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**Developing the Moonland: The Yacyreta Hydroelectric High
Dam and economic expansion in Argentina**

Ribeiro, Gustavo Lins, Ph.D.

City University of New York, 1988

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DEVELOPING THE MOONLAND:

**The Yacyreta Hydroelectric High Dam
and Economic Expansion in Argentina.**

by

Gustavo Lins Ribeiro

**A dissertation submitted to the Graduate Faculty
in Anthropology in partial fulfillment of the
requirements for the degree of Doctor of
Philosophy, The City University of New York.**

1988

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GUSTAVO LINS RIBEIRO

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This manuscript has been read and accepted for the Graduate Faculty in Anthropology in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

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Abstract

DEVELOPING THE MOONLAND: THE YACYRETA HYDROELECTRIC HIGH DAM AND ECONOMIC EXPANSION IN ARGENTINA.

by

Gustavo Lins Ribeiro

Adviser: Professor Eric R. Wolf

In this dissertation I analyze how international, national, regional and local factors influence the reality experienced by the population participating at the construction of the Yacyreta Hydroelectric High Dam. This Argentine-Paraguayan project under construction on the Parana River, is a unit of analysis that clearly condenses different levels of integration. The articulation of international and national power groups, represented by financial and industrial capital as well as by the state, is central to understand the reality of social actors participating at the project. The development of Yacyreta is controlled by an "institutional triangle" formed by the project's owner, a powerful Argentine-Paraguayan state-owned corporation; the consultant, a consortium of international and national corporations; and the main contractor, another consortium of international and national firms. The analysis of the bidding for Yacyreta's two largest contracts provides the

basis for the formulation of a process I call "consortiation": the means through which international, national, regional/local firms are articulated within a large-scale project. This process defines, for instance, the characteristics of the ethnic segmentation of the labor force involved in the construction of the dam. The settlement pattern created by Yacyreta is analyzed in relationship to project's internal stratification. The formation of Yacyreta's labor market implies distinct migratory experiences and associated social changes according to different positions occupied within the project's hierarchy. Local people enter the project mostly in its lowest positions. The main internal differentiations of Yacyreta's labor market are between the Argentine and Paraguayan segments and between these segments and the foreign managerial elite. Major civil engineering corporations have an interest in retaining their skilled labor force from one work site to another. Projects are thus associated with specific migratory circuits that operate within a national territory and within the world system. Large-scale projects' migratory circuits are 'inhabited' by the bichos-de-obra, or work site animals, a nomad population that develops its entire labor life in large-scale project environments. The creation and persistence of the bicho-de-obra identity is analyzed. The relationship between projects and development is critically discussed.

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Different persons and institutions made possible my dedication to academic work during several years spent in the United States and Argentina. I am grateful for the support of the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), (the Brazilian Council for Scientific and Technological Development), and the Wenner-Gren Foundation for Anthropological Research. Without the assistance of these institutions the completion of my training, as well as my research in Argentina, would have been impossible.

I could hardly have had a more stimulating and positive committee. Dr. June Nash was always an inspiring presence with her suggestions and continuous interest in my work. Dr. Daniel Gross, who in 1977 was my professor at the Graduate Course in Anthropology of the University of Brasilia, was responsible for my coming with my family to New York in 1982. I was lucky to count on his friendship and the help of his advice in several important moments of these last academic years. Dr. Eric Wolf gave me constant intellectual support, something a researcher needs when he thinks he is exploring new grounds. Thanks to his interest I continued my research on large-scale projects, formulated an abstract notion of them and some of the questions that are being dealt with in this dissertation. It was a pleasure to count

on Dr. Wolf's scholarship and advice on several matters. I also appreciated counting on Dr. Shelton Davis' participation as an external reader. Dr. Davis, together with other colleagues, is presently showing that anthropologists have an important role to play in the world of planning and public policy. The brilliance and intellectual capacity of my committee were an inspiration to me in the writing of this work.

From the point of view of the institutions that I studied in this dissertation, there are controversial points which expose either the characteristics of power arrangements related to Yacyreta, or issues that are part of the project's reality but have never been previously presented in a systematic manner. It should be clear that I do not envisage these questions as particular to the Yacyreta project. Hopefully it will be understood that a major purpose of this dissertation is to show that large-scale projects involve a complex totality of human phenomena. The consideration of this reality could, and I understand that the following is perhaps a naive statement, enhance the quality of social life in large-scale projects and, conceivably, approximate them to a conception of development that does not reduce human capabilities to economic productivity.

I wish to thank all the persons that helped me enter and understand the complexity of the Yacyreta project. I was

glad to count on the support of people at different levels of the various institutions I researched in Buenos Aires, Posadas (Misiones) and Ituzaingo (Corrientes). It is self-evident that without their help and understanding I would not have been able to do this research. I must emphasize that a large-scale project is a highly institutionalized environment, one where a researcher needs to be granted permission to develop his/her work. In this sense, I am particularly indebted to Entidad Binacional Yacyreta because, despite the fact that the presence of an independent researcher is anxiety-causing, it allowed the normal unfolding of my work. For me this was a permanent indication of how strongly democracy is valued in contemporary Argentina.

In Posadas I was glad to be accepted by the Department of Anthropology of the Universidad Nacional de Misiones as Visiting Researcher. I benefited from the experience of several colleagues that have worked either on Yacyreta itself or on the colonization of Misiones and Corrientes. I thank them all through the figure of Ana Maria Gorosito Kramer. Marcelo Larriq, a student at the Department, helped me collecting data on the civil construction unions in Misiones and Corrientes. Dr. Leopoldo Bartolome went out of his way to make me feel comfortable during my field research in Misiones and Corrientes. I thank him, Graciela and the children for their warm hospitality and friendship. Much of

the tranquility I could have in the area was due to their "atencion carinosa".

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Finally, I dedicate this work to Silvia and Julian, "mis companeros de aventura".

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CHAPTER I

INTRODUCTION

(1) Why do Research on a Hydroelectric Project?

One way of starting the text of a dissertation is to render explicit the reasons why a certain object became its theme. To address this concern I want to start to situate this dissertation on the Argentine-Paraguayan Yacyreta project, a hydroelectric dam being constructed on the Parana River on the border of Argentina and Paraguay, as part of a line of research I have been following for almost ten years, since I began a work on the construction of Brasilia, the Federal Brazilian capital (Ribeiro 1980). Although this dissertation dialogues with that and other of my subsequent works (Ribeiro 1985, 1987), it asks different and broader questions provoked by the maturation of the research subject and its location in a larger theoretical framework.

My initial concern was to unveil the experience of workers who participated in the construction of Brasilia in the late fifties. It soon led me to attempts to understand and formulate the concept of a form of production typical of large-scale projects carried out in isolated areas. I wanted to develop a framework on a level of abstraction comparable

to anthropological discussions on plantations¹. The comparative analysis of different undertakings led me to conclude that there was enough evidence to propose that large-scale projects constituted a form of production with recurrent and discrete characteristics (Ribeiro 1985, 1987).

