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The Condition and Perceptions of Common Property Regimes on the Caribbean Coast of Nicaragua and their Revitalization through Participatory Action-Research

There are fewer documented examples of extant common property regimes in Latin American coastal areas than the relatively well-studied areas of the Pacific Islands. This situation may be due to either a lack of research effort in Latin America or, as we argue, the historic and economic conditions that influenced Latin America coastal communities. Remote communities, where traditional common property regimes are still found today, tended to have escaped the effects of colonialism and market penetration partly as a result of their isolation. Other coastal communities, with a history of articulation with colonists and foreign markets, have tended to lose their common property regimes, but not in all cases. The authors employ case study analysis to investigate one such community, Pearl Lagoon, located on the Caribbean Coast of Nicaragua, herein referred to as the “Coast”, where a history of integration with colonists and foreign markets has mainly negatively influenced common property regimes, with the exception of land titles.

Colonial Legacy

Regular trade between Europeans and the early residents of the Coast began in 1630 with the establishment of a trading post on the Island of Providence from which they traded with the indigenous peoples on the mainland. The indigenous people traded meat, fish, turtle shell and their labor for metal tools, firearms and other manufactured goods. (Hale and Gordon 1987: 15) This early trading relationship combined with miscegenation between the indigenous peoples, Europeans and former African slaves are believed to have contributed to the creation of the Miskitu which became the dominant indigenous group on the Coast.

England strengthened its alliance with the Miskitus on the Coast in 1687 by crowning a Miskitu king in Jamaica. The Miskitu Kingdom that developed from this became the key to British

indirect rule. (Hale 1994: 39) In 1787, as part of the treaty of Versailles, the British officially left the Coast. (Sollis 1989: 484) For the period between 1790-1820 the Miskitu Kings had a high degree of political autonomy. However, gradually the positions of commercial intermediaries and advisors to the king were filled by a Creole population made up of free slaves and identifying themselves as British subjects. (Hale 1994: 39; Sollis 1989: 484)

The British commercial and geopolitical interests on the Coast continued and were heightened by the 1840s when they returned to the Coast. (Hale 1994: 39) The British interfered militarily in 1848 to prevent the Nicaraguan government from attempting to assert control over the area. Finally, in 1860, the British, facing pressure from the Americans, who had become a rival power in the area, relinquish control over the Coast in the Treaty of Managua which also gave some rights of self government to the coastal population. By 1890, the U.S. controlled 90% of the commercial activity taking place on the Coast. (Hale 1994: 40)

In 1894, the government of Nicaragua attempted to take control of the Coast resulting in a great deal of resistance from the local population and appeals to Britain to intervene on behalf of the people of the Coast. In an attempt to rid themselves of the problems of the Coast, Britain ratified the Harrison-Altamirano Treaty in 1906. This treaty gave sovereignty over the Coast to Nicaragua and established procedures for legal recognition of land rights that eventually led to the granting of 30 collective titles. In addition, this treaty guaranteed "lands for all Indians who lived inside the boundaries of the old Mosquito Reserve." (Hale 1994: 48)

The fact that the Coast's colonial history is British rather than Spanish had some important impacts on the development of the Coast. While Spain looked to colonize areas and use indigenous populations as a labor force, England's involvement on the Caribbean Coast was designed to establish "a dominant trading position" (Macdonald 1988: 115). As a result, the Miskitu population developed commercial ties with England and later the US as wage labor for commercial activities in the region. England also used the Miskitu population as an ally against the Spanish in the region resulting in a continuing distrust of the central government.

One of the most important results of the colonial history of Nicaragua's Caribbean Coast is that the population has been able to maintain control of their land. Helms suggests this is due to the fact that the Coast "has never been part of the effective national territory of any state." While various foreign powers may have exploited the resources of the area they never really established control over the territory. Furthermore, the commercial relationships that did exist were not with countries that bordered on this territory making control over the area by Nicaragua or Honduras more difficult. (1971: 229)

Communal land rights (as previously mentioned) were codified to some extent in the Harrison-Altamirano treaty ratified in 1906. These communal land rights have been reaffirmed in both the Nicaraguan constitution, and the Autonomy Law that were enacted during the Sandinista years of 1979 to 1990. The constitution in Article 90 and 180 guarantee the right to communal property and enjoyment and benefit of their natural resources. (Mijesk 1991) These rights are further codified in the Autonomy Statute otherwise known as Law No. 28. Article 8, subsection 4 guarantees the right "to promote the rational use and enjoyment of these communal waters, forests, and lands and the defense of the ecological system." Article 11 entrenches the right to communal forms of property as well as the right to enjoy the use and benefit of these communal resources.

The economic structure that accompanied British and U.S. domination of the Coast was not beneficial for the sustainable use of communal lands and resources. Miskitu articulation with the broader world economy came in the form of occasional wage labor that allowed this population access to money to buy foreign goods that had become cultural necessities. Mary Helms explains this by suggesting that these foreign manufactured goods gradually become cultural necessities as "traditional crafts are forgotten, or because they become necessary for the psychological well being of the group" (1969: 329) According to Vilas, companies demand for labor fit well with cash economy needs of the Miskitu. (1989: 10)

British, and later American companies, exploited coastal resources using local populations as wage labor and extracting resources from an area only as long as international markets and accessibility of resources made them profitable. As a result, the economy of the area went through rapid boom and bust cycles resulting in periods of unemployment. This strategy combined with the fact that companies employed almost exclusively male workers—leaving women and children to take care of village agriculture—meant that traditional village structures were maintained. The survival of the Miskitu village gave men the option of returning home and resuming in subsistence activities at the end of seasonal employment or in economic downturns. (Vilas 1989: 10-11)

