

**THE ORGANIZATION OF AGRICULTURAL PRODUCTION IN THE EMERGENCE  
OF CHIEFDOMS IN THE QUIJOS REGION, EASTERN ANDES OF ECUADOR**

by

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# **THE ORGANIZATION OF AGRICULTURAL PRODUCTION IN THE EMERGENCE OF CHIEFDOMS IN THE QUIJOS REGION, EASTERN ANDES OF ECUADOR**

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This dissertation examines the emergence of the ethnohistorically documented Quijos chiefdoms, in the eastern Ecuadorian Andes. It evaluates different alternatives that link the rise of centralized leadership with the organization of agricultural production. To this end I reconstructed the demographic history of a 137 km<sup>2</sup> region through a full coverage systematic survey, and the patterns of food production and consumption through the analysis of pollen, phytoliths and macroremains from the excavation of 31 tests at locations representing different environmental setting and settlement types.

Based on a ceramic chronology established for this project (through the analysis of ceramic materials from 15 test pits and associated carbon dates) I propose a sequence starting at about 600 B.C., with the first manifestations of a regional system of centralized authority appearing after about 500 A.D. The most distinctive expression of this is what appear to be central places in each one of the three subregions encompassed by the survey. The analysis of botanical remains at these locations, and at others representing smaller and peripheral settlements did not show, however, signs of economic differentiation in terms of production or consumption patterns. Thus neither the varying local environmental conditions nor social status, alone or combined, produced distinctive agrarian practices or foodways. Along the same lines, the central places do not seem to have emerged as a strategic move towards controlling agricultural resources, and evidence of staple mobilization or trade networks involving the circulation of local or foreign durable prestige goods is null. Additionally, an analysis of a sample of obsidian artifacts collected through survey and excavations suggests that closeness to source, rather than status, determined the abundance of obsidian materials, while manufacture technology seems to have been standard across settlement types.

I propose that frameworks that emphasize the control of economic resources or the importance of specialization of production in the development of complex societies are not useful for characterizing the social and political dynamics of the emerging Quijos chiefdoms, and that current understandings of this region as a hub of exchange activity can be readdressed in light of these findings.

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## PREFACE

After having to cancel my original plan to conduct my research in southwestern Colombia early in 2002 I was struggling to find a new study area where I could conduct my fieldwork while keeping as much of the project's design as possible. It was Florencio Delgado, Assistant Professor at the Universidad San Francisco de Quito, who first suggested that I work in the Quijos region of Ecuador. In February of 2002, after together visiting this and other regions of Ecuador, I decided to follow his recommendation, which proved an excellent fit for my research questions. I am foremost thankful to him for presenting this possibility to me and for helping in many aspects to setting up and running this project. His wife, Josefina Vásquez, and her family offered the warmest hospitality in Quito. The project was funded by the National Science Foundation (Dissertation Improvement Grant No.0138138) and the Wenner-Gren Foundation (Dissertation Fieldwork Grant GR-6867), both of which were generous and flexible in supporting my revised plans. The Instituto Nacional de Patrimonio Cultural de Ecuador, especially Mónica Bolaños, was kind in quickly granting me official permit to conduct this research. Local permits in the field and logistics ran smoothly thanks to the Gobierno Municipal de Quijos, its mayor, Renán Balladares, and *concejala* Hugo Jati, in Baeza. Through Hugo Jati I was able to reach out to many people that collaborated with several aspects of our stay in Baeza. The owners of farms throughout our study area deserve profuse thanks for allowing us to survey and dig on their land. Jorg Henninger of GTZ granted us excellent office and laboratory space at the quarters of the Centro de Interpretación Ambiental de Baeza. Gustavo Mosquera from the Fundación Antisana generously shared with me copies of a variety of soil and environmental studies for the region that I used for my analyses, and Alden Yépez also helped me find maps and other geological information.

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chose 15 people from the different communities that form the Unión to join the project with the genuine interest of learning about archaeology and the past of the Quijos region. This team truly committed to the project and gave to it in excess for what they received in exchange. Their very hard, consistent and meticulous work was simply admirable, and was at the core of the success of the project.

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## 1. THE ECONOMIC ORGANIZATION OF CHIEFDOMS

It can be said without risk of raising controversy that the economic organization of chiefdoms has not been one of the most studied aspects of these societies. In Welch's words, "...the current situation in anthropology is that there is some consensus about the political structure of chiefdoms but disagreement over the structure of their political economies" (Welch 1991:2). Understanding chiefdom economies (seen generally as the way in which goods are produced, distributed and consumed), was initially, and for a long time, centered on Sahlins's and Service's idea of the chief as responsible for the redistribution of subsistence resources among specialized populations inhabiting a range of environmental zones. In fact, this very condition of environmental diversity would have promoted the emergence of this form of socio-political organization (Sahlins 1958; Service 1962). The specific implications of this theory have been questioned repeatedly (Earle 1977, 1978; Peebles and Kus 1977; Feinman and Nietzel 1984). Environmental diversity is no longer considered the privileged context for the emergence of chiefdoms, nor are chiefs necessarily thought to have acted as redistributing agents to supply their population with products from diverse ecologies (Earle 1977). Redistribution disappeared from the definition of chiefdom, leaving economics open to documentation in specific cases (Welch 1991).

This research is concerned with the emergence of chiefdom societies with special emphasis on their economic organization. It investigates the case of the Quijos chiefdoms in the eastern piedmont of Ecuador based on the examination of their population patterns through time, and patterns of agricultural production and consumption during the period of chiefdom emergence. Therefore, I look at the social and environmental aspects of the agrarian economy, and their relationship to political dynamics. The study of this case aims to contribute to a pool of cases through which to compare the economic organization of developing chiefdoms.

