natural resource problems have been recently classified as neoliberal[3] (Brosius et al. 2005). 'Neoliberalism' is a "complex assemblage of ideological commitments, discursive representations and institutional practices, all propagated by highly specific class alliances and organized at multiple geographical scales" (McCarthy and Prudham 2004:276). The neoliberal shift in conservation is marked by strategies of 'investment' and a design that uses products and production to integrate rural places into world markets (Peet and Watts 1996; Brosius et al. 2005). In the neoliberal framework, conservation is consistent with trade liberalization, export economies, privatization, and bypassing the state (West 2005). 'Development' becomes the ability to participate in worldwide markets and conservation becomes inextricably tied to development. From this perspective, the market is both a savior of biological diversity and the most rational and efficient way to organize social and economic life (West 2005). With the principles of sustainable development, neoliberal mechanisms of conservation seemingly bridge the historic antagonism between growth and conservation. This is not without basis, as the main driving force of land-use change is peoples' response to economic opportunities as mediated by institutional factors (Lambin et al. 2001).

Conservation in Central America, and Latin America more broadly, has taken a neoliberal approach, which is traceable to the late 1980's and early 1990's (Zimmerer and Carter 2002). Conservation in the form of protected areas is linked by governments to development policies which emphasize the production of raw materials for export (Zimmerer and Carter 2002). Projects to protect environments have been increasingly propelled by the proposed generation of

[3] The previous broad categorizations in include classical and neopopulist approaches

revenue, prospects for the accumulation of capital, and the general economic valuation of resources (e.g., bio-prospecting, ecotourism, non-timber forest products, etc.) (Zimmerer 2000:358). Zerner discusses how communities are portrayed as environmentally destructive in GEF program documents, and how natural resources are depicted in a "mercantilist vein built on commercial scenarios and metaphors" (1996:72). This commercializing of forests and associated resources creates new authority for development scenarios to capitalize on untapped 'assets' especially when this is portrayed by proponents as compatible with conservation of those same resources.

Local Knowledge and Symbolic Knowledge

In the past two decades, local knowledge systems have been the subject of increasing attention not only of anthropologists, but also of environmental researchers, biodiversity prospectors, development experts, businessmen and local people themselves. Historically, local communities were often not seen by conservation practitioners and policy-makers as bearers of valuable knowledge or cultural practices of local or global significance (Dove 1983; Padoch and Peluso 1996). Local knowledge, often opposed to 'universal' knowledge associated with Western scientific authority (Scott 1998), has been identified by scholars as having two primary roles in the more recent debates on conservation and development: that of scapegoat for underdevelopment, and that of panacea for sustainability (Agrawal 1995; Nygren 1999; Sillitoe et al. 2002). Even those committed to the advocacy of marginalized communities in national and transnational policy contexts have found the concept of 'local' to be mutable, hybridized and variable (Li 1996).

In response to this complexity, Nygren argues for recognition of 'situated' knowledges, which he describes as "heterogeneous ways of knowing that emerge out of a multi-dimensional reality in which diverse cultural, environmental, economic and socio-political factors intersect" (1999: 282). This term "situated knowledge" originates in the feminist theory of Haraway (1988) and is useful in that it is both collective and limited to a particular context, rather than objective knowledge that is ostensibly transcendent and unassailable. As Nygren uses the term, "situated knowledges" reflect both global and local patterns and influences, thereby overcoming dichotomized categories of knowledge. Similar attempts to recognize a less binary, and more mutually influential, composition of knowledge pertaining to natural resources is also emerging from the scholarly field of political ecology (Biersack 1999). Furthermore, local symbolic knowledge is increasingly recognized by academics as having favorable conservation impacts on the environment by way of rituals that limit off take-levels, restrict access to certain resources and distribute harvests (Agrawal and Gibson 1999).

CHAPTER 2

RESEARCH SETTING

Western Panama

The western portion of the Republic of Panama includes the provinces of Bocas del Toro, Veraguas, and Chiriqui (see Figure 2). This portion of the country is bounded to the north by the Caribbean, to the east by the interior states of Coclé and Herrera, to the west by the Republic of Costa Rica, and to the south by the Pacific Ocean. Land area and population of western Panama is distributed amongst political administrative units in the following ways: Bocas del Toro Province (89,269 people over 4,643 km^2), Chiriqui Province (368,790 over 6,585 km^2), and Veraguas Province (209,076 over 10,696 km^2) (NGI 2007).

The geography of western Panama is one of stark social and ecological contrasts corresponding to the Pacific and Caribbean slopes of the continental divide (Coates 1997) (See Figure 2). The Pacific portion is characterized in conservation publications (e.g. Coates 1997) as overpopulated, highly deforested and in need of restoration, while the Caribbean counterpart is home to largely intact forests that require conservation measures due to burgeoning populations and expanding human settlements. In 2007, one of Panama's leading newspapers, *La Prensa*, described the Ngöbe as "The Other Face of Panama – Misery" and simply described the continental divide as splitting the *Comarca* into "a forested Atlantic strip, and a Pacific strip widely deforested" (*La Prensa* 2007). Conservationists, the Panamanian government and the popular media raise the concern that the migration of Ngöbe and other colonists from the Pacific

slope to the Caribbean slope will bring historical patterns of unsustainable land-use on the Pacific slope with them to the forested lands of the Caribbean slope (NGI 2007).

Figure 6: Relief Map Of Panama (illustrating the Continental Divide). (Source: NGI 2007).

Several factors have contributed to these stark characterizations of forest cover and lack thereof. The burning that accompanies the cultivation of many annual crops on the Pacific slope is inhibited on the Caribbean slope by aseasonal and often nocturnal rainfall (Coates 1997). According to the Koppen Climate Classification, all sub-montane regions of western Panama are Zone A (tropical), with rainfall on the Caribbean slope frequently approaching 300 centimeters per year whereas at comparable elevations on the Pacific side, reports are half that amount (Gordon 1982). With rainfall on the Caribbean slope occurring on more than two-thirds of the days of the year, relative dry periods occur in February and March, as well as September and October. Beyond this slight periodicity, wet and dry seasons are not clearly defined.

Furthermore, nearly half of all rainfall on the Caribbean slope occurs at night, discouraging rapid evaporation (Linares, and Ranere 1980). The Pacific slope, on the other hand, receives 60% of its total rainfall in the four rainiest months (NGI 2007). The Caribbean half of the territory, due to its aseasonally moist climate, offers more suitable conditions for agriculture based on wet-adapted root and tree crops (Linares and Ranere 1980; Gordon 1982). Some research suggests that the Caribbean forests of Panama have been further protected by less fertile soils than those found on the rich volcanic slopes of the Pacific (Coates 1997). This difference can be attributed in part to rainfall leaching on the Caribbean slope.

Both the weather and the terrain of the Caribbean slope have greatly impeded the construction of roads, which limits access to timber (Gordon 1982). Topographically, the Pacific slope is more gradual and extends into a plain at the base of the central cordillera. The Caribbean slope has a more gradual slope with ravines and shelf-type terrain (Gordon 1982). While the Inter-American highway has run the length of western Panama along the Pacific slope since 1967, there remains no continuous road from the border of Costa Rica to the Panama Canal along the Caribbean slope. Footpaths and boats remain the most common modes of transportation along the Caribbean coast and inland rivers. The first road linking the Pacific and Caribbean halves of western Panama, as well as the first trans-isthmian thoroughfare outside of the Canal Zone, was established in 1981 with the creation of a highway accompanying an oil pipeline (Bort and Young 1985; Coates 1997). While the climate and geography of the Pacific slope is more suited for cattle production, that practice and its associated forest conversion is increasing with Ngöbe migration and acculturation on the Caribbean slope of western Panama (del Cid 1997).

The Panamanian component of the MBC (PAMBC – Panama Atlantic Mesoamerican Biological Corridor) is dedicated to the conservation of natural resources on the Atlantic slope of the continental divide. While the Atlantic Corridor domain of the PAMBC runs the entire coast of Panama, its 'priority area' is located in western Panama. This 'priority area' encompasses marine and terrestrial protected areas, as well as a significant portion of the Ngöbe-Bugle *Comarca*[4].

The Ngöbe

In addition to being the largest indigenous group in Panama, the Ngöbe are the second largest indigenous population in Central America after the Maya (Young and Bort 1999). Of Panama's more than 3 million inhabitants, roughly 110,080 are living within the Ngöbe-Bugle *Comarca* which covers 6,792 km^2 (NGI 2007). Of those living within the *Comarca*, 100,875 (91%) are Ngöbe (*Censos Nacionales de Panamá* 2000). Therefore, as of 2000, 59% of the total Ngöbe population (169,130) resided within the *Comarcal* boundaries (*Censos Nacionales de Panamá* 2000). The *Comarca* only represents a portion of Ngöbe-held lands both because the territory lines demarcate half of the land area originally sought by the Ngöbe, and because of out-migration (Young 2007). This out-migration is due to declining productivity of arable lands within the *Comarca*, and a dramatically increasing Ngöbe population (Young 2007). The Ngöbe population quadrupled between 1960 and 2000 and in that last decade the population growth rate within the *Comarca* was 4.27%, as compared with a Panamanian national average of 2.0% (*Censos Nacionales de Panamá* 2000).

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[4] The Ngöbe-Bugle *Comarca* is also inhabited in minority part by the Bugle peoples (approximately 10%) (NGI 2007). The Bugle, however, are not found in the communities included in this study.

Officially designated in 1997, the Ngöbe-Bügle *Comarca* spans portions of Chiriqui, Bocas del Toro and Veraguas Provinces, is roughly 10% (6,792 km^2) of the total land area of Panama, and approximately twice the size of the remaining indigenous territories combined (NGI 2007). Although Article 12 of Law 10 of the Panamanian Constitution established territorial boundaries for the Ngöbe in 1997 (Wickstrom 2003:51), autonomy is limited, particularly with regard to natural resource exploitation. Such lands are "inalienable and imprescriptible," but the natural resources contained therein are granted to indigenous groups only as usufruct rights and the state reserves the right to access and exploit all sub-surface resources (Wickstrom 2003:45). Law 10 established a triadic governmental arrangement for the Ngöbe. One component consists of a governor appointed by the president of Panama, and officials elected in a manner identical to the provinces of Panama. The other two components are hierarchies responsible for internal affairs within the *Comarca* and consist of both elected and appointed officials.

According to Ngöbe oral history, chiefs historically fulfilled leadership roles in Ngöbe society although this form of political organization did not survive into the colonial period (Young 2007). In its place, the Ngöbe developed a mode of kinship-based consensus decision-making, which persists today (Young 2007). The Ngöbe-Bugle Congress was founded in 1940 (Buvinic et al. 2004:322) and is the most important traditional organ for autonomous Ngöbe administration of the *Comarca*. The Ngöbe-Bugle Congress is composed of three Regional Congresses which represent the portions of the *Comarca* that correspond to the Chiriqui, Bocas del Toro and Veraguas provinces. Each Regional Congress is composed of local District Congresses which are comprised of the various community representatives. An Executive Committee (President, Vice-President, Secretary and community representatives) directs the

Ngöbe-Bugle Congress and serves for internal decision-making and external relations to the government of Panama as well as the General Indigenous Congress of Panama. The Ngöbe-Bugle Congress meets biannually, whereas the lower-level congresses meet more regularly according to need (UNDP 1998). Law 10 does not specify how the elected and appointed members of the newly formed bodies of the various congresses – general, regional, and district - are to be reconciled with more traditional forms of kin-based consensus decision-making (Young 2007). In 1999, the *carta orgánica*, a charter that sets forth the rules of governance within the *Comarca*, was signed into law by the president of the Republic of Panama (Young 2007).

Today, 'Ngöbe(s)' is a term used equally by non-indigenous Panamanians and as a term of self-identification, and signifies 'human' or 'people' in the language of the Ngöbe – *Ngöbere* (Quintero 1998). The Ngöbe and Bugle, as recently as the 1980's, were referred to collectively in the literature as Guaymi (Linares and Ranere 1980) and popularly continue to be called such. It has been noted within the *Comarca*, the Ngöbe tend to refer to the minority Bugle as "Buguta", "Boguta", or "Bobota," and the Bugle tend to refer to the majority Ngöbe as "Guanmi", "Guami", or "Guanmire" which is derived from the prior term 'Guaymi' (Quintero 1998). While tolerating the term "Guaymi" and its derivatives, the Ngöbe never used it to refer to themselves (La Prensa 2006c) as it may carry pejorative connotations (Quintero 1998). While sharing linguistic origins in the Chibchan family of languages, the respective languages of the Ngöbe and Bugle are not mutually intelligible (Young 1971, Linares and Ranere 1980). The Chibchan family of languages and its derivatives are featured throughout much of lower Central America and northern parts of South America (Quesada 2007). Although the Ngöbe language (*Ngöbere*) is not seriously endangered, fewer children are becoming fluent speakers (Young 2007). For many Ngöbe children being raised outside the *Comarca*, Spanish is the primary

language and *Ngöbere* their second language (Young 2007). Related processes of acculturation are occurring within the *Comarca* as well, as indicated by increased abandonment of practices such as ceramics, the manufacture of clothing and other household materials from tree bark, and wood-carvings (La Prensa 2006c). Persistent cultural traditions such as traditional cosmologies, ceremonial cleansing with smoke from the burning of dried plants, and botanical medicines administered within Ngöbe society by a seer or shaman-like figure called sukias, all "challenge the integration of the Ngöbe into economic, educational and health programs" (La Prensa 2007).