But - and more importantly for this dissertation - when I began to develop such an abstract framework I also came to realize that although I was aware of the complexity of the institutional arrangements and the intricate multiple articulations of power groups around and within a large-scale project, I had underplayed their importance. Furthermore, it made clear that we needed a more detailed picture of the relationships between social actors operating at the international and national levels, and their relationships to the populations actually engaged in the construction projects. In addition, I realized that these projects seemed to be an ideal unit of analysis for an ethnographic exploration of some of the most interesting contemporary anthropological questions, such as the growing interdependency of international/national/regional and local realities, the formation of ethnically segmented labor markets and the uneven distribution of political and economic power within social systems. I became particularly

1. See the second part of this Introduction for a description of how this dissertation and the subject of large-scale projects in general relate to different anthropological traditions.

interested in trying to understand how different levels of integration defined by the dynamics and interpenetrations of international, national, regional and local realities unfolded within a large-scale project, an environment where the importance of these connections is self evident².

Contrary to the prevailing tendency in the anthropological literature, I did not focus on the populations affected by the presence of the so-called development projects. Rather, I concentrated on the internal population of the project, defined to include the segments of the local population that are recruited to participate in the construction effort, as well as all other segments directly active in the total labor force of a project. This includes, and this is important, the technical and managerial segments of the project placed in the construction site or in regional and national corporate

². Throughout this work this discussion will often appear either under the label of "the interaction of different levels of determinations" or "the interaction of different levels of integration". "Determinations" here are not understood in any determinist sense. I use this noun to denote situations and processes in which constraints that organize the settings where actions unfold are recognizable, but in which the presence of these same constraints neither conditions the range of possible outcomes of the social action nor makes them totally predictable. This vocabulary and part of my reasonings do indicate a certain eclecticism. I agree with the assessment of Marcus and Fischer (1986: x) that "a period of experimentation is characterized by eclecticism, the play of ideas free of authoritative paradigms, critical and reflexive views of subject matter, openness to diverse influences embracing whatever seems to work in practice, and tolerance of uncertainty about a field's direction and of incompleteness in some of its projects".

headquarters. This was congruent with my conception of large-scale projects as a form of production, and at the same time avoided the problems of a reified notion of community . These decisions proved to be especially fruitful since I was not so much concerned with actors' residential locations, but with their power of interfering in the lives and directions of the population of the Yacyreta project. The project was thus clearly delimited as a power structure that could not be understood by a single locational reference.

Indeed, to understand the different power capabilities of international/national/regional and local social actors in relation to the same recognizable structure, the Yacyreta project, I had to develop a vision from the national headquarters of the project in Buenos Aires, a major arena of articulation of national and international interests, and contrast that vision with regional and local ones, as they unfolded in field research scenarios drawn from the area of construction in the Department of Ituzaingo, in the Northeastern province of Corrientes, Argentina. To investigate ethnographically the interactions of different levels of integration (see footnote 2 and the next part of this Introduction) I had to do research in Buenos Aires, Posadas (the capital city of Misiones, where another important project regional office is located) and in Ituzaingo, Corrientes. I hoped that this "multilocale

ethnography" (Marcus & Fischer 1986: 90-95) would help me to avoid empiricist and functionalist notions of "community" and also to address ethnographically the central issue of relationships among levels.

The initial intention of empirically locating and delimiting the social networks that actually realize the connection between these different levels of power and social agency proved, nonetheless, to be marked both by residual empiricist overtones and by a misunderstanding of the functioning of bureaucratic structures. Indeed, since Yacyreta is a project that unfolds in specific historical moments and attracts a variety of power groups, by its political and economic importance, I soon came to realize that it would not be possible to trace all the webs of social networks that dominated the entire process of implementation of the project, there are simply too many of them in operation at any given moment. To trace their structuring, their relationships within the project as well as with other groups external to the project (lobby groups, for instance) is perhaps logically possible, but would involve research work that, even for a team of researchers, would either prove to be endless or to duplicate information easily available in other data sources such as the discourses of qualified informants and historical analysis.

Furthermore, much of the continuity between the different levels of integration does not rest on the

existence of social networks that interact freely and are open to interpersonal manipulation. Quite the contrary, social networks in a large-scale project operate in an institutionalized environment. This is an environment in which a bureaucratic-institutional structure guarantees the continuation of the project over time, in a manner relatively independent of the interplay of power groups situated in various hierarchical positions.

This fundamental characteristic of the object of research led me to analyze the institutional setting of the Yacyreta Hydroelectric project, a setting constituted by public, transnational and national corporations developing different roles within the project. I thus propose in Chapter Two of this dissertation the existence of an "institutional triangle" formed (1) by the public corporation that owns the project, the Entidad Binacional Yacyreta-EBY (Yacyreta Binational Entity); (2) the consultant firm, CIDY; and (3) the main contractor, ERIDAY. Both CIDY and ERIDAY were set up by transnational and national corporations. The effort to understand their internal organization and their mutual relationships meant that the analysis of the dynamics of different levels of interaction had to consider the relations between the state, national and international firms. Given the fact that the Yacyreta project has an institutional history that began in 1958, a historical approach was not only mandatory but also

proved to be useful in disentangling the complex relations developed by different power groups with the project over time.

It also became increasingly evident that for a study of the interaction of international and national levels of integration there was a crucial institutionalized arena in which the economic and political power groups defined their participation in the project: the bidding processes of the major contracts related to the realization of the construction work. I thus turn, in Chapter Three, to the analysis of the ways in which the main-civil work contract and the turbines contract (the major segments in the construction of a hydroelectric dam) were awarded. This effort showed how important local-level phenomena, such as the internal composition of the population directly engaged in the construction of Yacyreta, were inextricably related to the dynamics of the international/national levels. Indeed, the present demographic configuration of the Ituzaingo town is marked by the constitution of the construction consortium that is building the dam. The lead firms of this consortium are Italian and French based corporations. This is why, for instance, there can be found a foreign population composed mostly by Italians and French, and not by Koreans or North-Americans.

The analysis of the bidding processes also allowed me to define a process that I call "consortiation".

Consortiation is a notion potentially useful to make sense of the political and economic aspects of the relationships between different levels of integration as they occur within large-scale projects. It also enables one to relate the local and regional development process to the more general process of capitalist accumulation in which the flows of capital are dominated by social actors operating at higher levels.

But, the analysis of different levels of integration called for an equal emphasis of local reality. I focused, then, on the local setting (Chapter Four), trying to delineate the different scenarios where the social actions of project related groupings unfolded. Here, again, the organizing power of the Yacyreta project manifested itself in the settlement pattern of the area. The internal organization of the productive process was mirrored by social life in the different residential areas of the project. Furthermore, it demonstrated not only the relatively³ powerless position of the Ituzainguenos vis-a-vis the powerful structure that came to encompass their

3. I use this adverb to indicate that the local population pre-dating the project may be placed in a subordinated position, but is not totally devoid of power. Actually, this depends strongly on the kinds of interactions that the local elite develops with the project structure. There is an evident trend of recognizing Yacyreta as the most powerful power source in the area. Members of the local elite, politicians and merchants, for instance, have also been coopted by Yacyreta either by becoming participants of project's local bureaucracy or by selling services.

backyard, but showed also how the predominance of higher levels of integration (national and international) affected in observable ways the daily management of the project within the territory of construction. Indeed, both Argentine officials working for the public corporation that owns the project and foreign managers working for the private firms had to recur repeatedly to national or international decision-making centers when more delicate decisions had to be reached. There is little doubt of where the main power centers were located.