## **ECONOMIC ORGANIZATION OF EMERGING CHIEFDOMS**

As mentioned above, a specialized economy is no longer seen as the only alternative for the economic organization of chiefdoms but the question of how exactly chiefdom economies should look after Sahlins and Service has not produced a debate comparable to the one that disproved the validity of redistribution as the essence of the economic organization of chiefdoms. In other words, the alternatives have not blossomed with the same fervor with which Sahlins' and Service's theory was questioned. The case of emerging chiefdoms is still more obscure, and debates about the economic implications of this process have often revolved around the assumption that centralized leadership comes with economic burdens that must be fulfilled by the chief's domestic circle or attached population. Given that chiefdoms worldwide emerged in the context of populations of varying sizes and distribution, in a vast range of environmental settings, and displayed variation in terms of the degree and kind of differentiation between elites and the common populace, one could expect variability in terms of their economic organization, just by estimating that the provisioning of a material basis for daily life and social and political activities would have different purposes and constraints in each case.

In fact, sequences of chiefdom development vary in terms of the ways in which different fields of economic organization such as production, exchange, specialization, intensification, control of staple production and/or long distance trade played themselves out, and in terms of their contribution to the emergence of a centralized system of authority. A few cases can be used to exemplify some aspects of this variability. Drennan and Quattrin (1995) suggest that the control of agricultural resources was not a factor in the development of chiefdoms in the Valle de la Plata in Colombia, and Jaramillo (1996) presents a parallel case regarding access to valuable goods in the same region. Kristiansen (1991, 1998) makes exactly the opposite case for Scandinavian chiefdoms, which saw an unprecedented rise in social stratification and resource control as a network of long-distance exchange developed during the Bronze Age. For the case of the chiefdoms of the Southeastern United States, Anderson (1994) sees changing climatic factors influencing crop yields connected to the fluctuating nature of political authority among the Savannah River chiefdoms; and Blitz (1993) argues that chiefly leadership in the Tombigbee region emerged, in essence, as a form of economic organization. In another case study, Earle

(2002) sees intensification and control of surplus production as the hallmark of the evolution of Hawaiian chiefdoms. This variability and its causes have not been thoroughly studied.

Characterizations of chiefdom economies have also tended to assume agricultural intensification linked to chiefdom development. At one point in time, it was even assumed that chiefdoms were by definition agricultural societies, and that the emergence of chiefly authority in conjunction with intensification of production reflected the necessity of a managerial apparatus to coordinate production activities or buffer risk (Ford 1977; Lightfoot and Feinman 1982; Peebles and Kus 1977; Roosevelt 1980; Spriggs 1986; Upham 1983). The empirical evidence documenting the existence of chiefdoms with different productive bases, such as fishing or a combination of different strategies (Ames 1995; Bender 1990), demonstrated that chiefdoms in some areas of the world did not emerge in association with the first implementations of agricultural intensification or risk minimization strategies (Netting 1990; Scarry 1986), thereby ruling out this as an accurate generalization about chiefdom economies. Netting (1990) went further to emphasize that, indeed, chiefdoms could have emerged accompanied by virtually any kind of economy, as they are in essence a political phenomenon, not an economic one. In fact, there are documented cases such as the emerging chiefdoms of the Valle de La Plata in southwestern Colombia, in which, although agriculture was an important subsistence activity, people also made considerable use of wild plants (Quattrin 2001). Finally, it was also once common to characterize productive activities in terms of agricultural technologies, as if these were a layout for social and political organization (Wittfogel's "hydraulic societies" is a fine example). Assumptions about chiefdom economies derived from ethnohistoric records are also frequent in the literature. Setting aside the obvious biases, these records are applicable for too short a time-span to be able to account for early stages of chiefdom development.

More recently, some scholars have explored variations in economic organization within specific chiefdoms (Welch 1991). The rationale is that economies in emerging complex societies may be differentiated, that more than one pattern of production and consumption could have coexisted within a chiefdom, given variations in population, environment, and social status within the same sociopolitical unit. Therefore, the economies of different sectors of the population may see themselves affected distinctively in a process towards increasing social hierarchy (e.g. Hastorf 1988). This proposition is central to this research, which seeks to

understand if and how the emergence of a social hierarchy in the Quijos region can be linked to transformations in the agrarian economy that affected specific sectors of the population or the whole. Below I review three models of chiefdom economy from which the specific research questions were extracted.

### *Control of a population's resources*

This is one of the most popular approaches to the economy of complex societies. Timothy Earle, who has contributed to this view to a substantial extent (but also see Gilman [1991,1995]; Hayden [1990,1996]; Price [1982]; Steponaitis [1981]), sees economics as of paramount importance to understanding the development of complex societies (Earle 1987, 1991, 1996, 1997, 2001). In a recent synthesis of his work, Earle (2002) explains his well known assertion (that control over the economy is inevitable in the evolution of human societies) to its fullest; “I now believe that social evolution is directed by changes in the economy. Social institutions appear to be built by an emergent political economy involving complex interactions of intensification, surplus mobilization, and controlled distribution” (Earle 2002:ix). The ultimate cause of this outcome, according to Earle, is that political leadership and activities are costly and that it is the commoners' burden to finance them. Two financing alternatives are possible, staple or wealth finance, depending on whether political activities are supported directly from staple production or from the transformation of the former into wealth items (Earle 1990, 1991, 1996). The process of financing leadership, according to Earle, accounts for both the evolution and failure of societies, in terms of how far they get towards a stage in which the financing system is well set (when leaders realize their full exploitative capacity) and irreversible (when commoners have been successfully incorporated into an ideology of compliance). It is at this stage that the conversion of staple goods into wealth items flows unimpeded, and by extension, material accumulation and control. Political systems that are not based on intensification of staple production typically collapse or else fall prey to more ambitious polities (as in the Wanka case [Earle 1997]).