The World Bank has identified the Ngöbe as the most populous, the fastest growing and the most impoverished of Panama's indigenous groups (Vakis and Lindert 2000). The Panamanian government estimates that 86 percent of the Ngöbe are living in extreme poverty, while UNICEF figures estimate 91 percent (Young 2007). A caveat to these figures is that both government and UNICEF do not typically account for subsistence practices of those that are only partly engaged in the monetary economy (Young 2007). According to Health Ministry statistics, of the 23,329 children living in the Ngöbe-Bugle *Comarca*, 72% suffer from malnutrition (La Prensa 2006).

As a result of contact with the Europeans and ensuing internecine fighting during the sixteenth century, the Ngöbe retreated from the Caribbean coastal regions to the hills of the central cordillera, where poor soils and the constantly looming threat of violence engendered a highly mobile social arrangement (Young 1971). This disturbance led to the dispersion of Ngöbe kin-group-based residential units, referred to as *caserios* (Young 1971). These units became the decentralized structure of a "segmentary and acephalous political culture" (Wickstrom 2003:49). The *caserio*s evolved into the primary decision-making apparatus of the Ngöbe and were associated one to another through reciprocity based on ritual and kinship ties

rather than formalized political arrangements (Young 1971). For roughly 300 years this political and cultural adaptation provided the Ngöbe with the capacity to "live together and cooperate while avoiding conquest and to remain engaged in productive activities that provided subsistence security while protecting ecological resources for future generations" (Wickstrom 2003:49).

The acephalous structure of Ngöbe society proved advantageous when mobility was essential to accessing resources and avoiding threats. However, it has proved disadvantageous in resisting subjugation by powerful external forces and sustaining local natural resources in the face of the rapid advance more recent development pressures (Wickstrom 2003). Bourgois argues that such social arrangements left them "unable to present a united front to negotiate with or combat the outside world" (1988:333). A previous survivalist response in the form of physical and political distribution has left the Ngöbe fewer mechanisms for collective coordinated recourse with which to counter the pressures brought by modernization and capitalist exploitation (Young 2007). The first major incursions on Ngöbe productive activities and social relations since European arrival came in the 1930's with the appropriation of lands by the Chiriqui Land Company, a subsidiary of the United Fruit Company. In the early 1980's, the Ngöbe comprised 42% of the day labor force on banana plantations under the United Fruit Company (Bourgois 1988).

The Ngöbe-Bugle and General congresses have provided political pathways by which to resist potentially adverse arrangements with external entities interested in natural resources in and around the Ngöbe-Bugle *Comarca* in more recent times. These include the proposed copper mine within the *Comarca* and the construction of hydroelectric dams in watersheds that include *Comarca* lands. The copper mine proposed by multi-national Rio Tinto Zinc at Cerro Colorado on the continental divide between Chiriqui and Bocas del Toro, was conceived to be the world's

largest. Ngöbe resistance, coming in response to early intrusions caused by road-building and spoiling of important water sources through test excavations, has thus far prevented the project from moving beyond the exploratory phase (Gjording 1991). The Virginia-based AES Corporation, received a concession from the Government of Panama to build two dams along the Changuinola River in the Bocas del Toro Province. Approximately 1,000 people (mostly Ngöbe) will be displaced and approximately 3,500 will otherwise be affected by the construction process and subsequent inundation (Lutz 2007). Ngöbe resistance has taken the form of petitions request a freeze on construction activities, protests in Panama City, and blockading of access roads to the construction site (Lutz 2007). These two most recent development projects, are not unrelated as an open pit copper mine of the scale that has been envisioned would surely require large amounts of water and electricity in order to operate.

The Panamanian government has at times undermined Ngöbe efforts in the face of such external challenges. Juxtaposing indigenous-state interactions of Panama with those of other Latin American nations, Wickstrom (2003) claims that rather than policies of outright extermination of indigenous populations, "Panama has mostly attempted to encapsulate and assimilate them" (2003:43). She also criticizes development as an extension of the state that despite its advertised aims does little to address the needs of the poor or advance their causes. Instead, "for the governing elite, development means cooperation with foreign governments and transnational business interests that support the Panamanian state in exchange for government cooperation with international development schemes" (2003:44). According to Wickstrom (2003), collusion of elite interests has led to a political culture of extraction in Panama that has historically pushed indigenous subsistence farmers onto increasingly smaller and lower quality lands, which combined with population growth has led to the erosion of the natural resource base

and threatened traditional lifestyles dependent on that base. As an example, seventy-five percent of Panama's mining concessions are on indigenous land (Elton 1997, in Wickstrom 2003:46). Indigenous interests have been subordinated to economic expediency by the state: "Protection of indigenous peoples' rights has been, at best, secondary to the pursuit of socioeconomic development and the protection of the interest of more powerful actors on both domestic and international political and economic fronts" (Wickstrom 2003:45). While the establishment of the Ngöbe Congress and the *Comarca* indicates some degree of interest on the part of the Panamanian government to encourage self-governance among the Ngöbe, the ineffectiveness of the congress to satisfactorily address the concerns of the residents of the *Comarca* has led to protests and alternative forms of self-advocacy. These include refusal of federally administered health services (La Prensa 2006c) and hunger strike protests against government mis-use of agricultural development funds (La Prensa 2006a).

Ngöbe Cosmology of Natural Resources

Possible insights into the Ngöbe perspective on the conflict between private benefit and social and ecological integrity, are offered by an account of the Ngöbe cosmology pertaining to natural resource management (Samaniego 1997). In the myth an original Ngöbe man named Keba Sula is described to be of "extraordinary sukia qualities and capabilities, clairvoyant and blessed by God and able to transcend the material world, thereby occupying the spiritual world simultaneously" (Ibid:24). Keba Sula lived at a moment that according to the myth, was "critical for all living beings" (Ibid:24). At this time all men and other living creatures worked harmoniously in groups and were rewarded with great abundance by Ivi Molo, who is described

as the "source of provision for all the living beings…queen and chief, the essence of all crops, caretaker of the seeds" (Ibid:24)

An event which, according to the myth, "should never occur" (Ibid:25) transpired when an iguana decided to determine how Ivi Molo maintained a perpetual supply of '*chicha*.'[5] To satisfy his "malicious" (Ibid:25) curiosity, the iguana hid away as all the other creatures, including man, routinely went to work. While hidden, he watched as Ivi Molo filled an enormous canoe with water and undressed to reveal sores covering her body. As Ivi Molo washed herself in the great canoe, all of the water was converted to *chicha*. At this point, the iguana was discovered by Ivi Molo and told that there would be severe consequences for his behavior.

Ivi Molo imposed consequences by taking all cultivated crops and seeds back with her to the "spiritual world" (Ibid:25), leaving the other animals and humans without food, and instigating a great famine. This caused the others to call on Keba Sula to intercede on their behalf. The narration concludes with Ivi Molo telling Keba Sula that she would help, but that she would only "return part of the seed, not all, nor that of the highest quality" (Ibid:25). Ivi Molo returned some of the seeds to Keba Sula , only she gave the "residues and shells, not the true seed" (Ibid:26).

This myth likely reflects values pertaining to natural resource use typical of Ngöbe culture during the late 19th and early 20th centuries, following colonial disruption, and prior to integration into the monetary economy. During that time, the Ngöbe subsistence economy was dependent on swidden agriculture, some animal husbandry, tree crops, hunting, gathering and,

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[5] *Chicha* is a staple drink among the Ngöbe traditionally made of corn, sugarcane or cacao (Young 1971), and which may be the original use of cacao in Mesoamerica (McNeil 2007).

when possible, fishing (Bort and Young 1999). In the myth, the iguana clearly breaks a rule pertaining to the collective responsibility of work, in order to satisfy a selfish curiosity of wanting to know the provenance of all that sustains life among the working community. This curiosity becomes "malicious" in its results, as it leads to a fall from grace of sorts. As the iguana did not contribute in the appropriate way to the labors required for proper cultivation, Ivi Molo's punishment is fitting. Perhaps the "residues and shells, not the true seed" with which the laborers are left after Keba Sula 's negotiations, are a metaphor for the declining agricultural productivity during the 20th century (Young and Bort 1999) within what have become the *Comarcal* lands. In this light, the myth can be viewed as a means of explaining that changes in Ngöbe relations to natural resources will require more innovation than in previous generations. This is supported by various 'experiments' taking place within the *Comarca* during the late 20th Century, including increased dedication to banana production in order to maximize the available calories derived from carbohydrates, in the face of rising populations relying on finite arable land (Young and Bort 1999).

CHAPTER 3

RESEARCH FRAMEWORK

Research Problem

Much of the world's biodiversity occurs within tropical forests inhabited by indigenous people (Terborgh and Peres 2002; Colchester 2004). In Central America, the remaining forest areas coincide with areas where indigenous people live, and many of the protected areas are inhabited or exploited by indigenous peoples for agriculture, hunting or other activities (Coates 1997). It is estimated that roughly 75 of Central America's approximately 240 protected areas are occupied or exploited by indigenous peoples (Coates 1997). Panama has some of the highest biodiversity per land area in the world (e.g. Barthlott, et al. 1996). Efforts to conserve biodiversity in Panama, Central America, and other areas in the tropics must therefore work closely with indigenous people to promote sustainable land use systems that facilitate the conservation of biodiversity while enabling local communities to meet their livelihood needs and continue traditional practices.

Emerging research tropics-wide (e.g. Bright and Sarin 2003, Young 1994, Current and Scherr 1995, Duguma et al. 2001) hails cacao agroforestry systems for the provision of economic returns through timber and the cacao itself, as well as for its contributions to ecosystem services[6] through the overstory of larger trees that it requires as a shade-evolved species. Archeological evidence indicates that the Ngöbe have cultivated cacao in a form of agroforestry for centuries (Linares and

[6] The major ecosystem services commonly recognized as provided by tropical forests include biodiversity conservation, watershed protection, carbon sequestration, soil conservation and habitat preservation (Montagnini *et al.* 2005).

Ranere 1980). For the Ngöbe, beyond its market and conservation values, cacao possesses cultural value through daily consumption in raw form[7] (Sippel and Sanjur 1995) as well as through medicinal and ceremonial use (Quintero 1998). Referred to as "Mesoamerica's most important non-subsistence crop" (Rosensweig 2008), cacao is at once global and local – an agroforestry innovation promoted by sustainable development policy, and a deep-seated tradition maintained by the communities that are the focus of that policy. Understanding this tension has implications for any conservation or development intervention involving the Ngöbe and their lands. The Ngöbe of western Panama provide a case study of the role of non-market values in agroforestry and sustainable development more broadly.

As recently as the late 1990's, cacao has been cited as being grown abundantly, and consumed routinely and ritually (Quintero 1998) but reluctance of the Ngöbe to disclose details prevented further elaboration of its use (Lao and Samaniego 1994). This documented reticence on the part of the Ngöbe is indicative of historically problematic interactions with those perceived to be 'outsiders' (including government officials, researchers, and conservation officials), and suggests a need for further understanding of the relationship between cultural wealth and material wealth. Possible rifts between local and global values are amplified in the trends toward larger-scale regional and transnational conservation efforts such as the Mesoamerican Biological Corridor.

This presents a dilemma regarding the ultimate value of research such as that comprising this thesis, and even more so of future ethnographic work that would further make Ngöbe cultural knowledge accessible to non-Ngöbe. Although this research is a review and analysis of pre-existing research and its articulation with past and current conservation work in western Panama, the

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[7] Young refers to the routine drinking of chocolate water or *chicha* during morning or evening conversations amongst Ngöbe men (1971:159).

question persists: Will this and related future research ultimately serve the individuals to whom it most pertains – the Ngöbe people? This touches on questions of appropriate representation and the role of researchers as interlocutors. If the self-conscious researcher-as-interlocutor places the interests and concerns of Ngöbe collaborators at the forefront of any decision-making process pertaining to the publication of sensitive cultural information, the process will likely result in a net-gain for the Ngöbe. This is especially the case when compared with economic development and conservation interventions that have historically not demonstrated a similar prioritization of Ngöbe interests and concerns.

