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## **Worlds Apart: A Social Theoretical Exploration of Local Networks, Natural Actors, and Practitioners of Rural Development in Southern Honduras**

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*Received: 23 May 2012; in revised form: 26 June 2012 / Accepted: 5 July 2012 /*

*Published: 16 July 2012*

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**Abstract:** This paper explores the importance of incorporating the socioecological realities of alternative networks into analyses of rural development. Cultural theory is examined, which provides a base upon which rural development can identify difference in worldviews based on difference in sociological conditions and environmental phenomena. Actor-oriented theory problematizes the ideal types of cultural theory, providing a means of give-and-take between actors' worldviews of different networks. Actor-network theory breaks down the nature-culture dichotomy of actor-oriented theory, so that nature becomes as 'active' an actor as people and community. Actor-network theory brings nature and society together, perceiving the two as mutually inclusive and constitutive. Coupled with recognition of power associated with political economic/ecological forces, actor-network theory can encourage us to see the frequency of tropical storms in Honduras as being among the powerful actors that have played a significant, consistent role in shaping the mode of ordering of impoverished Honduran peoples. This paper concludes by exploring how alternative, agroecological networks established in a protected area in southern Honduras with 'strong' natural actors can be re-ordered by incorporating autonomy and resiliency into the network.

**Keywords:** actor-network; agroecology; alternative development; culture; ethnography; Honduras; political ecology; protected area

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## 1. Introduction

Human inhabited protected areas pose a unique complex of difficulties for the development practitioner [1–3]. The reason for the complexity is the fact that humans are directly involved. People are unpredictable, sometimes irrational, and consequently it is difficult to construct methods of engagement and improvement between them. The difficulty of implementing acts of preservation, conservation, and sustainability is oftentimes exacerbated due to the fact that humans living therein are often poor by anyone's standards [4,5]. Their lives must improve, but the potential paradox is that nature must be sustained as well [6,7].

Consequently, many development practitioners and academics argue over the causes and the ramifications of failure of rural development using several (overly general) axioms: The proper level of participation by the local community members, the depth and detail of the participatory appraisal (rapid or otherwise), the ability that 'the locals' to influence policy (or lack thereof), and the harm that the imposition of 'Western ways' can inflict upon 'the local' community are only a few of the heated topics [8–13]. Alternative development scholars are interested in eliminating the Western bias that oftentimes accompanies development by asking these and similar questions: Is rural development attempted with an understanding of how local communities (the object of the development gaze) frame meaning, how they approach things? Do the 'outside' actors of rural development incorporate the local make-up of decision-making, the local agency of change, the local network that determines action into their preliminary analysis? If not, any implementation designed to 'improve' the quality of life and the sustainability of human-inhabited protected areas will add up to what most of us fear and loathe: unsustainable, detrimental 'transformations' of a community and its natural environment, similar to Norman Long's distinction between 'transformation' and 'improvement' approaches in agricultural development programs, the latter being the obvious outcome of choice [14].

The dilemma facing rural development practitioners working within inhabited protected areas is the same dilemma that faces most practitioners of rural development in general. Plainly stated, the development practitioners, or the 'outsiders,' and the local actors, or the 'insiders,' involved in the development schemes oftentimes come from different 'worlds of knowledge', in many ways they are 'worlds apart', they are involved in interactive networks of differentiated design, approaching issues of change from dissimilar, if not disparate, worldviews.

In this paper, I will explore the efficacy of cultural theory, actor-oriented theory, and actor-network theory to help explain the social and ecological contexts of rural development via a case study on southern Honduras. The objective here is to investigate how these sociological theories can improve understanding of the obstacles to sustainable development in rural places, such as those explored in the case study. As we will see, these three theoretical approaches shed light on rural development in different ways. Cultural theory, as used by Michael Thompson, Ellis and Wildovsky and others unpacks the different worldviews that are formed by specific social and ecological situations [15]. The actor-oriented theory of Norman Long and others enhances the use of worldviews in cultural theory by breaching the dichotomy that divides the 'insider' from the 'outsider' by fashioning knowledge-creation as reflexive, and by recognising negotiated outcomes at this interface [16]. Finally, the use of actor-network theory in agro-food studies, as utilised by David Goodman and Margaret Fitzsimmons, and Sarah Whatmore and Lorraine Thorn, and others provides rural development with

the means to incorporate environmental conditions into the preliminary assessment of development strategies [17–19]. Environmental conditions are often powerful actors in the network of rural communities, often playing significant roles in the decision-making process of peoples with strong ties to nature.

Drawing from two distinct data sources, hurricane frequency in the Atlantic region and ethnographic research conducted in Southern Honduras, this paper explores the role that natural disasters, tropical storms in particular, might contribute significantly to the worldview held by the rural poor of a remote, isolated area in southern Honduras called El Despoblado, located inside the protected area Cerro Guanacaure. The frequency of hurricanes in the region, coupled with extreme socioeconomic poverty and strife, has led to the construction of networks of resiliency that translate linguistically into ‘it doesn’t matter anyway’, where ‘not even God’ can make things better. This article suggests possible steps that might help the inhabitants of El Despoblado achieve improvement in their quality of life and move forward in a sustainable manner by utilizing a pedagogy of hope and autonomy to create an alternative path that likewise would improve relations with the natural world.

Indeed, the case study shows that the apparently fatalistic worldview held by some of the local inhabitants is likely not fatalistic at all. Rather, it reflects the ‘shrunk’ network of the protected area inhabitants, which is filled with rural poor, few economic connections to the outside world, and is subject to intense ecological conditions that make life extremely difficult. The case study shows that some of the poorest inhabitants are indeed interested in community mobilization/development projects, but minimal resources make project implementation extremely arduous. It is argued that improving the links between the social and natural world, or reordering social and natural actors and power relations therein, is necessary to improve the alternative development models of protected areas in particular.

## 2. Cultural Theory

Cultural theory provides a frame to explore the disparity that exists between people coming from different life situations; for instance, the “developed” world, and the “lesser-developed” world (notably the South). Thompson, Ellis and Wildavsky’s use of ideal typology to differentiate between *individualists*, and *fatalists* is both useful and problematic in that it essentializes people into concrete categories, which allows little room for degrees of difference among social groups. However, these categories help us to recognize that people enter into situations with various forms of knowledge, knowledge that is true and justified unto itself [20].