What resulted from the Miskitu's unique position between subsistence and cash economies is what Mary Helms termed a "purchase society." Helms characterizes the purchase society as "articulation of local society with the wider complex world through economic channels of trade and wage labor, while political autonomy and stable social organizations are maintained." (1971: 7) This type of society required that traditional subsistence activities be altered to some extent to make possible "new types of work or for the expansion and adaptation of traditional activities for commercial purposes." (Helms 1969: 331) The resulting economic situation on the Caribbean Coast of Nicaragua for many years was an oscillation between market and subsistence economies. As market economies flourished subsistence economies declined and vice versa. Macdonald suggests that "subsistence security was never threatened. So, despite periods of undeniably intensive expropriation, feelings of exploitation were not particularly strong." (1988: 114) As a result, Macdonald believes the moral economy of the Miskitu was never threatened and violence or resentment against exploitation of the resources never occurred.

The end result of the purchase society and the extractive economy that accompanied it was a, more or less, agreed upon intensive exploitation of coastal resources. The cultural need for foreign consumer products has meant that the population is generally more than willing to exploit most of their available resources in order to meet the requirements in the cash economy. In fact, Nietschmann indicates that the boom and bust nature of the cash economy meant that communities tended to exploit resources as quickly and intensely as possible because they recognized that these opportunities seldom last long. This is illustrated in a quote from a Tasbapaunie (a Pearl Lagoon community) community member who stated "when company there, got to get. When dey leave, dats gone blank; dey no looking you." (1973: 195)

The only instances in which Nietschmann suggests friction resulting from resource exploitation is "when subsistence items are removed from social channels in order to be used in market exchange. Thus social value is taken from the product and given a market value instead." (1973: 192-193) The most prominent case of this cited by Nietschmann and others is the green

turtle which changed from being predominantly a subsistence item into a cash source for a number of years. This resulted in tensions within the community as traditional patterns of food distribution based on kinship exchange were disrupted by the transfer of these resources to the cash economy. (Nietschmann 1973; Weiss 1980; Cattle 1976) Helms suggests that erosion of the parallel subsistence economy will also result from prolonged economic booms in which dependence on commercial activities increase and traditional techniques are made non-viable due to neglect. (1969: 332) A further concern expressed by Nietschmann (1973: 238) and Cattle (1976: 118) is that population growth and the encroachment of the agricultural frontier will also tend to undermine the future viability of the subsistence economy of the Coast.

The colonial and neo-colonial relationships have impacted negatively on the way in which common property is used due to their encouraging overuse. On the other hand, they also have a positive impact for the viability of future common property regimes in that communal lands are still in place (although somewhat disputed and unclear). The result of this is that the people in the region feel that they have the right to their communal lands and also an interest in protecting them. If these communities perceive their moral economy to be threatened by use-patterns they increasingly believe they have the right and an obligation to do something about it.

The next portion of this paper will draw on interviews conducted in three Pearl Lagoon communities including Haulover and Kakabila to illustrate that concern is growing in the communities about the state of their communal resources and also that they are increasingly inclined toward protecting them. Specifically the research illustrates how the deepening of commercial relations in the fisheries is beginning to negatively impact on the long term viability of the subsistence economy of the area. Further it will examine the reactions of local people to these changes providing evidence of support for the future communal management of these resources.

Case Study

The Effects Of Deepening Commercial Relations

The negative effects on the long term viability of the subsistence economy caused by the deepening of commercial relations in the Pearl Lagoon fishery can be divided into three categories. These include an increased focus on fishing at the expense of other economic activities important to subsistence security, a decrease in lagoon fish stocks, and changes in distribution patterns of fish among the population.

One of the major effects of the deepening of commercial relations in the Pearl Lagoon fisheries has been a move by the population from other economic activities to fishing. The most obvious of these moves is from agricultural activities. The reasons for the move from agriculture to fishing are multiple and the phenomenon differs between the communities studied. The impacts of this move are felt both in terms of decreased production of food for use in the community and increased exploitation of the fisheries resource.

There are a variety of explanations offered by the people interviewed for the move away from agriculture. Probably the most important and common type of explanation centers around access to markets. Interview respondent Victor, a fisher from the community of Haulover,

illustrates this suggesting that the lack of stable markets means that often even successful crops cannot be turned into cash. Alternatively fishing is seen by Victor as an activity that makes a "better life" for his family. This belief is echoed by a Kakabila fisher Winston who suggests that people do not plant like they should because they often have difficulty finding markets for their production.

Winston's and Victor's views reflect the situation of many in Haulover and Kakabila who might be more inclined to focus on agriculture if market access was stable. However, the prevailing instability in the markets for this production has pushed many to rely on the fisheries where there is now a consistent place to sell.

Related to market access issues were most people's contention that fishing, in comparison with agriculture, offers "quick" access to money. This situation is made clear by Haulover interview participant Samuel who describes fishing as a "quick" way to make money compared to farming. Samuel goes on to explain that if consumer goods are needed he can go out fishing tonight and buy what he needs tomorrow. With farming he will not see the money at least until the crops are harvested.

Samuel's statements reflect the thinking of many people in Haulover who rely increasingly on fishing. In agriculture, profit is not seen for months while fishing offers the opportunity for people to put money in their pockets tomorrow. As a result, fishing in comparison with agriculture, allows people to more easily meet their short term cash needs effectively.