Research Question

The analytical framework of political ecology applied to conservation efforts involving the Ngöbe in Western Panama introduces concerns of neoliberal approaches to resources and the related politics of translation of non-market values. In service of this, my research explores **two principal questions**: 1) What are the non-market values of cacao held by the Ngöbe of Western Panama? and 2) How do these values articulate with those of national and international interests in conservation and economic development pertaining to the Ngöbe and their lands?

Methods

In order to carry out this research, I conducted an extensive review of published academic literature and unpublished grey literature available online at GEF and ANAM websites, and at the libraries of the University of Georgia, as well as holdings at STRI and ANAM libraries in Panama City, Panama. Through this process, I compiled references to cacao production and consumption amongst Ngöbe and non-Ngöbe in western Panama. Central to my results and

discussion is an unpublished master's thesis provided by Blas Quintero (1998)[8], which documents Ngöbe myth and ritual values associated with cacao. Mr. Quintero is an ethnologist on staff at the Ngöbe Cultural Association (*Associación Cultural del Ngöbe* – ACUN) in Panama City. The information provided by Mr. Quintero was complemented by visits to the Ngöbe *Comarca* and surrounding areas in Panama. I also drew upon MBC project proposals and evaluations conducted by GEF and ANAM as well as critical academic literature pertaining to MBC policy and programs. Further research revolved around critical academic literature relevant to broader themes implicated in the MBC sustainable development work with the Ngöbe and cacao in Panama. Additional academic literature on the ecology and economics of agroforestry, as well as cultural values of cacao elsewhere in Central America is included.

[8] Mr. Quintero has spent over 15 years living amongst the Ngöbe, studying the changes of their cultural practices (Quintero 1998).

CHAPTER 4

RESULTS AND DISCUSSION

Ngöbe Material Uses of Cacao

Cacao has quotidian, non-sacred roles, as well as more ritualized and cosmological roles in Ngöbe culture. In its more mundane role, cacao is consumed daily as a household beverage. In Philip Young's (1971) ethnography of the Ngöbe, a solitary reference is made to "chocolate water" and beyond that no further mention of the cultivation or consumption of cacao: "Men of the *caserio* frequently gather around the fire in one of the houses of an evening to discuss the work and events of the day, and to gossip in general. These conversations often last well into the night and are frequently accompanied by the drinking of chocolate water or *chicha*" (1971:159). Gordon (1982) makes short and inconclusive reference to the production of cacao amongst the Ngöbe in Bocas del Toro. He cites cacao being grown in numerous orchards along the Caribbean coast and states that such production stands as one of few examples of the adaptation of the "old Indian tree garden to modern commercial production" (1982:141). He argues that cacao, as a monoculture, has distinct ecological advantages over other single-species production due to the fact that it is often planted under tall leguminous shade trees – a technique, he claims, is a long-time tradition of the Ngöbe of western Panama:

> Cacao orchards are long-lived: many are kept cleared of invading trees and undergrowth only when there is sufficient demand for cacao beans. Orchards which have been abandoned for years may be renewed and harvested when prices are high. Ecologically, cacao is the least disruptive of commercial crops since in cacao-culture a tree cover of several species is maintained, and the orchards support some undergrowth and an associated animal life, at least. (1982:141)

Gordon's claims that Ngöbe-grown cacao provides an opportunity to withstand market fluctuations without land conversion and that it hosts a greater biological diversity than comparable commercial plantations, are in line with agroforestry research promoting shade-grown cacao (Ruf and Schroth 2004; Harvey 2007) and literature attesting to the conservation value of traditional practices of many indigenous people of Central America (Coates 1997).

Ngöbe Symbolic Uses of Cacao

While the routine use of cacao by the Ngöbe demonstrates a cultural importance in and of itself, this study focuses on the sacred use of cacao because of the diverse landraces[9] needed to fulfill various ritual functions. In a GTZ (*Deutsche Gesellschaft fuer Technische Zusammenarbeit*) [German Development Cooperation] report on Ngöbe agroforestry systems, scant mention is made of cacao as "a drink which is utilized in cultural rituals" (Lao and Samaniego 1994:24). In the report, cacao is also mentioned as a "ritual plant" that is "frequently used" (Lao and Samaniego 1994:24), a vague characterization qualified by the following disclaimer: "Regarding the ritual plants, it is possible to determine certain uses but not all. The reason is that there is a resistance amongst the Ngöbe to divulge 'secrets,' or to at least maintain discretion around certain beliefs" (Lao and Samaniego 1994:24). Detailed ethnographic information on the symbolic uses of cacao amongst the Ngöbe is only available in the unpublished thesis of Blas Quintero (1998) entitled Ni Jutda Ngöbe Nunadi Kóre (*El Pueblo Ngöbe Vivirá Siempre*) [The Ngöbe People will Live Forever]. Quintero's (1998) work, conducted in Veraguas Province, District of Muná, in the communities of Lano Nopó, Sitio

[9] In Quintero (1998), he refers to the cacao used for different rituals as distinct "types" that may be used with same "types" or mixed with other "types".

Prado, Tebujo, Llano Tugrí, revealed several roles played by cacao that are not discussed in other ethnographic work on Ngöbe society, including most notably Young (1971). This may have been a result of Ngöbe reticence to disclose certain information to particular outsiders, or locality-to-locality variation in cultural practices related to outsiders. A further possibility, though unlikely due to the long-standing cultivation of cacao by the Ngöbe, is that the symbolic use of cacao is only a recent creation by the Ngöbe and is emerging in certain localities before others.

The sacred role of cacao amongst the Ngöbe is mediated by the sukia. The sukia is a seer and shaman-like figure described in the *carta orgánica* as the member of Ngöbe society who prognosticates, diagnoses diseases (especially snakebites), and prescribes medicine (MGJ 1999). The sukia is a traditional figure considered by the Ngöbe to be a sacred personality sent by the "Cosmic God" (Donkin Kri Kokwinbidi) who also plays an important role in enforcing norms and settling disputes (Vakis and Lindert 2000:1). The relationship between the sukia and cacao begins at birth, where a newborn is identified as a future sukia by the fact that they will not nurse from the mother for four days and will only be pacified by *chicha* made from cacao (Quintero 1998). The sukias use cacao primarily to mediate between dreaming and waking states of consciousness.

The preparation of ritual cacao varies with different ritual purposes. Several landraces of cacao can be combined by the sukia to achieve different ritual results. Ritual cacao is utilized either through consumption as a hot or cold beverage or as purifying baths. These can be made of cooked or raw cacao seeds. Cacao plays a central role in Buo, a rite of initiation endured by Ngöbe teenage males, wherein the individual passes four days in the forest without sleep,

accompanied only by an elder, and consuming only a particular mix of cacao prepared by a sukia.

The most prevalent Ngöbe ritual use of cacao documented by Quintero (1998) relates to dream experience, wherein it is used by a sukia to predict the immediate future for an individual. The particular sequence of events is variable, but often a sukia is sought to identify and resolve a particular problem portended by an omen. In order to divine a cure, the sukia will typically consume mixtures of cacao – usually ground and served in water, and often trance-inducing. The cure itself usually consists of some blend of cacao seeds from different landraces and in specific instances can induce a trance in the individuals being treated.

The roles of cacao are tied to spirits associated with animals, sounds and other omens. In some cases the names indicate a single landrace, while in other cases they indicate prescribed blends of different landraces. "Ko" is a general term of reference for cacao in Ngöbere and serves as a prefix followed by nomenclature designating specific landraces of cacao. Table 1 (below) lists ritual cacao prescriptions made by sukia in response to various omens:

Table 1**:** Ngöbe Ritual Function of Cacao (Remedy).

Cacao Landrace Name (English)	***Cacao Landrace Name (Spanish)***	**Cacao Landrace Name (Ngöbere)**	**Cacao Ritual Function**[10]
macaw cacao	*cacao guacamaya*	ko rogaba	When the call of the macaw is heard at night. Utilized in particular instances when something is lost.
black monkey cacao	*cacao mono negro*	ko jurima	When an individual hears the call of a monkey at night while dreaming or awake
parrot cacao	*cacao de loro*	ko oreba	When one hears the call of a parrot at night while dreaming or awake
stone cacao	*cacao de piedra*	ko joba	When sounds resembling stones falling, or other indistinguishable noises are heard while dreaming or awake
rain cacao	cacao de lluvia	ko ñüba	When the sound of rainfall is heard either while dreaming or awake
wind cacao	*cacao de viento*	ko müreba	When one hears or feels strong winds at night while dreaming or awake
red cacao	*cacao rojo*	ko tain	For pregnant women, men whose wives are pregnant, and for those experiencing temporary fits of insanity ("*locos*")
scorpion cacao	*cacao alacrán*	ko dribeba	When a scorpion appears in a dream
hummingbird cacao	*cacao colibrí*	ko midiba	When the call of a hummingbird is heard at night either in a dream or while awake
cacao of songs	*cacao de cantos*	ko kaba	When songs are heard while awake or dreaming. This type of cacao is utilized for conquering or 'hunting' harmful spirits
earth cacao	*cacao de tierra*	ko doboba	To prepare for burials or in response to earthquakes
wild cacao	*cacao silvestre*	ko müragwó	When a sneeze or other indications of illness are heard
first fruit cacao	*cacao primicia*	ko bure	The first cacao pod to mature on any given tree. While not tied to a particular landrace, this is a very important cacao used to drive away harmful spirits. When an individual dreams of a loved one that has passed away, the sukia prescribes this cacao to be poured over the eyes. This cacao is also used to bathe children that are considered to be destined to become sukias.

Source: adapted from Quintero 1998.

In the instances included in Table 1, cacao serves as a remedy for a malady or bad omen, usually presented in a dream. Even though an individual does not have an ill family member,

[10] All English names and descriptions of ritual functions are my translations of the Spanish text included in Quintero (1998). The Ngöbere was included in Quintero (1998).

nor an ill-omened dream, one may go to the sukia to seek a cacao prescription for prevention of evil spirits in dreams, and to see that no family members fall victim to witchcraft. Table 2 (below) lists these instances:

Table 2: Ngöbe Ritual Function of Cacao (Prevention).

Ritual Cacao Purpose	**Literal English Translation**	**Spanish**	**Ngöbere**
Overcoming evil spirits	"to consume the cat" or "cacao – to drink – cat – eye – to drink"	"*comerse el gato" or* "*cacao beber gato ojo beber*"	ko ñai krwa gwetde ko ñai krua ogwo ñai
Safe travels	"cacao – to drink – to travel – well"	"*cacao - beber - viajar – bien*"	ko ñai digaga motro
Safe and productive work	"cacao – to drink – to work – well"	**"***cacao – beber – trabajar – bien"*	ko ñai sribi motro
General blessing	"cacao – drink – seed – bless/strengthen"	**"***cacao – beber – semilla – bendecir/fortalecer"*	ko ñai nura mugore
Good rest	"cacao – drink – rest – well"	. "*cacao beber descansar bien*	ko ñai jadüga motro
Good sleep	"cacao – drink – sleep – well"	**"***cacao beber dormir bien*	ko ñai kibia motro
Good dreams	. "cacao – drink – dream – well",	. **"***cacao beber soñar bien***"**	ko ñai köbö motro/kwin
Spiritual accompaniment for children[11]	"cacao – drink – to care for/accompany"	"*cacao – beber – cuidar/acompañar*	ko ñai jamugore

Source: adapted from Quintero 1998.

[11] With this particular prescription, a child is given cacao for 4 days and nights and their home is surrounded by crosses made of: 1) *balsa* (balsa, *Ochroma pyramidale)*, 2) *guarumo* (trumpet tree, *Cecropia obtusifolia)*, 3) *helecho gigante/ rabo de mico /palma de montaña* (tree fern, *Cyathea princeps*). Also included in this cacao prescription are wooden traps of caña blanca *(Gynerium sagittatum*) surrounding the house to catch evil spirits known as *gatos* or *brujos* (Quintero 1998:21). It should be noted that, in this example, the ritual use of cacao provides additional uses for diverse trees and plants and therefore has conservation implications beyond the use of trees as an overstory in the production of cacao – the latter being, as I mention earlier, the most cited conservation benefit of cacao.