This view, according to Earle, is particularly relevant to those dealing with chiefdoms, precisely because this dynamic of financed leadership is, in this model, set in motion exactly at the moment of chiefdom emergence. In short, chiefdoms passed the threshold of the Domestic

Mode of Production, common in the tribal form of social organization, and adopted political economies in which leaders attempt to maximize production outside of the household sphere: “The political economy is the material flows of goods and labor through a society, channeled to create wealth and to finance institutions of rule” (Earle 2002:1). These political economies are inherently competitive and tend to compound because more is always better “(more resources = more power)” (Earle 2002:9). From this perspective, chiefdoms vary in terms of how much they presage the state (as Earle sees it), which is, the extent to which leaders can extract resources from their populations. However, the success of a chiefdom along this path is ultimately contingent upon the environment: “the local ecology, its potential for long-term intensification, and the ability to control surplus production from the subsistence economy” (Earle 2002:18) limit or encourage political development.

Other discussions about the emergence of leadership in complex societies also emphasize the primacy of economic factors. According to these, leaders tend to come from economically dominant groups that have the capacity to attract followers through resource displays in acts of factional competition (Brumfiel 1994), competitive feasting (Hayden 1996; Hayden and Gargett 1990), or through trade control—as in the Olmec case according to Clark (1994).

This research aims to contribute to understanding the development of social hierarchy in the Quijos region, and a main goal is to evaluate the extent to which economic control was linked to its emergence. The notion of control over surplus production is particularly relevant to this study, since it has been argued to be an important dynamic in some chiefdoms in Northern South America (Athens 1980; Gassón 1998; Spencer et al. 1994; Stemper 1993). This argument is usually made for regions where people built conspicuous agricultural landscapes, raised fields for the most part, yet there is no complete agreement that these agricultural systems were controlled by political leaders (Mathewson 1987; Muse 1991), or that the manipulation of agricultural production generates (instead of just maintain) political rank (Hastorf 1990). Outside of regions of “monumental agriculture” in Northern South America, more emphasis is put on the idea that chiefs did control agricultural surplus, particularly corn (Reichel-Dolmatoff 1960; Roosevelt 1980; Salomon 1986; Sanoja and Vargas 1978.), but also manioc (Carneiro 1983; Heckenberger 1998), or else in highlighting the importance of corn in the performance of public activities and as a marker of status (Gumerman 1994; Hastorf 1993; Super 1988), which makes it likely that this was mobilized by political centers. The control model, thus, will be

tested by evaluating the extent to which emerging elites controlled the best agricultural resources or sought to maximize or mobilize corn production.

On a more general level, this model is worth testing because of the impact it has had in the way complex societies are conceptualized. The staple-wealth finance distinction, for example, has been avidly embraced to characterize the economy of both emergent and established complex societies of all kinds in different parts of the world, and even more so ever since it was incorporated into the corporate-network approach (Blanton 1996) to characterize variations in the sources of power (Blanton 1998; Feinman 2000; Feinman et.al 1999; Earle 2001; Rosenswig 2000; Stein 1994; Trubitt 2000), making the latter indistinguishable from the sources of both social hierarchy and finance in complex societies. The influence of the control model is unquestionable, and has even reached the point where this view of the economy of chiefdoms has somehow crept into the definition of chiefdoms in the minds of some scholars, the only question being whether finance comes from one source or another (or changes through time), in a fashion similar to the former belief that redistribution was, *par excellence*, the language of economic life in chiefdoms. The recent skepticism about the chiefdom concept (largely rooted in the realization that forms of economic control seem elusive in the archaeological record of many chiefdoms, and even states, worldwide) (Crumley 1995; McIntosh 1998; Stein 1994; White 1995; Yoffee 1993), comes as no surprise.

### ***Specialization of production***

Economic efficiency resulting from specialized production, with associated forms of social interdependence, has long been linked to the origins and functioning of complex societies (e.g. Sanders and Price 1968; Sahlins 1958; Service 1962; Wattenmaker 1998), and continues to be prevalent in the literature: “Specialization is the economic essence of complex society” (Earle 1996:165). Complex societies may vary in terms of which kinds of specialization develop and what their role is, but in any case, evidence of specialization is expected in every chiefdom and state. In what Brumfiel and Earle (1987) have called the “adaptationist approach to specialization”, different sectors of a population, faced with the demands of population growth, would emphasize the production of items suited to their environments under the coordination of managerial elites. In the “political approach to specialization”, instead, specialization emerges

without association with the needs of the population at large. Concretely, it develops to facilitate the mobilization of staples and crafts required to finance the needs of an ever-growing elite and non-productive sector. Earle (1996) characterizes the Hawaiian chiefdoms and the Inka empire as examples of this phenomenon. The essential commonality between the two cases is a highly diverse environment.

The idea that environmental diversity provides a privileged scenario for the emergence of specialized economies has been extensively used for understanding the economic organization of complex societies in Andean South America. The verticality model has and continues to be used for several locations and time periods (e.g. Cárdenas and Bray 1998). As formulated by Murra (1972), this model of ecological complementarity explains the use of resources at multiple locations by emphasizing the economic self-sufficiency of political units at the expense of territorial continuity. It has been argued that a variant of Murra's archipelago model existed in the Northern Andes in the form of a system of microverticality. This system is a result of an environmental condition fundamentally different from that of the Central or *puna* Andes, that of the *páramo* Andes, in which ecological variability is present in the form of small and tight pockets of highly diverse areas due to the narrowness of the inter-Andean strip. This makes it possible for each family or village to have direct access to different ecological zones. Under this system people avoid dependence for access to basic resources, particularly food (Oberem 1974; Brush 1977).