According to this take on cultural theory, the development practitioner is often portrayed as individualistic in that the practitioner believes that she or he can “increase both their wants and their resources”, and change any facet of life in order to improve it [20]. “In such an environment all boundaries are provisional and subject to negotiation” [20]. The individualist, when clad as a development practitioner, would see no quandary in changing something that so obviously (to them!) does not work for something better. The individualistic practitioner becomes perplexed and confused when their carefully devised and “logical” alteration is not accepted by ‘the locals’, or, if implemented despite its level of acceptance, is not properly maintained (or utilised) by the community members so clearly in need of change. Thompson, Ellis and Wildavsky tell us that the local communities of the rural South often hold a different worldview. When exposed to constant economic and social

hardships, the view is often one that sees human-induced change as a lost cause, or a risk too great to take, because “needs and resources are beyond their control” [20].

A fatalist sees any effort at manipulating the system as a waste of time and precious resources. The fatalist is in a different position because, in their own eyes at least, they are “subject to binding prescriptions and are excluded from group membership” [20]. There is only one way to live, and that way has been and will always be on the brink of survival and destruction, without the social or material power to aid in the alleviation of their state. “They may have little choice about how they spend their time, with whom they associate, what they wear or eat, where they live or work...*their sphere of individual autonomy is restricted*” [20].

Thompson, Ellis and Wildavsky explicate the validation of different views when they state that no view can be deemed irrational. “What is rational depends on the social or institutional setting within which the act is embedded...For instance, individualists, who believe they can increase both their wants and their resources, will deem fatalistic resignation utterly irrational. But for fatalists, who tell themselves that both needs and resources are beyond their control, resignation is eminently rational” [20].

Development scholars have put into practice development schemes that both recognize cultural difference and attempt to bridge those differences, demonstrating that the ideal types illustrated above are indeed complex and variable on the ground. Rist, for example, demonstrates an alternative development strategy that recognizes “the needs and values of local people” [21]. Rist shows that local conditions give rise to specific ways of knowing that are oftentimes specific to local conditions, even when they share universal truths regarding natural or broader social conditions and needs. Local knowledge of social and natural conditions may go unspoken, but they are shared by those in the social framework:

*Tacit knowledge allows meaning to be given to natural or social phenomena... The dynamics of different forms of knowledge play a fundamental role in the revitalization of local knowledge. Increasing consciousness of latent or intuitively captured patterns of interpretation—underlying indigenous knowledge—is therefore a key feature in endogenous development [21].*

This alternative approach to development recognizes that oftentimes there are deep cultural differences between practitioners and the rural poor with whom they work. Consequently, researchers call for collective learning processes and training among stakeholders and development practitioners so that such cultural differences may become a part of the development learning process [21–23].

### *Cultural Theory and Ecology*

Some ecologists, C.S. Holling in particular, have shown that there are specific and deliberate views of nature held by human institutions, and that those views are correlated with the “myth of nature” held by the institution [24,25]. Moreover, the view that an institution holds of nature will affect how they attempt to manipulate or preserve nature. Thus, it is easy to see how one’s worldview will determine one’s view of nature or *vice versa*. Consequently, when an institution is fabricated out of an ethos of shared individualism (e.g., Western agencies of rural development) and confronts in development an

institution fabricated out of an ethos that experiences nature as a dangerous, incontrovertible entity (the ‘insider’ or poorest of the poor, for instance), there is a disparity in their views of nature and how nature should or should not be manipulated.

Individualists most likely see nature as something that can be manipulated for personal advantage and material wealth. The individualist sees nature as “benign”, and it “encourages and justifies trial and error” [20]. Finding the correct development scheme is a learning process here, one that can be altered and repeated if failed, almost without limit. The individualist sees nature as something that can handle change of all kinds; that nature will make its own appropriate alterations to compensate for the changes made by humans. The individualistic development practitioner enters the domain of the poorest of the poor with a view of nature as a compliant system, ready to be injected with some form of significant change.

The fatalist, by contrast, often finds nature to be “capricious,” a “random world...Institutions with this view of nature do not really manage or learn: They just cope with erratic events” [20]. This statement is charged also with the idea that things happen in nature, and as a consequence things happen to people in nature, either for good or ill, and the fatalist is merely a recipient of the fates. In the long run, there is nothing that the fatalist can do that would allow for any substantial change, unless it happens by chance; or by a change in the natural system *by* the natural system. With this view, any effort made to alter nature would be perceived to have the chance only to be met with failure. The fatalist understands that any human-induced alteration will either dissipate into uselessness, or have a result completely unintended by the manipulator- probably for the worse. With a great deal of luck, the manipulation might lead to a positive change, but that change will be short-lived; only to be washed away by the next torrential downpour or withered into nothingness by the next disease.

Cultural theory depicts quite convincingly the need to approach rural development with an acute understanding of the rationality of those with whom one is engaged. The dichotomy of individual worldviews and fatalist worldviews, however, essentializes the positions of actors into unnatural ideal types. Indeed, research conducted by environmental sociologists on alternative development demonstrates that rural peoples in the Global South oftentimes hold worldviews that confound Western interpretation due to their complexity and necessity to mix ecological concerns with human survival [3,26–28]. While the Western model of environmentalism as held by international non-governmental (e.g., Greenpeace, Worldwatch Institute) and governmental organizations (e.g., World Bank, U.S. Agency for International Development) is often loosely associated with the individualist worldview as defined here, how the Western model is handled on the ground depends on the local socio-ecological context not easily confined to essentialized categories [2,29]. The role(s) of the actors, as they are situated in their socio-cultural and ecological setting is not static, nor can it be limited to constraining categories of fatalism, individualism, or any other. A more fluid approach examines the networks of power and knowledge, and identifies how the actors of networks interact with each other. This way, reflexive, protean forms of social exchange replace static categorizations. This concept allows for an analysis from within, one that does not contain presumption, or the perception that the knowledge needed to achieve improvement is conceived a priori by the rural development practitioner.

### 3. Actor-Oriented Theory

Actor-oriented theory problematizes the ideal types of cultural theory, providing a means of give-and-take between actors of different networks. One use of this theory, employed by Norman Long, examines how social actors respond to “similar structural circumstances, even if the conditions appear relatively homogenous” [30]. Therefore, it is not apposite (or at least not sufficient) to place people into prefabricated categories. Although from an external point of view the patterns of local actors might appear to be of a certain outlook, it is important to understand how the local actors utilize their linkages of knowledge to generate satisfying outcomes. What appears ‘fatalistic’ could in fact be a complex of responses to transformations attempted “from the outside” that is deemed (by the local actors) incompatible with their life experiences. By categorizing worldviews without understanding the linkages of knowledge, and the perceptions of risk, the development practitioner risks the possibility of mistaking one response mechanism for another.

