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Class Consciousness or Natural Consciousness? Socionatural Relations and the Potential for Social Change: Suggestions from Development in Southern Honduras

Brian J. Gareau

This article addresses the potential of eco-Marxism to enhance understanding of people/nature, or socionatural, relations by focusing on the effect of the so-called natural world on human perceptions of nature and society. Empirical data on hurricane frequency in Honduras suggest that so-called natural phenomena can contribute significantly to human perceptions of their environment. Interview data on an inhabited protected area in Honduras reveal how peasants have been negatively affected by Western-style development. Interview responses suggest that the difficult socionatural conditions in which they are embedded influence both the decisions made by inhabitants and their relation to the environment. The data also reveal that humans are not a homogeneous group but, rather, are affected disparately by socionatural phenomena based on different class and natural/ecological conditions. What emerges from the data are socionaturally determined classes, one of them in a highly precarious socionatural condition that likewise holds the kernel of the desire for social change. The data support a conjunction of political economy's concern with power, social differentiation, and class analysis with concerns about how "nature" inextricably shapes human relations. This article illustrates how efforts made by groups like World Neighbors, a development organization working to make nature a less capricious actor, would be bolstered by an understanding of socionatural class conditions.

Key Words: Agroecology, Class Consciousness, Development, Ecological Marxism, Honduras, Peasants, Socionature

There is concern that global warming will cause climate variability and extreme events ... It's quite clear that the United States is not prepared to handle multiple catastrophic events in a short time period, with many other countries being even less capable of bearing the economic consequences of catastrophic weather events.

—Pew Center on Global Climate Change, *Hurricanes and Global Warming*

Nature, the nature that preceded human history ... is nature which today no longer exists anywhere.

— Karl Marx, *The German Ideology*

The root of Marxist theory—notably the use value/value dialectic—is known for recognizing the powerful historical linkages between people and nature. This much is well documented (O'Connor 1998; Foster 1994, 1999, 2002; Foster and Clark 2004; Burkett 1999; Burkett and Foster 2004; Williams 1980, 1989; Ollman 1971, 1993; Soper 1991; Marx and Engels 1998). Yet ecological Marxists are split in their estimation of how much Marx himself considered the degrading character of productive activity, including socialist production and consumption, on the environment. While Burkett and Foster (2004) and others (Fine 2005) remain convinced that Marx's theory of value considers seriously the ecological ramifications of unsustainable production, O'Connor (1998) and others (Benton 1996; Soper 1991, 2005) assert that this job was left for later Marxists to incorporate into critiques of political economy. This debate might never be resolved. Perhaps a better direction for debate lies in considering the socionatural coproduction of humans and their surrounding environment in terms of oppression, exploitation, and vulnerability to "natural" phenomena.

Both sides of the debate over Marx's "greenness" pay close attention to the effects of environmental degradation—instigated by global capitalist industrialization—on the lower classes, racial minorities, and oppressed people everywhere due to environmental injustice (Benton 1993; Szasz 1994) and unsustainable resource extraction (Moore 2003; Bunker 1984, 1996; Bunker and Ciccantell 1999; Foster 1994; Vlachou and Christou 1999). Others focus on the general tendencies of capital to degrade the environment (Foster 2002; Fine and Saad-Filho 2004), the destruction of which degrades human life (O'Connor 1998, 165; see also Lipietz 1992). This article suggests that ecological Marxism (eco-Marxism) is just as capable of focusing strongly on the natural in the human/nature dialectic in order to ask what effect the so-called natural world can and does have on human perceptions of nature and society (see also Castree 2002; Gareau 2005; Fine 2005; Rudy 2005; Rudy and Gareau 2005). This shift in focus would make discussion and analysis of the society/nature dialectic more balanced—more about "the inseparability of society and nature" than about society-in-nature or society's effect on nature (Swyngedouw 1999).

To explicate the importance of this move, I turn to Marx. Marx held that nature—on its own—contained the primary use value (Marx 1972b, 526) and therefore had use value outside human labor in immediate productive action. It follows that agential nature (a nature that is often the product of years of socionatural activity but is nonetheless considered "natural") and the utility of nature in itself conjoin usefully. The natural world (here seen as always already an intermixing of human activity with the surrounding environment) is important as the basis for all life, but it is also an active participant in the human/nature dialectic, not a passive recipient. According to Marxist conviction, social change cannot come without political change (see Marx 1973, 219) and therefore without change in social relations. How, then, the primary use value (i.e., nature) affects humans' relations with nature and with themselves is of the utmost importance. Indeed, socionatural relations play a huge role in

determining class consciousness, racial consciousness, life chances, and the immediate consequences of all sorts of economic variables (Gareau 2005, 132).

Taken at a local scale, these generalized tendencies can be studied in a way that examines how socionatural relations shape the specificities of capitalism and thus affect the particularities of social relations. If Jessop's interpretation of Marxism is correct in stating that capitalism attempts to achieve growth and minimize the adverse affects of its contradictions via regulatory apparatuses that are both spatially and temporally specific (or fixed), then how human/nature relations (socio-natures) influence those specificities is indeed important (Jessop 2002a, 13–4; 2002b; 2000, 325).¹ In many ways, a conjunction of this type would extend eco-Marxism to an analysis of how socio-nature (specifically and generally) partially shapes the ideological consciousness of people at all socioeconomic levels, but most concretely those with immediate relations with the natural environment (see also Gareau 2005).

The case study below examines how nature and humans are interconnected in rural Honduras, overdetermining the potential for social change in a manner that both supports and departs from traditional Marxian notions of peasant social differentiation in capitalist societies (e.g., Byres 1986, 1991; Bernstein and Byres 2001). Socionatural relations affect where significant change may come from in ways that move beyond orthodox class consciousness or even class relations. This article draws on empirical data from research that contains significant, nonhuman actors that both affect and are affected by the political-economic conditions of human agents. The research centers on rural agrarian development and tropical weather patterns in southern Honduras. In a case study of several villages located in southern Honduras, tropical weather is considered a significant agential actor, but one that can be simultaneously altered by the labor of humans, as in making adjustments to farming practices or emitting millions of tons of carbon dioxide into the atmosphere and contributing to global warming.