These two models (macro-verticality and micro-verticality) would seem to establish a contrast between centralized redistribution and accumulation, and dispersed reciprocity between households. Only the former has been commonly thought to contribute to the emergence of institutionalized political offices, since centralization of the circulation of goods would provide a situation that would privilege the exercise and enhancement of authority. Recently, it has been argued that this link between political ascendance and verticality systems is the only reason why the model continues to be relevant for understanding ancient Andean societies in a way that does not contribute to essentialist ideas of *Andean* reciprocity (van Buren 1996). Yet, while kin or village-based systems of exchange of subsistence goods are less commonly seen as relevant to the understanding of political authority, it has also been argued that they can contribute to processes of political integration, even if indirectly so, since they serve to reinforce the internal ties and the sense of belonging to a wider unit that support a system of regional authority

(Sahlins 1972). Therefore, as has been argued for some Andean chiefdoms, these exchange systems can be a strong and pervasive source of political cohesion in non-strongly centralized or in heterogeneous political units (Osborn 1989; Rappaport 1988). Salomon (1986) however, argues that the authority of numerous Northern Andean chiefs rested heavily on their ability to regulate exchange (in the context of microverticality) over both medium and long distances, since no area, no matter how internally diverse, contained all of the resources necessary for the “socially accepted” lifestyle of any ethnohistorically known North Andean chiefdom. This condition created variation in terms of the structure of villages and regions, particularly when what was at play was the “socially accepted” lifestyle of elites.

Archaeological and ethnohistoric research concerned with the economies of Northern South American chiefdoms suggest that exchange, specialization and systems of economic complementarity based on ecological diversity played an important role in the organization of the Muisca and Tairona chiefdoms in northern Colombia (Cárdenas 1987; Groot 1990; Langebaek 1987, 1991, 1992, 1996; Reichel-Dolmatoff 1951), as well as in chiefdoms in southern Colombia and northern Ecuador (Bruhns 1989; Carneiro 1991; Gnecco 1996; Llanos 1993; Oberem 1974; Muse 1991; Rappaport 1988; Salazar 1992; Salomon 1986; Uribe 1985; Zeidler 1991). But in the chiefdoms of the Valle de La Plata, productive specialization does not seem to have been present in the dynamics of chiefdom emergence (Drennan and Quattrin 1995; Taft 1993; Quattrin 2001). In the latter case, archaeological evidence at the regional level indicates that neither patterns of population distribution expected under a system of productive specialization, nor actual specialization in productive patterns, accompanied the emergence of chiefdoms (Drennan and Quattrin 1995; Quattrin 2001).

There is also the notion that productive specialization does not have to be a function of environmental diversity, and that it may even take forms that have little or no relation to environmental variables. For example, among different contemporary Amazonian groups there is no necessity to exchange goods that are produced in a specialized manner (since most communities could easily be self-sufficient), but they create a demand not rooted in environmental variability, and the necessity of exchange turns out to be “artificial” from a strictly ecological perspective. In this case, the explanation for specialization relies on the cementing of alliance formation (Kimura 1985). In other cases (Earle 1996; Hastorf 1993),

environmental diversity resulted only in dietary differences across populations, regardless of the potential for vertical exploitation and exchange.

Overall, few cases possess adequate archaeological documentation to prove the existence of a system of economic complementarity and its connection to the development of political authority. More common is the use of ethnohistoric accounts in the absence of archaeological information to describe the economies of chiefdoms for diachronic sequences and to extrapolate connections between authority and specialized production. It has been taken for granted that certain locations were optimal for systems of economic complementarity, and that certain spatial distributions of communities were related to such a system of production, but actual specialization of production has seldom been shown empirically to exist. Perhaps the most problematic aspect of the empirical record in the Andes has to do with the lack of temporal depth. Only a few scholars (e.g. Stanish 1992) have questioned whether the patterns observed by the Spanish in the central and northern Andes during the 16th century had a long history or just constituted a late development, therefore hampering the value of the model for understanding socio-political change.

It is of relevance for this research then, to consider specialization of production as an alternative for understanding the relationship between economic organization and chiefdom development in the Valle de Quijos.

### ***Elite and commoner productive differentiation***

Another approach to the economy of chiefdoms emphasizes the local scale to understand decisions regarding agricultural production, without making necessary linkages between the role of economic factors (e.g. intensification) in the development of complex societies (Netting 1990). In a bottom-up view that opposes the control of resources model, commoner households are not herded by the chief to pass the threshold of the Domestic Mode of Production characterized by small household size and underproduction. Typically, chiefs are the ones that feel inclined to produce more, explaining why they often marry multiple women and have larger households. As observed in ethnographic and archaeological cases, household size and intensity or diversity of production often vary as a function of the social and political position of the household (Dillon 1985; Hayden 1986; Henderson 2003; Netting 1990; Sahlins 1972; Stone

1993; Wilk and Netting 1984), and in this sense the production of some households is affected by leadership, but not as a result of a chief imposing demands over “the people” in general. From a diachronic perspective, if the emergence of chiefdom level societies is marked by the first signs of permanent political and social differentiation, a parallel process resulting in the differentiation of the productive practices can be expected.

The investigation of productive practices across social sectors in chiefdoms though, has typically not been documented archaeologically to an extent that permits one to characterize the production practices of domestic units of different social and political status in different cases. In the case of Moundville, for which a close reconstruction of production and consumption patterns is available, the literature suggests that there was mobilization of agricultural goods from farmsteads to Moundville. However, the farmsteads that provisioned Moundville were the ones in proximity to the center, and in this sense, Moundville was not dependent on regional support for the provisioning of agricultural goods, relying instead on support from the immediate communities (Scarry 1986; Welch 1991, 1996; Welch and Scarry 1995). In this case there are two systems of production, one that is autonomous, and one that is compromised by its proximity to the chiefly center. It is not possible to compare the Moundville case to other archaeological cases of chiefdoms for which economic reconstructions do not provide this kind of detail. But this case reveals the necessity of asking and answering the question of how wide is the impact of resource mobilization, when this occurs in the context of chiefdom emergence, and whether different kinds of chiefdoms may be associated with this variation. Sahlins, for example, proposed the existence of qualitatively different chiefs in the Pacific islands, who, as far as the economy is concerned, were different in the degree to which they got directly involved in the supervision and control of production and in the degree to which they appropriated the resources of those outside of his own household (Sahlins 1958:11-12), although without suggesting that the difference is evolutionary in nature (as Earle would).

