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**POLITICAL ECOLOGY AS ETHNOGRAPHY:
THE CASE OF ECUADOR'S AGUARICO
RIVER BASIN
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Paul E. Little
University of Brasilia

Introduction

Political ecology research has become an important subfield of study in anthropology during the past fifteen years. This research combines human ecology's focus on the multiplicity of relationships that human societies maintain with their respective biophysical environments with that of political economy in which the power relationships between social actors and societies are of prime concern (see Sheridan 1988; Stonich 1993; Little 1999). An anthropological dimension is introduced by looking at the culturally specific ways that both these types of relationships are shaped through historical processes of biophysical adaptation and political struggle. As a result, much political ecology research deals with struggles over natural resources and human territories whereby diverse social groups, often holding widely diverse adaptational forms, enter into dynamic, often conflictive, interaction with each other and with their biophysical environments.

In this paper¹ I look at some of the methodological and political challenges and implications of political ecology research as they are revealed through the diverse environmental conflicts of the Aguarico River Basin in Ecuadorian Amazonia. The key questions that orient this effort are: first, how can anthropology as a discipline approach situations of conflict over natural resources and territories? and second, how should anthropologists as situated individuals deal with these situations? Though the answer to the first question will be primarily methodological and the second primarily political, the two realms, as we shall see, are inexorably intertwined.

Three Basic Approaches to Researching Environmental Conflict

At least three basic approaches for dealing academically with situations of environmental conflict can be identified: advocacy anthropology; stakeholder approaches; and ethnography. In advocacy anthropology the investigator usually takes an active, often militant, role in the defense of the rights of a particular social group (Paine 1985; Wright 1988). In the related field of action research, the anthropologist places him/herself at the disposition of the group being studied in an effort to further its specific political goals (Lurie 1999). These efforts offer a powerful new paradigm for anthropological research, particularly in the face of situations of ethnocide or even genocide. Indigenous peoples in the Americas, for example, are currently facing, and have long faced, acute external socio-political forces that have decimated their numbers, unilaterally expropriated their lands and prevented them from exercising their cultural rights (Maybury-Lewis 1985). An anthropologist who works with these groups often assumes, as an integral part of his/her work, a host of responsibilities and obligations involving the active defense of the group and its rights, whether this be as a political lobbyist, a witness in court (Clifford 1988) or a translator in conflictive

¹ An earlier version of this paper was presented at the 1999 Society for Applied Anthropology Annual Meeting held in April in Tucson, Arizona, at the session entitled "The Politics of Amazonian Political Ecology Research."

situations (Albert 1994). Ramos (1990) shows how, among Brazilian indigenist anthropologists, the role of advocacy is often mixed with ethnographic concerns to generate a specific “style” of ethnology.

In spite of the important role of advocacy anthropology and action research in anthropology today, these approaches present limitations regarding the generation of broad-based knowledge. A first limitation is that by offering and promoting the point of view of a particular (usually subaltern) group, other points of view present in the conflict occupy a place of secondary importance or are simply ignored. A second limitation is that in dealing with conflict from the point of view of the victimized population a clear dichotomy is established between this population and their victimizers, in what often becomes a case of the “good guys” versus the “bad guys.” A dichotomized ethnography will have difficulty in revealing the complexity of all the interests and forces at play in a particular situation because at least one of the groups will be portrayed as the “enemy.” In Amazonian situations, this problem is highlighted as certain social groups commonly seen as being the “bad guys” are being studied ethnographically – including such groups as gold miners (Cleary 1990), colonists (Moran 1981; Lisansky 1990) and oil workers (Little 1992). These studies are revealing that each of these social groups can have their sources of legitimacy and can even produce advocacy positions by anthropologists, thus placing anthropologists in opposing militancies.

Stakeholder approaches to environmental conflict have emerged in recent years and have been promoted primarily by environmentalists and foresters interested in resolving conflicts so as to reduce the amount of deforestation and other environmentally destructive activities (see Brown and Wyckoff-Baird 1992). In Latin American, alternative methods of conflict resolution based upon “consensus-building strategies or collaborative problem-solving” have been introduced as a possible way out of the impasses that emerge in conflictive situations. Using the methods of conciliation, negotiation, and mediation, “dispute resolution in Latin America may be more usefully thought of as strategies for productively managing, rather than resolving, disputes” (Penzich et al. 1994: 21, 23). In this approach, researchers tend to adopt a pragmatic attitude to conflict in which the top priority becomes either the resolution of conflicts or the management of disputes.

Stakeholder approaches, however, also present certain limitations for the generation of anthropological knowledge. First, they tend to level the social actors involved to the same plane such that all actors are considered to have an equal and/or symmetrical stake in the conflict, a situation that is rarely the case, particularly when indigenous peoples or other subaltern groups are involved. The differentials in power and in rights must be included in any understanding of the conflict situation whereby some social actors may be revealed to have a presence but not a valid stake in the conflict. Second, in order to be successful, stakeholder approaches require that all major social actors wield citizenship rights within a broader political space that treats them as legitimate actors. These basic requirements are often not in force in disputes over natural resources in remote areas of developing countries where the local (often indigenous) population does not enjoy basic citizenship rights. Third, stakeholder approaches are not ideologically innocuous but have emerged out of a legal movement within the United States based upon an underlying “ideology of harmony” which Nader (1996) characterizes as a “coercive harmony whose principal function is pacification” (p.55). She considers this movement to be “part of a system of hegemonic control

spreading over the world together with political colonization and Christian missions” (p.47).

Political ecology ethnography, a third approach to researching environmental conflicts, will occupy the remainder of this paper and is offered not as the alternative to advocacy or stakeholder approaches, but as a complement to them. One can reasonably ask whether ethnography is relevant to such situations, or merely represents an intrusion of “ivory tower” academia into difficult, real-life problems. If ethnography is deemed to be relevant, as I propose it is, a second issue arises: that of determining its purposes and functions, not only concerning anthropological knowledge in general but also regarding the conflicts under study. By opting for an ethnographic approach, in lieu of either an advocacy or stakeholder one, academic concerns – i.e. the generation of social scientific knowledge – are given priority. The prioritizing of academic concerns, however, does not eliminate political considerations, but only changes their nature.