Another extremely important aspect of the move away from agriculture has been a decline in women's involvement in farm work. Women in Haulover have also tended to move away from agriculture in order to facilitate their children's education. Lesbia, a woman from Haulover, points out that she cannot work the farm because she has to stay in the village so her children can attend school. This situation is reiterated by another female participant from Haulover who adds that providing support for men who are participating in fishing also plays a role.

This type of explanation is important in Haulover where the largest portion of agricultural land is located a 1.5 hour walk away. The need to stay in the village for women in Haulover has also tended to draw men away from the farm. A female interview participant from Haulover indicates "[u]sually the men, if the wife is not with them on the farm, they usually come out and they won't stay there anymore." The situation in Kakabila is somewhat different as agricultural plots are much closer to the community, allowing people to work their lands and live at home without the 3 hours of walking every day (Jamieson 1996).

Further contributing to women's move away from agricultural involvement appears to be a shift in attitudes about women's roles. This is illustrated by a community leader from Haulover quoted in Barbee (1997), and by Kakabila resident Winston—both of whom believe that farm work is too hard for women and that they should be protected from it. While these attitudes are not universal, it appears to be a growing belief in these communities. Furthermore, a growing group of young women tend to look towards education as a way of improving their situation and thus shunning agriculture. As well, in the community of Haulover, employment at a new fish processing has provided an alternative income source for many women giving them a wage labour alternative to farming.

Women's tendency to move from agriculture has had a variety of effects on the community. It has contributed directly to the erosion of the subsistence agriculture that previously existed

because women had traditionally played a major role in the maintenance and care of crops after planting. Women's move from the farm has also had an effect on men's agricultural involvement as men tend to prefer staying with their families in the village to working alone on the farm. Alternatively, avoiding farming has been necessary to facilitate children's education, and wage labour opportunities for a few women have provided some increases in household income.

Another issue that has contributed to the move away from agriculture is the hard labour that is involved in farming. Some of the older interview participants, like community leader McKinley Tinkam, suggest that the youth are not inclined to take on the hard labour involved in farming. In these communities where an ax, machete, and hoe are generally the only tools used in farming, the activity does not present an attractive option for young people.

Others indicated that the collectivized work that was previously used in agriculture has been undermined to some extent by wage labour making it more difficult for some people to engage in farming. Eduardo, a participant from Haulover, explains that the introduction of wage labour by some farmers has reduced the communal practice of helping each other on the farm. This appears to be less of a factor in Kakabila where interview participants still talked about communal agricultural efforts similar to what Eduardo described.

Also contributing to the decline in agricultural activity in these communities is residual effects of the contra war that raged in the mid and late 80's. Barbee (1997: 11) points to Haulover women's fears of living in these areas based on war time events, and the danger of robbery and rape. These fears were not shared by Kakabila women partially because Kakabila agricultural areas are not easily accessible to outsiders making it unlikely to meet strangers there. The war meant life in the agricultural areas of Haulover was dangerous, and lingering fears combined with a lack of continuity in the agriculture caused by these years has played a role in some young people's decisions not to take part in agriculture.

Eduardo brings up a number of concerns that were expressed by others in Haulover. First, most people indicated that the move of many people from the farm into fishing has increased the pressure being placed on Lagoon resources. Second, for those households that are no longer involved even in farming for personal consumption the home economy has been diminished. Often much of the profit made from fishing is needed to buy products or substitutes for products that had previously been produced by the family. Finally, some express fear that local people's move from the land is also aiding expansion into community lands by *Mestizos* from the agricultural frontier. This migration threatens the ability of the people to return to farming in the future.

The shifting of productive focus away from agriculture in these communities was fairly normal for the region in times of economic booms in the past. However, in the present instance the move also contributes to the further erosion of the fisheries by intensifying use. In addition, the ability of people to return to agriculture in the future if the fisheries economy is not sustained is being eroded through a more complete move from the farm, and also through the encroachment of the agricultural frontier on the communal lands. The abandonment of farming is more serious in the Community of Haulover than in Kakabila. The easier access (geographically) to agricultural lands in Kakabila means that most families maintain significant "plantations" geared towards household consumption. While many families in Haulover have plantations for household consumption they tend to provide for less of the household needs than in the past, increasing this community reliance on the cash economy.

Declining fish stocks has been another important effect of the deepening of commercial relations in the Pearl Lagoon fisheries. When asked about the availability of fish in the lagoon most people indicated that access to fish was becoming increasingly difficult, and that greater effort is required to catch fish now than in the past. Interview participants in both Kakabila and Haulover suggested it was increasingly necessary for fishers to travel farther and use more nets to meet their needs.

One effect of declining fish stocks is that some fishing techniques that had previously been productive, such as hand lines and striking fish (harpooning), are no longer viable. Herman, of Kakabila, explains that fishing with handline and harpoon are not as effective as they used to be and that gill net is the only effective means of catching fish these days.

This change in the resource effects two different groups of people. First, women, who had sometimes been involved in fishing with handline in order to supplement the families diets are less able to do this. In these communities women are not popularly believed to be capable of handling gill nets so they are increasingly shut out of fishing. This involvement in fishing by women was more likely to occur in Kakabila than in Haulover but was especially prominent in one of the other lagoon communities, Orinoco.

In addition to adversely affecting women's involvement in fishing, this decline is also felt by those who do not possess the gear necessary to continue catching fish commercially (gill nets and to a lesser extent motors). Winston Brown of Kakabila suggests that "maybe if you don't have any gill net I don't make any money so that is something important to have because you make money off that." Where as before people were able to catch substantial amounts of fish using simple hook and line techniques or by harpooning fish, this is no longer true.