Symbolic Uses of Cacao Beyond the Ngöbe

Religious beliefs and myths influence the use of plants, and the observance of ancestral rules and restrictions, which govern especially the use of wild species, forms part of the traditional understanding of and respect for the tropical forest and contributes to the sustainable use of plant resources. The complex and evolving values of cacao have been cited in research on Mesoamerican indigenous populations. Amongst these populations, cacao has had general symbolic associations with darkness, death and the underworld (McNeil 2006). It is depicted as a sacred or directional tree in iconography, and its possession signified wealth, prestige, and rulership in Pre-Columbian Mesoamerica (McNeil 2006). Rice and Greenberg make general reference to indigenous use of the crop in the region: "Cacao continues to be an important part of the lives of many Mesoamerican people. It is not simply a "food"; it is also a tool for marking the passage of important life events and ensuring a healthy existence" (2000:167). For the Pipil-Nicarao, along the Pacific coast of northern Central America, cacao was a primary commercial crop with a well-established role in the economy (Young 1994). It was traded for many useful products, yet also maintained a potent symbolism in indigenous Mesoamerican ceremonies (Young 1984). According to Steinberg (2002), the Maya used cacao as currency at the same time that the cacao spirit was one of the most powerful deities in their cosmology.

Neighboring the Ngöbe of western Panama, indigenous peoples of Costa Rica also mythologize cacao. For the Bri-Bri and Cabecar, every plant and animal has its /Tmí/, a king or a queen, for example: /Tsiru'/, the queen of cacao (Garcia-Serrano and Del Monte 2004). Natural resources belong to these spirits and have to be borrowed from them by giving the spirits

something in exchange or by deceiving them. In the Bribri and Cabecar world, the physical distance from where a given species is cultivated to a community settlement indicates the relative value of that particular species for the community. The rules and restrictions regarding the use of plants depend on this relationship. Maize, manioc, and cacao, and crop species in general, are close to the settlements and therefore the tradition imposes relatively few limitations on their use (Garcia-Serrano and Del Mont, 2004). These relationships can impact the surrounding ecology and carry implications for conservation. In some Bribri and Cabecar areas, the loss of indigenous botanical knowledge – such as that related to cacao – is associated with loss of rain forest cover (Garcia-Serrano and Del Mont 2004).

The role of cacao in Central American rural society, including indigenous populations, has recently undergone dynamic change from traditional non-market value to nearly exclusive market value. Cacao production is increasing in the Lacandon area of Mexico among indigenous agriculturalists, but is largely devoid of its previous ceremonial importance (McNeil 2007). Steinberg (2002) studied the multiple social roles of cacao in a contemporary setting, through a generational shift of cacao among the Mopan Maya of southern Belize. He outlines a case in which traditional cultural values are abandoned within a single generation. Over three decades, cacao evolved from a ritualistic plant with ceremonial importance, to a market crop of primarily economic importance. Still a ceremonial drink amongst older villagers, cacao is increasingly included in non-swidden activities of younger Mopan, due to population growth that has strained traditional common-pool land tenure agreements (Steinburg 2002).

Although not with the Ngöbe, cacao has been used as a lens to understand rural social change dynamics in varying contexts. Several syncretic traditions have merged Christian beliefs and indigenous myths in cacao rituals. Cacao is featured in a ritual dictated by God to Adam and

Eve, according to the Lenca of Honduras (Wells and Davis-Salazar 2008). In Guatemala, the Ki'iche' view cacao as a taboo tree, which must be used in every ritual, as it was blessed by Christ after protecting him from his persecutors (McNeil 2007:360). In southern Mexico, an indigenous cacao ritual takes place wherein the practice has been altered in order to conform to the demands of an increasing tourism market. Li provides a case study of the rapid adoption of cacao by farmers in Sulawesi, using the crop to explore "questions of agency, the culturally mediated understandings through which rural people encounter a global crop, the new practices they devise, and the consequences that follow" (2002:416). These fruitful studies of the manifold values attributed to cacao encourage further attention to both the results of change in Ngöbe society on the cultivation of cacao, and the role of cacao in mediating such changes.

Conservation and Development and the Ngöbe

In the past 100 years, the Ngöbe have significantly increased migration back to their traditional coastal Caribbean lands (Bort and Young 1985). This is largely attributed in the academic and popular literature to population pressures and agricultural mismanagement of interior lands, policy incentives for settling the Caribbean 'frontier,' extractivist national government policies within the territory, and wage labor inducements offered on United Fruit Company (UFC) banana plantations (Bourgois 1988; Wickstrom 2003; Young 1971). Official statistics also rate the Ngöbe as the nation's most rapidly reproducing demographic group which, when paired with severe impoverishment, triggers references like the following:

> "Conservationists interested in protecting these forests would do well to concern themselves with the survival of such native cultures, unattractive though the latter may be in various details…the Guaymi system, with its incorporation of human subsistence activities into the rainforest system is *ecologically benign*. Yet when one turns to the Guaymi themselves to learn the system's conceptual basis, next to nothing is heard about such ideas as the need for preserving living resources.
>
> In fact, neighbors of the Guaymi, recently somewhat hardened by contacts with an expanding population of hungry Indians, find *the notion that the Guaymi possess knowledge of*

> *conservational value, laughable*. Instead, the Indian is usually described as a reckless and consummate omnivore, a "walking belly" scouring the countryside for anything living and digestible." (Gordon 1982:157, emphasis added)

Acknowledging that Gordon's observation was made a quarter century ago, such characterizations represent the Ngöbe as little more than a rapidly growing population maladapted for the realities of the modern world. Gordon deems their activities ecologically acceptably by virtue of passive behaviors, while the "neighbors" he cites depict them as a scourge. This presents their subsistence practices as potentially benign, while the Ngöbe themselves suffer from a persistent and pervasive social stigma. Even this is a more dignified representation than that of the Ngöbe as agents of pure environmental degradation – as backwards thinking as well as backwards acting. However it does not account for the various political and economic factors such as government settlement policies and extraction practices that operated in and around Ngöbe society throughout the 20th Century, which contributed significantly (even if indirectly vis-a-vis the Ngöbe) to the conservation impacts being assessed by Gordon and others.

This enduring social stigma was manifest in the context of labor relations in a UFC plantation in western Panama. Bourgois cites an ideological justification held by a foreman for subjecting the Ngöbe to the most strenuous tasks in the plantation: "The Indian[12] only thinks of food, he has no other aspirations. He works to eat" (1988:331). Bourgois explains that this 'hunger' of the Ngöbe made them a readily available workforce and that they were periodically recruited *en masse* by the UFC in order to create a pulse of available labor so as to undercut burgeoning labor movements (1988:332).

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[12] While they worked for the UFC, the Ngöbe were referred to by co-workers and members of the surrounding community, in ethnic terms.

Whether as subsistence producers, hunter-gatherers, or wage-laborers, the Ngöbe are commonly associated by other Panamanian groups, as well as foreign scholars or program officials, with base functions of consumption. This is a typecasting that, at least rhetorically, renders the Ngöbe an ideal demographic for not only economic development, but conservation initiatives as well. This is another formulation of the 'walking belly' metaphor wherein it suggests that the Ngöbe are consumers not just of food and work offered by outsiders, but of outsider knowledge and strategies for conservation of commonwealth. The current popular representation of Ngöbe utility, for the most part, does not include their possessing a preexisting logic of diversity or conservation embedded in their cultural structures. This poses difficulties for the understanding of the Ngöbe as *producers* – rather than merely consumers – of social or ecological value in the eyes of greater Panamanian society, or larger-scale conservation interests.

Corresponding to the more prominent political role assumed by conservation groups globally in recent decades, the Ngöbe have experienced increased interactions with extra-local conservation interests. These encounters have presented difficulties for the Ngöbe, which follow a pattern similar to those established in interactions with preceding colonial, state, or corporate entities. In 1988, Panama's environmental agency, the Institute of Renewable Natural Resources[13] (*Instituto de Recursos Naturales Renovables* - INRENARE) created the Bastimentos Island National Marine Park (*Parque Nacional Marino Isla Bastimentos* - PNMIB). The stated goal of the park was to conserve a representative portion of the area's marine and coastal ecosystems, and to preserve the functional capacity for recreation and tourism (Guerron-Montero 2005). In the establishment process, the populations that lived in and around the area, and who

[13] In 1997, INRENARE became the National Environmental Authority (*Autoridad Nacional del Ambiente* – ANAM).

relied on it for sustenance, were not consulted (Guerron-Montero 2005). This generated resentment amongst local populations that depended on traditional access (Guerron-Montero 2005). The PNMIB boundaries infringed on Ngöbe subsistence boundaries and placed prohibitions on certain species that the Ngöbe have traditionally utilized. This reflected the fact that the park was formed with strictly conservationist goals irrespective of the needs of the local populations (Guerron-Montero 2005). The proceedings of a PNMIB Assembly, developed to address conflicts arising around the park, demonstrate some of the more subtle problems that can arise in Ngöbe interactions with non-Ngöbe:

> Generally, their knowledge and practices were viewed as backward, destructive, and even dangerous. No effort was made by the Assembly to translate the wealth of empirical information of the Ngöbe into systematic social science data. Just as the government had ignored local stakeholders when creating the park, the members of the Assembly marginalized the indigenous stakeholders. Although ostensibly the participation of indigenous groups was very strong, in reality the opinions and values of indigenous peoples were either treated paternalistically or ignored (Guerron-Montero 2005:367).

While the challenges of translating cultural knowledge are left unaddressed, it is also notable that the challenge was not even broached by what was designed as a corrective institution. This type of exclusion created local resentment, and presented difficulties to governmental, NGO, and international groups attempting to promote sustainable development in the region (Guerron-Montero 2005). It is in the legacy of such experience with extra-local groups that future conservation and sustainable development initiatives must negotiate its work with the Ngöbe.

Inaccurate institutional appraisals of local perspectives and of the environmental impacts of local land-use can lead to not only unfair impositions on local populations, but ultimately ecologically detrimental policies. Fairhead and Leach, in *Misreading the African Landscape* (1996), highlight fundamental differences in the interpretation of anthropogenic landscape change from 'Western' and rural African cosmologies. Their primary evidence is the fact that from a 'Western' perspective forest cover is associated with a near 'natural' state and from the

perspective of the landscape's inhabitants forest cover is associated with a 'settled' state (Fairhead and Leach 1996:6). In short, what powerful policy-makers viewed as *de*forestation, actually amounted to *re*forestation. Fairhead and Leach show that these conflicting 'readings' of the landscape can have "brutal instrumental effects" and that "it is the clarification of 'real' history which renders apparent the power relations of which these views are a part" (1996:3). It is the interpretation of the landscape as degraded that has justified state interventions taking resource control from local communities, and given license to repressive policies aimed at reorienting what has been inaccurately perceived as mis-management of forest resources (Fairhead and Leach 1996:4).

What Fairhead and Leach discuss as 'readings' of the landscape, Gudeman (1986) discusses in terms of 'models'. Gudeman encourages the examination of development contexts as "they represent a confrontation and mixture of local and global power as well as folk and Western knowledge" (1986:27). He explains that complex values bound up in the social arrangements of given stakeholder groups are especially layered in development interventions:

> Models are never the product of a single individual but are part of an historical and cultural tradition. Development situations however, are particularly complex, because they must involve mixing together several different cultural discourses. The challenge isn't to try to uncover and then use general laws of development, nor is it simply to figure out what agricultural or monetary techniques can be employed in a particular situation of change; rather it its to define who belongs to and how to organize a community of modelers. (27)

In this, Gudeman suggests that development schemes must not only recognize culture as a key element, but also patterns of change and association in those cultural constructions. Programs that aim to conserve biodiversity and other ecosystem services involve such models of cultural and ecological practices, and need to be understood by proponents as more than an unquestionable good, but rather a political process that turns previously marginal communities into central stakeholders.

Cacao Agroforestry as Sustainable Development

One of the mechanisms of sustainable development promoted in rural landscapes is agroforestry, due to a need for providing income to landholders while maintaining so-called ecosystem services – with biodiversity chief among them (Thatcher and Schelhas 1997; Current and Scherr 1995; Simmons et al. 2002; Murray and Bannister 2004). Agroforestry has been dubbed a "very social science" and contributes to conservation and development efforts more by means of "improved social organizational technologies than through biophysical technologies" (Burch 1992:ix). It is widely celebrated by social and natural scientists as a social and ecological boon and credited with resolving the conflict of time immemorial between food and timber (Von Maydell 1991). It is "generally advocated with the intention of developing a more sustainable form of land use, one that will improve farm productivity while at the same time improving the welfare of the community" (Leakey 1998:253). Leakey goes on to encourage the appreciation of "complex agroforests as the mature (or climax) phase of a highly productive and profitable ecosystem" (1998:260). Agroforestry, when planned across a large-enough scale, theoretically resolves the tension between food security and tenure on one hand, and "land cover" and "commons" on the other. The 'win-win' depictions of agroforestry are, therefore, in line with those of sustainable development.

'Agroforestry' is, however, a new term for a variety of practices with which millions of farmers, herders, forest dwellers, and gardeners worldwide have long been familiar (Rochelau 1999). In this respect, scientific agroforestry is the standardization of local practices that have traditionally balanced values of production and conservation. While tending to privilege scientific knowledge over local knowledge, agroforestry-based conservation policy provides a

possible convergence point for local and institutional values, and warrants increased attention from academics and practitioners to cultural determinants and implications.