The ethnography of situations of environmental conflict should not be conceived as seeking a return to a notion of “objective” social scientific knowledge whereby the ethnographer is located somewhere above the fray and presents a seemingly impartial view. Rather s/he is an engaged social actor with a special set of analytic and communicative tools that, when incisively applied, have the possibility of generating critical knowledge that incorporates multiple points of view. The selection for study of contemporary struggles over land and resources, for example, represents a political decision in and of itself and has the direct effect of turning an explicitly social problem into an academic one as well with possible synergetic effects. By exploring the conceptual implications of specific social problems, anthropological research can not only contribute to the political understanding of these problems but can also bring new social actors into the political purview and establish new concepts that reveal power connections across social and natural scales. These concepts, in turn, have the potential for being politically appropriated by these very actors, can generate a questioning of long-held public policies and offer possible new avenues of action.

Political ecology ethnography differs in key respects from traditional ethnography. First, the focus of the ethnography is not on the description of the lifeways of a particular culture, but has as its principal object of study environmental conflicts and their multiple social and natural interrelations. Second, it does not focus upon a single social group or culture, but rather must deal simultaneously with multiple groups. Third, the geographic scope is rarely limited to the local affairs of social groups but invariably incorporates various levels of social scale. Finally, while traditional ethnographies usually dedicated a chapter to the natural habitat of the group under study, in political ecology research the biophysical environment becomes a crucial element in virtually all aspects of the conflicts under study and therefore requires that special attention be given to this environment, its natural dynamics and the relationships it maintains with social groups.

In the following sections I outline some of the key elements of a multi-actor, fractal ethnographic approach to environmental conflicts as a particular contribution that anthropology can make to this field of study and these types of problems. These issues will be examined in light of the disputes over lands and resources in the Aguarico River Basin in Ecuadorian Amazonia which has been the site of on-going research by the author (Little 1992; 1993; 1996).

Multi-actor Ethnography

One of the first tasks the ethnographer confronts is the necessity of identifying the different social actors involved in these disputes, an often difficult task given the large number of groups and interests involved and the complex histories that each of these groups bring with them. In a multi-actor ethnographic approach, a minimal ethnographic presentation of all the major on-site social actors in the conflict is required as well as those “phantasmagoric” social actors who are not present at the local site of conflict but who exert influence from a distance (Giddens 1990). This, in turn, requires access to the varied social groups (i.e. the “good guys” as well as the “bad guys”) by the ethnographer, the establishment of rapport with these groups and, finally, a certain level of empathy for them by the ethnographer, since it is extremely difficult to write good ethnography of groups that one despises.

None of these ethnographic incursions will resemble “complete” ethnographies (if such a thing is indeed possible) since one needs to dedicate a type of “equal ethnographic time” to the main social groups, thus reducing the depth of each of the accounts. Once again, the goal is not descriptive ethnography per se but rather the realization of a study that focuses upon specific conflicts and interrelations. In developing this focus, one task that invariably emerges is that of delineating the underlying claims to resources and territory by each of these groups and then analyzing how they are promoted and defended within the broader political arena so as to reveal the competing discourses of cultural and political legitimacy that each of the social groups maintains. Furthermore, since these claims can be both explicit and implicit, the anthropologist can best uncover them through participant observation (or observant participation as Turner [1991] and Albert [1997] suggest). Only when these claims are identified and the basis of their internal and external legitimacy examined, can the “stakes” that are involved be established. In other words, while stakeholder approaches take the stakes as a given, an ethnographic approach requires that all of the stakes first be identified and analyzed through on-site study.

This takes us to the case at hand: the Aguarico River Basin located in northeastern Ecuador along its Amazonian borders with Colombia (to the north) and Peru (to the east). The Aguarico River is located between the larger and more heavily-trafficked Napo River to the south, into which it flows, and the Putumayo River to the north. When compared with these larger river systems, the densely forested Aguarico watershed has for centuries been much more removed from the expansive forces of the dominant society and until the 1970s no roads connected it with the rest of Ecuador or any of the nearby countries. This situation proved to be advantageous for the Cofán, Siona-Secoya, Tetete and Quichua indigenous peoples who inhabited this basin and who moved freely about it via river travel and by foot.

With the discovery of large underground oil deposits in 1967 and the subsequent industrial exploitation of these deposits, the Aguarico River basin was irrevocably transformed through the opening up of seismic trails, the drilling of wells, the construction of roads, airports and pipelines, the installation of a gas refinery and the sprouting and growth of towns and cities. In the span of less than a decade, oil became Ecuador’s primary export earner, the foundation for national industrial development and the spur to relentless urban growth, particularly of the cities of Quito and Guayaquil.

The construction of new roads within the Aguarico basin and their connection with Quito in 1971, spawned a massive wave of agricultural colonization by small scale farmers from the Andean highlands and the Pacific coastal plains. These farmers were being pushed off their lands due to acute pressures of land parcelization and

environmental crises, most notably an extended drought in the highlands province of Loja and accelerated desertification in the coastal province of Manabí. Throughout the 1970s colonists swarmed into the region and squatted on 50-hectare plots of lands located between the widely dispersed oil wells. Here they began the arduous process of establishing small farms based in the planting of coffee (and later rice) and the raising of cattle to be sold on the market so as to generate cash income. During the 1980s, a new wave of colonization swept into the region following the opening of new oil roads ever deeper into the jungle. In establishing their farms, much of the forest was cut down, which gave the upper Aguarico watershed one of the highest rates of deforestation in Latin America during the 1970s and 1980s (Toro 1991). Many colonists also worked as low-wage laborers with the oil companies during the first years after their arrival to Amazonia in order to gain subsistence income.