In actor-oriented theory, the category of fatalism, for instance, is re-conceptualized into a complex of network links that form a coping strategy, an agency of resiliency. Agency is the consequence of actors’ ability to cope with change on their own terms. It is a power mechanism, made up of the knowledge of actors faced with change. According to Latour, agency is “the actions of a chain of agents each of whom “translates” it in accordance with his and her own projects...power is composed here and now by enrolling many actors in a given political and social scheme” [31]. Therefore, local actors could very well reject externally driven transformations simply to manage outcomes, working together to form a powerful alliance against potentially hostile transformations.

In actor-oriented theory, actors are not simply recipients of information, recipients that absorb in-coming information, or “disembodied social categories or passive recipients of intervention.” Rather, they are “active participants who process information and strategise in their dealings with various local actors as well as with outside institutions and personnel” [30]. The reflexivity of an actor-oriented approach problematizes the ideal types of cultural theory as well. Thompson, Ellis and Wildavsky’s claim that fatalists must find ways to “control their fate” discards the ability that local actors possess to behave reflexively to insertions of knowledge [20]. All groups of actors contain strategies that *process* information and relate it to their personal life experiences. Controlling fate, reflecting on knowledge, is *exactly* what actors ‘network’ to do.

As Verschoor (1992) puts it, knowledge is “a localized rather than a universalized accomplishment”; it is “highly context-specific and may have different meanings for different actors” [32]. Development practitioners need to assess the make-up of local social networks in order to understand the decision-making processes that exist. This logic somewhat contradicts notions of rapid appraisal or rapid community analysis.

### 4. Actor-Network Theory

*Just as the adjectives “natural” and “social” designate representations of collectives that are neither natural nor social in themselves, so the words ‘local’ and ‘global’ offer points of view on networks that are by nature neither local nor global, but are more or less long and more or less connected [33].*

Actor-network theory breaks down the structuralization of even actor-oriented theory, so that nature becomes as ‘active’ an actor as people and social groups. The divide between ‘insider’ and ‘outsider’ is also broken, replaced by networks of relationships that form in various ways, each giving life to a distinct complex of action and being. With actor-network theory, the imposition of knowledge into a ‘local’ context is perceived rather as the imposition of knowledge from one set of networked arrangements into those of another. A complex of *relationships* that function in a particular way replaces the concept of ‘local.’ Whereas ‘local’ implies a system of static size and shape, ‘network’ implies “processes and patterns of connection” that are changeable, reflexive, and inclusive of human and non-human elements [19].

Whatmore and Thorne use actor-network theory to re-examine the global-local paradigm. They consider the concept of globalization (which depicts the expansion of institutions in logical, all-encompassing modes that over-power smaller, local institutions due to their more efficient, strategized construct) problematic, because it places the realm of change completely in the structure of change, and not in the complex of actors and ‘actants’, or people and objects that make up the form of the institutions:

*[T]here is nothing “global” about such corporations and bureaucracies in themselves, either in terms of their being disembedded from particular contexts and places or of their being in some sense comprehensive in scale and scope [19].*

Rather, actor-network theory perceives them as extended networks of power and process that need to be constantly strengthened and stabilised over time [34]. These long-reaching networks constantly come into contact with alternative networks, such as fair trade networks, small-scale agricultural networks, networks of knowledge largely disconnected from technological influence (*i.e.*, those networks that contain humans who still have “close relationships to the rhythms of nature”) which challenge their established mode of ordering—the discursive and material patterns of exchange that allow a particular network to remain stable over time [35,36]. In other words, mode of ordering refers to the ways in which people and other actors are aligned in “strategic arrangements,” embedded in complex social, technical and knowledge-forming networks [36].

#### *Actor-Network Theory and ‘Nature’*

Goodman and Fitzsimmons demonstrate the usefulness of actor-network theory for rural development by drawing on its capacity to incorporate nature into the make-up of networks [17,18]. Here, nature and society are thought of as collective, mutually inclusive elements, each contributing to the whole. “The entities produced by these interactions are hybrids of nature and culture or “quasi-objects, quasi-subjects,” which are assembled into actor-networks, the central analytical metaphor” [17]. Therefore, nature and society form an alliance with one-another, each affecting the shape of the overall relationship, each influencing the mode of ordering for the network.

Although cultural theory, especially when used in ecology, provides a way to look at natural phenomena as powerful influences on the views held by social groups, it does so in a constraining way. Nature is categorized as a force *external* to human populations, who receive information from it and process that information un-reflexively. Actor-network theory brings nature into the social, perceiving

the two as mutually inclusive and constitutive [37,38]. Nature becomes “a real material actor *and* a socially constructed object” [39].

However, it is important to remember the structural insights of cultural theory when discussing actor-networks. As has been discussed in critical geography and environmental sociology, actor-network theory has a tendency to overlook the power dimensions that shape networks [40–47]. Power is exerted by actors differentially in the network in a way that shapes the ways that the network is ordered to the benefit of some over others. In the case of development, we might think of the individualist worldview being the dominant one in terms of global environmentalism because it is the Western development agents that hold that view [26]. Some worldviews are more resilient than others because they are supported by the powerful actors in the network. Castree and Gareau, for instance, argue that political economic approaches would benefit from considering the active role of ecological conditions/actors in network-building, as these conditions/actors are powerful in themselves, perhaps working to shape the power dynamics of social actors [40,41,48]. Actors, such as those who shape public policy by engaging in international human aid, development agencies, and other institutions, are powerful contributors to network formation, and they often take the lead in implementing solutions to development problems. When these influential actors touch newly enrolled, non-Western networks with their take on nature, entire ecosystems are affected and the very definition of sustainability can be reified, as has been the case with the introduction of Green Revolution technologies, the introduction of invasive species, and the usages of rather militant conservation techniques utilized by some governments in the global South to separate “people from nature” [49–51].

In the next sections, I will incorporate several of the concepts discussed above in order to approach rural development as a problem of networks, natural and social. Noting nature-society collectivity allows development practitioners to perceive development strategy as a device of understanding, then as a device of improvement of society-nature linkages. The approach outlined below involves actor-oriented theory, in that it acknowledges the reflexivity of humans, and actor-network theory, in that it includes nature as an ‘active,’ network-shaping actor. Cultural theory is also important, because the first impression of Western-led rural development almost always involves a disparity in worldviews, and this perception has a structural effect in that it shapes the implementation of development.

## 5. Method

The case study below draws from two datasets. The first, hurricane frequency and intensity, was compiled from a pre-existing dataset. The hurricane data is used to provide some understanding of the role that natural actors play in shaping the networks of rural communities investigated in the case study. The second, conditions of rural development and communities in Southern Honduras, was gathered through ethnographic research conducted by the author. Ethnographic data provides insights into the lived experiences of specific social groups living in rural communities, in this case in difficult socio-ecological conditions.