A Brief Socionatural History of Southern Honduras and Cerro Guanacaure

In Honduras, socio-natural relations are the product of a long history of natural resource extraction at the behest of foreign powers, the appropriation of the peasantry's property and access to land, and misguided national policies fashioned by international powers (Stonich 1993; Jackson 2005). Honduras was among the first places where Spanish conquerors found gold and silver in Latin America: commodities Spain sought to fund its military campaigns and a poorly managed absolutist state (Anderson 1974). By the late 1500s, most indigenous people in southern Honduras were either enslaved to work in the mines or sent to South America (Wortman 1982, 3–7, cited in Stonich 1993, 50). From 1569 to 1584, southern Honduras became an export zone for cattle and mules destined for the highland mining operations

1. Jessop's regulationist interpretation of the spatiotemporal fixity of capital parallels, to some extent, the geographically contingent quality of class process understood by the Community Economies Collectives as explained by Rebello in this journal (Rebello 2006).

surrounding Tegucigalpa and Goascorán (Stonich 1993, 51). Spanish mining operations instigated the present pattern of social differentiation in southern Honduras, where “the small privileged minority in Honduras were rural elites whose wealth was concentrated in the private ownership of large tracts of land” (52).

The postcolonial period of liberal reforms in Honduras was very much affected by its siconatural conditions as well. Due to its extremely mountainous terrain, Honduras remained politically and economically fragmented well into the nineteenth century (49–53). Yet in 1876, President Marco Aurelio Soto began carrying out liberal reforms, largely to augment export agriculture (Library of Congress 1995). From the late nineteenth to early twentieth century, U.S. agroexport companies like United Fruit dominated Honduras’s export economy, shaping the northern landscape through intensive banana production (Marquardt 2001). Efforts to evade the banana-killing Panama disease destroyed thousands of acres of forested land, contaminated water sources, depleted soil fertility, and left thousands of laborers landless and unemployed (Soluri 2000; Marquardt 2001). Although the banana industry did not directly affect southern Honduras, indirectly it allowed landowners in the south to channel efforts toward expanding cattle production. Cattle ranchers expanded their operations through business opportunities with banana companies in the north. Cattle ranching required less labor than mining, thereby displacing peasants who often sought refuge in the heavily sloped highlands.

It was not until the 1950s that southern Honduras became open to a capitalist agricultural economy when some Honduran landowners and, by the 1970s, foreign agricultural enterprises began producing cotton, livestock, coffee, shrimp, melons, and sugar for export (Stonich 1993, 64–5). The boom-and-bust cycles of these ephemeral ventures has had serious impacts on landless peasants: by 1987, real wage rates for rural agricultural labor were barely higher than they had been in the early 1970s (USAID/Honduras 1990). Landless peasants migrated to the highlands, subsisting off land rented from small and medium landowners and/or working for wages on small cattle or coffee operations. Heavily sloped hillsides coupled with small partitions of land made subsistence farming without wage income and/or remittances virtually impossible. Cerro Guanacaure, the topic of this study, has a similar history.

Cerro Guanacaure is the modern name for a highland region located about fifteen miles southeast of Choluteca city, primarily in the department of El Corpus, Choluteca. In 1999, the two thousand hectares surrounding the mountaintop of Cerro Guanacaure were decreed a protected area (*La Gaceta* 2000). The physical geography is incredibly rugged. In 1999, a twenty-five-mile trip from a village near the center of Cerro Guanacaure to Choluteca city took three to four hours by village bus.

The influx of capitalist interests in southern Honduras in the 1950s also affected Cerro Guanacaure. During that period, the Honduran government sold twenty thousand hectares of land surrounding Guanacaure to German entrepreneurs, who hired Hondurans to manage coffee production in the region. Many landless peasants migrated to the region for employment and to rent land. In the 1960s, the Honduran government reacquired much of the land held by the German entrepreneurs and handed it over to a few Honduran landowners. These landowners did little to improve coffee production, which inevitably lowered yields, depleted soils, and, by the early 1980s, led to economic failure. The landless peasants dependent on the coffee

harvest to supplement subsistence agriculture suffered greatly as a result (Gareau 2004, 101–3).

In recent years, some effort has been made to channel development to Cerro Guanacaure. The Honduras Forestry Service (COHDEFOR), often working in conjunction with the U.S. Agency for International Development (USAID) (Jackson 2005), has attempted several projects to minimize soil runoff in small-scale agriculture. The Honduras Ministry of Water and Sanitation (SANAA) has also attempted some development by providing funding for building latrines and improving water systems in some of the villages (Mayorga 1989). Because Cerro Guanacaure is an important water source, SANAA has also funded reforestation efforts to sustain water supply.² But most development efforts have come from the Honduran Association of Coffee Producers (AHPROCAFE), a private organization that supports Honduran coffee farmers with road and bridge repair, reforestation, and efficient coffee depulping technologies.³

In a study conducted from 1997 to 1999, inhabitants of Cerro Guanacaure reported that most development projects in the area had failed. Reforestation projects often utilized hired peasant labor for maintaining tree nurseries on private coffee plantations. However, many reforestation projects failed due to the lack of consistent watering during the dry season or lack of care during the rainy season. One successful reforestation project was located in the base community of San Juan Arriba. The project was funded, initiated, and managed by SANAA on lands owned by SANAA. However, communities located in the upper highlands of Cerro Guanacaure had little success with development projects (Gareau 2001, 2004). Nevertheless, even the most marginal communities experienced some development successes.