During the 1970s, environmentalist forces also gained strength in Ecuador and by the end of that decade a major effort was undertaken to establish new protected areas throughout the country, particularly in the Amazonian rainforest. One result of these efforts was the establishment of the Cuyabeno Wildlife Production Reserve in 1979 that encompassed the entire watershed of the Cuyabeno River, the largest tributary to the Aguarico River. In 1991 this Reserve was expanded to include the entire lower portion of the Aguarico River basin and nearly tripled in size to 655,781 hectares (Coello 1991).² By this time, the Cuyabeno and Aguarico Rivers had become important sites of the rainforest tourist trade and numerous tourism companies, both large and small, had set up operations in the region.

All of the above-mentioned activities occurred on lands that had long been inhabited and used by the indigenous peoples of the region and represented a massive invasion of their homelands, produced extremely adverse social impacts and destroyed large portions of the biophysical environment from which they gained their sustenance. One tragic result was the push into extinction of the Tetete people, a small indigenous group which in the mid-sixties was believed to have approximately 25 members and which, after a decade of oil development on their lands, was believed to have been wiped out by disease, contamination and/or hunger. The Cofán indigenous community located at Dureno, just a few kilometers from the site of the first oil well and the boom town of Lago Agrio, also suffered heavily during those first years as their hunting and fishing grounds were deforested and contaminated and their lands invaded by oil workers and colonists. By the 1990s, the Siona-Secoya and Quichua communities had also been adversely affected by both oil and colonist activities.

In the 1990s, all of these social groups were involved in a series of complex and seemingly intractable struggles for the control of the Aguarico watershed and its resources. From an advocacy perspective, the choice for anthropologists is clear: the rights of indigenous peoples to their lands must be strengthened and defended from encroachment by the oil companies and the colonists. From a stakeholder approach, all the actors would be encouraged to sit down at the negotiating table to find a solution satisfactory to all. From an ethnographic perspective, the claims of each of the social groups to the resources and lands they are using must first be identified and described. In the following presentation of the Aguarico region, only a few of these claims will be dealt with as part of an effort to highlight some of the difficult methodological and political issues that emerge when researching them.³

² The Reserve was cut in size to 603,781 hectares in 1993 as a result of the removal of its most heavily colonized areas located at the western end of the Reserve.

³ A more extensive treatment of these varied claims is found in Little, 1996.

Perhaps the most problematic social group that the ethnographer must confront is that of the oil industry. From an indigenous peoples' perspective, this industry is the principal victimizer of their rights due both to its leading role in opening up the area to outside forces and its incessant contamination of rainforest lands and waters (Kimerling 1991; Acción Ecológica 1993; 1994). How should the oil industry be ethnographically represented by an anthropologist who is aware of this situation? What other perspectives (in addition to indigenous ones) need to be incorporated in order to understand the activities of the oil industry? Does the oil industry have legitimate claims to the lands it is exploiting?

The ethnographer interested in understanding the environmental conflicts in the Aguarico basin must at least be willing to entertain the possibility an affirmative response to this last question. In viewing the oil industry as a social actor, its component parts must be delineated. In a previous work (Little 1992), four social tiers of the oil industry were identified: (1) the highest and smallest tier – whose members rarely visit the actual sites of operation in Amazonia but wield significant decision-making power over the industry and its operations – is comprised of important government officials (e.g. Ecuador's President, the Minister of Energy and Mines), high-ranking military officials, top administrative officers of Petroecuador, the state-owned and run oil company responsible for most of the oil pumped out of Ecuadorian Amazonia, and nationally-based managers of transnational petroleum firms working in Ecuador; (2) a tier of engineers, technicians, geologists and other highly-qualified, full-time workers in the oil industry which comprises approximately 25% of the total industry workforce and is the only segment that is unionized; (3) a tier of subcontracted personnel that works under temporary contracts and performs a host of non-strategic tasks such as accounting, secretarial work, groundskeeping, equipment maintenance, etc.; and (4) a tier of day workers and other manual laborers mostly comprised of local colonists who perform such tasks as road building, cleanup of oil spills, minor construction, etc. Members of the top two tiers hold strong views about the importance of Petroecuador in furthering national development, a position rarely found in the bottom two tiers which live in Amazonia where they are exposed to the environmental hazards that the industry generates and which comprise up to 75% of the total workforce. Nonetheless, all four tiers are united in their involvement in oil production activities and tend to see it as a positive economic force in their lives.

In addition to its employment function for these workers, the oil industry in Ecuador fulfills important functions in the national economy: it supplies the nation with all of its gas and petroleum needs and is its principal source of export income. These functions affect millions of Ecuadorians located far from the Aguarico oil fields but who claim to have a stake in them. One of the most volatile issues in the country, and one capable of mobilizing thousands of urban Ecuadorians, is a rise in the price of gasoline and bus prices. For years these prices have remained relatively low (by international standards) due to the existence of nationally produced oil (over 60% of Ecuadorian petroleum and gas is consumed nationally, with the remainder being exported). As long as the nation has its own supply of oil and gas, these prices can remain relatively low. But when the reserves started running low in the mid-1980s, the government opened up the search for new reserves in other areas of Amazonia to multinational firms, which has greatly expanded the scope of social and biophysical impacts. The other option available is that of importing oil and gas at world market prices, not a readily available option given the near total collapse of the national financial system in 1999. Thus, this latent, yet potentially explosive public, one that

deposed a president in 1997 and brought the nation to a standstill in a nationwide strike in 1999, to just name two recent examples, represents one of the phantasmagoric social actors that need to be taken into consideration when the legitimacy of the claims of Petroecuador to Aguarico's oil fields are analyzed.