The decline in fish stocks has been attributed by many to the intensified use of the gill net in the lagoon fisheries. It is difficult to establish when the gill net was first introduced into the region especially as it appears likely that it occurred at different times in the two communities. However, most in both communities agree that more intense use by a large segment of the population began only recently. The presence of the Mar Caribe fish processing plant in the area has contributed to this both by providing a consistent market for the fish that are caught and also by providing gill nets. Distribution of fine mesh gill nets (2.5 inches) to fishers by the company has been intensely criticized by many in the communities.

People from outside of Pearl Lagoon, most notably people from Bluefields are also seen by many in the Lagoon as contributing to declining fish stocks. Eduardo explains that people from Bluefields use more nets and new techniques such as sinking nets. Eduardo goes on to suggest that these outsiders tend to use more nets and more efficient techniques than lagoon people causing some concern and resentment among lagoon people.

People interviewed also expressed the belief that fishing at certain times and places—when fish were about to spawn and major spawning locations or migratory routes—were also contributing to the decline in stock. The efficiency of the gill net in catching fish migrating through narrow passages was believed by some to have a major impact on the amount of fish in the lagoon.

Declining fish stocks is seen by many in the communities as a result of the type of commercial exploitation that is going on in the Lagoon. This exploitation has had two important effects. First, the amount of effort and gear that is needed to catch comparable amounts of fish is

increasing. Second, certain segments of the population are increasingly unable to access fisheries resources for consumption or sale because of the increased difficulty in catching fish.

Intensifying commercialization of the fisheries resource in the Pearl Lagoon area has also led to significant changes in patterns of fish distribution. Many of the interview participants indicated that previous to intensified commercialization of the fisheries, fish were given away by returning fishers. The stable market for fish in the lagoon has changed the fish distribution pattern. Often fishers return home now with only enough for their immediate family and sometimes for close neighbors and friends. Whereas fish was most often given away in the past, the product is now sold in the community at a price that is somewhat less than the fish processing plant's price. The fish that is brought into the communities today for consumption tends to be fish that is rejected by the fish processing plant either due to its size or type.

While fish is still available in these communities, it is not as widely available as it was in the past. While some believe that this has not had a major impact on the amount of food available to eat, others believe there has been an effect. Eduardo points out a telling trend in the community, "You hear people talking about they're not getting fish, and this was something you didn't hear before. People would always say, 'well I'm tired of eating fish.' Now people are saying we just can't get fish." While there is some disagreement about the seriousness of the decline in the amount of fish for consumption, there is a general consensus among interview participants that less fish is available.

The amount of fish that is distributed free in communities or sold there instead of to the fish processing plant depends on a number of factors. If the fish caught are too small or the wrong type for the fish processing plant, then they are more likely to be distributed in the communities. The location of the community in relation to the fish processing plant also plays a role in whether fish is distributed in the community. Compared to Haulover, Kakabila is a significant distance from the fish processing plant. Depending on the catch size, where, and when fish are caught it may not be economical for fishers to deliver their product to the fish processing plant, either in terms of the cost of fuel, or the amount of time required to take the fish to market. As a result, Kakabila fishers are more likely than Haulover fishers to bring fish home or sell it directly in the community of Pearl Lagoon than to sell it to the fish processing plant.

Changing distribution patterns of fish in Pearl Lagoon communities is seen by some in the area to have important consequences on food, and especially protein, availability. This is somewhat compounded by the increasing difficulty of catching fish for consumption with less intensive techniques such as hand lines that would previously have provided a secure way of obtaining fish for consumption for most people in the community.

Traditions of Land and Resource Tenure

Community land ownership is a contentious and confusing issue in the Pearl Lagoon area as well as on the rest of the Caribbean Coast. Most of the communities in the Pearl Lagoon area have legal rights to their communal lands. The exceptions to this are communities that formed after the land demarcation that occurred in association with Harrison-Altamirano (including Orinoco). While communities like Orinoco have never received official title to land their rights are widely recognized locally (Christie and Rigby 1996: 3). Howard points out that while direct rights over territory are claimed only over communal lands, many of the people in the communities she studied "consider that they have the right to benefit from the lands and natural resources of the Atlantic Coast as a whole" (Howard 1993: 209).

Personal or family control over land in Miskitu communities has traditionally been based on use rights. Land that has crops on it is controlled by the individual or family who planted the crop. As a result planting of perennial crops such as coconut banana and plantain is the most common way of claiming rights to land (Nietschmann 1973: 132; Helms 1971: 127; Christie and Rigby 1996: 2; Howard 1993: 200). Howard also makes an important distinction between agricultural lands and other resources on community lands such as lumber, suggesting that they "are regarded as common property" and that extraction from these areas is regulated by communal authorities. (Howard 1993: 201)

Based on her work in Asang in the 1960's Helms suggest that land has no money value and that to buy or sell it would be inconceivable in the Miskitu culture. (1971: 127) Nietschmann's work in Tasbapaunie around the same time period supports Helms' contention, suggesting that land cannot be sold but rights to land can be renounced so that others can use it. Howard presents a more recent account of the same phenomenon in some northern Miskitu communities and suggests that "the concept of ownership of community land seems alien to many people" (1993: 200). Howard clarifies that while crops on the land can be privately owned, and therefore sold or transferred, the land still belongs to the community" (1993: 202). Overall Howard argues that although Miskitu culture has been greatly affected by outside influences "there remains a distinctly indigenous concept of land rights. This moral economy is based on collectivity and use according to need rather than ownership" (1993: 203).