Few development projects are geared toward the agriculture of basic foodstuffs such as maize, sorghum, or beans, crops customarily grown for subsistence or for sale in local markets in Choluteca. This is unfortunate because agroecological projects, such as those conducted by World Neighbors in other parts of Honduras, have shown considerable success in thwarting the negative effects of hurricanes and heavy rains and thereby potentially improving socionatural relations of production (see below). During the rainy season, mudslides, flooded streambeds, and overturned trees often make transportation to market impossible in Cerro Guanacaure. Heavy rains and tropical storms/hurricanes destroy harvests of coffee and subsistence crops with dismal regularity. The effect of these “natural” disasters on the most oppressed members of society is the primary focus of this article. I will attempt to provide insight, based on statistical analysis, as to how alternative development projects could be improved by a clearer understanding of socionatural class relations.

With scientific estimates projecting the continued high frequency of Atlantic hurricanes and increased hurricane intensity (Bengtsson 2001; Goldenberg et al. 2001), this article argues that development failures will tend to increase unless they incorporate socionatural relations and changes in the conditions of those relations. First, the case study below defines the “natural” actors that play a significant role in

2. Cerro Guanacaure provides 30 percent of the water for Choluteca city as well as 100 percent of the water used by its 8,700 inhabitants (Mayorga 1989, 1991).

3. For a full account of these projects and their history of failure, see Gareau (2004).

network formation in southern Honduras: hurricanes. Hurricane frequency is important to impoverished communities because the effects are far-reaching, from degrading soil quality to polluting water sources to increasing disease to depleting crop yields (World Neighbors 2000; Morris and Wodon 2003). Hurricanes are also clear examples of how human activity can alter the effects of so-called nature. Hurricane frequency is at its height and hurricane intensity is increasing in the Atlantic most likely due to global warming, a human-induced phenomenon (Goldenberg et al. 2001; Bengtsson 2001). Second, I will describe the “social” actors: the rural poor in Cerro Guanacaure, and the connection between these coproduced actors. Then, I will present a political-economic analysis that considers how the environment partially shapes human consciousness and life chances in order to explain the conditions of a socionaturally differentiated group of rural Hondurans: the landless and the weak landed class. The outcome points toward a level of class analysis that considers socionatural relations.

Hurricane Frequency in Honduras: The “Natural” Actors

I have chosen Honduras for this particular study because I have conducted research in the protected area of Cerro Guanacaure and data about a significant natural actor—tropical storms—are readily available. I start with an analysis of tropical storm data because it sets the stage for consideration of the role played by powerful environmental actors, actors that are becoming more powerful likely due to human activity (i.e., global warming).

Although tropical storm data gathered prior to 1944 are somewhat unreliable (Goldenberg et al. 2001) in terms of storm magnitude (Unysis 2005), the data are still useful for our purposes. The data are used to show the frequency of storm activity that has quite possibly existed as both a significant material (agential) and socially constructed actor for the people living in Honduras. The Colorado State Tropical Prediction Center compiled hurricane frequency data that are posted on the Unysis Weather Web site (Unysis 2005). Those data were condensed by the author to a dataset specific to Honduras, where Atlantic storms and hurricanes that had at least one advent falling within a ten- to twenty-degree latitude and an eighty- to ninety-degree longitude were estimated to have had at least some effect on Honduras.

Looking at Figure 1, it is clear that hurricanes and tropical storms have been a significant part of Honduras’s history (at least) since the late 1800s. In the past seventeen years alone, sixteen hurricanes have hit the country as have twenty tropical storms and tropical depressions. Looking at the whole range of data in Figure 1, we can see that the frequency of tropical storms and hurricanes is consistently high from decade to decade.

Figure 2 illustrates the storm data collected from 1944 to 2004, the period of reliable hurricane intensity measures (Unysis 2005). On average, Hondurans experience two tropical storms and hurricanes per year, and the possibility of experiencing almost one major hurricane (category 1 or higher) per year. In 2004 alone, three major hurricanes hit Honduras, including category 5 Hurricane Ivan (see Figure 3).

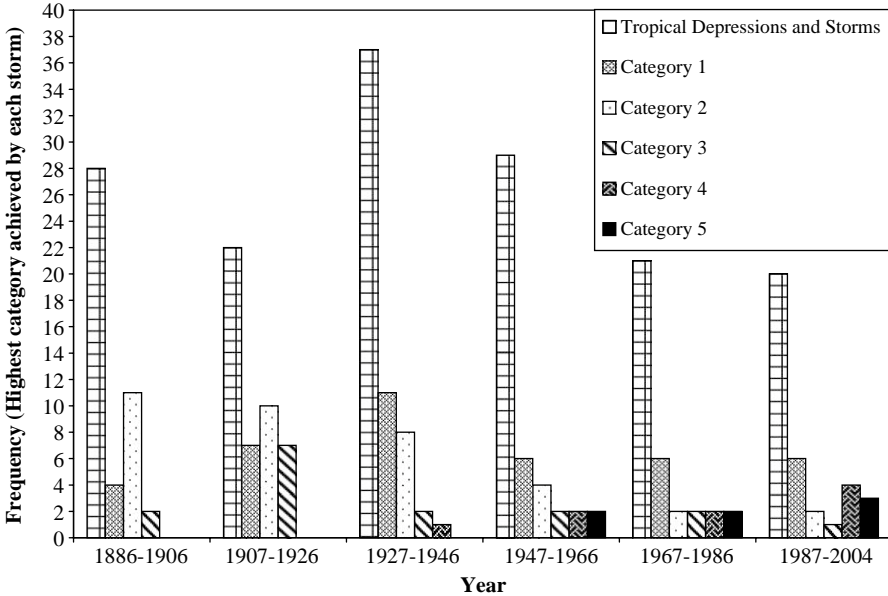


Figure 1 Frequency of Different Hurricane Types That Affect Honduras

The rural poor experience incredibly difficult ecological conditions. An eco-Marxism that considers siconatural relations encourages us to see tropical storms as some of the actors that play a significant role in shaping the opportunities and siconaturally constituted class consciousness of impoverished Honduran peoples.