In ethnographically presenting the colonists, several contradictory issues arise. On the one hand, this group is a victimizer since they are invaders of indigenous lands and a principal source of deforestation in the Aguarico Basin. On the other hand, they are a marginal, extremely-poor element of the nation's economy and suffer from the environmental degradation of the region where they live. Most colonists came to the region looking for a better life, but are also proud of what they consider to be their role in expanding the agricultural frontier of the country and "developing" the jungle. Aguarico colonists are among the hardest working people in the country, often working at full-time jobs in the oil wells during the day and then tending to their farms in the early morning hours, evenings and weekends. At the same time, a small group of land speculators among the colonists are making good profits off their fellow colonists' squatting activities. Any anthropologist who lives and works with the colonists would have difficulty in dismissing the very real concerns and issues they face. Indeed, anthropologists and non-governmental organizations that work with these people have developed an advocacy approach in defending their rights and interests (see FEPP 1991; Garcés 1994).

The establishment of the Cuyabeno Wildlife Production Reserve introduced new social actors into the Aguarico region who promote a distinct set of territorial and resource claims. Among the social actors who give support to this protected area one can mention: (1) the functionaries who work within the parks and natural resource departments of the national government bureaucracy; (2) the scientists involved in studies of the identification of the area, the valuation of its biophysical assets and the research and writing of a management plan as well as direct scientific research in the Reserve after its creation; and (3) the conservationists who provide technical support and political legitimization for the nation's protected areas policy. While none of these people live permanently within these protected areas (with the exception of park rangers), these phantasmagoric social actors have promoted their own set of claims aimed at giving the Reserve social and political legitimacy.

The human definition and valuation of wilderness areas as being in special need of protection has long been an important claim for justifying the establishment of protected areas (Oelschlaeger 1991). More recently, the notions of protecting and/or managing endangered species, areas of great natural beauty, regions of high species endemism or representative samples of distinct ecosystems were used to support the expansion of the Cuyabeno Reserve in 1991 (MAG 1993). A temporal dimension is also introduced in the social legitimization of the Reserve through the argument that this natural area needs to be preserved for future generations (of humans) and for the general (natural) benefit of the planet. In addition, by the end of the 1980s, the worldwide concern over deforestation of the world's rainforests served to strengthen the position of those groups involved in the establishment, maintenance and defense of Amazonian protected areas.

The tourism industry is yet another social actor that has recently entered into the conflictive Aguarico environmental equation. They have a physical presence in the form of tourist installations and cruise boats (most notably the Flotel Orellana of Metropolitan Touring, Ecuador's largest tourism company); a social presence in the form of the numerous tours that involve tourists and their nature guides, interpreters,

boat operators, cooks, etc.; and an economic presence as part of a powerful tourism industry that is well connected to the sources of national political power. Many of the tourism companies have entered into contractual relationships with indigenous communities whereby members of the community are hired in exchange for visits to indigenous areas, arrangements which in some cases are causing significant social impacts on these societies as they modify their lifeways so as to meet the demands of the industry and the tastes of the tourists (Little 1992:121-141).

The indigenous peoples of the Aguarico region are, of course, one of the principal social groups involved in these environmental conflicts and hold a special set of territorial and resource claims. Though these peoples have been the best documented of all the social groups of the region by anthropologists⁴ and journalists,⁵ in order to maintain a consistent political ecology focus they must also be analyzed within the framework of their conflictive relationships with other social actors and their biophysical environment. What is unique about indigenous claims to territories and resources, when compared with those of the oil industry, the colonists, the environmentalists and the tourism industry, is the historical depth of these claims, often going back centuries, providing them with specific legitimacy centered around the notions of aboriginality and autochthony. In addition, indigenous peoples have rights that emanate from their position as distinct ethnic peoples, rights which have only recently become recognized in international law and are slowly gaining recognition within Ecuadorian law (ILO 1989; Van Cott 1994).

Yet in the Aguarico region, indigenous peoples can not simply be considered as a single social group with uniform claims since ethnic differences and divergent interests need to be analyzed. The territorial expansion over the past century of the large Amazonian Quichua people (60,000 members) has created ethnic tension with the much smaller Cofán (800 members) and Siona-Secoya (550 members) peoples (Ruiz 1991). These last two groups maintain historical claims to lands in the Aguarico River Basin that predate the entry of the Quichua by several centuries, a fact not recognized by the national government which classifies them all as simply "Indians." The extremely small populations of the Cofán and Siona-Secoya peoples create an additional issue concerning the specter of their extinction as a people, an issue not faced by any of the other social groups of the region. These issues must also be factored into the differential analysis of the stakes and rights involved in this conflictive situation.

While the above mentioned social actors are all important for understanding the environmental conflicts of the Aguarico basin, an extended analysis of these conflicts would also need to include a host of other social actors that not only have a presence in the area but also harbor distinct social, political and land use interests. Such a list would include Christian missionaries (both Catholic and evangelical); the Ecuadorian armed forces (particularly with regard to its many bases and outposts in the area); the many primary schoolteachers who are scattered throughout towns and villages throughout the region; and the anthropologists and archeologists who work in the area and maintain direct relationships with specific social groups.

Finally, in any presentation of key social actors, the ubiquitous presence of the Ecuadorian State in the Aguarico basin needs to be mentioned. The State, however,

⁴ For the Amazonian Quichua see Whitten, 1976 and Muratorio, 1991; for the Siona-Secoya see Vickers, 1989 and Moya, 1992.

⁵ For a journalistic perspective on recent struggles of the Cofán see Tidwell, 1996; for a fictional narrative of experiences with the Secoya see Herreros, 1990.

does not operate as a single social actor but, given its fragmented character and its varied relationships with many of the social actors already presented, functions as a contradictory force that often contributes to the intensity of environmental conflicts. Hence the State agency responsible for land titling is often at odds with the agency of the same State which is charged with protecting indigenous lands. Meanwhile, the State petroleum industry, which over the past thirty years has conducted most of the development of oil in the region, is pitted against the national parks and natural resource department of the State that has as its mandate the protection of public lands and other areas of natural wealth and beauty. In short, since the State has the responsibility of representing the interests of all Ecuadorians – precisely those interests which are in conflict – the State is not best understood as either a monolithic entity nor as the only possible mediator of environmental conflicts, but rather as an integral part of these conflicts. This contradictory position does not necessarily mitigate against the development of coherent public policies, it only reveals the many difficulties of developing and implementing public policies that are satisfactory to all the social groups involved.