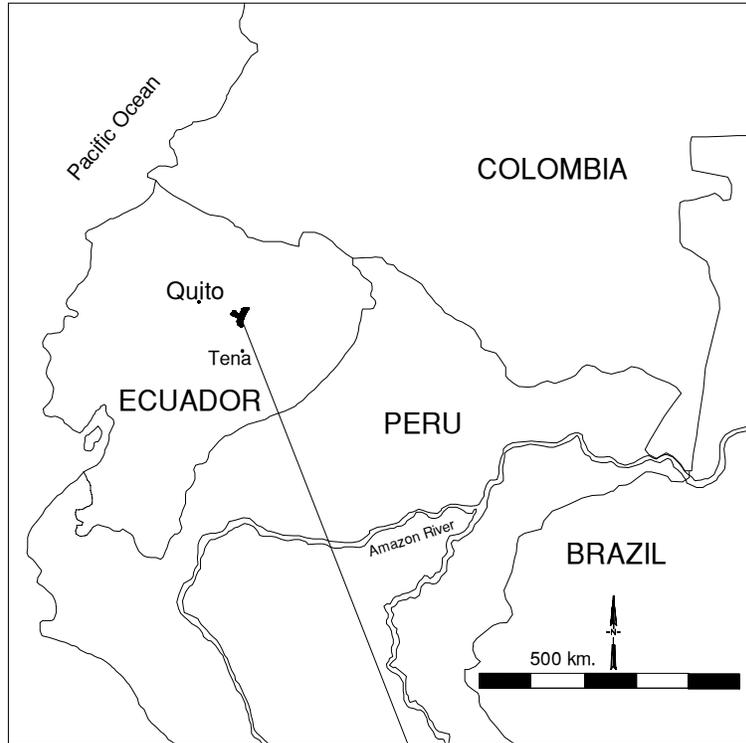
These types of differences seem to have existed among the chiefdoms of Northern South America, and were noted by the Spanish of the 16<sup>th</sup> century as they referred to the “development of division of labor” to explain how different chiefs received different amounts of contributions from either the immediate or the distant villages of the chiefdom (Langebaek 1992). For other North Andean chiefdoms, it appears that the typical form of tribute was not staple goods but labor on the chief’s corn fields, making the chiefs’ systems of production not so different from

the ones of the commoners', since the latter could also mobilize their personal networks to organize *mingas* (labor parties, also known as "beer farming"). Therefore, the way in which the chiefs' corn fields were worked was the same as the commoners', just writ large. The difference was only implied in that the chiefs' social networks were regional in scale (Salomon 1986:80-81).

Thus, in dealing with the agrarian economy of chiefdoms, one can simultaneously evaluate different models that work with similar variables, and this is what this project sets out to do. This is relevant as it has been argued long ago that production in complex societies, besides fulfilling dietary needs, is crucial in the outlining of social and political relations (Sahlins 1972). Therefore, its understanding is fundamental to addressing questions such as the rise of complexity (Hastorf 1999; Johannessen 1988, 1993; Welch and Scarry 1995). It is paramount to this kind of research to understand the interplay of environmental and socio-political variables in shaping productive patterns. While the former may set out obvious limits, the role of the latter is more complex. Household economies can be affected by the wider social and political units of which they are part, and agricultural production may be an arena of social and political competition that is transformed in the evolution of leadership (Earle 1982; Sherrat 1999); but understanding if and how this happens in specific cases can strengthen debates on the political and economic organization of chiefdoms and could potentially contribute to a better understanding of variations in chiefdom-level societies.

## **ARCHAEOLOGICAL AND ETHOHISTORIC BACKGROUND**

The case chosen to evaluate these different models that relate the emergence of chiefly authority to different systems of agricultural production is located in the eastern piedmont of Ecuador (Figure 1.1). Just as many other regions lying in between areas believed to be centers of cultural development, the Valle de Quijos is often characterized as an intermediate area between the well-known chiefdoms of the Ecuadorian Andes and the lesser known Amazonian societies.



**Figure 1.1. Location of Research Area.**

In the minds of anthropologists, archaeologists, and local intellectuals, the Quijos were privileged to have had access to a wide range of environmental diversity and to control one of the main natural passes that linked the Andes and the Amazon, and are believed to have engaged in intense trade transactions between the two main regions. In terms of cultural affiliation, the archaeology of the Eastern Piedmont of Ecuador has been incorporated into the context of Amazonian archaeology, even though geographically speaking the region is closer and more physically akin to the cold and mountainous Andes than to the warm flatlands of the Amazon.

Archaeological investigation in the region (other than contract work) begins and ends with the work of Father Pedro Porras, who in the 1960s, as a side activity to his main responsibility in the Misión Josefina, collected abundant evidence to confirm the presence of pre-conquest peoples in the region, of whom the Spanish produced a written record of acceptable detail, and claimed to have found the ruins of the old Spanish city of Baeza. Porras also wanted to solve the enigmatic presence of Panzaleo pottery (which he later named Cosanga-Píllaro) at numerous locations in the central and northern highlands of Ecuador. He had conducted excavations in Tungurahua, a province in the central highlands where this pottery is found, and suspected that the origins of Panzaleo pottery laid somewhere in the eastern flanks of the Central Cordillera, given that this was consistently more abundant in areas adjacent to the natural passages that link the Andes with the Amazon. In the preface of his most complete work on the issue, “Fase Cosanga” (1975), he stated that the finding of abundant Panzaleo ceramics in the town of Baeza confirmed his suspicions: that the origin of Panzaleo pottery was in the eastern flanks of the Andes (Porras 1975:20). He conducted several excavations in the Quijos region and provided absolute dates that gave additional support to his assertion, and argued that the spatial extent of the use of this pottery was due to forced migration that eventually pushed the inhabitants of the eastern flanks towards the highlands. The details of this work will be discussed more extensively in Appendix A.