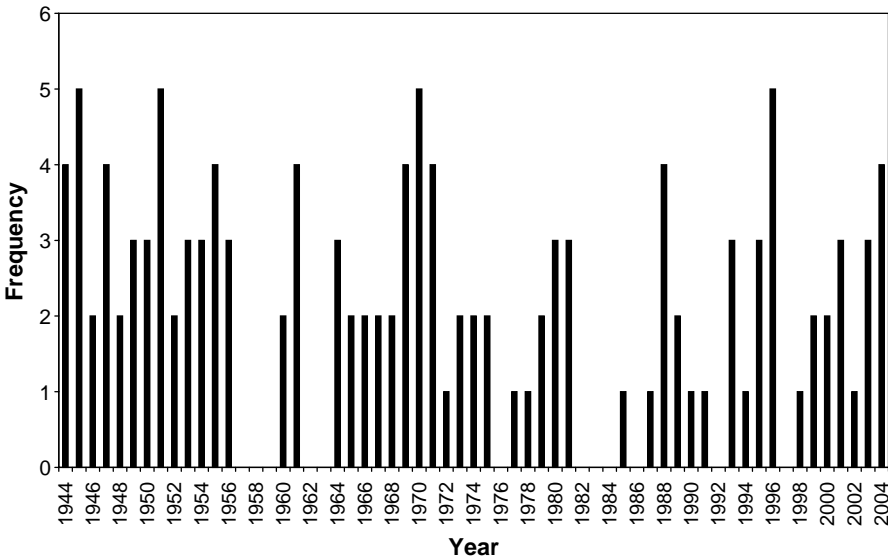


Figure 2 Frequency of All tropical Storm Types That Affected Honduras

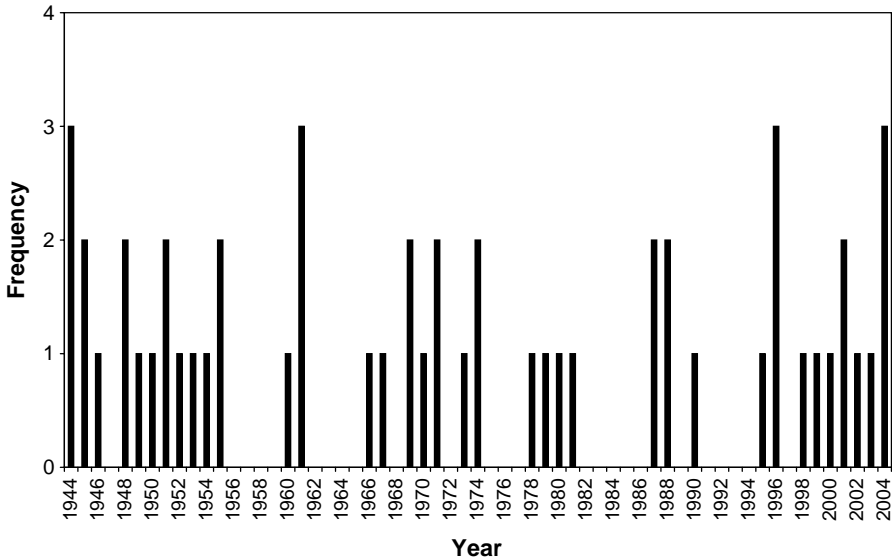


Figure 3 Frequency of Hurricanes that Affected Honduras (Category 1 or Higher)

Tropical storm frequency is consistent over a significant period of time so its role in shaping socio-natural relations is long, stretched over time and space. Therefore, its influence may contribute to resistance to sudden transformations that could put members of a community at greater risk vis-à-vis their surrounding environment. This structural take on nature's influence calls our attention to the possibility that impoverished people resist change instigated from networks foreign to their own (i.e., some Western development practices) when the change is incompatible with established socio-natural conditions. That is, the poor may resist exogenous forces of change, including those in conflict with their own socio-natural relations. A strategy of resistance to development might be useful to people embedded in a network that includes powerful natural forces.

It is quite possible that the high frequency of storms partially shapes Hondurans' view of their environment, especially the rural poor who have the most direct, concrete link with "nature" on a daily basis. Due to their direct dependency on real-time crop yields and water supplies, the rural poor of Honduras have a direct link to a nature that is at times brutal, at times relentless, and, as the data show, that remains a relatively consistent presence in their lives. The next section, using data gathered on protected area Cerro Guanacaure, argues that there is a strong connection between project failure and precarious socio-natural conditions.

Cerro Guanacaure: The "Social" Actors

To support my argument, I use ethnographic data that I gathered from 1997 to 1999 while living in El Despoblado, a village in Cerro Guanacaure. I was able to experience the protected area as a participant observer—earning the trust of community

members, conducting formal interviews (N = 208), and conducting in-depth interviews with recognized leaders and other community members with insight into the socio-natural conditions of Cerro Guanacaure. Difficult socio-natural conditions have led to the construction of powerful coping strategies in El Despoblado, an area comprising three villages located in the center of the protected area. Interview respondents presented very negative feelings about projects that failed, often blaming the outside agencies for those failures.

The resistant world-view—resistant to many of the development projects initiated by external forces—makes sense. Cerro Guanacaure is a remote place, most of its inhabitants being without electricity, running potable water, steady incomes, or strong ties to family members with some type of security. Analysis of the data depict Guanacaure as a poor area on the whole. Out of the 208 inhabitants interviewed, 80 percent made between 0 and 500 Lempiras monthly (L500 equaled about US\$36 at the time of the interview). People with no land made up 45 percent of the sample, while people with between one and five hectares of land (not enough for subsistence) made up a further 34 percent. Lack of formal education was another factor affecting Cerro Guanacaure residents; the majority of respondents (75 percent) did not complete sixth grade. Only 50 percent of the interview sample stated that they were able to find work all year; a further 13 percent worked for nine months, and roughly 20 percent worked six months of the year. Jobs are seldom permanent, usually involving an amalgam of activities and employments ranging from agriculture, to agriculture and cattle maintenance, to odd jobs as a hired hand, to coffee picking and selling small items from out of the home. In El Despoblado, income and level of education were even lower (Table 1).