The concept of sea tenure does not exist in the strict sense in Pearl Lagoon. Each community has its preferred fishing grounds, but many of the most popular sites are used by a number of communities. Tasbapaunie claims exclusive rights to the northern sections of Pearl Lagoon, but increasing numbers of fishers from outside Tasbapaunie are ignoring these claims. (Christie In Progress)

Revitalization of Common Property Regimes through PAR

While a number of studies have documented the dismantling of common property regimes in the tropical coastal zone (Johannes 1981; Kottak 1992; Nietschmann 1973) the mechanisms that might lead to their revitalization are less widely understood. Community-based or co-management resource management approaches have proven to be effective mechanisms for the codification of common property regimes in particular contexts. Increasing numbers of program case studies have shed light on the mechanisms for establishing such regimes in the tropics (White et al. 1994; Pomeroy 1994; Ferrer et al. 1996). Relating these case studies to historic contexts

of resource use and to trends within the professional fields of resource management have shed light on these approaches' strengths and limitations (Christie and White 1997).

While the act of revitalizing common property regimes is not a panacea for environmental problems in the tropics, this goal has demonstrated certain value in particular contexts and, therefore, warrants further investigation. The question remains—what are the most effective research methodologies that applied researchers can employ to yield the highest quality information, while simultaneously contributing to the revitalization of common property regimes? Currently, a mixture of qualitative and quantitative research orientations seem the norm, with interviews, surveys, and participant observation as the preferred field methods (Johannes 1993). The closing portion of this paper introduces an alternative research methodology that embraces action-taking as a component of the research process.

Community-based or co-management resource management approaches represent, in essence, the revitalization of common property regimes that have been eroded by dominating colonialist and neo-colonialist political systems and neo-liberal economic models. The establishment or revitalization of such regimes is fundamentally an act of social change. While participation in overt acts of social change is not the objective of some researchers, it is increasingly an option under consideration by those who see no contradiction in their participation in research that fosters collective empowerment *and* deepens social knowledge (Hall 1992). Participatory action-research (PAR) is one research method that has potential for improving the understanding of common property regimes while contributing to their revitalization. The following is an introduction to PAR, a brief description of its use in Pearl Lagoon, and a description of some its most fundamental tenets. It is hoped that this introduction to the theoretical orientation of PAR will provide the impetus for readers to seek out the numerous sources that provide specific field tools (Burkey 1993; Townsley 1993) or develop their own that are tailored to their particular research environment.

Participatory Action-Research

Approaches to PAR differ, depending on participant preference and the conditions under which the research is carried out. Nonetheless a certain level of agreement exists. Cancian and Armstead (1990:16) state that:

“[p]articipatory research ideally begins with becoming oriented to a community, then proceeds to dialogues with groups of people to clarify community problems and to raise consciousness, and finally culminates in collective research and political action.”

Maguire (1987:41), in her description of a PAR process designed to address domestic violence, largely agrees with this definition of participatory research, but emphasizes the importance "to link participants' individual interpretations of problems to the broader context, including the structural conditions of social reality." Vio Grossi (1981: 105) stresses the escalating, cyclic nature of this process, whereby participants passing through phases of the participatory research process "will create new conditions at the material level and the level of the consciousness which, in turn, will allow the initiation of a new cycle, this time at a higher level of development." One simplified portrayal of this process is represented in Figure 1 with the concept of increasing critical

consciousness symbolized with the ascending spiraling arrow. Clearly, there is no one manner to conduct PAR, just as there is multiple means of conducting scientific research.

Figure 1. A Simplified Representation of Participatory Action-Research (PAR).

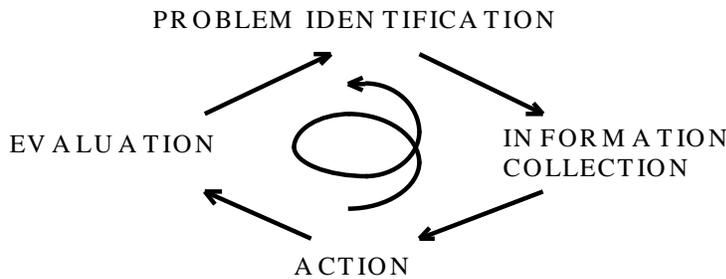


Table 1 outlines a series of guidelines presented by Hall (1982) that summarize the efforts of various participatory researchers.

Table 1. Guidelines for participatory research.

1. A research project –both process and results–can be of <i>immediate and direct benefit</i> to a community (as opposed to serving merely as the basis of an academic paper or obscure policy analysis).
2. A research process should <i>involve the community</i> in the entire research project, from the formulation of the problem and the interpretation of the findings to planning corrective action based upon them.
3. The research process should be seen as a part of a <i>total educational experience</i> which serves to determine community needs, and to increase awareness of problems and commitment to solutions within the community.
4. Research should be viewed as a <i>dialectic process</i> , a dialogue over time, and not a static picture of reality at one point in time.
5. The object of research, like the object of education, <i>should be the liberation of human creative potential and the mobilization of human resources</i> for the solution of social problems.
6. Research has <i>ideological implications</i> .

Italics by Hall (Hall 1982)

CAMPlab's Use of PAR

PAR is one research methodology that offers potential to the researcher interested in understanding common property regimes and working towards their revitalization or preservation. In Nicaragua, the Coastal Area Monitoring Project (CAMPlab) is utilizing PAR to work with local people to establish a coastal resources management plan for Pearl Lagoon, a 52,000 hectare coastal lagoon surrounded mainly by forest (Rigby and Christie 1997; Christie in preparation). Local people are involved in resource-use problem identification, water quality monitoring, fish stock assessment, forest monitoring, and action taking.