Diverse motives that various landholders may have for conserving or restoring landscapes is cited as a major area of neglect in the development of agroforesty incentive programs and needs to be addressed in future project design (Thatcher and Schelhas 1997). Mercer (1998:192), cites a distinct economic bias in a review of agroforestry socioeconomics research and noted (with reference to publications in the journal *Agroforestry Systems*) that "the dearth of sociology and anthropology based agroforestry research is disturbing". As it is increasingly established that smallholder participation in programs and adoption of conservation policy is not determined wholly by economic factors (Current and Scherr 95:95), research has recently turned towards extra-economic determinants such as the preference of "welfare maximization over profit maximization" (Simmons et al. 2002:91).

Agroforestry is proving to be a field of conservation in which locally-determined adaptations and unorthodoxies are increasingly valued over adherence to standard scientific protocols. Murray and Bannister (2004) document 20 years of agroforestry projects in Haiti, in which they analyze what they characterize as unusually successful results in voluntary tree plantings by smallholders. They attribute the project success most greatly to a "project management policy that encouraged *farmer-induced deviations* from project assumptions in matters of tree deployment and harvesting schedules" (2004:383, italics original). Though particular strategies varied, micro-economic motivators were the guiding force behind planting decisions. In a call for localized control over project implementation, yet still holding to economic primacy, they argue that long-term environmental benefits should be considered a "secondary side effect" (2004:383) of trees valued primarily from a perspective of exploitation

rather than conservation. Similarly, Coomes and Burt (1997) caution against the broad promotion of a concretely defined system, and stress the importance of studying local variations in agroforestry. This, they claim, is especially true for indigenous systems that are often erroneously taken at face value to be "stable, egalitarian and sustainable" (Coomes and Burt 1997:40).

Research on the varying motivations behind agroforestry amongst non-indigenous groups has been undertaken in Panama. Fischer and Vasseur (2002) explored smallholder's perceptions of socioeconomic and environmental aspects of five agroforestry projects in Panama. They determined that the primary obstacles preventing agroforestry adoption include insufficient extension as a component of inappropriate project design, smallholder's economic constraints and larger policy issues (Fischer and Vasseur 2002:109). Examples from each of the broad categories of obstacles included: "trees cannot be eaten" (socio-economic), a unilateral and at times paternalistic flow of communication from project staff to farmers and lack of follow-up (project design), and burdensome harvest permit requirements and lack of meaningful incentives for small-holders (policy) (Fischer and Vasseur 2002:109).

Cacao's rise to prominence in conservation agendas is largely due to its capacity for consistent quality yield of fruit while grown in the shade of taller trees, thereby increasing the value of a given unit of land. Reports have concluded that cacao produces optimally at a level of canopy shading that permits 20-30% direct sunlight to reach the cacao (Duguma et al. 2001). Bird diversity, as measured by species richness, was found to be higher in shaded cacao plantations than in mature forest in Costa Rica (Smith 2005). In some cacao production systems, shade cover is eliminated in an effort to intensify production. In these instances where shade is removed, pest attacks increased substantially (Herzog 1994). Shade also reduces the need for

fertilizer demanded by an increased tree metabolism that is associated with the production spikes of full-sun systems. If such subsidies are not added, full-sun cacao trees stop producing and die back within a much shorter period than those grown in shade (Herzog 1994). Such evidence supports shade-grown cacao as more appropriate for populations without the financial resources required to purchase such subsidies or the mechanization capacity needed to maintain a more intensive harvest schedule (LeVasseur and Olivier 2000). In accordance, Young advocates a "region-by-region or locality-by-locality" approach to cacao production (1984:170):

> My conviction, based on my experiences with cacao, is that prehistoric peoples in Mesoamerica had the right approach to farming cacao. Relatively small cacao orchards enclosed by forest or set within small, diversified plots of various crops within the forest optimized the chances for high productivity. Pollination of cacao trees under these conditions may have been high or at least substantially higher than what is typically found in large, monoculture-type cacao plantations today. Similar results in modern times with large plantations, according to this view, can only be achieved by costly management of pests and diseases, application of expensive chemical fertilizers and the manipulation of pollinator populations. All of these challenges were minimized by the ingenuity of the Mayas, Aztecs, and other Mesoamerican peoples. (1984:171)

In addition to its contribution to conservation goals, cacao production is economically advantageous through market risk abatement for poor communities such as the Ngöbe. Overstory shade trees can provide supplementary value through product diversification, primarily as fruit or timber, when cacao prices are low (Beer et al. 1998). Market prices for cacao fluctuate substantially and at present, shade-grown, organic cacao is capturing a premium on international markets (Bentley et al. 2004). Sun-grown cacao yields greater volume in a shorter period of time, while shade-grown cacao is recognized for producing lower quantity, yet higher quality cacao, and for producing more consistently over a longer period of time (Ibid). As a premium cacao market emerges, farmers no longer receive prices based strictly on volume (Siebert 2002). In this context, less volume is offset by higher price per volume, and requires less labor while maintaining relatively higher forest cover per area.

Though only recently valued in international markets, organic and shade-grown qualities have long been default aspects of traditional indigenous cacao production systems in Central and South America. Bright and Sarin, in *Venture Capitalism for a Tropical Forest* (2003), exemplify the recent upsurge in attributing redeeming qualities to cacao agroforestry. They invite the reader to visualize wealthy market and poor farmer joining forces to overcome the crop blights and price depression:

> Now imagine that a group of thoughtful investors has examined this apparently unpromising situation, and discovered a huge opportunity. The investors realize that a conventional economic recovery may be feasible, since disease-resistant crop varieties are now available and since crop prices have, for the present at least, come roaring back. But the opportunity that they see is not a return to business as usual. Instead, they put together a strategy for growing and selling the crop as a kind of "eco-business" – a green enterprise that combines agroforestry with sophisticated marketing designed to link consumers in distant countries with the forest itself.
>
> Finally, imagine that this new strategy, and the consumer dollars that it attracts, begin to restore the forest to at least a shadow of its former vigor. Since the farmers' objective is no longer simply maximum production, there's room in the fragment to allow more saplings to spring up. Since the forest itself has become a revenue source, it makes economic sense to expand the fragments towards each other, and begin to reconstitute large blocks of forest. That creates more wildlife habitat: there's more room in the landscape for all those parrots and frogs, orchids and monkeys that fascinate the foreign consumer. And there's more – not less – room for the people as well. There's more employment, because agroecology requires more labor than conventional production; there's more educational possibilities; there's more science, more tourism. (Bright and Sarin, 2003, 8)

The proposition of "thoughtful investors" ushering in a panacea of consumer dollars leading over time to benefits for all, is one of the major narratives emerging from the intersection of global markets, agroforestry science, and the land of poor people. In order to fulfill the perceived economic potential, there has been a call made for the development of an "entrepreneurial mentality" among communities that are represented as having traditionally been subsistence farmers (Leakey 1998:256). The vision of commodified cacao is a 'silver bullet' yet does not thoroughly consider symbolic and other cultural cacao values such as those held by the Ngöbe. In other Central American indigenous reserves, agroforestry systems are increasingly being

converted to other land uses, such as plantain monocultures, due to disease problems, low prices and changes in market opportunities (Dahlquist et al. 2007). Cultural values could help cacao persist as a land-use amongst the Ngöbe, and maintain associated environmental benefits, as opposed to other indigenous reserves that may not have enduring cultural values for the crop.

The Mesoamerican Biological Corridor

The challenges in integrating conservation and development are complicated by trends in global conservation in which not only is increasing land area falling under sustainable development policy, but also doing so in larger organizational units (Zimmerer et al. 2004). The Mesoamerican Biological Corridor (MBC) attempts to link protected areas throughout Central America and is notable because of its unprecedented size and scope (e.g. Miller 2001). The campaign of the MBC to promote cacao agroforestry amongst indigenous communities provides an opportunity for the study of the conflict and convergence of distinct ways of valuing cacao not only within scales of resource governance (e.g. as conservation or development for both the MBC and the Ngöbe), but between them (MBC market commodity vs. Ngöbe ritual crop).

In Panama, 2 million cacao trees were in production in 2001, with the vast majority (87%) located in the western portion of the PAMBC 'priority region" (NGI 2007:147). In western Panama, cacao has long been produced by Ngöbe smallholders in mixed-use homegarden or managed forest systems, with a diverse overstory of trees providing a shade canopy (Gordon 1982). It is this traditional method of cacao production that the PAMBC is attempting to encourage amongst the Ngöbe. During the MBC's first phase (its second phase was initiated in 2004), over 80% of the sub-projects in western Panama promoted agroforestry and over 70% were related to cacao production (MBC 2002; ANAM 2005). Through these sub-projects,

communities receive funding, training and materials for shade-grown cacao production and the overwhelming majority of these sub-projects took place in Ngöbe communities (ANAM 2005).

The MBC is a Global Environment Facility (GEF)-supported regional conservation and development initiative of unprecedented scope dedicated to the "sustainable use of biodiversity" (Cox 2005:2). The GEF was established in 1990 in order to help developing countries address environmental problems, with biodiversity preservation as chief among them (Horta and Rich 1992). Including land and sea along the Atlantic coast of Central America from southern Mexico to eastern Panama, the MBC attempts to resolve seemingly opposed interests in exploitation and conservation of resources found along the more "pristine" (PAMBC 1998:13) Caribbean slope of the continental divide of Central America.

The Mesoamerican region covers 768,990 km^2, constituting 7 percent of the world's biodiversity contained in 0.5 percent of the world's land surface (Coates 1997). In its first phase, a three-year period starting in 1998, the Global Environment Facility (GEF) managed by the World Bank, pledged approximately $14 million toward the Mesoamerican Biological Corridor to be administered by the United Nations Development Program (Coates 1997). As of 2001, financial commitments from the United States and Europe, private foundations, and international development agencies were estimated at up to $600 million while governments in the region have assigned additional human, technical and financial resources (Miller 2001:28).. Due to the scale and nature of its objectives, it has been described as "one of the most ambitious conservation and sustainable development strategies in the world" (Miller et al. 2001).

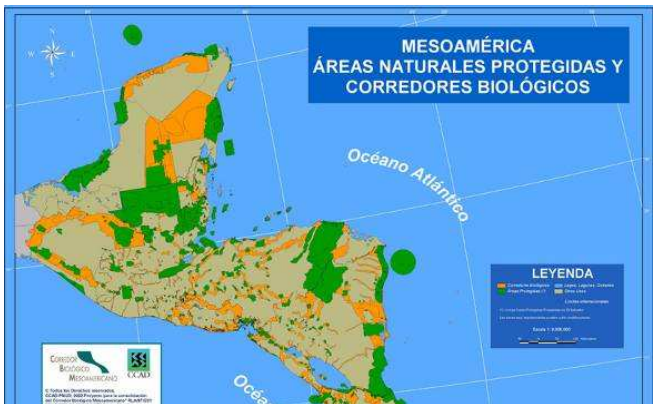

Figure 7: MBC Project Scope (the established Protected Areas [green] and Proposed Corridors [orange] of the Mesoamerican Biological Corridor, from southern Mexico to eastern Panama). (Source:

The MBC within Panama is referred to as the Panama Atlantic Mesoamerican Biological Corridor (PAMBC). Panama's National Environmental Authority (*Autoridad Nacional del Ambiente* – ANAM) administers MBC projects within the country. The PAMBC is geographically defined by an area of 'direct action' which spans the Atlantic coast of Panama and includes Bocas del Toro Province; the Ngöbe-Bugle region; the Naso-Teribe territory; La Amistad International Park and its areas of influence, and the Volcán Barú National Park, in Chiriqui Province; the area of influence of Omar Torrijos Herrera National Park, in Coclé Province; the Madungandi indigenous reserve and Chepo, in Panamá Province; the Kuna Yala region; and the Darien National Park in Darien Province (CBMAP 2006). This area of direct action includes 2.8 million terrestrial hectares of which 1.3 million correspond to legally protected areas and the other 1.1 million to designated indigenous regions (CBMAP 2006). The 'priority area' among these areas of direct action is located in western Panama between 09' 40'

and 08' 00 latitude, and 83'05' and 81'05' longitude. This includes the provinces of Bocas del Toro and Chiriqui and the Ngöbe-Bugle *Comarca*[14] and is designed to maximize overlap with Panama's National Protected Areas System (Sistema Nacional de Areas Protegidas – SINAP) (CBM 2003). PAMBC has involved 38,824 community members in sub-projects and a similar or greater number through training, education and technical assistance activities (PAMBC 2005).