The Cerro Guanacaure structure of land ownership is not surprising. In the Marxist literature, the differentiation of peasants in capitalist societies into landless, middle-level, and rich classes based on landholdings has a long history (cf. Byres 1986, 1991; Bernstein 1992; Bernstein and Byres 2001). Landless peasants in Cerro Guanacaure—the majority of the population—survive by renting small tracts of land from middle and rich peasants, working as hired hands, and selling crops in local markets. The middle peasants often work their own land, utilizing family labor, occasionally hiring neighbors and other peasants to work their land for food or wages. Rich peasants are very few in number, renting out larger tracts of land, hiring landless and middle peasants to work the coffee harvest, raising small herds of cattle, tending maize, beans, and sorghum, and benefiting from remittances sent by children and other relatives living in Choluteca city.⁴

Due to difficult socio-natural conditions in Cerro Guanacaure (heavily sloped hillsides, difficult road access, erosion, large landless population, etc.), the degree of class differentiation between the middle and rich peasants is not as extreme as in other places. There exists a level of interdependence between the inhabitants that

4. In the past, some of the rich peasants in Cerro Guanacaure paid workers with corn, vegetable oil, and beans originally intended as aid for hurricane relief. One-hundred-pound bags of yellow corn labeled “USAID,” exchanged by rich peasants for landless peasant labor, is a clear sign of the level of political corruption existing in the highlands of Cerro Guanacaure and Choluteca in general.

Table 1 General Characteristics of Cerro Guanacaure and El Despoblado

Characteristics	Cerro Guanacaure (N = 208)	El Despoblado (N = 59)
Monthly Income (in Lempiras*)	Percent	Percent
0–500	79**	85
501–1000	16	10
1000–2000	1	–
1001–2000	3	5
2001–4000	1	–
Size of Land (in hectares)		
0	45	42
1–5	34	29
6–10	10	17
11–20	10	12
21+	1	–
Level of Education		
Not sixth grade	76	81
Completed sixth grade	21	17
High school	2	2
Career school	2	–

* \$1 US = ~ L14 at time of interview.

** Percentages have been rounded.

Source: Taken from Gareau (2004, 100).

stifles serious conflict. Rich peasants are often acknowledged as important members of the community, taking sick people to Choluteca for a small fee or letting neighbors hitch rides in their pickup to the Choluteca market. I will argue that the degree to which peasants desire social change is not determined solely by their social differentiation, but also by the quality of soils on their land—a socionatural condition of production. Any class consciousness for social change is likely suppressed by living in a difficult state of existence that is always already contingent upon, or overdetermined by, weather conditions that affect daily life.

Many inhabitants of Cerro Guanacaure are forced to make do with the limited resources they possess. The shrunken network of the inhabitants of Cerro Guanacaure (shrunken in terms of limited outside support and inefficient quantity/quality of internal resources as opposed to stretched networks that are strong and relatively self-sustaining) holds little room for action outside daily survival activities, unless a chance presents itself to be on the receiving end of some ephemeral good fortune, such as an occasional remittance from migrant family members. Even then, the dominant consciousness is centered on the sentiment that drastic changes are dangerous, and any assistance that diverges from established socionatural relationships is viewed as unlikely to have a significant effect on well-being.

This is not to say that inhabitants of Cerro Guanacaure are embedded in a network that is self-defeating or that it is homogeneous. It is neither (see below). Projects have been introduced from outside agencies that have failed, for one reason or another, on a continual basis (Gareau 2004), not an uncommon occurrence in

Honduras's protected areas (Loker 2000; Jackson 2005; Stonich 1993). The response to such repeated failure, coupled with a precarious relationship with the environment, is a coping strategy that permits actors to survive at a level of subsistence. Unfortunately, the consistency of failure has only bolstered resistance to change and left inhabitants in grave poverty.

Some common responses from peasants when asked how they might have changed the way a development project was performed were "They didn't complete the project like they said they would," or, "They didn't arrive (or return) after the greeting day," or, "I would have had more discussion with the community," or, "I would have had projects that come to the rest of us." Much of this sentiment can be attributed to poor project planning by international agencies and the Honduran government, and the lack of resources internal to Guanacaure (Gareau 2004). But these statements also suggest that the inhabitants are unwilling to generate change collectively with their own forms of social mobilization. With a capricious nature and few or no expendable resources, the risk is too great. Yet, the data analysis below reveals that social change, or the potential for social change, can actually be found in a quasi class of people with a certain relationship with past projects and the "natural" environment.

Data Analysis: A Socionatural Political Economy

This section investigates the survey data for statistical linkages between socionatural conditions and data concerning development projects in Cerro Guanacaure.⁵ Marxist analyses often compartmentalize actors according to sociopolitical and political economic conditions. In the case of Cerro Guanacaure, this proves useful as well, because the degree to which inhabitants are likely to have interest in future development projects is largely determined by such conditions. Here, I use land-ownership and the ecological condition of land as determinants of class. The data indicate that people in this study make choices based on their perception of particular situations and their interests, and that these factors are correlated with real material conditions. Their past experiences with development and their attachment to and understanding of their material surroundings are also determinants of their desire for social change.

One way to examine the effects of political-economic factors in Cerro Guanacaure is to question the relationship between the successes of past development projects and people's desire to get involved in projects in the future. My first inclination was

5. The initial intention was to conduct formal structured interviews with ten men and ten women in each of the twelve villages (240 adults). Given the estimated population of Cerro Guanacaure (approximately 8,700), I determined that 240 interviews would provide an adequate sample of the area. Due to the difficult terrain and time constraints, a nonrandom sample was the most practical method, and deemed suitable for our purposes (see Bernard 1994). Because of the occurrence of Hurricane Mitch, only 208 people were interviewed. Interviewees were selected based on random encounters, but home selection and the probability of a person being selected for the interview were nonrandom. I believe that the sample is representative enough to build the arguments established here.

to investigate the potential relationship between owning land and the desire to get involved in solving problems through community projects. The data indicate that landownership or lack of landownership is associated with a desire to solve problems in the community, where not owning land indicates a weaker interest in solving problems in the community than owning land. Looking at the relationship between landownership and interest in solving problems in the future in Cerro Guanacaure (N = 208), “landedness” appears to be associated with a desire to be involved in solving problems, where interest rises rather consistently with the number of acres owned by respondents (table 2). A large percentage (53 percent) of those indicating only “some interest” in solving problems are landless whereas the landowners represent a large proportion of residents (70 percent) who expressed “high interest” in solving problems in the community. The number of responses expressing high versus some interest increases as land size increases. Yet, the strength of the relationship between the two variables is only moderate (Cramer’s $V = .257$, $p < .05$). The relative weakness of this relationship leads me to believe that the desire to work on future projects is linked to factors besides landownership.