The actions that have developed out of the PAR process are considerable. Participants have planted over 1000 pine trees (*Pinus caribbaea*) and 350 mahogany trees (*Swietenia macrophylla*) and limited burning of communal lands. Most recently, participants have engaged in a ambitious process of demarcating their communal lands using global position system (GPS) technology. Researchers from the University of Texas have coordinated their efforts with CAMPlab to produce maps that demarcate the legal, boundaries of land, as well as patterns of resource-use within and outside these lands. The intention is to provide a legal position that can be used by local communities to resist the encroachment upon communal lands.

Currently, CAMPlab staff and participants are working with government officials to develop a management regime for the area's fishery partly based on information collected by CAMPlab. People have proposed closed seasons, gear limits, and protected areas for the fishery. Most importantly, local people have forced government officials, originally skeptical of local participation in policy making, to recognize their right to participate. This represents a considerable change in the manner of decision making in a country whose present government generally perceives popular participation as leftist ideology that will inhibit the economic development of the country. This has been a difficult process that has suffered considerable setbacks—a consideration for anyone interested in employing PAR (Christie in progress).

To better understand these definitions and CAMPlab's decision to use PAR, it is useful to explore some of PAR practitioner's assumptions and tenets as developed in the published literature and in practice.

Background Assumptions

Paulo Freire's assertion—that the fundamental theme of our epoch is domination— is perhaps the most concise justification for the existence of PAR (Freire 1993). Overcoming domination and its manifestations is not uniquely the goal of PAR practitioners, since some social science disciplines (e.g. sociology and applied anthropology) have been attempting to address this fundamental problem in society since their inception. Furthermore, if one accepts the assertion that environmental problems are at least partly the manifestation of social inequalities, then environmental scientists have also been attempting to better understand the environmental manifestation of domination and to recommend appropriate measures. However, as we present the following analysis of the basic assumptions and tenets of PAR practitioners, it should become clear how PAR is unique from most research methods commonly employed by formally-trained researchers in the applied social or environmental sciences.

Certain background assumptions about science and the social world are relatively consistent among PAR practitioners. In a world that is increasingly technified, the PAR

practitioner is convinced that knowledge is power (Maguire 1987). The conclusion that science as generally practiced is class-biased—a way of knowing that has elitist tendencies—emphasizes the exclusivity of the educational process and the generally privileged class position of scientists (Fals-Borda and Rahman 1991). These assertions lead to a third assumption among the PAR practitioners—the existence of a hegemony of scientific and technical knowledge that has ultimately contribute, albeit unintentionally in some cases, to the oppression of people (Freire 1993; Maguire 1987). Finally, PAR practitioners perceive social relations and knowledge as socially constructed, meaning that they are the product of a negotiated process without consistently predictable or strictly deterministic outcomes (Whyte 1991; Maguire 1987; Hall 1992). In short, the PAR practitioner asserts that science does not always provide the best tools to study *and* change social interactions that are expressions of domination. While other tendencies exist among PAR practitioners, these are sufficient to introduce the main tenets of PAR.

The basic tenets are organized around the general themes of: 1) the need for alternative means of knowledge generation, 2) equitable relationships as fundamental, and 3) process oriented.

The Basic Tenets of Participatory Action Research (PAR)

The Need for Alternative Means of Knowledge Generation

As already stated, PAR practitioners generally believe that the scientific manner of generating knowledge, while valid and undoubtedly powerful, is only one acceptable mechanism for this activity. And while many social investigators have long abandoned scientific methods for a variety of reasons, the PAR practitioner's position to advocate for an alternative is relatively distinct.

Practitioners of PAR advocate its use from a variety of positions, ranging from those presenting PAR as a scientific method complementary to existing methods, to those seeking to develop an alternative to science. Whyte (1991) maintains that the tendency to favor the scientific method ultimately limits science, and therefore wishes to improve science through the use of PAR. A far more radical tendency is expressed by Fals-Borda and Rahman (1991), two social researchers from Colombia and Bangladesh respectively, who see PAR as addressing or countering the polarization of control over the production of knowledge and the reliance on professional researchers as the sole legitimate practitioners of this activity. Whether the PAR practitioner wishes to improve science or counter its alleged hegemony, the employment of PAR clearly represents a rejection of the position that the positivistic frame is the only legitimate means of knowledge generation or scholarship (Maguire 1987). It bases this conclusion on the assertion that the ideal of a detached, purely observant researcher is an impossibility and that, in many cases, the best way to generate knowledge is to embrace and acknowledge our subjectivity and engage with the people and processes that the researcher wishes to understand (Maguire 1987). Such close contact with social phenomena and actors implies a different set of relations between the professional researcher and research participants. While other research methods, such as

participant observation, also rely on an intimate relation between the researcher and the researched, they do not comply with the following tenets of PAR.

Equitable Relations as Fundamental

The transformation of the traditional subject-object relationship to a subject-subject relationship is one of the key tenets of Freire's pedagogy (Freire 1993) and has profoundly influenced PAR (Fals-Borda and Rahman 1991). Through PAR, it is hoped that people are no longer the objects of the knowledge creation process, rather they act as subjects. Resultantly, as creators of knowledge, they begin to create their social reality (Freire 1993).

In practice, this implies a completely different relationship between the professional investigator and research participant than is typical for scientific research. PAR is essentially a co-learning process for the participants and the researchers. As a co-learning experience, the participants are involved as equal actors in all components of the research, from problem identification, data collection, analysis, to action. Each brings his/her special skills and knowledge to bear on the problem at hand as a way of increasing the level of understanding. Co-learning and mutual respect for each person's unique skills and knowledge are among the most distinctive norms of PAR. PAR is not expert-led and its proponents maintain that dialogue between participants and researchers is the key to understanding social realities (Freire 1993). (While all participants in PAR are researchers, the terms "participants" and "researchers" is used to refer to non-professional and professional researchers, respectively.)