The stated global environment objective of the PAMBC is to contribute to the long-term conservation and sustainable use of biodiversity in the Panamanian portion of the Mesoamerican Biological Corridor (PAMBC 2005). The PAMBC intends to conserve a biological link between the continents of North and South America, thus preserving ecological processes of "global importance" (PAMBC 1998:1). The PAMBC relies on a partnership involving governments, research institutions, NGOs, indigenous peoples, religious groups, private sector, donors, and multilateral lending agencies both of Central America and elsewhere.

The project development objective of the PAMBC is to promote actions on the part of stakeholders to achieve "conservation and sustainable use of biodiversity through land use practices that integrate biological, social and economic priorities" (PAMBC 1998:2). This is achieved through investment by the PAMBC in community-level sub-projects such as agroforestry (Guzman et al. 2003). Community sub-projects are used to "generate community support" for biodiversity conservation and "transform the image of a protected areas agency from one focused on punitive actions to one that supports communities in looking for more sustainable alternatives" (PAMBC 2005:21). Each sub-project is screened for its contribution to

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[14] "*Comarca*" is the term used in Panama to refer to a legally designated indigenous territory similar to an Indian reservation in the United States (Herrera 1998:97-100). The *Comarcas* of Panama are a semiautonomous political designation, in which indigenous peoples accommodate certain state interests with respect to sovereignty, security and resource exploitation while retaining authority over their internal cultural, economic, and political affairs (Coates 1997: 234).

the project's overall objective of "conservation of globally significant biodiversity", "improved natural resource and environmental management", and "income-generation from environmental goods" (World Bank 2006:42). The PAMBC promotes agroforestry as a principal mechanism of sustainable development in the region (ANAM 2005). This is done on the premise that agroforestry can 1) add value to primary production, 2) provide products for emerging "ecomarkets", and 3) restore and maintain ecosystem services (World Bank 2006:43).

Indigenous communities are a target stakeholder demographic for the MBC efforts within Panama (PAMBC 1998). This is due to the fact that they are among the economically poorest groups in Panama (NGI 2007), and that within the Atlantic corridor indigenous communities represent 50% of the rural population and indigenous *Comarcas* account for 60% of the land area (approximately 13,000 km^2):

> Integration of indigenous people in the design and implementation of project activities can have an appreciable impact on project success. Given the fact that in many regions of the world indigenous people occupy some of the best lands for biodiversity conservation, it is critical to ensure that they are full participants in determining how that biodiversity is best conserved. (PAMBC 2005:21)

The PAMBC focus on indigenous populations for conservation goals is not only due to indigenous communities dwelling in areas of high conservation value, but also because land-use practices are becoming increasingly unsustainable (PAMBC 1998). The PAMBC claims that Panama's highest rates of land-cover change preceding the project implementation were found in indigenous held lands, especially the Ngöbe-Bugle *Comarca* (PAMBC 2005). A total of 192,700 hectares of natural forest were transformed into non-forest productive systems, with the most notable changes in the central region of the Ngöbe-Bugle *Comarca* (PAMBC 2005). Using International Tropical Timber Organization categories, the PAMBC found a clear decrease in deforestation indices in the project area between 1992 and 2000, with the exception of the

Ngöbe-Bugle *Comarca* where the rate increased (PAMBC 2005). This data serves as the PAMBC's justification for its focus on Ngöbe communities within and around the Ngöbe-Bugle *Comarca*.

In Panama, this environmentally detrimental land-use is attributed by the PAMBC to greater interactions between indigenous communities and "dominant Panamanian society" (PAMBC 1998:66):

> Traditionally, indigenous peoples interact as an integral part of the natural environment. Land, forest and natural elements are considered to have significant symbolic, cultural and cosmogony values. Indigenous peoples in the PAMBC have broad knowledge about traditional uses of plants, animals, soil and microclimates. With respect to biodiversity conservation and natural resource management, traditional extractive and productive systems developed by indigenous communities are largely sustainable. However, the increasing interaction between indigenous peoples and the dominant Panamanian society has created new needs that are no longer satisfied by traditional subsistence productive systems. (PAMBC 1998:66).

In this analysis, cultural values are recognized, but deemed counter-productive in modern society. They are sustainable in a traditional context, but corrupted by increasing influence with other social groups as the political economy in which they are situated evolves.

Thus far, present-day cultural values of indigenous peoples have not been fully reflected in MBC policy. In its Central America-wide programs, the emphasis is on the value of archaeological sites for cultural-tourism (Grandia 2007; Miller et al. 2001). In Bocas, the MBC community-level sub-projects have limited what they describe as 'cultural activities' to those related to artisanal production using non-timber forest products (NTFPs), not cacao agroforesty (CBM 2003). Therefore, while cultural heritage is considered by MBC policies in the aforementioned ways, it is only done so as a means towards more ultimate goals of economic

development. 'Culture'[15] and cacao agroforestry, therefore, both feature prominently in MBC policy, but no formal project support is oriented towards the intersection of these 'mechanisms.'

The MBC aims to achieve conservation goals by means of encouraging particular forms of Ngöbe land-use through an inclusive and participatory project design. There is a stated MBC interest in inclusion of cultural values through appreciation of "indigenous knowledge, recognition of indigenous rights and respect for indigenous culture" (PAMBC 1998:69). An "Indigenous Action Plan" was created in order to foster "capacity-building for culturally sensitive conservation activities and sustainable development" and for the "dissemination of indigenous cultural patterns for biodiversity conservation" (PAMBC 1998:70). During project design phase more than 15 meetings with indigenous communities took place and a "two-way information system" was established to facilitate the presentation of project objectives, receive feedback from indigenous communities, and define the mechanism to "secure inclusion of indigenous views, needs, and concerns, active involvement in the decision making process and joint responsibility for execution, monitoring and evaluation" (PAMBC 1998:71).

For the purposes of "assuring indigenous participation" an indigenous professional was hired and given the responsibility for visiting indigenous communities, gathering relevant information, coordinating and consulting with indigenous NGOs and leaders (PAMBC 1998:14). Additionally the local indigenous congresses as well as other indigenous authorities designated representatives to coordinate with the project preparation activities and assist in the design of participation and decision-making mechanism (PAMBC 1998). Significant resources were allocated to assist indigenous communities and groups to participate in the project, assume

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[15] I borrow a broad definition of cultural systems: the processes that in human groups regulate the interaction between natural and social phenomena. (Linares and Ranere 1980)

leadership roles in PAMBC planning and prepare and implement eligible sub-projects; and processes were designed to ensure the informed participation of indigenous peoples throughout project implementation (PAMBC 1998).

These attempts by the MBC in Panama at inclusion of indigenous peoples and their cultural values were, however, met by a significant lack of faith on the part of target communities: "Indigenous communities also expressed distrust of this initiative, perceived by many as a governmental effort to control indigenous territories, thereby diminish their sovereignty and place constraints upon the use of natural resources and productive systems" (PAMBC 1998:68). This documented mistrust is underscored by the fact that in spite of "local and indigenous people's involvement" and "social evaluations and consultations" the cacao programs only received funding for economic development (PAMBC 1998:3). Given these inclusive approaches, concerns raised by Guerron-Montero (2005) about similar strategies employed in the designation of the PNMIB are relevant to further evaluation of the MBC in the interest of authentic Ngöbe participation in policy design and implementation. Actual implementation may deviate from the stated aims of a given project, and furthermore there may be unanticipated results of implementation. While this is not always possible to avoid, it does indicate a complex situation requiring multi-disciplinary analysis.

Discussions of proper indigenous and local participation help to broaden the evaluation of MBC performance beyond a more simple focus on whether its activities are actually achieving the dual goals of fomenting economic development and environmental conservation (e.g. Miller 2001). I suggest, with other academics critically examining the MBC (Grandia 2007; Finley-Brook 2007; Toly 2004) that this is not the only critical question. Rather, I argue that types of development other than those that are strictly market-oriented should be considered as means of

conserving the human-inhabited forest resources of the region. With this as a premise, local-level Ngöbe values for cacao cultivation must be recognized in order to receive support.

Thus far, primary criticism of MBC policy has been based on excessive market-orientation, wherein "they collapse citizenship into consumer or client-based models" (Finley-Brook 2007). Marketing strategies have become important components of project design. In spite of other causal factors of extractive deforestation like oil drilling, cattle ranching, logging, export-plantation agriculture, inequities in land distribution, and many other market activities that primarily threaten protected areas in Central America, MBC policy suggests that the key cause of deforestation is that nature has not yet been sufficiently commodified:

> Another factor underlying deforestation has been that basic ecosystem services derived from maintaining forest cover, such as soil conservation, watershed management, biodiversity conservation, and carbon sequestration, have been undervalued. *Failure to monetize these services has meant that landowners and communities have not received direct income from intact forest* (Rodriguez & Asquith 2004:16, emphasis added).

This reflects a greening of production and a conversion of diverse values into a calculus of commodities within MBC conservation corridors. An MBC goal is to promote 'the correct way' of reflecting the value of natural resources leading to more eco-efficient development (Finley-Brook 2007). Such an orientation suggests an emerging regime of nature-society relations that is intended to transform the biology – and culture – of the region into a "value vector" (Toly 2004:47).

The MBC is, in part, effectively converting Ngöbe cultural wealth, as traditional subsistence and ritual cacao agroforesters, into material wealth through cacao and timber commodities. A World Bank Report published in 2000, documents the Ngöbe as having 92% of their population living below the poverty line, and 82% living in extreme poverty, as defined by an inability to meet minimum daily caloric needs (Vakis and Lindert 2000). To address such economic issues, a recent Worldwatch publication titled *Venture Capitalism for a Tropical*

Forest promotes the conversion of "a cocoa [cacao]-growing tradition into an eco-business" (Bright and Sarin 2003). Young (1994:172) articulates a similar, if converse, vision of bringing the forest to the plantation: "Because the cacao tree is still tied ecologically to the tropical rain forest, the more we can incorporate certain features of the rain forest into the design of commercial plantation, the more likely we are to maintain production at suitable economic levels in the long run." In this manner, the MBC propagates "certain views of nature and society in terms of production and efficiency, not of respect and the common good" (Toly 2004). Plans for intensive, commercialized, and export-oriented production could have large-scale impact on Ngöbe social structure and tree cover throughout the Ngöbe-Bügle *Comarca* and other Ngöbe-held lands.

The MBC generates questions commensurate with its promises. Grandia has criticized the project as being governed by an unquestioning faith in the ability of markets to simultaneously resolve development issues, achieve environmental goals and inspire democratisation, "As if "win-win" solutions were not enough, we can now have "win-win-win-win-win-win-win" equations that benefit alike corporate investors, national economies, biodiversity, local people, western consumers, not to mention the World Bank and the BINGOs[16] implementing the corridor" (Grandia 2007:487). Such unqualified positive results are unsupported by historical precedents yet the attractiveness of such a framing can gain political momentum while leaving less powerful stakeholders at risk of having their needs unaddressed, or even exacerbated (Igoe and Brockington 2007).

[16] BINGOs: Big International Non-Governmental Organizations – well-funded organizations exemplified by The Nature Conservancy.

The MBC goals are oriented towards addressing drivers of biodiversity loss in what has been described as "one of the most complicated regions on earth" and headed "tragically toward a potentially violent and ultimately catastrophic conclusion for all peoples concerned" (Coates 1997:1). As a key component of MBC program policy, 'biodiversity' has been described by Zimmerer as the "latest and perhaps most powerful, distinct, and one-dimensional stage of twentieth-century environmentalism" (2000:364). The GEF legitimizes its own mission in financing biological diversity projects by emphasizing the importance of biological diversity as "essential for sustainable development, continued functioning of the biosphere, and human survival" (MBC 2002:3). Zerner (1996) is concerned that GEF projects represent social and natural worlds in such a way that leads to the "marginalization of local community rights to cultural autonomy, to territorial as well as intellectual property rights, and to basic civil procedures" (1996:81).

The MBC has received recent critical scholarly attention for how it negotiates the politics of conservation and development agendas with communities in its scope (Miller 2001; Toly 2004, Grandia 2007; Finley-Brook 2007). Meanwhile, Ngöbe strategies for balancing similar issues on the local level in the face of extra-local conservation and development pressures have been addressed from different academic and NGO perspectives over the past 50 years (Young 1971; Gordon 1982; Gjording 1991; Lao and Samaniego 1994; Wickstrom 2003; Guerron-Montero 2005; Seifert 2007). While typecasting along the lines of the "walking belly" is no longer expressed, the MBC appears to, at best, partially account for the cultural reality of Ngöbe as it pertains to commercialization of a ritual crop.