### 5.1 Hurricane Frequency in the Atlantic Basin

Data on hurricane intensity and frequency in the Atlantic Basin from 1886–2000 have been compiled by researchers at the Colorado State/Tropical Prediction Center [52]. The author took those data and

confined them to occurrences that would have affected Honduras. It was estimated that storms and hurricanes that had at least one advent falling within a 10-degree to 20-degree latitude and an 80-degree to 90-degree longitude would have had at least some significant effect on Honduras. Of course, from these data we cannot know how exactly hurricanes have impacted the social groups in Honduras. We can, however, begin the process of investigating the role that a consistent and powerful set of natural actors has potentially played in network-formation of the rural poor.

### 5.2. *Ethnography of a Rural Community in Southern Honduras*

To investigate the social actors, the author used ethnographical data that he gathered while living in El Despoblado, a village located in the protected area, Cerro Guanacaure, Choluteca in southern Honduras. Ethnography is a qualitative research method involving participant observation, in-depth interviews, and sometimes questionnaires/surveys in order to explore cultural and social phenomena that reflect the systems of knowledge guiding the life experiences of a social group [53], as well the their links to the globalizing world [54]. The author lived and worked in Cerro Guanacaure from 1997–1999 as a United States Peace Corps Volunteer. John F. Kennedy established the Peace Corps in 1961. It is a U.S. government-run organization with almost 7000 volunteers in 70 “developing” countries. Although Peace Corps job assignments are country-specific, work generally centers around helping poor communities attain clean drinking water, help with education needs, assist with small businesses, enrich small-scale agriculture, assist with natural resources protection, and improve health (e.g., slowing the spread of AIDS). Although rarely acknowledged, the development aspect of the Peace Corps is only its third goal; its first two goals are the establishment of Americans’ understanding of other cultures and *vice versa*.

The author performed a non-random sample survey of 208 people living in the Cerro Guanacaure. The initial intent was to interview ten men and ten women in each of the twelve villages (240 adults). There are roughly 8500 villagers living in Cerro Guanacaure, and it was estimated that interviewing 20 people per village would provide a good sample of the area. Due to time constraints, difficulty of access to most of the villages, and the lack of accurate information about village populations, a non-random sample was the most practical method at hand. Because of difficulties like those noted, and the occurrence of Hurricane Mitch, only 208 people of the 240 goal were interviewed. However, 59 community members were interviewed in the three villages of El Despoblado, one person short of twenty community members from each village. While living in El Despoblado, the author was able to experience the protected area as a participant observer; gaining the trust of the community members, performing surveys, and conducting in-depth interviews with recognised leaders and other community members with apparent insight about the people and the environment of Cerro Guanacaure.

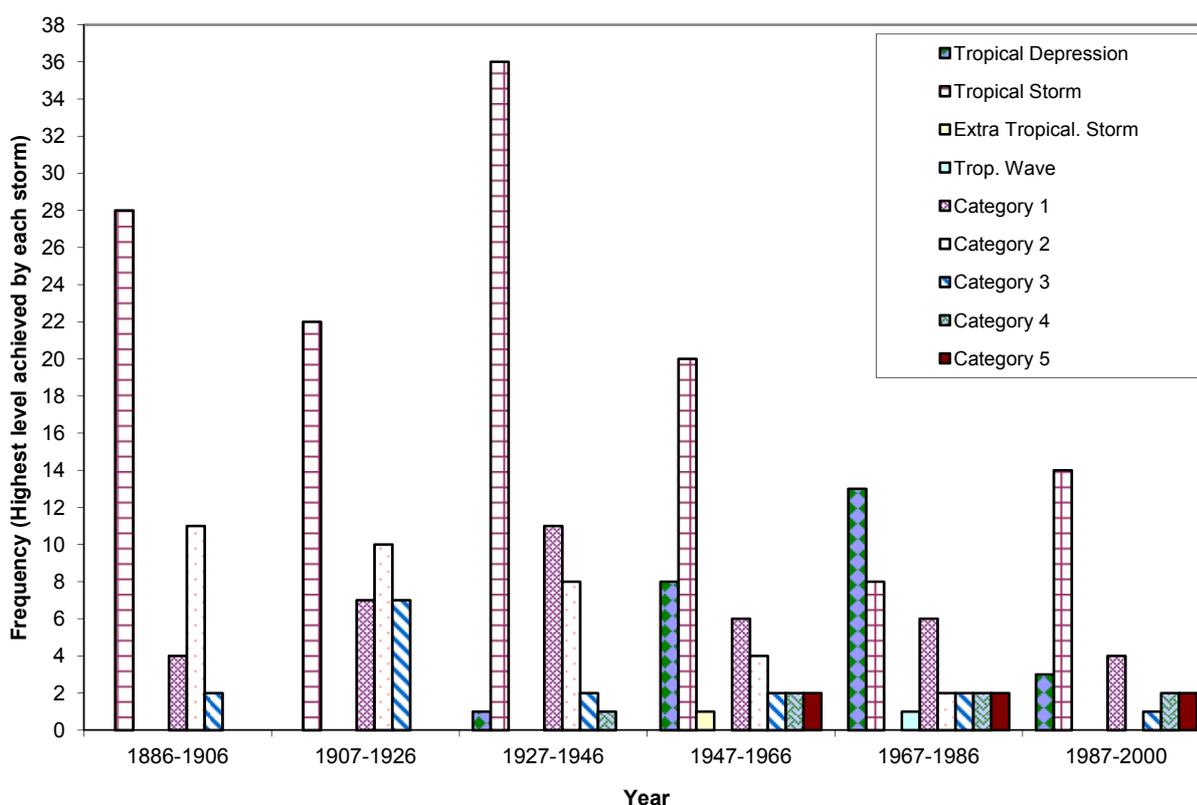
## 6. Results

### 6.1. *Hurricane Frequency in Honduras: The ‘Natural’ Actors*

As illustrated in Figure 1, hurricanes and tropical storms have acted significantly throughout Honduras’ recent history, at least since the late nineteenth century. From 1987–2000 alone, nine hurricanes hit the country, as well as seventeen tropical storms and depressions. Looking at the whole