Process Oriented

While all carefully planned scientific endeavors are attentive to the research process, PAR distinguishes itself from most scientific research methods in the relative importance that it places on process over output (Schurmann and Israel 1994). Some PAR practitioners call for the development of a socio-political process that the oppressed can identify with (Fals-Borda and Rahman 1991). Others present the process as one of dis-indoctrination and detachment from the myths of society that maintain oppression (Vio Grossi 1981). This entails the demystification of science itself (Maguire 1987) and other oppressive myths, such as the superiority of elitist cultural norms, through a process that Freire refers to as "problematization" (Freire 1993, 1992). Freire described these myths as veils hanging before the eyes of the oppressed (Freire 1993). To "problematize" is, in essence, to identify the contradictions and oppressive nature of the myths that keep the oppressed in a state of domination. Freire's pedagogy is essentially a process by which "the oppressed unveil the world of aggression and through praxis commit themselves to its transformation" (Freire 1993:36). The process of demystification through problematization are at the core of Freire's pedagogy that seeks to create critical consciousness in all participants (Freire 1993, 1992). PAR has adopted this process as a key element of its own (Cancian and Armstead 1990; Maguire 1987).

The commitment to praxis as a means of transforming the world is characteristic of PAR endeavors. Lather (1986:258) describes praxis as "the dialectic tension, the interactive, reciprocal shaping of theory and practice which I see at the center of an emancipatory social science." Freire (1993) clearly states, however, that praxis implies no dichotomy by which reflection and action are defined into separate stages, rather they occur simultaneously. The practical importance of praxis is that it allows one to move between reflection and action as a means of increasing critical

consciousness. The uniqueness of this concept lies in the explicit use of action-taking as a tool of investigation.

As implied by the concept of praxis, PAR is cyclic in nature. As participants in the PAR process pass through cycles of problematization to action, increased critical consciousness is gained through the process. Ideally, upon reaching the end of one cycle, the process begins anew until a increasingly clearer understanding and liberation is attained (Vio Grossi 1981; Schurmann and Israel 1994). This is a slow process that must be nurtured and is dependent on constancy and creativity in the face of adversity.

The processes employed by PAR practitioners varies depending on the circumstances. The published literature is noticeably, perhaps intentionally, vague on the definition of a precise process. A predetermined process would contradict the intention that the process is be mutually agreed upon by researchers and participants and is, therefore, unpredictable.

As one means to empowerment, PAR practitioners are generally concerned about the educational experience of participants. For example, Maguire was committed to helping abused women learn basic research skills (Maguire 1987). While this may be misconstrued as an attempt on the PAR practitioner's part to impose his/her way of knowing on other people, it is a recognition of the skills that each party brings to the process and a welcomed transference of skills may be one manner in which power may be transferred. Given the reciprocal nature of PAR, the practitioner should be willing to learn the skills of others as well.

These basic tenets are the foundation for two goals of most PAR practitioners—empowerment and social change.

Empowerment

Proponents of PAR work with oppressed people to jointly assessing specific oppressive social relationships and the dynamics between bodies of knowledge. Simply put, PAR focuses on power relations (Cancian and Armstead 1990; Maguire 1987). As previously stated, this has implications for relations between PAR practitioners and participants. More importantly, however, PAR focuses on the power relations that exist in society that lead to oppression of the majority by the minority. PAR practitioners intend to provide the oppressed with leverage to change these relationships (Fals-Borda and Rahman 1991; Hall 1992).

As with most applied research endeavors, PAR operates mainly at the level of generating information that can be used to develop solutions to practical problems. In the face of adversity, the action of gathering knowledge is an empowering first step. It is also democratizing in the sense that it proves that all people can partake in this process as legitimate participants.

PAR also operates at the level of articulation between bodies of knowledge. In a world transformed by science and technology, the knowledge of the oppressed has widely been to designated as inferior and excluded from what is considered the realm of legitimate, verifiable knowledge. It is an objective of PAR to contribute to the restoration of the status of popular knowledge in a very practical sense (Fals-Borda and Rahman 1991; Cancian and Armstead 1990; Maguire 1987).

Social Change

While the linkage of research and action is agreed upon by PAR practitioners, the form that this action takes is not generally agreed upon. Cancian and Armstead (1987) relate political action to PAR in their overview of the method, however they clearly state that only some practitioners believe that it is necessary to challenge the existing power structure to address oppression. Other practitioners are quite clear in their assertion that PAR should lead to changes in the fundamental conditions of society (Vio Grossi 1981). The purpose of this type of research "is not merely to describe and interpret social reality, but to radically change it" (Maguire 1987:28).

Conclusion:

The Pearl Lagoon case is one in which the normal antagonistic relation between colonial powers and common-property regimes is not obvious. However, the articulation of Pearl Lagoon with the global economy is, undoubtedly, beginning to show the effects documented by Kottak (1992) in a Brazilian coastal community of: breakdown in cooperative agreements, resource sharing, barter exchange. This articulation, based on neo-liberal economic policies, will probably negatively influence collectively-based patterns of resource management. A countervailing influence has been the PAR process that Pearl Lagoon communities have been engaged in. The creation of a body of shared information on resource management issues and tangible actions are a valuable first step towards maintaining and building upon extant regimes and aspirations of community members. PAR also provides the academic researcher with a research methodology to mutually define research goals with community members—a process that can result in improved understanding of how biological and social mechanisms influence resource management regimes, while supporting common property regimes.