Years later this phenomenon was given its own name, the “Panzaleo Enigma” (Bray 1995a), and continues to be one, if not the most (according to a number of Ecuadorian archaeologists), puzzling aspects of the archaeology of the country. According to Bray (1995a), the mineralogical composition of Panzaleo ceramics found at different highland locations suggests the eastern piedmont as the locus of their production (discarding the possibility that highlanders were making their own version of Panzaleo pottery). Since most ceramic forms

found in the highlands are *compoteras* (bowls with a pedestal) and jars, Bray believes that exchange between the two regions existed and that the use of Panzaleo pottery in the highlands is linked to ceremonial activities in which lowland cuisine made for an important component of feasting rituals (Bray 1995a). This, and not forced migration, as Porras proposed, would explain the distribution of Panzaleo pottery in the northern and central Ecuadorian highlands. So, this discussion has been going on for approximately thirty years, but with the exception of Porras, no one has undertaken archaeological research in the Quijos region, and no other questions have been proposed to understand the dynamics of the Quijos chiefdoms.

Most of the findings of Porras came from habitational areas visually recognizable by the presence of residential and agricultural terraces and canals, where ceramics, obsidian flakes, and hand axes and other polished stone artifacts are easily found. He conducted excavations in several locations across the region, and based on inspections and interviews with locals suggested that the territorial extent of the pre-Hispanic occupation encompassed, at the very least, the totality of the Quijos and Cosanga River drainages. He also observed numerous stone roads and sites with apparently voluminous mounds surrounded with stone stelaes. The adjectives and tone of the descriptions of these sites convey the idea of monumental constructions, yet the measurements and drawings provided indicate rather small works such as mounds that are 5 x 2 m on the sides and 30 cm high. The anthropomorphic “statues” mentioned in the text find no resemblance in the photographs included, which show stones barely carved and with hardly recognizable human features that are—to give one example—95 cm long and 26 cm wide.

Porras’ reconstruction of the history of human occupation of the region conveys a possible period of pre-ceramic occupation whose length is not known, followed by a 1,500 year period of ceramic occupation (between approximately 400 B.C and 900 A.D), and posterior abandonment of the region which resulted in migration to the higher Andean valleys where the Cosanga-Pillaro pottery is found associated with dates somewhat later than the ones he provides for the Quijos region. Why he presented the sequence and dates in this way is discussed in Appendix A, but for now suffice it to say that he argued for a situation of territorial stress, as the local population fell under the pressure of numerous Amazonian hunter-gatherer groups (Cofanes, Amaguas, Zaparos, Tucanos, etc.) eager to appropriate the abundant game resources of the region (Porras 1975:154). Porras’ developmental trajectory though (ending about six

hundred years before the conquest) does not account for the apparently large population that the Spanish found in the Quijos region, which had initially inspired him to search for the ruins of the old Spanish city of Baeza.

As far as early Spanish sources, the first known documents to mention Quijos chiefdoms date to 1535, which coincides with the founding of the *Gobernación de Los Quijos*. The limits of the *Gobernación* corresponded to the extent of pre-Hispanic occupation, which supposedly covered all of the eastern flanks of the *Cordillera Blanca* between the Oyacachi and Napo rivers and a portion of the upper Ecuadorian Amazon. It is difficult to know from these accounts whether the region that fell under the *Gobernación* was in the beginning culturally, ethnically, or politically unified.

Oberem (1980:40-49) and Newson (1993, 1996) exhaustively discuss demographic data provided by the Spanish using different approaches to estimate the size and distribution of population in the *Gobernación*. The one thing that consistently appears, independently of which demographic estimate is used, is that the Quijos were the most populated chiefdoms, and references regarding political structure invariably place them as the most consolidated political unit of the region as well. This supposedly accounts for why the Spanish chose to name the new colonial territory as *Gobernación de Los Quijos*. The most influential of the Quijos chiefs was said to live somewhere along the Cosanga River, or close to the Spanish city of Baeza, and other minor chiefs were said to be subject to him, but this aspect of the ethnohistoric sources is very confusing. The emphasis is sometimes placed on the role of chiefs in times of war, or as both political and religious leaders, or in the organization of production and maintenance of a trade network. The principal chief is generally portrayed as a much more stable figure of authority, who supposedly received food “donations” from his subjects, who were also willing to offer their labor for cultivation of the chief’s plots and forest clearance in the immediacy of the chiefly center (Oberem 1980:224-225).

The one aspect from the early Spanish documents that has consistently called the attention of scholars is the trade network that the Quijos supposedly maintained with other polities (Bray 1995b, 2005; Oberem 1980; Renard-Casevitz et al. 1988). Among the most appreciated products foreign to the highlands were “cinnamon” (a spice from *Ocotea quixos*, a tree similar to the old world cinnamon), *bandul* (used as bodily paint), coca, chili peppers, and feathers of tropical birds. Known archival sources also refer to shipments of “Quijos clothing”

into the highlands, but do not mention ceramics. In exchange, the Quijos acquired mainly salt (Salomon 1986:110). Oberem (1980) links the disarticulation of chiefly authority early in the colonial period to the collapse of the trade system, but according to Salomon (1986) neither then nor earlier were trade relations between the inhabitants of this region and the populations of the central and northern highlands characterized by massive traffic, or at least not comparable with the intensity of commercial transactions between chiefdoms of the northern highlands and the western piedmont (Salomon 1986:108).

The one view missing about the Quijos chiefdoms is that of their internal dynamics. The debate about their networks of external trade has served to explain what happened to the chiefdoms of the central and northern highlands (supposedly they manipulated long distance exchange to use exotic products as part of their political and ritual paraphernalia) (Bray 1995a,b, Salomon 1986; Terán 1995), yet tells us nothing about how or whether the Quijos chiefdoms were affected in the process of becoming providers. The characterization of the Quijos region as part of the Amazonian dynamics exacerbates that vision, since typically, Amazonian pre-Hispanic societies have been seen as playing an important role in the process of political development of highland chiefdoms while they remained apparently unchanged through time. The case of the Quijos chiefdoms is thus an open field of inquiry. The most basic information needed to understand their development has, until now, not been collected, and the debate about their local dynamics uninitiated. The region though, presents an excellent opportunity to test various predominant themes in the archaeology of chiefdoms of Northern South America and elsewhere, and therefore contribute to our general understanding of chiefdom development and economic organization.