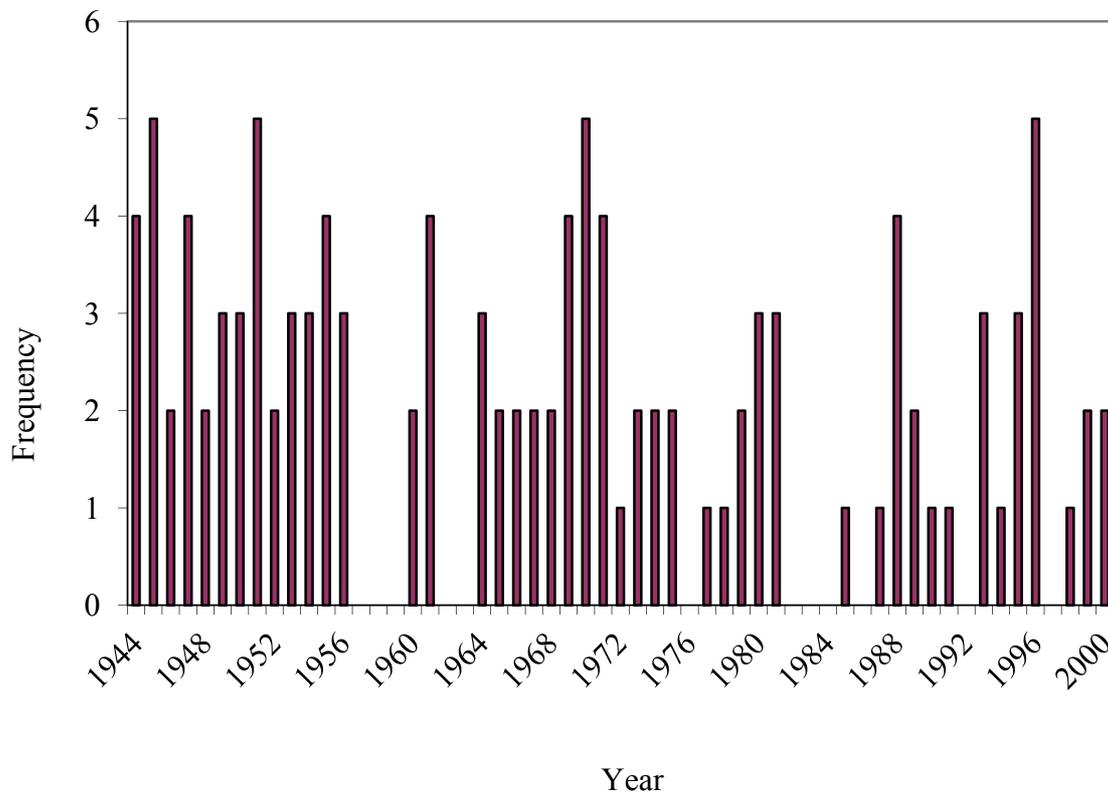
range of data in Figure 1, we can see that the frequency of tropical storms and hurricanes of various levels of intensity has been consistently high—yet unpredictable—from decade to decade, at least since 1886, making them plausibly important actors in the networks of Hondurans, especially the vulnerable rural poor living at subsistence levels and in difficult ecological conditions. Even if we only examine the data starting from 1944 (see Figure 2), the year in which storm intensity data is deemed to have become more reliable [55], we can understand why some of the most impoverished Honduran people display what cultural theory would label ‘fatalistic’ worldviews (see Table 1 in the next section).

**Figure 1.** Frequency of different hurricane types that affect Honduras.

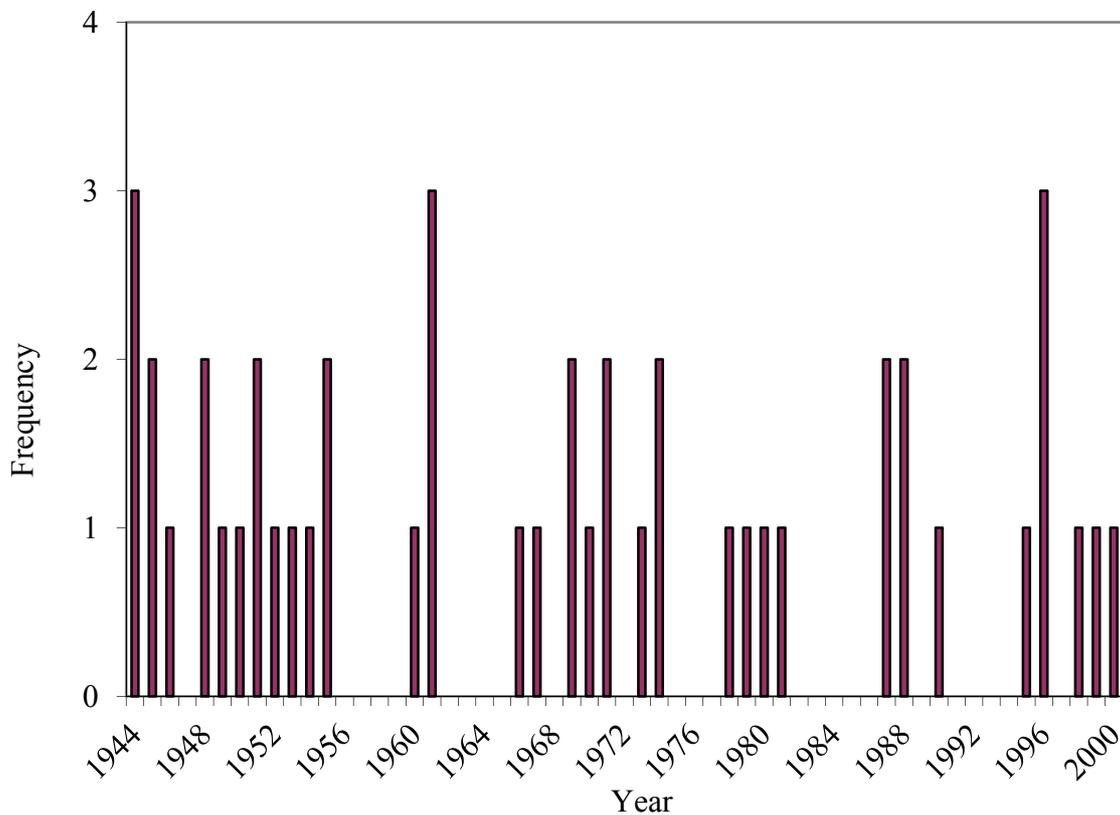


On average, Hondurans have experienced over two tropical storms and hurricanes per year (Figure 2), and the possibility of experiencing at least one major hurricane (category 1 or higher) per year. Category 1–5 hurricanes are major events, involving extremely high winds capable of toppling trees, causing roof damage, coastal flooding, and are generally life-threatening. Category 5 storms—the highest category of tropical storms—are considered potentially catastrophic, oftentimes leading to mass-evacuation in urban areas. Figure 3 makes it clear that these extreme weather events have played a constant-yet-capricious role in the networks of Hondurans. Therefore, it is quite possible that the high frequency of this difficult environmental occurrence plays a significant role in shaping Hondurans’ view of nature, especially those Hondurans who most directly link with that ‘nature’, on a daily basis; *i.e.*, the rural poor. The rural poor of Honduras have a direct network link to a powerful natural actor that is at times brutal, at times relentless, and, as the data show, a *consistent* presence in the network. Hence, we can assume that the rural poor are enrolled in these networks in ways that consider the resiliency of hurricane intensity and frequency.