Fractal Power Connections

Over the past century, the various social science disciplines have carved out methodological “niches” which they have developed and expanded, though never in exclusive ways. Anthropology has specialized in local phenomena based in on-site ethnographic fieldwork in which small-scale communities and societies have been the key focus. Natural ecology also tends to be locally based in its study of specific ecosystems. As a result, the field of human ecology, which combines elements from these two disciplines, has, in general, maintained this small-scale focus. However, when the focus of study shifts to contemporary struggles over resources, such as is occurring in Amazonia, the increasing importance of other levels of articulation and analysis (Bennett 1976) and of the so-called “biosphere people” (Dasmanm 1988) require the development of new methodological tools that incorporate multiple levels.

Though all of the social groups mentioned above have a local presence in the Aguarico region, these same actors also have ties to other levels of social scale that are often manifested in places distant from the region and which can be, and are, used as a source of power to further their local interests. Through cross-level relationships, locally based groups can enlist the support of regionally, nationally or internationally-based social actors to promote their political interests through such diverse actions such as exerting political pressure, providing funding, launching a media campaign or sending in a military force. These connections are rarely neatly organized and mechanically mobilized; rather they tend to be highly volatile and irregular and vary according to the historical moment, the strength and density of the cross-level contacts and the specific issue at hand (Ribeiro and Little 1998). In addition, each of the social actors tends to have a specific level of articulation which serves as its primarily level of operation. Analyzing this level is crucial toward understanding how the social actor functions and locating its key sources of economic and political power. This primary level of articulation can then serve as the springboard from which the cross-level relationships that the social actor maintains with social actors operating at other levels, both larger and smaller, can be analyzed.

In an effort to deal with the complexity of the relationships between different levels of articulation, I use the notion of fractal scaling whereby these relationships reveal connections similar to the fractal scaling of geometric objects (Little 1996) - that

is, highly irregular, often random, patterns that nonetheless demonstrate an essential self-similarity at different levels of scale (Briggs 1992). The introduction of the fractal analogy is useful in that it moves attention away from systemic analyses in which each level would necessarily maintain a specific function within the broader system. This analogy also moves analysis beyond a Marxian social reproduction model in which actions at each lesser level are controlled and determined by the forces of a larger one.

The ethnographer of environmental conflicts has the responsibility of uncovering these fractal, cross-level connections to the degree that they enter into the local conflictive dynamic. This effort is related to what Marcus (1995) has called “multi-sited ethnography” whereby the ethnographer follows a particular social group in their manifestations at places located throughout the world. The methodological challenge for political ecology research in this realm, then, is twofold: it must be able to identify the different levels of social scale operating within its research domain and then describe the way that they interrelate with each other in the intricate process of political struggle. This represents more than just contextualizing these conflicts with a broader perspective, but rather seeks to show how these power connections are established, cultivated and used by each of the social actors in promoting their claims. Just as the stakes need to be mapped out ethnographically, so do these contingent, cross-level connections. Furthermore, social actors are capable of skipping over scales by invoking, for example, international social actors while ignoring national ones. I call these fractal power relationships since they are, on one hand, highly irregular and unpredictable, yet on the other, they seek and partially achieve the furthering of common interests of the social groups operating at differing social levels of articulation.

Fractal power connections are most clearly evident in the oil industry. The main level of political articulation and economic power is national. With the nationalization of the oil industry starting in 1972, Petroecuador became the leading economic and political force in oil development in Ecuadorian Amazonia, a force strengthened even further by the armed forces that were initially responsible for the nationalization policy. This power has other economic ties since oil exports provide a major source of oil income for the government, particularly the Ecuadorian military which has a guaranteed 30% share of oil export income. Ever since the beginning of the twentieth century when the search for Amazonian oil began, petroleum development has been seen as a national development issue that up until recently has received support from almost all Ecuadorian political parties, ranging from the far right to the far left. National sovereignty is the core political concept used to legitimize this support and invokes the claim of maintaining the ultimate power of decision making and control over all subsoil and underwater resources within national borders and territorial waters (see Kuells 1996). Though the national level of articulation is the core of the Ecuadorian oil industry, other levels are also important for understanding how the industry operates.

The Ecuadorian oil industry has extensive ties with international levels of articulation. For twenty years (1972-1992), Petroecuador was part of a consortium with Texaco Oil Company and, since the reopening of oil exploration activity in 1985, multinational oil companies have been the key force in the expansion of oil exploration and exploitation activities into areas of Ecuadorian Amazonia located outside of the Aguarico region. The national oil industry also maintains contractual relationships with multinational corporations for the leasing or purchase of equipment and technology, the training of personnel and the sale of products. And while decision making in

Petroecuador is done at a national level according to strategic national interests, the ties it maintains with world market forces may in fact be the determining factor in many of the decisions made, revealing yet another set of fractal power relations. All oil that is exported moves into the realm of the global oil economy with its own set of actors that are not controlled nationally, a fact that has become painfully evident with the extended drop in oil prices in the late 1990s to their lowest levels since the early 1970s. In spite of the importance of national and international levels of articulation, one must not forget that 75% of workers in the oil industry are regionally or locally based. In the case of the Aguarico region, this means that the interests of local workers are expressed politically and economically within Amazonia. These people interact with other locally-based social groups and are an integral part of the Aguarico ethnographic equation.