Finally, in Chapter Five I focused my attention on the intricate relationships of labor market formation, differentiation, and the several labor flows structuring the population of the Yacyreta project. In order to gather data that would allow me to follow the complexity of these issues I had to make a crucial decision during field research concerning labor and class relations. The Yacyreta project has been marked by a history of political confrontations between workers, private corporations and governmental agencies⁴. Strikes were frequent. At least one

⁴. This is especially true for the Argentine workers that count on a powerful union structure. That does not mean that the Paraguayan workers have not engaged in organized movements. Given the authoritarian nature of the Paraguayan regime, though, workers' political activities are subject to restrictions and control. In December 1986, seven workers (one Uruguayan, three Argentines and three Paraguayans) that were participating in a union assembly, were arrested by Paraguayan authorities (see, p.eg. El Clarin, Buenos Aires, December 7, 1986, and El Litoral, Corrientes, December 13, 1986). Besides the fact that they were kept for several

of these strikes involved the occupation and controlling of the construction site by workers, heightening the tension in the project's territory. On at least two occasions, workers demonstrated not only at the local level, in Ituzaingo, but also in Buenos Aires in front of the Argentine Congress to gather national attention⁵. Focusing on class struggle might have revealed interesting characteristics of the labor/capital relationships in Yacyreta, but would have led to a terrain already thoroughly studied by social scientists, economists and historians, rather than towards a better understanding of large-scale projects. Instead, I chose to characterize the migratory circuit permanently related to large-scale projects, as a strategic way to understand those projects in relation to international and national processes of capitalist expansion. Moreover, focusing on the migration circuit could point to a dynamic conception of project's labor market segmentation. For these reasons, I paid substantial attention to the description and analysis of what I call the "large-scale project migratory circuit" and its typical participant, the bicho-de-obra or work site animal. Chapter Five ends with a discussion on labor market segmentation where I try to show how the market

weeks in prison, there were also reports of physical abuses committed by Paraguayan authorities (La Razon, Buenos Aires, January 24, 1987).

⁵. Union leaders travelled from the project area to Buenos Aires, camped in front of the National Congress and fasted for several days.

is structured by both the labor needs of corporations and migratory processes, as well as the social changes associated with these imperatives.

In the next pages of this introductory chapter, I will make explicit the horizons in which this dissertation is located. I do not pretend to offer an epistemology of the different theoretical issues involved in the particular fields of anthropological studies to which I will refer. Rather, my intention is to situate the development of my arguments by highlighting the influences that are pervasive in the unfolding of my reasoning throughout this dissertation.

(2) Am I an Anthropologist? Anthropology and Large-Scale Projects.

A question I was frequently asked in the process of working on this dissertation - especially during field research - was whether I was an anthropologist. The most informed of the persons trying to understand my work, would think that I was doing research on the impact of the construction of the Yacyreta Hydroelectric High-Dam on the populations of the Argentine Northeastern provinces of Corrientes and Misiones. Less informed persons, still with some idea of what anthropology is, thought I was doing archaeological research or, surprisingly, looking for bones,

for fossils. For other, I was simply the "anthro-lo-pogist", not the anthropo-lo-gist. I guess it did not really matter for them what I was doing. But, whatever the level of information of the person puzzled by the presence of an anthro(lo)po(lo)gist doing research on a large-scale project on the border of Argentina and Paraguay, I had to take seriously the constant reiteration of this question. Indeed, it involved not only a perception of anthropology as a discipline, but also curiosity about what an anthropologist can do in scenarios such as a construction project, or how an anthropologist can contribute to the understanding of this type of objects.

There is no single and easy way of answering these questions. To cover all the issues raised by such queries would require a historical approach of the development of the discipline that simply transcends the limited goal of the present argument. But I shall briefly address the ways in which an anthropologist studying a large-scale project is directly, or indirectly, responding to topics that have always been of central concern to anthropology. There are at least four different broad anthropological traditions that can bear immediately on the study of large-scale projects: (1) the analysis of economic expansion; (2) the preoccupation with understanding the relationships between different levels of integration; (3) the emergence of "development anthropology", a relatively recent advent in

the history of the discipline; and (4) Karl Wittfogel's thesis of the hydraulical state.

(i) Economic Expansion.

The study of economic expansion, i.e. the study of the incorporation of new populations and territorial areas into a broader economic system, has always been present - explicitly or not - in the development of anthropology. Even functionalist anthropologists hoping to contour *sui generis* social isolates, would agree that the very presence of an ethnographer in the most isolated indigenous societies is an index that a regional, national or international socio-economic system is expanding into an area previously tangential to a broader system. Others in the history of the discipline who have never been totally convinced by the argument of self-contained social isolates, have argued constantly the need for analysing "societies", "social groups", "modes of production", in relationship to each other, and as part of a larger whole. Furthermore, this whole is envisaged as a system, or to put it in another way, as parts of intimately interconnected and mutually informing segments of a broader reality.

In the anthropological literature there can be found efforts that typically cope with the permanent paradox of having to understand the "internal" characteristics of an

organized population, and how its relations to other populations imply social change. The efforts to understand socio-economic-political and cultural "types" such as plantations are highly representative of this trend, because at the same time that plantations are analyzed as unique forms of organizing a population to attain certain economic goals, they are related to the economic system that creates them as specific arrangements and define their economic goals⁶. These and other anthropological discussions have made clear that the claim for cultural and social sui generis populations is as mythical as the belief in a pure race (see, for instance, Harris 1964).

The encounter of endogenous and exogenous social processes has been of constant interest for anthropologists because they occur in scenarios where different conceptions about the reproduction of social life are involved. Indeed, the analysis of internal characteristics and "external forces" seems to be related to a fundamental tension that permeates anthropology as a whole, that is, anthropologists are frequently coping with paradoxes that, sometimes in their appearances of logical irreducibility, seem to be permanent. Thus, to understand the "other", anthropologists

⁶. The classic anthropological discussion on plantations can be found in Palerm & Rubin (1959). A previous effort of mine to characterize large-scale projects as a discrete form of production has admittedly drawn from this tradition (Ribeiro 1987: 7).

make efforts to neutralize their ethnocentrism. At the same time, anthropologists cannot deny the particularities of the cultures they study, but place them in a universal framework. Thus, not everything can be explained in terms of internal characteristics or of external influences. An either/or approach seems to be doomed to give way, in anthropology, to a perspective that cannot attribute a priori value to one or another set of characteristic(s), factor(s), determination(s). This might well be one of the reasons why methodology is such a sphinx in anthropology. This is also the reason why field research remain so important for anthropologists, as the main basis for their contributions to theoretical discussions.