In addition to landholding, the most likely variables associated with interest in solving future problems might include experience with past projects. Indeed, there is a stronger relationship here and a clear indication that, as the degree to which someone learned from past projects increases, their interest in solving problems in the future also increases (see table 3). Out of sixty-eight respondents who indicated “some interest” in solving problems in the future, 50 percent learned nothing from their involvement in projects in the past. On the other hand, out of forty-nine respondents who had “high interest” in solving problems, 30 percent learned nothing from past projects. Many more people in the high-interest category expressed at least some level of learning from their involvement in previous projects (70 percent) than those who expressed only some interest (50 percent). This makes sense: if projects were successful in the past, people should be willing to expend energy on projects in the future. Indeed, table 3 indicates that the degree to which people are interested in working on future projects is strongly associated with how much was learned from past projects. Cohen’s (1988) effect

Table 2 Cross-Tabulation between Size of Land and Interest in Solving Problems

	Size of land (in hectares)				Total
	No land	1–5	6–10	11–20+	
Interest in solving problems					
Some interest*	53% (73)**	32% (45)	8% (11)	7% (10)	100% (139)
High interest	29 (20)	38 (26)	15 (10)	19 (13)	100 (69)
Total	45 (93)	34 (71)	10 (21)	11 (23)	100 (208)

$\chi^2 = 13.724$, $df = 3$, $p < .01$; Cramer’s $V = .257$, $p < .05$; $\gamma = .415$, $p < .001$.

* Respondents who indicated “no interest” were collapsed into the “some interest” category because of the low response rate (i.e., 3).

** Parentheses show number of responses for each category.

Table 3 Cross-Tabulation between Learning from Past Projects and Interest in Solving Problems

	Learn from involvement in projects				Total
	None	Little	Some	A lot	
Interest in solving problems					
Some interest*	49% (33)**	35% (24)	13% (9)	3% (2)	100% (68)
High interest	29 (14)	25 (12)	25 (12)	22 (11)	100 (49)
Total	40 (47)	31 (36)	18 (21)	11 (13)	100 (117)

$\chi^2 = 15.668, df = 3, p < .001$; Cramer's $V = .366, p < .001$; $\gamma = .473, p < .001$.

* Respondents who indicated "no interest" were collapsed into the "some interest" category because of the low response rate (i.e., 2).

** Parentheses show number of responses for each category.

size estimate for the Cramer's V statistic depicts the strength of the relationship between the two variables as having a medium effect.

Yet, the relationship between the dependent variable (interest in solving problems in the future) and independent variable (extent to which the respondent learned from involvement in past projects), while controlling for landedness, is even stronger (table 4). Likewise, the relationship between the two variables, while controlling for a variable of socionatural standing (i.e., soil fertility) is stronger (table 5).

If we investigate the effect of landownership on the relationship between interest in solving problems in the future and knowledge gained from involvement in earlier projects, the relationship between the two variables is modified. As illustrated in table 4, when controlling for land ownership, not owning land *strengthens* the relationship between the two variables (Cramer's $V = .492, p < .01$; $\gamma = .656, p < .01$). For the landless, almost 60 percent of those who learned "nothing" from their involvement in past projects indicated having only "some interest" in solving problems. However, a considerable percentage of the sample expressed "high interest," and high interest is rather consistent across responses. It is reasonable

Table 4 Cross-Tabulation between Learning from Past Projects and Interest in Solving Problems for the Landless*

	Learn from involvement in past projects				Total
	None	Little	Some	A lot	
Interest in solving problems					
Some interest**	58% (19)***	36% (12)	6% (2)	0% (0)	100% (33)
High interest	25 (4)	31 (5)	25 (4)	19 (3)	100 (16)
Total	47 (23)	35 (17)	12 (6)	6 (3)	100 (49)

$\chi^2 = 11.861, df = 3, p < .01$; Cramer's $V = .492, p < .01$; $\gamma = .656, p < .01$.

* Not a statistically significant relationship for those with land.

** Respondent who indicated "no interest" was collapsed into the "some interest" category because of the low response rate (i.e., 1).

*** Parentheses show number of responses for each category.

Table 5 Cross-Tabulation between Learning from Past Projects and Interest in Solving Problems for Landowners with Poor to Moderate Soil Fertility*

	Learn from involvement in past projects				Total
	None	Little	Some	A lot	
Some interest**	51% (18)***	34% (12)	11% (4)	3% (1)	100% (35)
High interest	21 (6)	29 (8)	29 (8)	21 (6)	100 (28)
Total	38 (24)	32 (20)	19 (12)	11 (7)	100 (63)

$\chi^2 = 11.064$, $df = 3$, $p < .05$; Cramer's $V = .419$, $p < .05$; $\gamma = .593$, $p < .001$.

* Not statistically significant for moderate- to high-fertility landowners.

** Respondent who indicated "no interest" was collapsed into the "some interest" category because of the low response rate (i.e., 1).

*** Parentheses show number of responses for each category.

to conclude that the relationship between interest in solving problems in the future and knowledge gained from past projects is strongly associated with the landless population. This finding is significant because, in Cerro Guanacaure, most projects are geared toward landowners, not the landless who pay rents for subsistence agriculture or work as hired hands (Gareau 2001, 2007). Yet, the landless show a strong relationship between learning from the past and wanting to do more in the future. In terms of knowledge gained and project interest, this class appears to be an untapped reservoir for social change.