Literature Cited:

Barbee, S. 1997. Women as agriculture producers in the Pearl Lagoon. *Wani* No. 22. pp. 6-22.

Burkey, S. 1993. People First, a Guide to Self-Reliant, *Participatory Rural Development*. London: London: Zed Books .

Cancian, F.M. and C. Armstead 1990. *Participatory Research: an Introduction*. Unpublished document. University of California-Irvine.

Cattle, D. J. 1976. Dietary Diversity and Nutritional Security in a Coastal Miskito Indian Village, Eastern Nicaragua. in Mary W. Helms and Franklin O. Loveland ed. *Frontier Adaptations in Lower Central America*. Philadelphia: Institute for the study of Human Issues: 117-130.

Christie, P. in preparation. *The viability of PAR as practiced to encourage coastal management in Pearl Lagoon, Nicaragua*. Ph.D. dissertation. University of Michigan. Ann Arbor.

Christie, P. and A.T. White 1997. Trends in development of coastal area management in tropical countries: from central to community orientation. *Coastal Management* 25:155-181.

Christie, P. and R. Rigby, 1996. An Introduction to The Natural History of Pearl Lagoon. English Draft of Article Found in *Wani* No. 20.

Cooke N. Trans. *Autonomy Statute For the Regions of the Atlantic Coast Of Nicaragua: Law No. 28* 1997. Oficina De Desarrollo De La Autonomia de la Costa Atlantica, Serie Documentos No. 4

Fals-Borda, O. and R.A. Rahman 1991. *Action and Knowledge, Breaking the Monopoly with Participatory Action-Research*. New York: Apex Press.

Ferrer, E.M., L. Polotan de la Cruz and M.A. Domingo (Eds.) 1996. *Seeds of Hope*. College of Social Work and Community Development. Manila. Philippines: University of the Philippines.

Freire, P. 1993. *Pedagogy of the Oppressed*. Second Edition. New York: Continuum Publishing Co.

Freire, P. 1992. *Education for Critical Consciousness*. Second Edition. New York: Continuum Publishing Co. .

Hall, B.L. 1992. From margins to center? The development and purpose of participatory research. *American Sociologist* 23(4):15-28.

Hale, C. R. 1994. *Resistance and Contradiction: Miskitu Indians and the Nicaraguan State, 1984-1987*. Stanford: Stanford University Press.

Hale, C. R. and Edmundo T. Gordon 1987. Costeno Demography: Historical and Contemporary Demography of Nicaragua's Atlantic Coast in CIDCA / Development study Unit ed. *Ethnic Groups & the Nation State: The Case of the Atlantic Coast of Nicaragua*. Stockholm: University of Stockholm: 7-32.

Hall, B. 1982. Breaking the monopoly of knowledge: research methods, participation and development. In *Creating Knowledge: A Monopoly? Participatory Research in Development*. Hall, B., A. Gillette and R. Tandon (Eds.). New Delhi: Society for Participatory Research in Asia. 13-26.

Helms, M. W. 1971. *Asang: Adaptations to Cultural Contact in a Miskito Community*. Gainesville FL: University of Florida Press.

Helms, M. W. 1969. Purchase society : Adaptation to economic frontiers. *Anthropological Quarterly*. 42:4: 325-42

Howard, S. M. 1993. *Ethnicity, Autonomy, Land and Development: The Miskitu of Nicaragua's Northern Atlantic Coast*. Doctoral Thesis University of Oxford.

Jamieson, M. A 1995. *Kinship and Gender as Political Process among the Miskitu Eastern Nicaragua*. Ph.D. dissertation London School of Economics.

Johannes, R.E. 1993. The plight of the osfish, or why quantitative sophistication is no substitute for asking the right questions. *Naga*. 16(1):4-5.

Johannes R.E. 1981. *Words of the Lagoon: Fishing and Marine Lore in the Palau District of Micronesia*. Berkeley: University of California Press.

Kottak, C.P. 1992. *Assault on Paradise, Social Change in a Brazilian Village*. New York: McGraw-Hill.

Lather, P. 1986. Research as praxis. *Harvard Educational Review*. 56(3): 257-277.

Macdonald, T. 1988. The Moral Economy of the Miskito Indians: Local Roots of Geopolitical Conflict in Remo Guidieri, Pellizzi and Tambiah ed. *Ethnicities and Nations: Processes of Interethnic Relations in Latin America, Southeast Asia, and the Pacific*. Austin: University of Texas Press: 107-153.

Maguire, P. 1987. *Doing Participatory Research: A Feminist Approach*. Center for International education. Amherst, MA.: University of Massachusetts.

Mijeski, K. J. ed. 1991. *The Nicaraguan Constitution of 1987*. Athens Ohio: Ohio University Monographs in International Studies Latin American Series, No. 17

Nietschmann, B. 1973. *Between Land and Water: The Subsistence Ecology of the Miskito Indians, Eastern Nicaragua*. New York: Seminar Press,

Pomeroy, R.S. (edit.) 1994. *Community Management and Common Property of Coastal Fisheries in Asia and the Pacific: Concepts, Methods and Experiences*. Manila: International Center for Living Aquatic Resources Management.

Rigby, R. and P. Christie 1997. The coastal area monitoring project at Pearl Lagoon, Nicaragua. *Intercoast Network* Special Edition #1. March:6.

Schurmann, S.J. and B.A Israel 1994. *Redesigning Work Systems to Reduce Stress: a Participatory Action Research Approach to Organizational Change*. Unpublished manuscript. Rutgers University.

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