Meanwhile, the principal source of power of the Aguarico colonists is located at the regional level and is exercised politically through their demographic size. Colonists and their families are far and away the most populous group of the Sucumbíos province, a province that was created in 1989 as a means of guaranteeing more specific administrative control over what was (and still is) the primary oil producing area of the country. Here they wield significant power in elections for national deputies and provincial officials and have developed a clientelist relationship with provincial politicians that is exploited to the advantage of both groups. The colonists also have a source of power at a national level since their very presence in the Aguarico region is a direct result of the process of frontier expansion that was promoted by the national government. The goals behind the expansion into Amazonia by these social actors – the creation of so-called living (national) borders and the integration of this region into the national economy – are clearly national ones. Local levels of articulation are also important to the colonists since it is at this level that they establish their family farms according to their own adaptive strategies and personal interests. The specific way that settler communities are structured and function can perhaps be best understood by focusing upon community-level dynamics.

In turning to the environmentalist social actors of the Aguarico region, the question of scale is equally, if not more, complex since the very existence of protected areas depends upon multiple levels of social and natural articulation. The Cuyabeno Reserve functions at a local scale as a specific geographical site with precise boundaries and clearly delineated rules, all of which have direct impacts upon the Aguarico region of which it is a part. At a national level it is an integral part of the government bureaucracy formally responsible for creating and managing it. At a continental level it is part of regional policy initiatives, such as the Amazonian Treaty of Cooperation signed in 1978, that seek to harmonize preservationist public policies throughout Amazonia. At a global level it is an outgrowth of a worldwide wilderness preservationist movement that has established norms, categories and goals for protected areas that are planetary in scope (McNeeley et al. 1994). From a biophysical perspective, the Cuyabeno Reserve can be considered to be a fractal (irregular, discontinuous) part of this planetary network of protection.

The indigenous peoples of the Aguarico region are locally-based, small-scale societies that have established a relatively stable relationship with the local ecosystem that provides for their sustenance. This has allowed them to develop a long history of political and ecological autonomy in spite of numerous efforts by explorers, missionaries, ranchers, and colonial and republican governments to subjugate or eradicate them. This local autonomy is now being strengthened with the establishment

and consolidation of indigenous organizations that function at three basic levels: organizations at the level of each indigenous ethnic group; the Amazonia-wide confederation of indigenous organizations (CONFENIAE); and the national confederation of indigenous organizations (CONAIE). These organizations have gained in strength over the past two decades and staged several national uprisings (*levantamientos*) in the nineties that have provided them with a truly indigenous voice in Ecuadorian politics for the first time ever (Whitten 1992; Moreno 1996). The national level is also important for indigenous peoples in their efforts to gain formal governmental recognition for their homelands.

The cross-level connections between indigenous peoples and social actors operating at an international level are more irregular and sporadic than those at the national level, but can nonetheless wield a great deal of power. As indigenous social movements and their leaders enter into contacts and direct negotiations with multilateral funding agencies, international environmental organizations, multinational corporations and global mass media, they use these latent fractal power connections to further their struggles at a local level (cf. Conklin and Graham 1995). This is an example of fractal power in action as local social groups use irregular and historically contingent ties with diverse social actors operating at other levels of articulation in order to achieve local goals.

Natural Agency and Natural Scales

In addition to the identification and analysis of the multiple social actors and their diverse fractal power connections, political ecology ethnography must also take into account the biophysical characteristics of the lands these groups inhabit and lay claim to. The biophysical forces present, including the many natural resources sought after by social groups, are more than a mere backdrop or stage upon which the human drama unfolds. Rather, biophysical forces operate according to their own natural dynamic which constantly modifies the content of natural/cultural interrelations which undergird environmental conflicts. As many environmental historians are beginning to affirm, the depletion of resources, droughts, fires, floods, soil erosion and plagues, to name just a few examples, can be understood as a form of “agency” of the natural world which is radically different from social agency (Merchant 1989; Worster 1993; Dean 1995).

In environmental conflicts both human and natural agency must be analyzed in order to provide for a more complete rendering of the conflict. This interaction does not operate according to a one-way environmental determinism, but rather through a constant two-way interaction between human and natural agencies (Roosevelt 1991; Vayda and Walters 1999). Ethnoecological research offers an important means for understanding these dynamics by detailing the diverse forms of appropriation of biophysical elements by social groups, the varied social, spiritual and energetic relationships that this appropriation incorporates and the long-term responses of the biophysical environment to this appropriation (Nazarea 1999). The conjuncture of these natural/cultural phenomena give each claim a specific history and a unique dynamic which in turn are being analyzed within the growing field of historical ecology (Crumley 1994; Balée 1998). This combination of agencies has much to say concerning the control over the total ecological process. When natural forces are understood as a type of (non-social) agency, social concepts such as sovereignty and autonomy, for example, can be called into question. If a social group does not have the necessary power to contain or control natural forces occurring within its territory, then clearly the

sovereignty and/or autonomy of that group over that territory is limited in a fundamental way.

Furthermore, natural agency must be understood as being multiple (and not just the homogeneous agency of a generic “nature”). Ethnographic analyses are emerging which are incorporating such distinct natural agents as El Niño ocean current (Meltzoff and Lichtenszajn 1999) and hurricanes (Emanuel and Greenberg 1999) as an integral part of the human/natural dynamic. Natural agencies are also linked across the multiple scales of organism, population, habitat, ecosystem, biome, continent and planet. Thus multi-actor and multi-scalar issues (both of which are encompassed in many natural ecology studies) need to be combined with the unique set of social actors and social scales that enter into interrelation with these natural agents. Several distinct natural agents came to fore when studying the Aguarico Basin.

The large underground petroleum deposits are the result of a long term process of organic decomposition that began with the uprising of the Andes mountain range some seventy million years ago. The fact that humans have depleted well over half of these deposits (or at least those that are known to them) in the short span of thirty years has not interrupted that process. It is quite possible that in the ensuing seventy million years, when human beings may be a long-forgotten species, these deposits will be replenished through the continual action of the decomposition process.