## **RESEARCH OBJECTIVES**

This research focuses on the economic organization of the pre-Hispanic societies of the Valle de Quijos in the context of the socio-political changes that resulted in the emergence of the Quijos chiefdoms. Of all of the components that made up the economy of the Quijos chiefdoms, this project focuses on agricultural production. Thus the specific contribution of this investigation will be to gain an understanding of how agricultural production was organized during the

emergence of a system of regional political authority. To that end I evaluate alternatives such as control of agricultural resources and specialization of production, which pose different implications in terms of the relationship between emerging leadership and organization of production. In the frame of these models, I also explore whether the emergence of a social hierarchy was accompanied by different production practices between elites and non-elites. In other words, this research seeks to know whether social differentiation paralleled economic differentiation as a step towards understanding the possible basis of the emerging social hierarchy.

Two types of information were needed to test such alternatives: a reconstruction of the settlement and demographic history of the region, and patterns of agricultural production and consumption at different environmental and social settings during the period of chiefdom emergence. This information was collected through a systematic regional survey (137 km<sup>2</sup>), and through the excavation of 31 test pits for the extraction of botanical remains located in settlements of different kinds (nucleated and dispersed), at different altitudes, and on soils of different productivity. The exploration of production and consumption patterns at different locations is regional in nature, as it focuses on analysis at the regional level, and should not be confused with a community or household approach, because it does not study patterns at that scale.

The specific objectives of this research are, first, to reconstruct the history of sedentary occupation in the Valle de Quijos and determine, in terms of patterns of settlement organization, how and when chiefdoms emerged in the region. Second, to establish whether control of regional resources was important in the development of chiefdoms, by exploring the relationship between areas of different productivity and patterns of occupation during the sequence, and to determine the relationship between this and production and consumption practices during the period of chiefdom emergence. Third, to evaluate the importance of a specialized economy in the development of the Quijos chiefdoms, by observing the distribution of population through a range of environmental zones and patterns of agricultural production and consumption related to both altitudinal zones and settlement types. Fourth, to assess more generally the relationship between social differentiation and patterns of production and consumption.

As a case study, this research is not intended to establish generalizations about the economy of developing chiefdoms, but to provide information that, in comparison with other

cases, will contribute to advancing the current debate on this issue. The alternatives proposed relate to the possibility that the development of a regional system of authority was linked to certain forms of production and distribution that contributed to such a system. If none of the scenarios evaluated point to a relationship between the development of social hierarchies and forms of economic control, specialization or differentiation, it will be concluded that the dynamics that led to the formation of the Quijos chiefdoms should be investigated outside of the economic realm.

## **2. FIELD METHODS I: REGIONAL SURVEY**

The collection of settlement information through regional survey was the first stage in this project towards its central objective of investigating the development of chiefdoms in the Eastern Piedmont of Ecuador. The motivation for reconstructing regional settlement organization and demographic trends through time in the Valle de Quijos goes beyond providing a “general picture of the population.” Regional settlement patterns in this case are used as a window into the socio-political organization of complex societies, whose changes through time can be traced. This approach to settlement patterns neither suggests that regional perspectives are intrinsically better than others for understanding the development and functioning of complex societies, nor that they require other kinds of complementary information to be considered reliable accounts of the development of complex societies at the regional level. Yet, it is driven by the idea that certain dynamics in the development of complex societies (such as the development of socio-political differentiation and hierarchy) impact entire regions and have archaeological manifestations amenable to identification at that scale. Settlement information serves three main purposes in this project. First, it is used to monitor settlement and demographic changes related to the emergence of chiefdoms, the most fundamental being the formation of population concentrations thought to reflect the emergence of social and political centers, namely, the emergence of social and political inequality. Second, it allows testing models about the organization of agricultural production as it relates to the emergence of social differentiation through the examination of settlement distribution relative to altitudinal zones and productive potential. Third, along the same lines, settlement information will serve as the basis for investigating agricultural production and consumption practices at specific locales in the region during the period of chiefdom emergence.

Regional archaeology has not been very common in the archaeology of Ecuador, generally more focused on the study of monumental sites. A few regional studies have been

conducted in the coastal region (Delgado 2002; Stemper 1993; Zeidler 1994), as well as in areas of the Western piedmont (Lippi 1998) and the Northern highlands (Bray 1992; Echavarría et al. 1995), but none in the vicinity of the Quijos region. Information regarding the settlement organization of pre-Columbian societies in this region is limited to Spanish accounts that mention contact and colonial period settlements and some demographic information (Hortegón et al. 1989 [1559-1621]; Oberem 1980). For pre-Conquest periods Porras proposed some scenarios regarding population movements into the region and outside based on site excavations (see Chapter 1), but a regional reconstruction of settlement patterns through time is not available.