It is most important at this point to emphasize that the processes of economic expansion have usually implied an imbalance of power in interethnic contact. At this level, it might be useful to point to some of the contributions made by Brazilian anthropologists. Indeed, the works of Darcy Ribeiro (see, for instance, Ribeiro 1970) and Roberto Cardoso de Oliveira have opened a path where the study of indigenous population living within Brazil's territory was clearly considered in terms of the relations between those populations and the expansion of Brazil's economic frontier⁷. Cardoso de Oliveira's notions of "interethnic

⁷. For an interpretation that is related to this trend and later evolved to an overall formulation on the importance of the "moving frontier" in Brazil see (Velho

friction" and "interethnic system" (see, for instance, Cardoso de Oliveira 1967, 1976), have consistently pointed to the need of considering local indigenous populations in relation to the different conflicts developed with an expanding Brazilian society. This framework not only calls for an understanding of the effects of expanding economies on local populations, but also makes explicit the uneven distribution of power in the encounter of different ethnic groups. The latter might be the reason why Cardoso de Oliveira's conceptions were acknowledged as a useful paradigm in the interpretation of interethnic conflict in general (Gross 1985). In this connection, my preoccupation with understanding the uneven distribution of power that occurs when different populations encounter each other is, thus, also grounded in the preoccupation of Brazilian anthropologists of relating ethnicity to power conflict. As we shall see, in Yacyreta, local level populations face the impacts caused by the needs of Argentina's national political-economy in a context where ethnic and regional identities are an issue.

Evidently, the idea that social change is imbedded in a larger grid of unequal distribution of political and economic power is not exclusive to Brazilian anthropologists. Perhaps the most elaborated development of this conception is Eric Wolf's book "Europe and the People

 1972, 1976).

without History" (1982). In this work, the connections and interpenetrations of human populations is analyzed against the background of the history of capitalist development. Wolf simultaneously stresses the diversity of the different works of capitalist expansion and its underlying historical pattern: the accumulation of capital in a global scale. Such a framework calls for accounts capable of dealing with the heterogeneity of social, economic, political and cultural forms without disregarding the homogenizing forces that have historically been creating newly segmented social realities and an increasingly integrated world. I hope that the analysis of the Yacyreta project will contribute to show how different populations, with different backgrounds, are put together in a same social reality by a happening that is directly related to the dynamics of the world system and of the national political-economy.

One of my central contentions is that to understand the characteristics of so-called "development projects" and the social changes they cause, it is necessary to comprehend the multiplicity of institutions and social actors involved in their planning and execution. In this work on the the Yacyreta Hydroelectric High Dam, I was guided by this perspective⁸. In this connection, "everything" was

⁸. Of course, this immediately implies a reconnaissance of the limitations of an individual researcher. But, perhaps the strength and freshness of the anthropological imagination rely on a sort of pretended and real educated ignorance that the anthropologist learns to live with in the

important, from the role and importance of the World Bank, transnational corporations, the nation-states involved in the geopolitics of the Upper Parana River, to the history of Ituzaingo (the town in the Argentine province of Corrientes where the dam is being built) with its cattle-ranching past, its gauchos (cowboys), and its perception of national-level politics marked by the project, an economic enterprise where the power of Buenos Aires central government is self-evident. My claim is that a large-scale project cannot be properly understood if these different instances of political and economic power are not brought together in the same analytical effort. Within anthropology, this problematic relates my efforts to an ongoing discussion on how the complexities of social and cultural systems are to be conceptualized.

(ii) Levels of Integration.

The need for frameworks and theoretical approaches that account for the increasing complexity and interdependence of the world is particularly challenging for anthropologists since neither local social reality, the traditional ethnographic focus of the discipline, can be reduced to

field site. While doing field research, I attempted an approximation on the role of the unknown in the construction of anthropologists' perspectives (Ribeiro 1986).

world system reality, nor vice-versa⁹. Frequently, the solution for this type of problem has been sought in the analysis of part/whole relationships or in the intersections between what is conceived as an international system and a national, regional or local one¹⁰. However, to frame these questions either in terms of "articulations" or "levels" may duly stress overlapping and part/whole relationships, but fail to emphasize the simultaneous and significantly

⁹. It is almost common knowledge in contemporary anthropology to admit a world of "increased interdependence" (see, for instance, Marcus & Fischer 1986: vii-x). For June Nash (1981: 393) "ever since its origin, anthropology has had a worldwide scope. Indeed, the very stimulus to the field were the advancing frontiers of European trade and colonies. What distinguishes the present interest in the world scope of anthropology is the paradigm of integration of all people and cultures within a world capitalist system".

¹⁰. Sydel Silverman considers that "one of the most strategic yet formidable problems in the anthropological study of complex societies is the relationship of the parts to the whole of such societies. Most attempts to tackle this problem have been concerned primarily with those parts which are localized social systems, or communities, interdependent with though analytically separable from the whole, a national social system. The community and national levels of sociocultural integration of Steward (1955: 43-63), the discussion of tensions between pueblo and state by Pitt-Rivers (1954: 202-210), the community-oriented groups and nation oriented-groups of Wolf (1956), and the local roles and national roles of Pitkin (1959) are only a few examples of this recurring contrast, the social analogue of the great-tradition/little tradition approach to complex cultures. Such a model immediately sets the task of formulating the interaction between the two systems" (Silverman 1965: 172). It is interesting to note that apparently discussions in the 1950's and 60's were primarily concerned with local/national levels relationships. The international level would be a later addition to this type of discussion amongst anthropologists (for that matter see June Nash's comment in footnote 9). The analysis of "articulations of modes of production" can be considered as an effort related to this problematique.

condensed character of the interpenetrations of international, national, regional and local processes. It was a combination of a processual and an analytical vision that guided my inquiry on the Yacyreta project.

In doing so, I supposed that I was following a type of preoccupation that informs conceptions such as "levels of sociocultural integration" and "multilineal development" elaborated almost forty years ago by Julian Steward¹¹. His effort was to show the interconnectedness of different levels of determinations without losing their internal specificities and without implying that a given evolutionary path is the only avenue along which all socio-economic, political and cultural forms travel through time. Steward's conceptions are representative of a longstanding endeavor to conceptualize different instances that potentially or concretely, individually or collectively, in a single moment or over time, intervene in the structuring of social reality and, therefore, in the agency of social actors.

Efforts like this mean that anthropologists and other social scientists were not immobilized by the overwhelming, sometimes apparently chaotic diversity of human social reality and its relationships to factors bounded by local and/or non-local realities. Indeed, anthropologists continue in their endeavor to find regularities and abstractions capable of interpreting social life in a

¹¹. See Steward 1950; and Steward 1979.

holistic way, without blotting out the persisting diversity of human experience.

But, it could be asked, why is it important to return to these questions? One reason is that they remain important for the development of contemporary anthropology. The continuing influence of these discussions is recognizable in the works of anthropologists that formulate analysis where international, national and local levels are considered (see, p.eg. Nash 1979: 174). In addition, these questions are currently almost taken for granted without, nonetheless, having triggered the creation of a methodology and approach for the analysis of contemporary anthropological objects. Undoubtedly, anthropologists will have to deal more constantly with this kind of issues since reality increasingly fuses local, regional, national and international levels. The more time passes, the more these questions are going to be relevant for the understanding of social reality.