**Figure 2.** Frequency of all tropical storm types that affected Honduras.



**Figure 3.** Frequency of hurricanes that affected Honduras (category 1 or higher).



We now will look at data gathered about protected area Cerro Guanacaure, more specifically the area in Guanacaure known to the area's inhabitants as El Despoblado, or "the Unpopulated Place."

### 6.2. *El Despoblado, Cerro Guanacaure: The 'Social' Actors*

Cerro Guanacaure is a remote place; most of its inhabitants being without electricity, running potable water (or even a continual water source in general), steady incomes, or strong ties to family members with some type of financial security. Although in December of 1999 Cerro Guanacaure was written into law as an official protected area, under the title "Multiple Use Area", little to date has been accomplished to improve the health of the natural system, nor the state of its human inhabitants [56–59]. As a multiple use area, Cerro Guanacaure should have "the capability of offering a sustained capacity of water, wood products, forest life, tourism, and cattle grazing, with the conservation of nature orientated primarily in support of economic activities" [56]. The national government has placed much of its finances and efforts in other protected areas, such as La Tigra National Park and Pico Bonito National Park, areas with a higher propensity to bring in tourist dollars and research teams. In the meantime, many inhabitants of Cerro Guanacaure are forced to make do with the limited resources they possess- both social and material. Projects have been implemented in Cerro Guanacaure, but on a limited basis, and with visibly poor results. The following socioeconomic data are taken from the surveys, published elsewhere:

*...[S]urveys depict Guanacaure as a poor area on the whole. Out of the 208 [Cerro Guanacaure inhabitants] interviewed, 164 make between 0–500 Lempiras monthly (L500 equals about \$36 U.S.); about 79% of the sample. Approximately 45% of the people surveyed have no land, and a further 34% have (only) between one and five hectares. In addition, there is little formal education. In Cerro Guanacaure, 75% of the sample did not complete sixth grade...For comparison [and for what will become significant in the case study mentioned below about El Despoblado], about 85% of those interviewed in El Despoblado make between 0–500 Lempiras, and 42% have no land [60].*

In addition, roughly 50% of the survey sample stated that they are able to find work all year. A further 13% find work for nine months, and roughly 20% find work only six months out of the year. Jobs are seldom permanent, usually involving an amalgamation of various activities and employments, ranging from straight agriculture, to agriculture and cattle maintenance, to odd jobs as a hired hand, to coffee picker and selling small items from out of the home, or similar combinations [48]. In short, the majority of the social actors therein are rather vulnerable to the social and ecological conditions in which they are embedded.

As shown in Table 1, many inhabitants of Cerro Guanacaure perceive development projects as having failed, or having been poorly designed. Many inhabitants explained that the types of projects that were implemented were not adequate. For instance, some respondents explained that reforestation projects were predominant, but what they wanted was help with latrine construction. Others stated that "they didn't finish the project," meaning that outside development agencies failed to complete the work that they had initiated with the community. Others explained that they wanted "more projects" to be brought to them. All in all, there is a distinct pattern among inhabitants that forces external to their

immediate network must be brought in to help them improve their lives. With difficult living conditions, it is important that personal resources are not wasted on efforts to improve development.

**Table 1.** Representative Responses to Survey Question in El Despoblado, Cerro Guanacaure.

<b>Three Villages of El Despoblado</b>	<b>“What would you have done differently to improve development projects in your area?” (Items in parentheses are included for clarity)</b>
<b>Los Cocos</b>	<p>“It (the project) didn’t function because of the mayor (his fault).”</p> <p>“They (development practitioners) didn’t complete the project like they said they would.”</p> <p>“We lacked the <i>capacitación</i> (training).”</p> <p>“Would have (trained) the people (locals).”</p> <p>“More <i>capacitación</i>.”</p> <p>“They didn’t arrive (return) after the greeting day.”</p> <p>“More discussion, <i>capacitación</i> with the community.”</p> <p>“The people didn’t want the project.”</p> <p>“I would have planted more (trees).”</p> <p>“To know the culture (on the part of the development agencies involved).”</p> <p>“Would have finished the project.”</p>
<b>La Fortunita</b>	<p>“A project for women.”</p> <p>“They didn’t finish the project.”</p> <p>“Finish the project.”</p> <p>“More projects to ‘the top’ (<i>i.e.</i>, to El Despoblado).”</p> <p>“(Project) didn’t work.”</p> <p>“(Need a) latrine project.”</p> <p>“Have project for the rest of them (non-landowners).”</p> <p>“Move the (tree) nurseries closer to the water source (for irrigation purposes).”</p>
<b>El Pueblito</b>	<p>“(Would have started) a water project.”</p> <p>“They (development practitioners) have not returned.”</p> <p>“More communication with the group.”</p> <p>“Más aca” (more projects here).</p>

When asked how they might have changed the way a project was performed, some common responses from *despobladeños* 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’ (a more inclusive list of responses is provided in Table 1). Additionally, a common phrase among the poorest inhabitants in Guanacaure is ‘*ni si quiera a dios*,’ or, ‘*not even God*,’ and it is used commonly in El Despoblado, most often as the beginning of a sentence that will describe the severity of an event. An example might be using *ni si quiera a dios* to add emphasis to the degree to which it rained, or to describe the scene after a machete fight between two men, or to describe the extent to which a mudslide damaged a poor farmers maize field. “Not even God could believe the sight!”: At face value, this statement holds a strong connection to the fatalistic worldview described by Thompson, Ellis, and Wildavsky [15]. An ‘outsider’ might determine that *ni si quiera a dios* embodies a sense of helplessness, where not even the Creator can make a difference. The phrase holds in reality what Thompson, Ellis, and

Wildavsky posit in theory. But it is actor-oriented theory and actor-network that provide a way of looking inside the apparent fatalistic worldview and decipher the reasons for this view. It is suddenly not fatalistic at all, but a coping mechanism that enables the actors of a shrunken network that includes harsh social and environmental conditions to survive.