Neoliberalism and the Ngöbe

Neoliberalism is derived from classic liberalism, defined as "a market increasingly wide in its geographic scope, comprehensive as the governing mechanism for allocating all goods and services, and central as a metaphor for organizing and evaluating institutional performance…requiring a deeply problematic commodification of everything" (McCarthy and Prudham 2004:276). As opposed to classical approaches that are state-driven, or neo-populist favoring of 'ordinary people,' the neoliberal position prioritizes the market. It holds that local farmers such as the Ngöbe are entirely economically rational in their behavior, and that suitable technologies for development presently exist or can be readily devised (Blaikie et al. 1997:222).

Environmentalism and neoliberalism have come to share many features as a result of what is now a decades-long engagement. Examples include the convergence of sustainable development with green capitalism, the purported 'greening' of the World Bank (Goldman 2001:279). Some argue that neoliberalism is necessarily an environmental project, rooted in historical liberalism that structured social relations to nature, most famously exemplified by enclosing commons to facilitate the development of increasingly capitalist, export-oriented farming operations (McCarthy and Prudham 2004:276).

Neoliberalism has distinct conceptual and spatial channels through which it affects natural resources. Zimmerer has criticized the current worldwide conservation boom as part of a "reworking of capitalist modernity" (2000:356). The increased interface of conservation areas with agriculture, resource use and livelihood issues as an integral part of a 'third wave' of conservation demonstrates a broad-based approach to complex conservation issues in anthropogenic landscapes, yet simultaneously opens the door for neoliberal, extractive processes in areas of conservation concern (Zimmerer 2006:65). Neoliberalisation "does not entail

deregulation as much as it entails *reregulation*" where states and corporations attempt to convert things that were previously untradable or simply as yet untraded, into tradable commodities (Igoe and Brockington 2007). This, in turn, entails new types of 'territorialisation' which cut across traditional divides of state, non-governmental organization (NGO) and for-profit enterprise, and "creates new types of values and makes those values available to national and transnational elites" (Igoe and Brockington 2007). Neoliberal commodification does not pertain only to conceptions of nature, but also notions of citizenship and social action are "discursively prepackaged in the image of homo-economicus, the ideal, entrepreneurial, self-made individual" (McCarthy and Prudham 2004:276).

The market, however, is not the exclusive basis of decision-making around environmental resources. Such decision-making is linked with culturally relative values, customs and laws. It is therefore "relative to a given society and, within this society, to a given status group with a same 'habitus,' as coined by Bourdieu" (Castallanet and Jordan 1994:36). Velásquez Runk (2007) discusses the role of cultural beliefs in the negotiation of income by the Wounaan, an indigenous group in eastern Panama. She also frames livelihoods as "dynamic processes that allow communities, households, and individuals to exercise agency" (2007:93) within a discernible political economic history. In response to what she classifies an overly "materialist" and "neoliberal " focus (2007:94) of previous livelihood research, Velásquez Runk argues that resource-dependent peoples are unstatic in their articulation with shifting structures of land availability, market access and political actors (2007:101). She concludes that while varying according to village, gender, age group, and even person-to-person, dynamic livelihood strategies are informed significantly by cultural beliefs and values (2007:102). She also aligns with Fairhead and Leach and Ferguson when she states that conservation and development

interventions are largely impacted by the manner in which local livelihoods are conceived of by conservation and development practitioners (2007:93). The variability with which livelihoods are negotiated complicates sustainable development initiatives that may seek efficiency in uniform planning based on integrating Ngöbe agroforestry into national and international market structures.

At mid-20th century, the Ngöbe involvement in the national economy was described by Young as "marginal" (1971:82). Domesticated plants and animals as well as manufactured goods introduced from Europe in the latter sixteenth century had been integrated into the Ngöbe subsistence economy, yet the cash-based economy was resisted by the Ngöbe barter and exchange system that operated amongst kinship groups (Young 1971). There is evidence that in the 1930's, most Ngöbe did not have a thorough understanding of monetary exchange (Johnson 1948b in Young 1971:92).

Young divided the Ngöbe economic system into two analytic categories: "internal" or intra-societal and "external" or inter-societal (Young 1971:57). The internal economy involves only transactions and activities amongst the Ngöbe themselves and the external economy involves transactions between Ngöbe and non-Ngöbe. The internal economy was traditionally non-monetary and the external economy included monetary features such as capital, savings, and credit (Young 1971). Young's (1971) perspective on the articulation between the two systems in the mid-20th century was dire.

> Truly, the Guaymi face a dilemma. They have come to depend on cash to supplement subsistence agriculture. Their two chief sources of cash, wage labor and cattle sales, have diminished substantially in the past few years; at the same time, their dependency on cash has increased. Virtually their entire social system is geared to a non-monetary but efficient system of internal production and consumption, rather than to production for an external market. Yet even were the Ngöbe attitudes and practices restructured overnight to result in viable accommodation to a market economy, there would remain the problem of effective access to this economy. The solution to his problem is completely beyond Ngöbe control at present (1971:104).

Writing nearly two decades after Young (1971), Bourgois (1988) attempts to explain how an inability to accommodate new economic arrangements impacted Ngöbe individuals accustomed to traditional subsistence production:

> The majority of the new Guaymi immigrants were (and for the most part still are) largely subsistence agriculturalists, coming from isolated, traditional, "closed corporate" communities with minimal – if any – direct contact with non-Amerindian society. The difficulty in making the transition from a subsistence agricultural economy to one based on full-time wage work gave rise to the emergence of patron/client intermediaries. The lack of "proletarian" skills of the new Guaymi laborers (their inexperience with cash transactions, routinized work hours, and so on) and their incomplete dependence on the money economy led the Company to establish special broker institutions to supervise, train and the recruit the new Amerindian workers. Company correspondence abounds with references to the maladaptive qualities of the Guaymi who were undergoing this "traumatic transition" - absenteeism, "irresponsibility," and drunken brawling. Managers complained to headquarters that the Guaymi would abandon the plantation in November and December without even picking up their pay checks in order to harvest yams and plant corn and rice in their home communities. (1988:333)

Conflicts between livelihood models of the Ngöbe and other, often-exploitative, parties, are reduced to perceptions of 'maladaptive' Ngöbe behaviors. The results of capitalization of labor that was traditionally based on reciprocal exchange of collective work, suggests potential problems that could emerge in response to a campaign to 'capitalize' a cultural centerpiece in cacao.

Theoretical and ethnographic work has been done on the interactions between market and non-market values. Bernal (1994:806) critiques formulations of the 'dual economy' and other "binary" models such as Young's (1971) Ngöbe work, from the perspective that "nonmarket relations affect the operation of markets, and markets influence the organization of non-market relations". As with Velásquez Runk's (2007) analysis of parallel and shifting livelihood strategies both inside and outside market systems, there are a "plurality of productive relations and rationalities within capitalism" (Bernal 1994:806). Ban and Coomes (2004) document different degrees of biodiversity that result from planting material that flows along multiple pathways, "from gift-giving and purchase to inheritance and scavenging – to the gardens,

reflecting a complex and often extensive network of exchange" (348). Bernal states that non-market values are sometimes seen as an impediment to the 'rational use' of resources:

> …[V]alues other than those set by the market are impediments to the rational use of resources…To the degree that peasant producers are not motivated by profit and their land, labor, and produce are not freely marketable commodities, they are seen as obstacles to progress. (1994:793)

Furthermore, Bernal argues that market pressures have in some instances had an ironic effect:

> They…not only have failed to transform subsistence production into commodity production, but are also one of the driving forces behind subsistence farming. Households survive by combining the fruits of unpaid family labor on their farms with the incomes earned by household members engaged in wage-work or self-employed in the informal sector. Market and non-market relations and wage and unwaged labor are, thus, intertwined and the logic of peasant production reflects this complex reality. (1994:794)

Dove (1993) documents a similar phenomenon with the ecological and economic integration of rubber into swidden cultivation by the Indonesian smallholders. Even during a boom in rubber prices, rubber is considered to be secondary to – and to facilitate – rice production (1993). Among the Ngöbe, Young cites non-economic intangibles such as "kinship, friendship, availability, [and] need," as potentially important factors that could outweigh the market values of the commodities being exchanged (1971:84). Therefore, building on Young's (1971) division of the 'dualistic' framework of the Ngöbe economy, new insights could be derived from the manner in which the two spheres articulate with each other, and under what conditions. Ngöbe participation in cacao markets would provide a well-circumscribed area of investigation into those dynamics.

Even according to a strictly economic calculus, export orientation has been heavily criticized in terms of its promise of generating wealth for rural agriculturalists (Liodakis 2000, Gupta 1998). It is possible, even probable, that people will lose wealth due to the limited

opportunities for self-determination at the least powerful position in the production chain (Dove 1993; Li 2002). Furthermore, wealth generation for conservation is contradicted by studies that indicate that the poor have more sustainable livelihoods than the wealthy (Chambers and Conway 1991). Consequently, the exclusive market-orientation promoted through the neoliberal framework can not only overshadow non-market values, but can achieve results contrary to its promises of economic development and natural resource conservation.

The neoliberal framework creates new forms of land-use practices that may either harm or benefit the environment, and can either enhance or diminish livelihood opportunities to local people. It is notable that such possible benefits are not an intended consequence of neoliberalism. Neoliberalism is about restructuring social and ecological relations in order to facilitate the spread of free-markets. Proponents of neoliberalism hold that this will intrinsically and categorically benefit local people and the environment. Of greater concern here, however, is that fact that neoliberalism's emphasis on competition, along with it reduction of state regulation and downplaying of the social contract, creates spaces in which local people are not often able to compete effectively in the face of much more powerful transnational interests. These question cannot be adequately addressed as long as they take place in the context of a "'discursive blur,' which holds that free-markets and the commodification of nature will produce outcomes that benefit everyone without significant social and ecological costs or compromises" (Igoe and Brockington 2007). The matter is further complicated by the fact that local people may welcome any such compromises where perceive a need for protection from outside resource exploitation, or desire immediate economic benefits (from Zimmerer 2000).

This study does not categorically criticize agroforestry production or market orientation. However, the market-orientation of the MBC cacao agroforestry can 'mis-translate' more

complex local level Ngöbe values. As West has noted, "…[E]nvironmental translations that portray people as rational, neutral, and economically minded, and their socioecological actions as resource use, often miss the fact that human relations with the natural world are aesthetic, poetic, social and moral" (2005:633). This could ultimately conflict with both its conservation and development aims. Cacao is notorious for its boom-and-bust cycles (Rice and Greenberg 2000). During times of low market value shade-grown cacao is often converted to land-use practices that have adverse effects on biodiversity such as agricultural monoculture or cattle production (Ruf and Schroth 2004). Even during times of high market value, cacao may ultimately serve to generate wealth only for elites in the global commodity chain as Dove (1994) has critiqued in other marketing approaches to conservation of tropical forests.

MBC policies are predicated on a strong conceptual association between particular economic modes and particular ecological conditions. This raises questions regarding the relationship between cultural constructs and both ecology and economy. Additionally, rigid associations and schemes do not fit with arguments that the global environment is in constant flux and therefore that neither conservation nor sustainable development can will be successful with a cookie-cutter approach (Vitousek et al. 1997). Myth and ritual are central to cacao and therefore central to the problem of conservation and development of Ngöbe and western Panama. Bloch and Parry (1982:6) address the fundamental relevance of traditional Ngöbe non-market values for cacao when they assert that "the social order is a product of ritual not a source." This runs counter to an economism of the environment that tries to be monistic and comprehensive (Norton 2005:166), including the re-regulation of conservation through "forms of commodification" (Igoe and Brockington 2007:68) and the "logics of capital" (Toly 2004).

Local Symbolic Knowledge and Conservation

Every society has a unique cognitive structure, rules of moral conduct and patterns of social interactions that mutually influence economic and natural resource relations. Struggles over resources can therefore also be interpreted as struggles over meanings – as symbolic as they are material (Berry 1993, Peluso 1996). Local knowledge of nature is a 'set of practices' that is "profoundly, contextualized, social and dynamic" (Raffles 2002). These ingredients of local 'culture' can be expressed through symbols (e.g. narratives, dreams, myth, ritual and icons). The cultural link between symbols and the environmental or economic elements of the social structure can vary from one local-level community to another.

Where science is seen as standardized, de-contextualized and universal, local knowledge is strongly rooted in place (e.g Norgaard 1992; Kloppenburg 1991). Acknowledging that local knowledge is not necessarily purely indigenous and can be derived from varying loci and scales (Dove 2000), it can still be ignored or appropriated at the expense of the communities that have most immediately generated it and rely upon it for their comprehensive livelihoods. Also problematic is the fact that while high modernity overlooked local knowledges and their meanings (Scott 1998), current attempts to appreciate them, can threaten them. Although some attention is now given to local knowledge in scholarly and applied biodiversity debates, the attention is insufficient and often misguided to the extent that local knowledge is rarely understood in its own terms or it is "refunctionalized to serve the interests of Western-style conservation" (Escobar 1998:61). At times, academics and community advocates have contributed to this process of oversimplification (West 2005:632). There is an established value in forging links between different knowledges that are possible from different locations, but it should be recognized that, like with material resources, this can create vulnerabilities for those

parties with less recourse (Gupta and Ferguson 1997). This presents a dilemma of how best to understand local knowledges on their own terms without rendering them vulnerable for exploitation. Concerns over this very problem appear to be manifest in Ngöbe reticence to make the cultural values of some crops, including cacao, available to visiting government representatives (Lao and Samaniego 1994).