Having to weigh and assess the differential importance for social actors of these different "levels of integration" increases significantly the burden of research and scholarship contemporary anthropologists have to carry. It may well be another index of the overall ambition of a discipline that was once called "the science of man".

(iii) Development Anthropology.

The nature of contemporary capitalist expansion has increasingly called the attention for the role of "development projects" in a global scale¹². These projects are undertakings that typically involve complex relationships between financial and industrial capital and nation-states in different world-areas. The evident disruption and potential or virtual disasters these massive investments imply for local populations, prompted the involvement of anthropologists in the study and assessment of their impacts. The "social impact assessment" is a growing field in which anthropologists participate in significant ways. Indeed, from the pioneering and now classic study of Elizabeth Colson (1971) to the formulation of a general framework of analysis of forced resettlement (Scudder & Colson 1982) the topic grew so consistently as to

12. Scudder and Colson note that this is an "era of national development plans that call for the construction of dams and other major engineering projects" (1982: 268). Kathleen Murphy considers the 1970s as the decade of "macroproject development in the Third World" when over 900 projects were begun and at least 600 more were on the drawing boards (1983: xv). Billion dollar projects are not rare, see the list of the twenty top projects selected by Murphy; they range from US\$ 5 billion to US\$ 21 billion (1983: xvii, 6,7). According to her sample, the investments in that decade represented more than US\$ 500 billion, and each project employed more than 10,000 persons (Murphy 1983: vii, xv). In my own efforts to conceptualize "large-scale projects" as a form of production, I focused on their qualitative dimensions rather than on their quantitative aspects (Ribeiro 1985, 1987).

create a new sub-field of the discipline, development anthropology.

Studies in the social impact assesment literature have shown that projects are not monolithic carriers of development for all social classes segments or ethnic groups involved or affected by them (Colson 1971: 3, 140 and following; Duque 1980; Partridge et al 1982, Bartolome 1984). Indeed, examples of hydroelectric projects such as Volta (Ghana), Kariba (Zimbabwe), Tucurui and Sobradinho (Brazil), and the Pick-Sloan Plan (U.S.A.) - to mention but a few - indicate that projects favor large national and international economic concentrations to the detriment of local populations (Payer 1982, pp. 256-266; IBASE 1983; Sigaud 1986; Lawson 1982).

In the contemporary anthropological literature most works are concerned with the effects of large-scale projects (mainly constructions of hydroelectric plants with the artificial lakes they create) on local populations (e.g. Aspelin & Santos 1981; Aspelin 1982; Hansen and Oliver-Smith 1982; Wali 1984; and other works previously mentioned). Although the emphasis on "the social consequences of innovation" is traditional within the discipline (Dalton 1971: 11), this time anthropologists are being placed in the core of some discussions related to world and national planning policies. Policy shifts in major international financing agencies that promote "development projects"

represented a new demand on anthropology and prompted the appearance and growth of "development anthropology". The major task of the development anthropologist is to "enhance benefits and mitigate negative consequences for the human communities involved in and affected by development efforts" (Partridge & Warren 1984: 1; see also Hoben 1982). At this level, anthropology is apparently caught in a dilemma. While it has a "history of involvement with development projects" (Partridge & Warren 1984: 5), "the contribution of anthropology to development planning and the response of development programs to anthropological methods and theory have been marginal at best" (Hoben 1984: 9).

The increasing integration of the contemporary world and the important roles that large-scale projects play in this process, may signify that anthropologists are facing again the difficult questions about the relationship between the practice of anthropology as an academic discipline and as an applied science. The contemporary development projects are responsible for social changes among native populations that are comparable to the effects caused by plantations, mines, railroad construction and other concentrated capital investments. Despite the fact that the relationship between anthropologists and "development projects" raise interesting new theoretical and practical challenges for the discipline, what the involvement of anthropologists in development projects means has not yet received systematic public

discussion. Such a discussion would potentially raise new ethical and political questions. Indeed, perhaps for the first time in the history of the discipline, anthropologists have direct or indirect access to world-system decision-making centers. The relationship between anthropology and planned development is currently the subject of a developing and stimulating debate (see Robertson, 1986, as the most elaborated statement on this issue).

Finally, this dissertation should thus be read also as a contribution to these escalating debates about how development projects are to be assessed. It stresses the power structures associated with large-scale projects, and calls attention to the ways in which they are affected - and affect in turn - the wider distribution of power in the political and economic scenario that surrounds them. Hopefully, it will furnish data and conceptions that have not yet been put forward by anthropologists or by other independent researchers.

(iv) Large Scale Projects in Anthropology: Karl Wittfogel's Thesis of the Hydraulical State.

Among the several anthropological studies I am considering as directly or indirectly related to a discussion of large-scale projects, perhaps Karl Wittfogel's work (1957) could seem as the most tangential to this

dissertation. Whether hydraulic works give rise to the state or whether concentration of power has been a prerequisite for the construction of water works has been a hotly debated issue in and out of the academy¹³.

My consideration of Wittfogel does not mean that I draw from his work as a model to be applied for the understanding of the origins of the State. However, his work does call the attention to a question that is central to the understanding of any large-scale project: the relationships between managerial elites, state planners and the concentration of politico-administrative power in the hands of organizers/controllers of large labor forces.

One possible reading of Wittfogel's work might connect it with discussions that are not unfamiliar to anthropologists but are more frequently carried out by

¹³. For an idea of the development of this discussion see Bloch (1977; 1985: 113-114); Wolf (1982: 403); Palerm (1973: 324); Godelier (1977: 254-255). The relationship between centralized political power and the capacity of pooling labor to carry out great works has long been perceived. In the context of urbanization, political centralisation, the development both of technology and the division of labor, Ibn Khaldun, the Arab historian (1332-1406), considered that: "Only strong royal authority is able to construct large cities and high monuments. (...) (The size of monuments) is proportionate to the importance of (the various dynasties). The construction of cities can be achieved only by united effort, great numbers, and the cooperation of workers. When the dynasty is large and far-flung, workers are brought together from all regions and their labour is employed in a common effort. Often, the work involves the help of machines, which multiply the power and strength needed to carry the loads required in building. (Unaided) human strength would be insufficient" (Khaldun 1969: 265).

archaeologists, geographers and urban/regional planners who are concerned with central place theories or regional analysis. At this level, a main preoccupation is the restructuring power exercised by large scale localized productive and trading activities over local and regional systems. Although this is not the focus of the present dissertation, I believe that some of the analysis developed in Chapters Four and Five address questions that are relevant for this type of preoccupation.