So far, these results provide significant insight into the relationship between certain groups of people and their view of/association with the environment and other socionatural relationships. The most materially impoverished peasants exhibit a desire to improve their well-being, and that desire is strengthened by the degree to which they learned from past projects. Whether the relationship is based upon a perception of interest rather than the "real" interest that guides the landless, or, alternatively, the landless perceive their interests based on past learning, the point here is that one's landlessness—as a material(less) condition—is driving this relatively powerless group.

As mentioned above, the landless class is interested in working collectively to better their material condition. Good enough. Marx himself had great hopes for the free labor pool, especially those with little opportunity to benefit from the capitalist mode of production: "It is possible to achieve real liberation only in the real world and by real means . . . people cannot be liberated as long as they are unable to obtain food and drink, housing and clothing in adequate quality and quantity" (1998, 44). But what about the landed class? Are there any sectors within this socially differentiated peasantry that share a consciousness about making changes through community participation/development? Next I consider whether the perceptions of future action are influenced by a socionatural material reality: the state of land fertility.

If we control for the fertility level of land, the relationship between interest in solving problems in the future and learning from past projects holds nicely with those respondents who reported having land with poor to moderate fertility. Fertility

control produces a stronger effect on the relationship than the two variables by themselves.⁶ Table 5 shows that, for landowners with the least fertile land, learning from past projects increases as interest in solving problems increases, and the relationship between the two variables is strong (Cramer's $V = .419$, $p < .05$; $\gamma = .593$, $p < .001$). It should also be noted that, out of sixty-three people who fit into this particular comparison, only one expressed "no interest" in solving problems. A significant number of respondents who learned "nothing" (eighteen) still expressed "some interest" in solving problems. Here, like the landless, is a group in great need of improving their socio-natural conditions. In other words, the condition of the environment (i.e., soil fertility) and the location of people within socio-natural relations of production seem to shape how people perceive their present situation and the degree to which they are interested in bettering their situation. This demonstrates that the environment—as a condition of socio-natural relations—has agency, but its effects are contingent upon the social relations of production. In the present system, low soil fertility is not enough to tell us completely how the environment affects production, but it does tell us that this condition is not enough to sustain livelihoods. The well-off landed class has less desire to improve its situation through community problem solving whereas the landless and weak (in terms of soil fertility) landed classes are both interested in community projects. Thus, "nature" as an interlinked condition of socio-natural relations is affected by and affects production and confounds social differentiation of the peasantry.

Table 5 indicates a strong relationship between the degree of learning from past projects and interest in solving future problems with community development (Cramer's $V = .419$, $p < .05$; $\gamma = .593$, $p < .001$). The relationship between the two variables is strengthened by the effect of a third variable that reveals a precarious relationship between the respondent and the environment. What we have done is to categorize a group of respondents based on socio-natural relations. In this case, the category might be described as an "infertile landed class"—a class of weak landholders that, affected by its relation to the poor soil quality of their property, experiences a strong association between interest in solving problems related to livelihood and how useful past projects proved for them (measured by knowledge gained). In this setting, class consciousness is not readily visible, but its kernel is embedded within the desire of a quasi class of peasants to change their socio-natural conditions. Importantly, we also see a link between the landless and the weak landed class—together making a socio-natural class that desires social change. This is not a class consciousness of radical social change, but it is one that may be tapped by efforts interested in improving the livelihoods of the peasantry, a socio-naturally differentiated group in great need of support worldwide. Here, a socio-natural class analysis could play a significant role in determining how to engage in alternative developments that are concerned with socially just transformations. Through an assessment of class based on property ownership and soil conditions, we see an emergent interest in social transformation among those who are most likely to be

6. The association regarding high soil fertility is less significant.

negatively affected by the increasing frequency and intensity of hurricanes brought on by global warming.

These findings support work that attempts to achieve a more amenable relationship between poor farmers and the environment by using agroecological techniques such as those of the international development organization, World Neighbors (2000). Projects such as those conducted by World Neighbors, if employing socionatural determinations of local conditions, could help improve the socionatural conditions of impoverished areas like Cerro Guanacaure. Below I describe the work of World Neighbors, then explain how their work would benefit from a socionatural class analysis due to its ability to reveal the potential kernel of socially just transformations.

Making Nature a Less Damaging Actor

World Neighbors (2000) has shown how the application of agroecological methods in Honduras's farmed highlands formed socionatural relations that are much less capricious than those of unsustainable farming methods. In 1999, World Neighbors led an action research study in Honduras, Guatemala, and Nicaragua to examine the effects of Hurricane Mitch on farmlands. Much of the damage from the hurricane (the worst to hit Honduras in the past two hundred years) seemed to be related to unsustainable farming practices and deforestation. A more detailed analysis was more revealing: "The damage to agricultural land was especially uneven: farms using soil and water conservation methods and other agroecological practices seemed to have survived better than those using conventional farming methods" (World Neighbors 2000, 5). In short, these two agrarian practices describe different socionatural patterns with different material elements and outcomes.

The agroecological methods and findings illustrated by World Neighbors are compatible with many of the concerns for socially just transformations raised in this paper. For one, the agroecological model of approaching agricultural development in a holistic manner—by linking ecology, socioeconomics, and culture to sustain agricultural production, communities, and environmental health (Gliessman 2001)—explicitly involves improving the conditions of what I refer to here as socionature. Not only do agroecological methods of production place significant emphasis on the interconnectedness of the various components that go into producing commodities (soil organisms, integration of crops and surrounding landscape, nutrient containment, etc.), but they do so in a way that partially transcends capitalist market logic and private property. Agroecosystems are valued for the utility (use value) of their various components, not just their marketability (exchange value) (Kovel 2000). Although World Neighbors' assessment of damage caused by Hurricane Mitch is concerned specifically with damage to soil and crops, the improvement of agroecological techniques could be linked to larger concerns—to the socionatural class that would benefit most from such techniques. Improving the soil conditions of the infertile-landed class, while providing jobs and other opportunities for the landless class, fits the agroecological mission of improving communities, but it would

also extend the mission significantly by fostering the class consciousness embedded in the most impoverished and vulnerable sectors of society.