The neoliberal view of local and symbolic knowledge is based on short-term economic returns and reduces these knowledges theoretically and practically to market information on the technical choices available (Blaikie et al. 1997:222). Such technocratic approaches to conservation target perceived deficiencies in the 'knowledge, skills and attitudes' of local people (Igoe and Brockington 1997) and presuppose a proper corrective for the selected problem. The persistent challenge then is to recognize, represent and amplify local knowledges and at the same time minimize the compromise that comes from decontextualizing them in different sectors of society or scaling them up in large-scale conservation and development programming.

In order for authentic pluralistic governance of natural resources to be promoted, local variation in knowledge and values must be recognized and validated. A strong case for the cultural constitution and local variability of social relations is presented in Scott's treatment of the moral economy of the peasant (1976). For Scott (Ibid), a moral economy is one in which transactional arrangements account for the phenomenology or 'lived experience' of those involved. In Scott's case it is a peasant phenomenology of risk that justifies an economy of proportional rents over consistent rents. Consistent rents may permit the peasant to accrue greater cumulative wealth, however they also increase the possibility of starvation at any given time, a much greater concern for the peasant than the possibility of wealth accumulation. While Scott's moral economy is clearly responsive to ecological vicissitudes, it is the ethical imperative

embedded in corresponding social relations that are his emphasis. Peluso (1996) similarly examines the "ethics of access" to the fruit of the durian tree as a "metaphorizing" of complex relations. Peluso's 'ethics of access' includes – but expands beyond – the economics or subsistence rights of Scott's moral economy, and "serves social, political, and ritual purposes as well, representing kinship, power relations, ritual harmony" (Peluso 1996:515).

Cacao is also interrelated with a broad definition of 'livelihoods': a household's capabilities, assets, and activities required for a means to a living (Chambers and Conway 1991; Carney et al. 1999). Gudeman and Rivera (1990) study a culture of exchange in which a just price varies with buyer and seller, is "based on one's conscience", and "allows a house to meet its needs." They found four different measures of equality for determining fair trade: "equal money", "equal bundle", "equal work", or "equal cost expenditure". Such a multi-variate calculus for the determination of price counters the notion of an objective market or a culture-free economy.

Ferguson's (1994) case of the 'Bovine Mystique' agrees with Scott that rural dwellers are not acting 'irrationally', but departs from Scott's utilitarian 'moral economy' perspective. By keeping large numbers of poor quality stock rather than a lesser number of healthier (i.e. ostensibly more profitable) animals, Scott would theorize that the security of the herd is being prioritized over profit. Ferguson maintains that deriving such theories from a Western model of 'rationality' is still problematic. Instead, he encourages the exploration of the rules that govern their cultural order and structure their range of options (1994:137). One example of such a rule that governs the peculiar 'local economy' of Lesotho and is not derivative of any external 'rationale' is the "one-way barrier":

> It is clear, then, that the fundamental fact here is not that livestock are very useful economic investments (though they certainly are for many people) or that they are greatly loved and valued for their symbolic connotations (though this, too, is often the case) but

> that livestock and cash are not freely interconvertible. There exists what one might call a one-way barrier: cash can always be converted into cattle through purchase; cattle, however, cannot be converted to cash though sale, except under certain conditions, conditions usually specified as a great and serious need for money which cannot be raise any other way, a situation arising from an emergency or from poverty. (1994:146)

Here Ferguson aims to distinguish localized rules from any generalizable principles of economy, recalling Scott's 'moral economy' and suggesting implications that ritual cacao values might have in the capitalization process of market transitions. The fact that development practitioners are often frustrated by rural peoples who are largely, as Bernal (1994) describes, 'in the market, but not of it', reflects a connectedness of culture and economics rather than a separation. These studies challenge the proposition of large-scale programming, especially of those with particularly neoliberal premises, in communities such as those of the Ngöbe .

As I have attempted to demonstrate above, and as Gudeman attests, "the central processes of making a livelihood are culturally modeled" (1986 vii). He continues that, "Among many non-Western peoples, these constructions of livelihoods are metaphors or extended metaphors." Bloch (1998) defines culture in functional terms – as "that which needs to be known in order to operate reasonably effectively within a specific human environment." According to Bloch's definition, culture *is* local knowledge.

Gudeman (1986) documents a government-induced transition from "household economy" to "cash crop economy" and then to a "wage goods economy" among peasants in rural Panama. In each stage of 'development', "the peasants' current model became a way of constructing or seeing their new experience. At each point people creatively transformed their models such that there were continuities and discontinuities, metaphors and gaps, between them" (Gudeman 1986:25). Rather than articulating the ultimate features of reality, Gudeman proposes such models as a "pragmatic device" (1986:29). In a later work, Gudeman (1992) describes

economics as "culture-making", a process of symbolization. He argues for an ethnography of "appropriate" or "local" economics, claiming that, "No master model or metanarrative captures what is occurring. Appropriate economics is based on the recognition that different economic models exist and are often thickly combined" (Gudeman 1992:152). Differences between local community 'devices' and governmental or international agency 'devices' may lead to what Mosse (2004) has identified as a conflict of "master metaphors". Conflicting cultural constructions of livelihoods mean that some aspects of Ngöbe wealth (both material and non-material) may fail to be registered by conventional indices such as those employed to determine that the Ngöbe are the 'poorest demographic' in Panama.

Another interpretation of the Ngöbe myth of natural resources involving Ivi Molo (Samaniego 1997), goes beyond Ngöbe relations to local natural resources, and provides an analogy of agrarian livelihoods linked to larger, global political economic processes. The iguana brings famine upon himself and others through an inappropriate insistence on knowing that which he was not supposed to know. In this broader interpretation, the iguana may be understood as being punished for pursuing or presuming certainty. Implicit in the myth is a commentary on the unsustainability of rigid schemes, or of monism and determinism often found in the agendas of natural resource conservation (Biersack 2006). Modern science has traditionally sought to eliminate uncertainty and advance linear programs under similar pretenses. The Ngöbe myth (Samaniego 1997), contrastingly, suggests the perils of inappropriate assumption of knowledge. It legitimizes the value of the Ngöbe perspective in the development of further strategies to advance conservation on their lands in western Panama, as such strategies involves multiple stakeholders of varying scales and social arrangements. Keba

Sula , as a mediator between 'worlds', is interpreted here as a cultural argument for pluralistic approaches to governance of resources in the region.

In light of these cases and theories, cacao can be viewed as a conjuncture of political-economy and culture with implications for ecological landscapes and governance. Such crops are meeting points of complication and contestation, but can also be ascribed with ethical guidelines. Similar to the ways in which Scott's moral economy buffers and guides through fluctuations in yield, and Gudeman's "appropriate" economics buffer and guide through fluctuations in price, Peluso's "ethic of access" has "tempered the potentially harsh consequences of broader (international) trends toward privatization, individualization and commodification of resources" through a historically grounded set of meanings (1996:512). Long-standing cacao rituals may provide pathways around present and future constraints toward greater self-determination through preservation of local options (cf. Nazarea 1999). They may serve to soften the adverse effects of many possible interrelated fluctuations – plague leading to reduced yield (ecological), international market shifts leading to reduced price (economic), or community tensions arising from pressures towards intensified, export-oriented production (social).

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

As sustainable development efforts increase in scale, they not only must balance interests in natural resource conservation and economic development, but also account for varying priorities existing at different scales of governance (Zimmerer 2004). These priorities are based on considerations of biological complexity and biodiversity as well as cultural complexity and diversity (e.g. West 2005). As values attributed to ecosystems, including biodiversity, become increasingly commodified (Zimmerer 2006; Igoe and Brockington 2007; Finley-Brook 2007), non-market values of the natural world are marginalized or neglected in conservation and sustainable development programs (e.g. West 2005). Market and non-market interests converge in the case of the Ngöbe of western Panama, whose large indigenous territory has been targeted by national and international groups for conservation (Guerron-Montero 2005), development (Young 1971; Bourgois 1988; Gjording 1991; Wickstrom 2003), and now sustainable development (PAMBC 1998; 2005; 2006). My focus in this thesis has been on cacao agroforestry, which is currently a major nexus of local-extralocal relations among the Ngöbe. I examined the persistence of ritual cacao practice for Ngöbe as development pressures increase in their society and on their lands. I specifically discussed some of the possible implications of the MBC effort to transform an ancient tradition of cacao cultivation into an intensive and export-oriented system of commodity production.

As the links between biodiversity and livelihoods are contingent and locally specific, success may only be possible under certain institutional, ecological and cultural conditions. The benefits to be gained from studying 'unacknowledged structures', 'local models', and cultural values, is that it may create, as "a standard of equity against which the moral performance of elites might be judged (Scott 1976:34)" and may help understand how people "come to know, produce, and be a part of environments, and…aesthetic practices that may well be important claims with material consequences" (West 2005:369).

The models, characterizations and metaphors that comprise the MBC and the Ngöbe conceptions of cacao, are part of a historical pattern of asymmetric relations between the Ngöbe and outsiders. Grappling with pluralistic, heterogeneous, hybrid and unpredictable knowledges requires a strategy of tinkering with local realities, instead of grand interventions. Murdoch and Clark champion a "sustainable knowledge" as a mixture – of the social, the scientific, the local, the technical, the natural and perhaps even the magical – that refuses *a priori* to privilege science (1994:129). This response will become increasingly relevant to developmental approaches in Panama if, in fact "indigenous lands and resources represent the 'final frontier' available for development, as other lands and resources have already been exploited and, in most cases, exhausted" (Wickstrom 2003:46).

I conclude that, given historical interactions between the Ngöbe and other political entities, a suitable objective of the MBC in Bocas del Toro would be to attempt to enhance local-level values without creating a correspondingly high value for elite interests. This would require further social and natural science research on conservation that is equally relevant to communities and institutions (Richardson 2008). A worthwhile objective of this research would be democratically agreed upon Ngöbe and MBC definitions of conservation in the region. It

would be just as important – if not more – to articulate and maintain any difference between these definitions, as any potential overlaps. In support of this, community-level case studies, including ethnographic work on social and landscape history, should be required as an early and central component of program planning. Localized and pluralistic approaches to conservation would further benefit from a formal commitment from institutions and agencies to direct money to smaller-scale and place-based conservation efforts rather than filtering down from larger and more centralized organizations. The need for such innovations is particularly great in areas such as Panama, and Central America, more broadly, where indigenous populations are the predominant demographic in geographies of national and international conservation interest.

In the case of the Ngöbe, evidence remains to be seen as to whether or not diverse valuations of, and diverse practices associated with, cacao cultivation lead to increased measures of biodiversity in agroforestry landscapes. However, it can be reasonably asserted that such valuations are vital to the holistic livelihoods of the Ngöbe. Further studies may indicate that the preservation of diverse varieties of cacao through ritual use leads to decreased susceptibility of cacao agroforests to fungal blights and other ecological perturbations with economic implications. I infer that the persistence of ritual values for cacao will increase the probability of the persistence of the cacao agroforests themselves in the face of future boom and bust cycles of cacao commodity prices. Furthermore, broader Ngöbe values of cacao may permit resilience in the face of degrees of economic and ecological perturbation that are largely inevitable. Symbolic values, such as those held by the Ngöbe for cacao, which do not fit into more conventional (e.g. economic and ecological) value systems, will provide practical challenges and require further research, as large-scale projects such as the MBC increasingly seek to involve local-level and indigenous populations. Such concerns notwithstanding, new research in the plasticity of local

knowledge suggests a slightly more hopeful perspective of the impacts of projects such as the MBC than Grandia's condemnation of them as "doomed to pass into the dusty archives of the growing number of failed projects" (Grandia 498). Diverse values such as those of cacao rituals should not only be recognized but supported and fostered in western Panama, for the sake of the efficacy of the MBC conservation agenda as much as for the proper sovereignty of the Ngöbe.

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APPENDIX A

LIST OF ACRONYMS

MBC – Mesoamerican Biological Corridor
GEF – Global Environment Facility
ANAM – Autoridad Nacional del Ambiente (*National Environment Authority*)
STRI – Smithsonian Tropical Research Institute
PAMBC – Panamanian Atlantic Mesoamerican Biological Corridor