Raising this issue is important because a holistic analysis of large-scale projects implies a complex interface with other disciplines. Large-scale projects are commonly denominated development projects, a fact that inserts them immediately within the development/underdevelopment literature. The interdisciplinary character of the analysis of development is currently widely recognized¹⁴. Naturally, any interdisciplinary approach in a more complex analysis of developmental initiatives entails several "risks". There is,

¹⁴. In the preface of a "textbook for undergraduates in development studies and in economics, politics, sociology and history courses where development issues are the primary concern", Ray Bromley and Gavin Kitching, the series editors', stated the following: "The nature of the subject matter has forced both scholars and practitioners to transcend the boundaries of their own disciplines whether these be social sciences, like economics, human geography or sociology, or applied sciences such as agronomy, plant biology or civil engineering. It is now a conventional wisdom of development studies that development problems are so multi-faceted and complex that no single discipline can hope to encompass them, let alone offer solutions" (Kitching 1982).

for instance, the risk of sounding naive for different specialists with different training backgrounds. There is also the danger of sounding strange for anthropologists. But, I believe that in this case some naivete and freshness - and I do not think that these can be completely transformed into crystallized or formal techniques - is what makes the anthropological approach unique and powerful.

But the necessity of confronting different theoretical and practical problems, and of relating to an interdisciplinary approach is, in last instance, a response to the characteristics of an object such as the Yacyreta Hydroelectric High Dam, which is highly marked by multidisciplinary conceptions and practices. I hope that this dissertation may represent a step towards an increasing awareness of the need for interdisciplinary research on large-scale projects.

(3) Doing Research on the Yacyreta Hydroelectric High Dam.

This dissertation's field research was carried out from December 1985 to March 1987, during my stay in Argentina. Given the particular characteristics of my object, I had to use different research techniques as well as look for different data sources. This work thus combines different data, collected with different methodological and theoretical preoccupations. It is the result of (a) an

historical analysis of archival material; (b) an analysis of quantitative descriptions of the population engaged in the project; (c) an analysis of open-ended and formal interviews carried out in different cities and ethnographic contexts, with social actors occupying different positions within the hierarchical structure of the project.

Since I was interested in understanding the Yacyreta project as a unit of analysis where the interaction of local/regional/national and international levels could be ethnographically investigated, I did research in different places and with different kinds of social actors. Accordingly, I centered my field research in Buenos Aires where I mostly focused on issues related to the interactions of the national and international levels; in Ituzaingo, the Department of the Province of Corrientes where the dam is being built; and, secondarily, in Posadas, the capital of the province of Misiones, located approximately 90 kilometers away from the construction site (see Map 1, page 36).

In Buenos Aires, where the Argentine headquarters of Yacyreta are located, I did both open-ended and formal interviews with officials, mostly engineers, of the public corporation that owns the project, the Entidad Binacional Yacyreta - EBY, (Yacyreta Binational Entity). I also spent several months doing archival research in the Documentation Center of the project, especially on a comprehensive

collection of Argentine and Paraguayan paper clips on the Yacyreta project, covering the period of 1969 to 1987¹⁵. This collection proved to be fundamental to the development of a historical understanding of the project¹⁶.

In Posadas the Yacyreta Binational Entity (EBY) has an important regional headquarters, responsible primarily for the resettlement of the population of the city that is going to be affected by the filling of Yacyreta's reservoir. Since Posadas is not only the largest Argentine city close to the project site but also a regional center, in this segment of the field research I focused primarily on issues of regional development, especially on what the impact of the project

15. I sincerely appreciate the warm and positive atmosphere that all persons I met at the Madero Tower in Buenos Aires granted me. The same is true of the people I met in Posadas and Ituzaingo (see the following pages in the text).

16. The use of newspapers as sources of information is highly complicated and entails different decisions on the part of a researcher to appraise the quality of his/her data. There are two pervasive problems with this type of source. First, censorship of information, something typical of authoritarian regimes such as the Paraguayan one and the several dictatorships in recent Argentine history. Second, and more pervasive and apparently independent of political regime, the manipulation of information for political and economic purposes. I constantly checked the controversial data coming out of the Paraguayan and Argentine press against other sources, especially qualified informants. When this could not be done, either the information was not used or was used with a warning contextualizing it. Sometimes evident manipulation of the media constituted a more important information than the news itself. It is also important to consider that the comparison between what was published in Asuncion with what was published in Buenos Aires proved to be revealing since there were several differences between Argentine and Paraguayan interests.

might mean for the functioning of the local and regional productive forces. I gathered printed material on this question and carried on open-ended interviews on the relationship between the project and the region with officials linked to the Yacyreta Binational Entity. I also interviewed officials of the province of Misiones working at the interface between national power represented by EBY and provincial political power. In addition, I interviewed local formal and informal leaders. I visited one of the first housing projects constructed by Entidad Binacional Yacyreta as part of its resettlement program. It is already inhabited by people who previously resided in the area of the future reservoir. I also went to the riverine areas where the bulk of the Posadena population to be resettled is still living¹⁷. Finally, in Posadas I discussed the regional importance of Yacyreta with professors and students of the Universidad Nacional de Misiones who have been following the history of the project and its impact on the city and region.

During the year of 1986, I alternated periods in Buenos Aires with periods in the town of Ituzaingo, province of Corrientes. This proved to be a fruitful procedure because it allowed me to check national/international issues in light of data obtained at the local level, and vice-versa.

¹⁷. For a work on the impact of resettlement in Posadas, see Bartolome (1984).

In Ituzaingo I interviewed officials working for the Yacyreta Binational Entity, as well as employees such as engineers and technicians of the main contractor and of the consultant firm (see next chapter for terminology on what I call there the "institutional triangle"). At this level, research focused on people working at the departments responsible for the formation and control of Yacyreta's labor market. I gathered substantial qualitative and quantitative data on the growth of Yacyreta's labor force.

I was also interested in differentiating the groups working for the project in terms of their hierarchical positions within the corporations they worked for. I thus interviewed professionals (engineers, geologists, architects and lawyers, for instance); technicians; and workers. To develop a differentiated perspective of workers' visions, I interviewed workers of different trades, leaders of the local union as well as non-unionized workers. Given the important role Europeans play in project's management, I dedicated a substantial part of my attention to understand the internal characteristics of that segment.

Another important component of this research meant gaining an understanding of the population that lived in Ituzaingo before the arrival of the Yacyreta project. Following the overall pattern orienting my field research, I gathered census data on the evolution of Ituzaingo's population as well as carried out open-ended and formal

interviews with social actors occupying different positions within the town's system of social stratification. I thus interviewed local politicians affiliated with different political parties, landholders, gauchos (regional cowboys), entrepreneurs, workers and squatters living on the town's periphery.

Finally, in Ituzaingo I made several visits to the work site, and to different labor camps and mess halls, in order to survey living and working conditions, as well as to develop a sense of the magnitude of the construction project and its progress.