Natural and social scalar factors also enter into the analysis of this depletion. While the oil reserves are concentrated in subterranean deposits under the Aguarico Basin, and they are pumped out of the ground by wells located throughout this regional level of social scale, the oil is not used at this level but piped over and across the eastern and western ranges of the Andes Mountains to an oil refinery located near the city of Esmeraldas on the Ecuadorian Pacific coast. After its refinement, part of this oil (or gasoline) is then fed into the national Ecuadorian energy system while the remainder is shipped through the Panama Canal to ports in the United States or Europe, thus entering the international energy system. From the geographic viewpoint of the Aguarico River watershed where the oil originated, this process is one of removal of a natural resource found there in order to attend to needs and interests operating at other social scales, though most of the physical problems associated with its removal – e.g. contamination of water and soils through oil spills and the contamination of the air through gas and oil burn-off – occur at the regional level. From a social viewpoint situated in Amazonia, this process has been referred to “development by pillage” (Little 1992). From a biophysical viewpoint situated in Amazonia, oil fields are considered to be “islands of syntropy” with the subsequent worldwide “export of entropy” (Altwater 1993) that produces biophysical impacts at other levels of natural scale. The eventual combustion of this exported gasoline in cars and factories located in cities throughout the world creates negative impacts in the form of localized city smog and contributes to global warming at a planetary level.

The enormous diversity of plants and animals in the Aguarico region is also the result of millions of years of evolutionary dynamics that has produced one of the highest indexes of vegetal and faunal diversity on the planet. Scientific debate centers upon whether these high indexes are the result of dramatic climatic changes that occurred throughout the region during the Pleistocene era (Prance 1982) or geological transformations that served to isolate species from each other (Morell 1997). This evolutionary process is continuing today, though it is being greatly modified through the destructive activities of humans such as deforestation and the contamination of the soil, water and air in this region. Some author propose that human beings are provoking

a “sixth extinction” in a sequence of five others that occurred millions of years before humans walked on the face of the earth (Leakey and Levins 1995). Meanwhile, Lovelock (1988) hints that this may be nothing more than yet another punctuated equilibrium that will be survived by the earth as a whole, though not necessarily by its human inhabitants.

Once again, natural scalar dynamics must be taken into account in order to understand the full implications of this possibility. Plant and animal biodiversity is not evenly distributed throughout the globe, but rather concentrated in localized ecosystems or biomes. Amazonia is one such biome and, within it, the specific ecosystems of the Aguarico River basin harbor some of its highest rates of biodiversity. Yet the processes of plant and animal evolution are dependent upon planetary-wide climatic and geologic processes. From a biophysical perspective, the processes of massive extinction of species can thus be highly localized in geographic scope, as is being witnessed in the case of Amazonia, but nonetheless have consequences which are continental or planetary in dimension. Furthermore, the loss of biodiversity also has social dimensions of great potential as it may diminish future human adaptive possibilities (Wilson 1988; Reid and Miller 1993).

Hydrodynamics is also an important natural agent in the environmental conflicts that the Aguarico basin is experiencing today. The river systems of the watershed are essential to the plant, animal and human life that inhabit it. On the one hand, they are intimately linked to the Andes mountain range which is the source of much of the water that flows through them. On the other hand, some rivers are blackwater systems that originate in the Amazonian lowlands and present unique biological characteristics and adaptive potential (Moran 1991). The Cuyabeno River is one such system and in the middle of its course has a unique interconnected system of lakes that is habitat to numerous endemic species of fish. The over 2200 mm of precipitation that falls on an average over the region is also an important source of water. The overall hydrodynamics of the Aguarico watershed appear to be changing, however, as evidenced in the extension of the three-month dry season in recent years and the contamination of the water system through oil spills that have caused great loss of fish and riverside plant species.

Hydrographic basins also harbor clear multi-scalar dynamics. Within Amazonia, each river system is connected to a larger one which eventually becomes part of the entire Amazon River network comprised of thousands of rivers. Hence the Cuyabeno River flows into the Aguarico River, which flows into the Napo River, which flows into the Solimões (Amazon) River. Contamination of rivers at the upper part of this network, as has occurred with regularity in the Aguarico basin, creates significant impacts on all downriver sites. This effect has political dimensions since the downriver areas pass through Peru, Colombia and Brazil. Once again, social levels of articulation cross with natural scalar dynamics in irregular ways to create unique environmental problems of a wide-ranging scope.

The Functions of Political Ecology Ethnography

Now that the principal pieces of political ecology ethnography have been presented, albeit in a cursory form, attention can be given to its academic, critical and policy functions. The principal academic function of political ecology ethnography is to provide an on-site, fine-grained reading of environmental conflicts that incorporates multiple points of view and that identifies and differentiates between the varied social and natural stakes involved. Once the principal social and natural actors are presented

and their respective cross-level dynamics analyzed, the specific interrelations, and the conflicts they harbor, can then be addressed. These interrelations, which can include open conflict, long-term or ad hoc political alliances, mutual accommodation, negotiation or complete separation, rarely follow set scripts but must be placed within their specific historical context and ethnographically documented.

In the Aguarico region perhaps the most salient development of the past two decades has been the emergence of two opposing alliances: one between the oil industry and the colonists and the other between indigenous communities, environmentalists and the tourism industry. The existence of these alliances is useful in understanding the way political and economic power is combined to promote common interests, though one should not lose sight of the many differences and opposing interests that exist within each alliance.

At the base of the oil-colonist alliance are strong economic ties whereby the colonists gain access to salaried jobs during the time that they are establishing their farms and the oil companies gain a ready supply of low-wage labor that is already living in the region. Both groups share a common interest in the construction, maintenance and expansion of roads throughout the jungle and both share a similar developmentalist ideology that promotes the opening up of the jungle to modern industrial and agricultural activities.

Tensions between these two sets of social actors have arisen over the issues of the contamination of the soil and water due (primarily) to oil spills, whose most adverse effects are felt by the colonists, and concerning the responsibility for the region's high rates of deforestation, whereby oil company executives lay principal blame on the colonists. Other tensions are also evident in issues such as wages, in which the colonists complain about their hard work for low wages but realize that they are in a weak economic situation since there are virtually no other salaried jobs available in the region.