## **REGIONAL SURVEY IN THE VALLE DE QUIJOS**

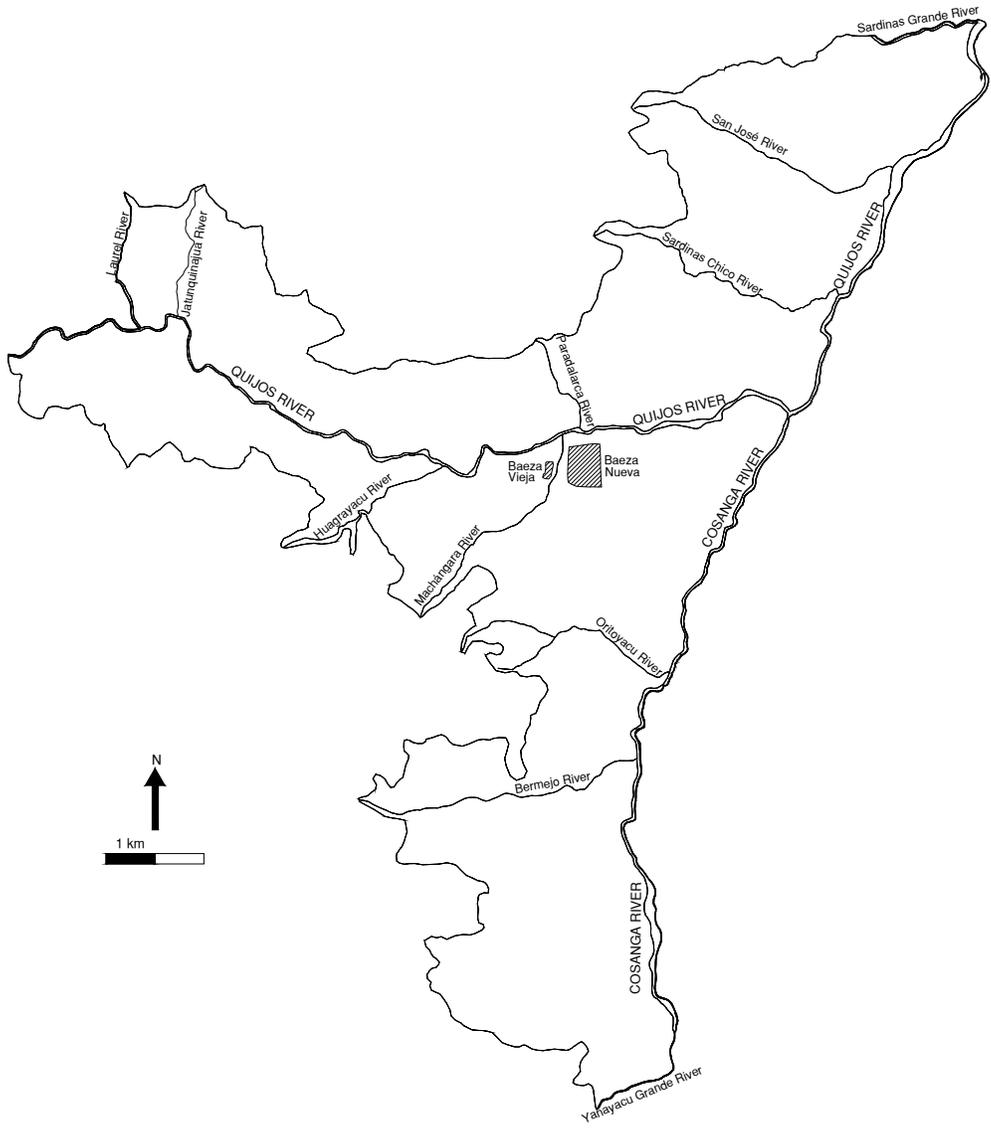
Regional surveys vary in a multiplicity of ways, and this affects the type of information collected and the kind of analysis for which it is suitable. In this project, many decisions had to be made before and during fieldwork to maintain consistency between the survey methodology and the research questions, and this chapter explains the conditions and rationale that led to those decisions. The Valle de Quijos is located in the eastern flanks of the Cordillera Blanca or Cordillera de Guamani, the easternmost Andean range that forms Ecuador's main volcanic corridor. The natural and only entries known to have been used to access the region from the high Andean plateaus are through the Papallacta and Oyacachi river valleys, both running west-east and forming deep and narrow canyons subject to constant landslides. On its way down from the *páramo* the Papallacta River meets the Quijos River, which descends from the snow-capped Antisana volcano to continue the west-east canyon that eventually opens into the Quijos Valley.

### ***Survey Area, Limits and Scale***

The regional survey was initiated in the area around the modern town of Baeza, located in a small plateau west of the conjunction of the Quijos and Cosanga rivers. The survey area was gradually extended west, east, and north, following the course of the Quijos River and south, following the course of the Cosanga River; it has an extent of 137 km<sup>2</sup>. For the definition of the

northeast, northwest, and southern limits geographical features were chosen, specifically, three tributaries of the Quijos and Cosanga rivers. These are, on the west, the Laurel River and the Quijos itself when it joins the Papallacta River, the Sardinias Grande to the east, and the Yanayacu Grande to the south. The eastern boundary of the survey is delimited by the Quijos and Cosanga Rivers, and the western and northern portions were delimited following the course of mountain ridges and streams (Figure 2.1). With the limits of the survey area, I do not claim to represent boundaries that were socially meaningful at any point in time, although it is conceivable that some of the major rivers that delimit the area could have represented some kind of social boundary. Regardless, an important motivation was to make sure that the geographical features chosen were clear enough so as to know exactly from where to start when expanding the survey area in the future. The survey area includes an altitudinal variation ranging from 1,600 to 2,800 meters above sea level (Figure 2.2).

Obviously, the extent of a polity or of a set of polities would be the ideal limits for a survey area, yet it is not possible to determine such a boundary when beginning a survey. In the Northern Andes, chiefdoms operated in large regions that comprised the territory of more than one polity. Typically, in the settlement maps of chiefdoms in this part of the world, possible political boundaries are established by drawing a line through areas of very sparse settlements or unoccupied areas, that separate more densely occupied zones of settlements that cluster around a more populated central area. This project aimed to include the territory of at least one polity for each one of the periods of occupation, and for that purpose the archaeological and ethnohistoric information available for the region was examined with the hope of getting a preliminary idea of what could have possibly been the extent of pre-Hispanic occupation in the region at any given time. Neither ethnohistoric sources nor the archaeological studies undertaken by Porras were likely to provide very informative insights for all periods of occupation, otherwise this survey would have been unnecessary, but both served as a general guide to get started by covering an area that appeared to have the potential to include a variety of settlement types in different periods. Naturally, it was not until the survey was completed and settlement maps were produced that we could form a concrete idea of the settlement trajectory in the region. A clear impression produced by the general settlement map, and the settlement maps by period, is that occupation probably extends beyond the limits set for the first field season of this project, as seen by the presence of settlements along much of the borders of the survey area (Figure 2.3).



**Figure 2.1. Valle de Quijos Rivers.**













































































































































































































































































































































































































































































































