Indeed, the difficult situation of the Honduran peasantry has not eliminated the desire to engage in development activities that might improve social and environmental conditions, conditions worsened by hurricane activity that is expected to only increase in frequency due to anthropogenic climatic change. Far from displaying fatalism, the survey data referred to above has been analyzed by the author to investigate levels of interest among Guanacaure inhabitants to engage in future community projects despite expressed dissatisfaction with outcomes of previous projects. Of this sample, a significant number of respondents who were either landless or owned and worked land of poor agricultural quality expressed interest in working together to solve local problems.

*In other words, the condition of the environment (i.e., soil fertility) and the location of people within socionatural 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 socionatural 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 survey data also showed that “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 socionatural relations is affected by and affects production and confounds social differentiation of the peasantry [48]”.

We can see here how nature in the form of soil fertility becomes mingled with the social world. Yet soil fertility is itself a result of human misuse, and oftentimes the results of misused are exacerbated by hurricane activity, which is itself a mixture of natural phenomena and human activity, being caught up in global climate change- an anthropogenic occurrence. Hurricane frequency, soil quality, and desire to change the local situation, are all co-produced in an actor-network filled with powerful and else powerful participants.

## **7. Discussion**

Tropical storms and hurricanes have troubled Honduras over the decades in terms of their intensity and frequency, making them potentially significant material and socially constructed actors for the nature-society networks situated therein. Actor-network theory encourages us to see tropical storm frequency as a series of actors that play a significant role in shaping the mode of ordering of impoverished Honduran peoples. This means that the inclusion of hurricanes in the lived experiences of Honduras, especially the rural poor, influences the ways that *all actors in the network operate, relate, and interrelate*. As tropical storm frequency is consistent (yet unpredictable) over a period of

time, its role in the networks of knowledge formulation and implementation is long, *stretched* over time and space, and therefore its influence likely plays a role in determining the formation of the network as a whole. As we will see in the next section, many of the rural poor in the case study below express what might be described as fatalistic worldviews. Yet, the role of powerful natural actors calls to our attention the possibility that impoverished people might resist change from networks foreign to their own (*i.e.*, those of the visiting development practitioner), because the change is incompatible with the nature-society relationships established in their own network. Particular relations with both natural and social actors construct conditions in which certain actions and perceptions are taken to be more ‘rational’ than others [48]. A coping strategy of resistance might be useful for people embedded in a network that includes powerful natural forces; its face may be veiled in what appears to be hopelessness to Western actors enrolled in networks of individualism.

Hurricane frequency in the North Atlantic is at its highest level in history of the reliable record, and is expected to remain so for the next 10 to 40 years [55]. This is significant, because it means that any attempt to engage with people involved in networks that are poor, and involved in close, difficult relationships with nature will remain extremely difficult. Nature, as powerfully as ever, will be a consistent presence and contributor to the rural Honduras network.

During my time in El Despoblado, it became apparent to me that most of the community members of Cerro Guanacaure, and in El Despoblado in particular, held a ‘worldview’ that was different from that of the typical Western development practitioner, as defined by cultural theory scholars (see above). Difficult sociocultural conditions coupled with precarious natural conditions have led to the construction of what might appear to Western development practitioners as defeatist-like coping strategies in El Despoblado; an area comprised of three villages located in the center of the protected area Cerro Guanacaure of southern Honduras. The “shrunken” network of the inhabitants of Cerro Guanacaure (as opposed to ‘stretched’ networks that are strong and relatively self-sustaining) holds little room for action outside of daily life and survival activities; maintaining the harvest, gathering water, washing clothes, caring for the harvest of landowners; 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 (e.g., in the Guanacaure case, mostly young men working in sugar cane fields in the surrounding Choluteca Valley). Even then, the dominant mode of ordering is centered on the highly resilient sentiment that very little will change in the long run, and any assistance that diverges from the social-natural relationships established by network actors is viewed as inadequate to have a significant effect on their well-being.

This is not to say the inhabitants of El Despoblado (or *despobladeños*), are embedded in a network that is self-defeating. It is not. Projects have been introduced from ‘outside’ agencies that have failed, for one reason or another, on a continual basis; [60] not an uncommon occurrence in Honduras’ protected areas, [3,27,61] or in inhabited protected areas in other developing countries as well [8,62]. The negative response to such repeated failure is a resilient coping strategy that permits actors to survive at a level of subsistence without breaking below the survivorship echelon. The misfortune is that the consistency of failure has only bolstered the restraining mechanism of the established networks of the *despobladeños*, and left them in grave poverty. Different from a mode of ordering that enrolls actors with (Western-style) individualist characteristics, *despobladeños* wait for help from the ‘outside,’ yet oftentimes are unwilling to expend the energy necessary to mobilise, motivate and attempt

improvement generated from knowledge originating outside their network. Much of this sentiment can be attributed to poor project planning by international agencies and the Honduran government, and the lack of economic resources internal to Guanacaure [60]. These statements also suggest, however, that the inhabitants are unwilling to generate change collectively with their own forms of social mobilization. With a capricious nature and few expendable resources, the risk is too great.

How might development practitioners help to alleviate the role of nature by engaging with the social actors in the rural actor-network? The answer must first include the recognition that the modes of ordering of Western-based development practitioners are vastly different from those of the networks of the rural poor. Relations of power, and the roles and co-production of the natural and social actors are vastly different. History of development has shown that that simple methods of implementing Western-style development devoid of local knowledge in development design oftentimes do not work [5,7,29,63,64]. Therefore, I propose two possible ways forward. Other ways are likely possible, and other parts of the world will contain actor-networks of different design, making ethnographic assessment in all cases critical. If generalizations for development might be made, though, perhaps they are: (1) making nature a less precarious actor, and, (2) creating more autonomy that allows alternative, rural networks the opportunity to create change within their own power.

### *7.1. Making Nature a Less Precarious Actor*

In 2000, World Neighbors published an astonishing report that suggests that the application of agroecological methods in Honduras' farmed highlands has made natural actors in the Honduras network less capable of exerting its power in a negative way than the "nature" interacting with unsustainable farming methods [65]. World Neighbors, an international non-governmental organization, performed an action research-based study to compare the effects that Hurricane Mitch on traditional versus sustainable farmlands, meaning farmlands that adopted certain farming techniques to prevent soil fertility losses (vegetative buffers, intercropping, minimal till, *etc.*). They found that much of the hurricane's damage (the worst hurricane hit Honduras in the last 200 years) seemed linked to unsustainable land-use practices and deforestation. They reported, "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" [65]. In short, these additional technique introduced a host of rather powerful actors into the network that successfully influenced the mode of ordering, or patterning, of the networks' actors.