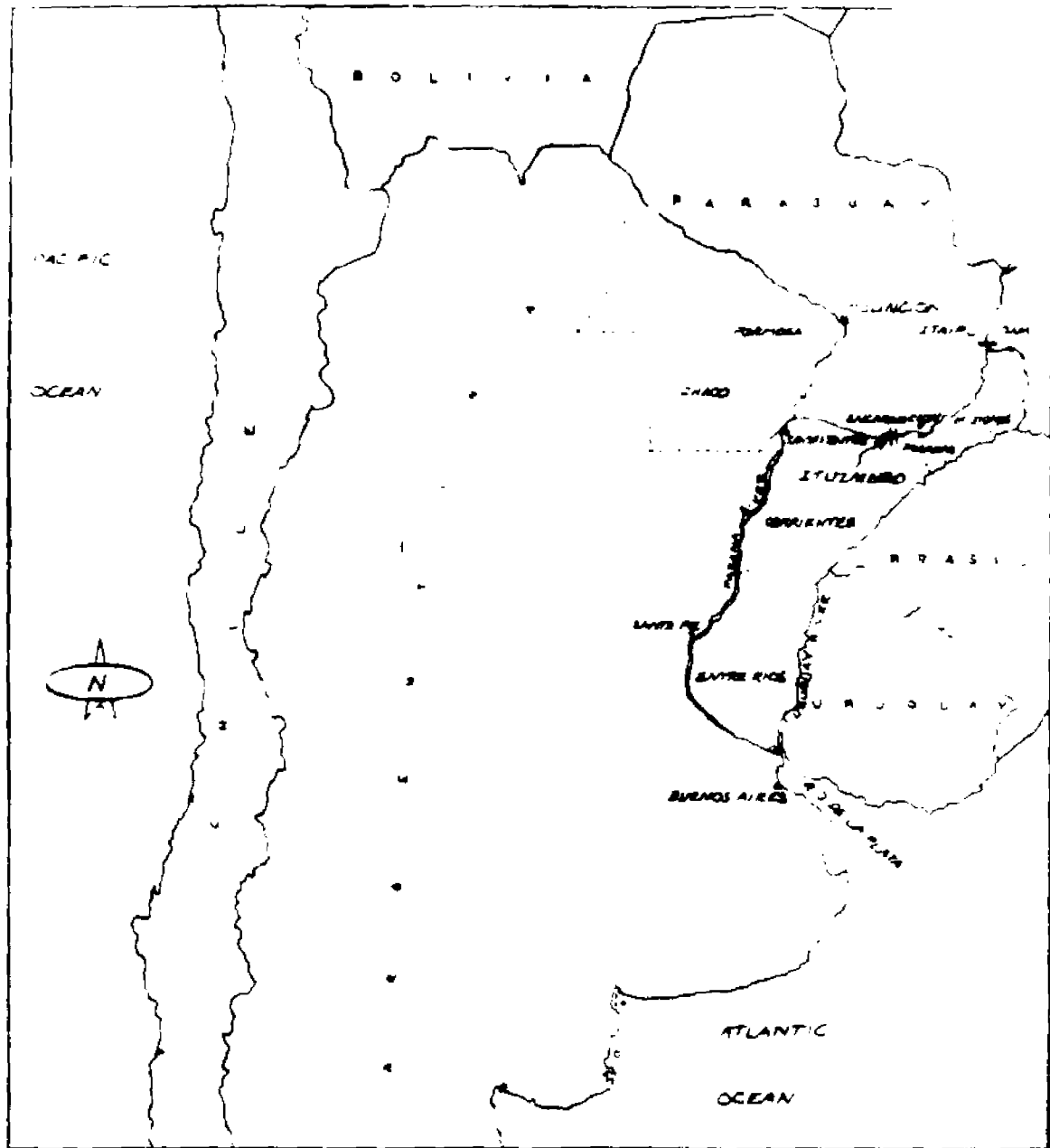
Given the fact that the Yacyreta Hydroelectric High Dam is a binational project, there was a need to grasp a Paraguayan perspective. I soon realized that it would be practically impossible for a single researcher to do justice to the special characteristics of the Paraguayan point of view. Besides the material and time limitations I faced, I developed a sense that prolonged anthropological research would not be feasible in Paraguay. Notwithstanding, I could, however, gain some understanding of Paraguay's position, using, for instance, material on the dam in the Paraguayan press (see footnote 16). Furthermore, I visited a few times the residential infrastructure of the project on the Paraguayan side of the working site area, near the town of Ayolas. There I interviewed officials working for the Entidad Binacional Yacyreta - EBY, focusing specifically on

issues that could clarify Paraguay's perspective on the project. In addition, I made a short trip to Asuncion, where I visited EBY's headquarters in Paraguay, talked to Paraguayan officials, and researched the archives of a local museum that had material on Yacyreta. Undoubtedly this dissertation reflects the fact that research was almost completely carried out in Argentina. But, besides the limitations related to the practicalities of field research, this fact is consistent with the hegemonic role played by Argentina within the project.

Because I was trying to construct a holistic approach to Yacyreta I needed also to consider broader historical, political, economic and sociological contexts. At this level, my objective was to assemble a data basis that would allow me to understand questions such as the relationships of the Argentine and, secondarily, the Paraguayan states to the Yacyreta project; the political-economy of the Argentine energy sector; Yacyreta's political-economic history; the location of a binational project such as Yacyreta within the framework of the disputes among the La Plata River Basin countries; and the importance of the project for regional and national development. To develop a broader vision of my research subject, I interviewed, in Buenos Aires, high-level Argentine officials directly linked to Argentina's energy sector; followed the discussions on this economic sector in the media; interviewed diplomats specialized on the La Plata

River Basin and read published material on Argentina's geopolitical perspective on this South American area; attended seminars where energy specialists discussed related subjects; and did research on material published either by national or international agencies involved with energy production or by specialized Argentine and international periodicals. In the construction of my evidences, a constant preoccupation was to replicate, when possible, information found in one type of source with information found in a different type of source.

A final word should be said on my criteria for selecting informants. I selected key-informants considering the differentiated power of intervention they had on project's affairs and the differentiated power of intervention the project had over them. For that matter, I tried to cover the complete range of individuals who were direct participants in the project, albeit in different positions. Although many of the interviews were carried out in a style that approximates participant observation, doing research in highly hierarchized and institutionalized environments, such as a powerful public corporation, implied a significant exposure to "public relations departments" and, more importantly, to formal ethnographic encounters where informants were aware of their power positions.



ARGENTINE NORTHEAST

MAP 1

MAP 1

CHAPTER II

THE YACYRETA HYDROELECTRIC HIGH DAM.

(1) The Yacyreta Hydroelectric High Dam.

A look at Argentina's main sources of energy production reveals an apparent contradiction. Argentina's largest energy resource is its hydroelectric potential, but its principal source of energy has been petroleum. An explanation for this may lie both in geographical reasons, such as the long distance between the most important consuming centers and the hydroelectric resources as well as in the political and economic history of the different power groups within the Argentine energy sector.

In spite of the influence of the oil and nuclear lobbies (Da Rosa 1983: 104), in the last two or three decades the Argentine state has promoted the planning and construction of several hydroelectric facilities, including the country's four largest: El Chocon, a 1,200 MW dam completed in 1972 on the Limay River, the border between the provinces of Neuquen and Rio Negro; Piedra del Aguila, a 1,400 MW project currently under construction on the same river and provincial border; Salto Grande, a 1,900 MW binational project with Uruguay, completed in 1979, on the Uruguay River; and the Yacyreta Hydroelectric High Dam,

binational with Paraguay, the largest project ever undertaken by Argentina, being constructed on the Parana River.