The indigenous-environmental-tourism alliance has as its basis a common interest in protecting the rainforest from both deforestation and contamination, thus making the oil industry and the colonists common enemies. Their reasons for seeking this outcome, however, are widely divergent. The indigenous communities are interested in defending their homelands from invasion and maintaining their way of life which is based upon the direct use of the rainforest and its natural resources. The environmentalists are motivated by a strong preservationist ideology which seeks to protect the biological wealth of the region for future generations. The tourism industry is interested in protecting the rainforest as an attraction for tourists.

Significant differences exist within the three social groups of this alliance concerning just how the rainforest should be used. Indigenous communities have had numerous clashes with the conservationists in the Ecuadorian national parks department over the issue of land ownership, whereby the former seek collective title to their homelands and the latter assert that protected areas must remain under the formal control of the national government. A compromise was worked out in the case of the Cuyabeno Reserve whereby four indigenous communities located within the Reserve's boundaries were granted designated roles in protecting and managing the Reserve in direct collaboration with the national protected areas agency. Tensions also exist between the tourism companies and the indigenous communities over the sites and structure of rainforest tours and over the ways that the profits they generate should be distributed.

Delineating the consequences for and responses of the biophysical environment represents another academic function of this ethnographic approach that includes quantitative and qualitative analyses of such phenomena as the depletion of oil reserves, the destruction of habitats of specific animal populations, changes in precipitation patterns, disruption of vegetation communities, rates of soil erosion and the contamination of soil, water and air. While many of these changes are being documented by researchers in the natural sciences, anthropologists are often part of interdisciplinary research projects and are uniquely situated to delineate the social impacts of biophysical changes being documented by their natural scientific colleagues. In short, the “natural stakes” involved in environmental conflicts, along with their social implications, represent a significant academic dimension of ethnographic research.

The critical functions of political ecology ethnography emerge in several distinct areas of research. First, in presenting the social actors, care must be given in presenting the claims of each of the groups, the internal bases of their legitimacy and the wider forces that provide them with support. In many cases this requires that the neglected and the physically absent (but phantasmagorically present) social actors be given “equal ethnographic time.” This presentation requires that the positive and negative aspects of all of the social groups involved be addressed, as opposed to the common tendency of hiding the faults of one’s preferred group and accentuating the faults of opposing groups. Second, in fulfilling this function, the differential power relations need to be revealed and the existence of differing and often contradictory rights elucidated. These relations and rights then need to be placed within a broad power perspective that goes beyond a limited focus on the localized conflicts. In other words, both hegemonic and counterhegemonic discourses must be dealt with and the impact of the former on the latter critically discussed.

Perhaps one of the most compelling examples of this critical function is the force with which the notion of indigenous rights to homelands and natural resources has become a significant part of the political equation of Ecuadorian Amazonian issues. While this change is directly linked to the growing organizational power of indigenous organizations, the way in which environmentalist organizations, social activists and anthropologists have incorporated these interests into their work has certainly contributed to this change in perspective. Indeed, the first Amazonian indigenous territory formally recognized by the Ecuadorian government – the Huaorani territory – only occurred in 1990, one-hundred and sixty years after the creation of the Ecuadorian state. The presentation of the “interests” of the multiple natural agents, and the consequences of the actions of human agents on them, is still another critical dimension of this type of research and raises a host of issues concerning land use policies and territorial control.

The policy functions of political ecology ethnography are also multiple. A starting point lies in the recognition that the ethnographer is not located above the conflicts in some impartial position scientific objectivity or conflict arbitration, but is a social actor in his/her own right who, in the process of research, generates strategic information about the actors and the conflicts. Sometimes this information is gained through participation in consultancies for governmental or non-governmental agencies. The establishment of the co-managed territories within the Cuyabeno Reserve mentioned above is a case in point, since the competing claims to formal control over the Reserve between indigenous communities and the national protected areas agency

were eventually hammered out in the framework of the management plan of the Reserve in which two anthropologists had significant input in the negotiations.

In some cases, the ethnographer wields information that none of the other social actors has access to, a fact which provides him/her with a specific quota of power. How this information is used is a political decision that has significant public policy implications. The tasks of information brokerage and the (often strategic) publication of writings or recommendations turn the researcher into a direct participant in the conflictive situation. The fact that the ethnographer has gained access to and established rapport with the principal social actors also places him/her in a privileged position in the realization of negotiations or the mediation of specific conflicts. Of course, great care must be taken by the anthropologist in seeing that the information that s/he publishes is not used against the social actors from whom the information was gained. While one cannot completely control information once it has entered into the general public sphere, the power differentials evident in the situation at hand can be understood and taken into account when the issue of information brokerage arises.⁶

Still another policy implication lies in the proposal of alternative land-use activities. To the extent that ethnoecological analyses have been conducted, the anthropologist has at his/her disposal knowledge of different forms of appropriation of the biophysical environment and some of their long-term consequences based upon historical changes in the landscape. As the interest in policies of sustainable development gains force throughout Amazonia, this knowledge can be used in proposing alternative ways of using the rainforest and its resources.

In summary, political ecology ethnography represents an important tool that can be used not only to decipher complex situations of social and environmental conflict, but is essential to the development and effective implementation of public policies that take into account and differentiate between the claims of all the social groups involved in situations of dispute. In the past, applied approaches to anthropology have usually been at the service of other forces not directly related to the anthropological endeavor, such as Colonial government administration and the implementation of economic development programs (see Bennett 1996). In dealing with the issues raised in conflicts over territory and natural resources, the possibility arises of ethnography (and its practitioners) developing its own agenda, one that privileges knowledge production and dissemination in ways that take into account existing power dynamics and at the same time make academic, critical and policy contributions to the wider situation. Each of these functions has a political dimension, though these are often different from those of advocacy or stakeholder approaches. They are part of the “politics” of political ecology research.

⁶ For examples of how academic publications concerning Indians were used by non-academic social actors for promoting the rights of indigenous peoples see Ramos, 1998.

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