These agroecological methods, if applied to Cerro Guanacaure, might aid in improving the resilience, and reducing the vulnerability, of its inhabitants and help with both commercial and subsistence activities. This in turn might aid in reordering the socationatural relations of Cerro Guanacaure and creating room for improvement to socationatural networks, thus fostering a social transformation. Presently, few farmers in El Despoblado, or in Cerro Guanacaure in general, apply any sustainable farming methods (personal observation). Consequently, in 1998, the effects of category 5 Hurricane Mitch were felt significantly. In El Despoblado alone, thirty homes (about one-third of all homes) were either completely destroyed or damaged so severely that they were no longer safely habitable. The president of the Los Cocos town council estimated that the community had lost 90 percent of its harvest due to mudslides and inundation; his family only barely escaped from their home before it collapsed to the ground in the middle of the night (Gareau 1999). A woman and her two children died, suffocated in the mud that covered their home. In the entire country, about six thousand people were killed, and one-third of the population suffered significant economic losses (Morris and Wodon 2003, 1280). The tragedy affected all of Central America, killing an estimated ten thousand people (at least) (Bengtsson 2001). After the hurricane, weeks passed before relief foodstuffs finally arrived at Los Cocos and the rest of El Despoblado, and then only in very small amounts. The tropical dry forests that still exist in Cerro Guanacaure were ravaged to such an extent that the Honduran forestry officials say they will take a century to recover (Hamilton 1999). World Neighbors (2000) found that surface erosion was two to three times greater on conventional farm plots in Honduras than on agroecological plots, “which suffered *fifty-eight percent* less damage in Honduras” (2000, 6; author’s emphasis), a noteworthy difference.

Adopting an agroecological method, such as vegetative runoff barriers, terraces, and/or compatible agro-silvicultural systems in subsistence farmlands might aid in the improvement of socationatural relations, and thus open up opportunities to “charge” a material shift in the network. The interview data above point toward the landless and weak landed class as the potential source of that change. Indeed, categorization of people that takes socationatural conditions into account fits well with what critical ecologists have been telling us for years. Haila and Taylor (2001) note that significant socioecological change, even change geared solely toward the conservation of natural systems, must include local sociocultural conditions. The class of people most negatively affected by environmental catastrophe may well provide the kernel of that change.

Conclusion

Some forms of eco-Marxism have communicated quite effectively the need to think (and work in practice) beyond the humanistic notions of people-apart-from-nature. Data on hurricane frequency and socioeconomic data on the protected area Cerro Guanacaure in southern Honduras illustrate the importance of recognizing the power

of “natural” actors on the human condition—a socionatural relation. Hurricane frequency in the North Atlantic is at its highest level in the history of reliable records, and it is expected to remain so for the next ten to forty years (Goldenberg et al. 2001). This means that any attempt to improve the conditions of people in networks that have a long history of intense exploitation and/or oppression, and who are involved in close, precarious relationships with the environment, will remain extremely difficult—and will perhaps intensify.

The data presented in this paper suggest that people make decisions based on their perceptions of situation and interests, which are correlated with real material conditions. In addition, material interests affect and are affected by differences in socionatural conditions, such as differences in soil fertility. The data suggest that class consciousness is socionaturally determined and that a socionatural class analysis could play a significant role in determining how to engage in alternative developments that are concerned with socially just transformations. In Cerro Guanacaure, the landless and landholders with poor soil quality both show a strong desire to improve their situation. Both groups taken together form a socionatural class distinct from other groups in that they hold the kernel of the desire for social change. Yet these groups do not seem to consider themselves in this way, which, politically speaking, is a conundrum that also appears in Marx’s *Eighteenth Brumaire*, where small-holding peasants decided to submit to Napoleon III rather than form an egalitarian state (Marx 1972a). But the situation in Cerro Guanacaure is different, more nuanced than simple class consciousness based on traditional forms of social differentiation. The situation in Cerro Guanacaure is one of cross-class linkages shaped by and shaping cross-class objectives and discursive conditions due to their material positions and their link to the environment.

Groups such as World Neighbors that work to improve the agroecological conditions of the world’s poor would benefit from considering socionatural class conditions and relations. Improvements in agricultural systems through agroecology could be extended to make the socionatural systems in which agroecosystems are embedded more equitable. The most impoverished classes of society suffer the most from disasters exacerbated by humans, they desire to work collectively, and they would benefit the most from improvements that consider their condition. Projects that aim to meet the basic needs of communities (where projects have been successful in Guanacaure) often improve the utility, or use value, of the community and decrease its vulnerable and capricious relationship with both the market economy and the surrounding environment. Projects designed to address such basic needs as food security and erosion control also need to address the needs of the most oppressed classes in order to instigate social change.

According to Marxist conviction, social change cannot come without political change and therefore without change in social relations. How “nature” acts as a catalyst of an emergent class consciousness, and as the potential instigator of a more socially just development, deserves further exploration. The environment will continue to be a consistent presence and contributor to rural communities throughout the world. Americans are all too familiar with what increased hurricane frequency can mean even in well-equipped industrialized nations. Hurricane Katrina is teaching the United States that lesson in a severe way. Similar to the unsustainable farming

practices in Honduras, a history of ecologically damaging practices exacerbated the effects of the hurricane.

[O]ne of the main reasons New Orleans is so vulnerable to hurricanes is the gradual disappearance of the wetlands on the Gulf Coast that once stood as a natural buffer between the city and storms coming in from the water. The disappearance of those wetlands does not have the name of a political party or a particular administration attached to it. Many environmentalists will tell you more than a century's interference with the natural flow of the Mississippi is the root cause of the problem, cutting off the movement of alluvial soil to the river's great delta. (Ivins 2005, A17)

One lesson that can be learned from this comes from World Neighbors, which has worked to make nature a less damaging actor in Honduras by improving people's socionatural relations. Of course, on a global level, larger changes will be necessary.

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