These agroecological methods, if applied to El Despoblado might aid in improving the resilience, and eliminating the vulnerability, of the social actors therein. This in turn might aid in re-ordering the nature-society relationship of El Despoblado and create room for improvement to the alternative network. Presently, few farmers in the area apply any sustainable farming methods, and the effects of Hurricane Mitch were felt significantly. In El Despoblado alone, 30 homes were either completely destroyed, or affected to the point that they were no longer safe to occupy [60]. The president of the Los Cocos town council estimated that the community had lost 90 percent of its harvest due to mudslides; his family only barely escaped from their home before it collapsed to the ground in the middle of the night. A woman and her two children died, suffocating in the mud that covered their home. In all of Central America, an estimated 10,000 people (at least) were killed by Hurricane

Mitch [66]. After the hurricane, weeks passed by before relief foodstuffs finally began to arrive to Los Cocos and the rest of El Despoblado, and then it was in very small amounts, and soon gone [60]. The tropical dry forests of Cerro Guanacaure were destroyed to the point that Honduran forestry officials reported that it would take a century before they recovered from Mitch [67]. Application of agroecological methods might aid in the improvement of this nature-society relationship, and thus open space in which a discursive and material shift in the actor-network. In fact, World Neighbors found that agroecological plots, “suffered 58 percent less damage in Honduras”, a significant disparity [65]. But how does one from the ‘outside’ the alternative network, for example a development practitioner, participate without being imposing? Achieving autonomy, via a pedagogy of hope may be the vital first step, if only a general one.

### 7.2. *Autonomy and Hope in the Network*

Davradou and Wood assert that the degradation of natural systems is connected to the degradation of social conditions, and that such a collapse can create a sense of frantic survival [68]. They go further and state, “such an environment deprives humans of their capacity to lead autonomous lives” [68]. I would reinterpret this statement to suggest that a degraded environment is intrinsically connected with and co-produced by the degraded social system, because they are virtually one in the same network. When the network is ‘weak’ or ‘shrunk’, the result is a mode of ordering that is deprived of the necessary components that lead to autonomy. The three conditions (environment, society, and network power relations/conditions) seem to be intrinsically connected. I also agree with Davradou and Wood that autonomy is “highly relevant for environmental conservation” [68]. Without any options, without any freedom to choose, very little can be achieved.

World Neighbors discovered a similar problem in Honduras that supports the autonomy debate:

*Faced with very small holdings or no land at all, and a lack of reliable credit or technical assistance, rural families have little incentive to manage land in sustainable ways, to conserve soil and water, to protect forests or to prevent erosion and landslides [65].*

Achieving an autonomous state may be the most difficult of achievements, and doing so without inadvertently attempting to re-order processes of other networks may be harder still. The difficulty in working with networks of different design lies in the contestation of knowledge. Change causes struggle, an ‘arena of contestation’, to maintain modes of ordering in the networks [69]. Nevertheless, it seems necessary for new modes of ordering to be achieved, and it can only be done via an open, liberalizing pedagogy. Freire and Freire explain that this does not mean there is to be no objective, no directive to the teaching of an alternative to the modes of ordering that are established and have proven to be useful [70]. This is impossible, as is the possibility that the ‘outsider’ will have no capacity in influencing alternative networks to move toward something more like their own networks. That is a risk, but one that can be limited by a sound understanding of the existence of alternative networks, knowledges, ecological conditions, and an openness to ‘other’ ways of life and ‘other’ modes of existence.

Precautions must be taken: “[T]he moment the educator’s “directivity” interferes with the creative, formulative, investigative capacity of the [development practitioner], then the necessary

directivity is transformed into manipulation, into authoritarianism” [70]. This can be reformatted to fit into the framework of the implementation of rural development projects. Development projects that dictate, that limit freedom, that are predetermined and insensitive to the networks of the object of the development gaze, that try to enforce a particular worldview, will never succeed in the long term. Projects, even ones geared solely towards the conservation of natural systems, must include the local sociocultural and socioecological conditions, and must allocate room for the alternative networks of those people involved in the effort to change their relationship with nature and re-establish an alternative mode of ordering and perception of nature, in an as-of-yet undetermined way [71].

## 8. Conclusion

Global climate change is intensifying hurricane activity in the Atlantic [55,72]. This is important for rural peoples that rely directly on agriculture and other rural activities for livelihood. In fact, hurricanes and other natural events play a consistently powerful role in the lives of the rural poor. This paper argues that development practitioners must acknowledge the ‘active role’ that so-called natural actors play in shaping the networks of rural peoples. From cultural theory and actor-oriented theory, we know that social groups formulate worldviews based upon the cultural conditions in which they are embedded, but that those worldviews make sense based upon the socio-ecological networks that make up daily life. Actor-network theory goes a step further, giving agency to non-human actors. Yet, while natural conditions shape networks, the actor-network approach must incorporate more fully an understanding of power relations into the analysis, the power of influential social actors that shape networks, and the power of ecological conditions that impact those social groups and the entire network.

Through ethnographic research of a protected area in southern Honduras, the paper explored how the rural poor express what Western-based development practitioners might wrongfully determine to be ‘fatalistic’ attitudes towards development. However, the actor-network approach encourages us to place these attitudes in context; powerfully negative ecological conditions coupled by unsustainable agricultural practices have contributed to a rather weak and isolated network extremely vulnerable to external forces. Change can and often does come at a high price, making the un-tried development strategies of practitioners external to the network risky. Therefore, the Western-based development practitioner and the local Honduran networks are in many ways “worlds apart”.

One of the key contributions that this take on actor-network theory provides for rural development is this concept of modes of ordering and durability of networks. It is likely that the incongruence that exists between the modes of ordering of different networks causes much of the failure of rural development strategies. Whatmore and Thorne put it well: “[T]he durability of long distance networks requires strong fabrics of social organization at all points in the network, making the patterning of social and environmental practices in *particular* times and places integral to the business of network enrolment” [19]. When the particular times and places that come into touch with the extended networks contain their own modes of ordering, their own particular composite of social and natural actors, the two networks collide. We must, however, be cognizant of the power exerted by the larger, Western-based development networks on these local spaces, and we must understand the powerful role that natural actors- such as hurricanes- play in network-formation of local spaces. With global climate

change reassembling social-nature relations, the networks of the rural poor may be more resilient to change than ever.

World Neighbors and others have shown how sustainable agroecological techniques have successfully changed the role of ecological conditions in the rural landscape [73]. With the acknowledgement of the alternative network formation process, coupled by development strategies that increase autonomy of the locals in development design, we are hopeful that alternative developments can work to improve the networks of rural spaces in a just, locally-sensible way.

### Acknowledgements

Figures 1–3 appeared in [48]. Data from Table 1 appeared in [26].

### Conflict of Interest

The author declares no conflict of interest.

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