The Parana is the most important of the rivers making up the River Plate Basin. It is one of the largest rivers in the world because of its flow, its 3 million km² drainage basin and its length of about 4,300 kms. The Parana flows from its source in Brazil into the Rio de la Plata, the estuary between Argentina and Uruguay formed by the Parana and Uruguay rivers (see map 1, pg. 36). Oceangoing ships reach as far as Santa Fe, some 600 kms from Buenos Aires. The Parana crosses some of the richest areas of Brazil and Argentina. Along parts of its length it forms the international boundaries between Brazil and Paraguay, and between Argentina and Paraguay.

The Parana has a great historical, economic and political importance for a vast area of South America. Since colonial times it has been a most important entry-way to the hinterland. It was a never totally developed alternative to link the Potosi mines region of Bolivia to Spain. Until the 1960's when an international bridge over the Parana was built linking Paraguayan markets to the Brazilian Atlantic coast, it was the only access land-locked Paraguay had to world markets.

The Parana river basin has one of the largest hydroelectric potentials in the world, at present developed

mostly by Brazil. Major dams such as Itaipu (12,600 MW), a joint Brazilian-Paraguayan project, are in operation or planned to tap this potential. Da Rosa (1983: 78) lists twenty-five major hydroelectric plants planned or operating on the River Plate Basin¹. Of the twenty-five, twenty are within Brazilian territory; one (Parana Medio) is within Argentina; two (Corpus and Yacyreta) are Argentine-Paraguayan projects; one Itaipu, is a Brazilian-Paraguayan work; and the remaining one, Salto Grande, is an Argentine-Uruguayan dam.

The Yacyreta Hydroelectric High Dam is being built on the Parana River 1,470 kms upriver from Buenos Aires to exploit the potential of the Apipe Rapids. The dam site lies on the stretch that separates Argentina and Paraguay, near the Argentine town of Ituzaingo (Province of Corrientes) and the Paraguayan town of Ayolas (Department of Misiones). Yacyreta is about 100 kms downstream from the cities of Posadas (140,000 inhabitants), capital of the Argentine province of Misiones; and Encarnacion, (30,000) inhabitants, capital of the Paraguayan department of Itapua . Forty thousand inhabitants of these cities are going to be affected by the flooding of an area of 1,700 km²,

¹. The only dam outside the Parana River Basin Da Rosa mentions is the Salto Grande Argentine-Uruguayan project on the Uruguay river. Garabi is another binational hydroproject, this time an Argentine-Brazilian one, planned to be built on the Uruguay river. It is a likely result of the project of integration Brazil-Argentina that is being promoted by the two governments of these countries since 1986.

representing the largest number of persons estimated to be resettled by Yacyreta's reservoir (Bartolome 1984). The formation of the new lake will require the relocation of infrastructure works such as railways, ports, highways, sanitation works and electric and telephone installations.

The working site area of Yacyreta - a binational territory regulated by special laws - covers 1,200 ha. The infrastructure of the project was completed before the start of the main civil works in December 1983. It includes several villages and encampments (see chapter four); approximately 100 kms of access roads in both countries; a 1,500 m long bridge over the Ana-Cua branch, linking Yacyreta Island to Paraguay's mainland. Another 980 m long bridge was later constructed over the Principal branch of the Parana, linking the Island (Paraguay) to Argentina.

Yacyreta's main objective is to provide base-load hydroelectric energy for Argentina's power sector. However, the dam is also presented as a "multi-purpose" project, a term used to qualify several projects. Highlighting secondary benefits and underreporting costs is a common strategy of large scale projects' promoters. Thus, besides its power generation objective, Yacyreta is meant to have developmental impacts upon navigation - by eliminating the rapids of Apipe and constructing navigation locks; irrigation agriculture; flood control; recreation; tourism; fishing; land transport (an international highway passing

over the dam is going to link Paraguay and Argentina); and regional development in general.

Whatever the results of the multi-purpose scheme, the name Yacyreta will always be associated with energy production. Yacyreta is ranked as the world's fourteenth largest capacity hydro plant (Mermel 1987: 43). It is planned to have a final generating capacity of 4,140 MW to be accomplished in two stages. The first includes twenty turbines with a total capacity of 2,760 MW. In the second stage ten additional units will be installed. The first 20 Kaplan turbines (with a rated output of 138 MW each) will be assembled and erected in a powerhouse 1,196m long and 77m wide constructed on Yacyreta Island (Paraguayan territory). Skeleton intakes will be left to receive the ten units of stage two. A re-regulating dam is also planned for second stage construction, located approximately 90 kms downstream from the site where the main facilities are being built. If this re-regulating dam is constructed - it currently has an uncertain future - it would add 330 to 620 MW of capacity, depending on its location.

Yacyreta Island, with an area of 450 km², divides the river into two main channels, the Ana-Cua and Principal branches, on which two closure dams and spillways, with sixteen and eighteen gates respectively, are under construction (see map 2). Besides the power house and the spillways, another important concrete work in Yacyreta is

its navigation lock, constructed on the Rincon de Santa Maria site (Argentine territory). It has a width of 27m, a length of 270m and will allow the passage of ships with a maximum draft of 3.65m, and the lifting of a six-barge tow as much as 23.5m in approximately fifteen minutes. This will be the first lock to operate on the Parana river.

If it is true that there is a world of dam builders, in it Yacyreta is more known for the length of its earth dam than for its works in concrete. Unlike Itaipu, where the Parana runs through a canyon, at the site of the Yacyreta dam the terrain is flat and the Parana is very broad with characteristics of a lowland river. Thus the Yacyreta embankment acquires exceptional proportions. Therefore, despite the scale of its concrete structures - some 3.1 million cubic meters of concrete will be used in the project - the distinctiveness of Yacyreta lies in its total length of 72.5kms, almost 75 percent within Paraguayan territory. This feature translates into different technical and productive implications that also affect the structure of the labor force. For example, earth movement for the construction of this lengthy dike is a central component of the project, implying the use of a great quantity of off-road trucks, some with a total weight of 92 tons when hauling the maximum 55 ton-load, driven by skilled workers. Not surprisingly, the most powerful section of the construction workers' union at Yacyreta is composed of earth

movement workers.

The estimated total costs of Yacyreta have varied significantly. From 1971 to 1987, different sources quote amounts ranging from US\$ 750 million, the estimated cost when the bid for the feasibility study was announced, to US\$ 10,7 billion. The following graph illustrates the variation of the estimates over time (see graph 1).²

The impressive fall in 1986 is due to a rescheduling of the work, done in 1985, that reduced the total cost of the project by lessening the maximum of the labor force from 9,000 to 6,000 workers thus extending the work over time. Presently, the expected total period of construction is twelve years instead of the ten years previously planned. The final shape of this graph changes radically if the US\$ 14 billion estimated total cost divulged in 1987 in Buenos Aires is anywhere near correct. After the rescheduling, 1992 became the deadline for the start of the operations of the first turbines.

This section was a descriptive introduction to some outstanding characteristics of the Yacyreta Hydroelectric High Dam. The civil engineering and electromechanical features of a hydroproject are set forth in a set of complex

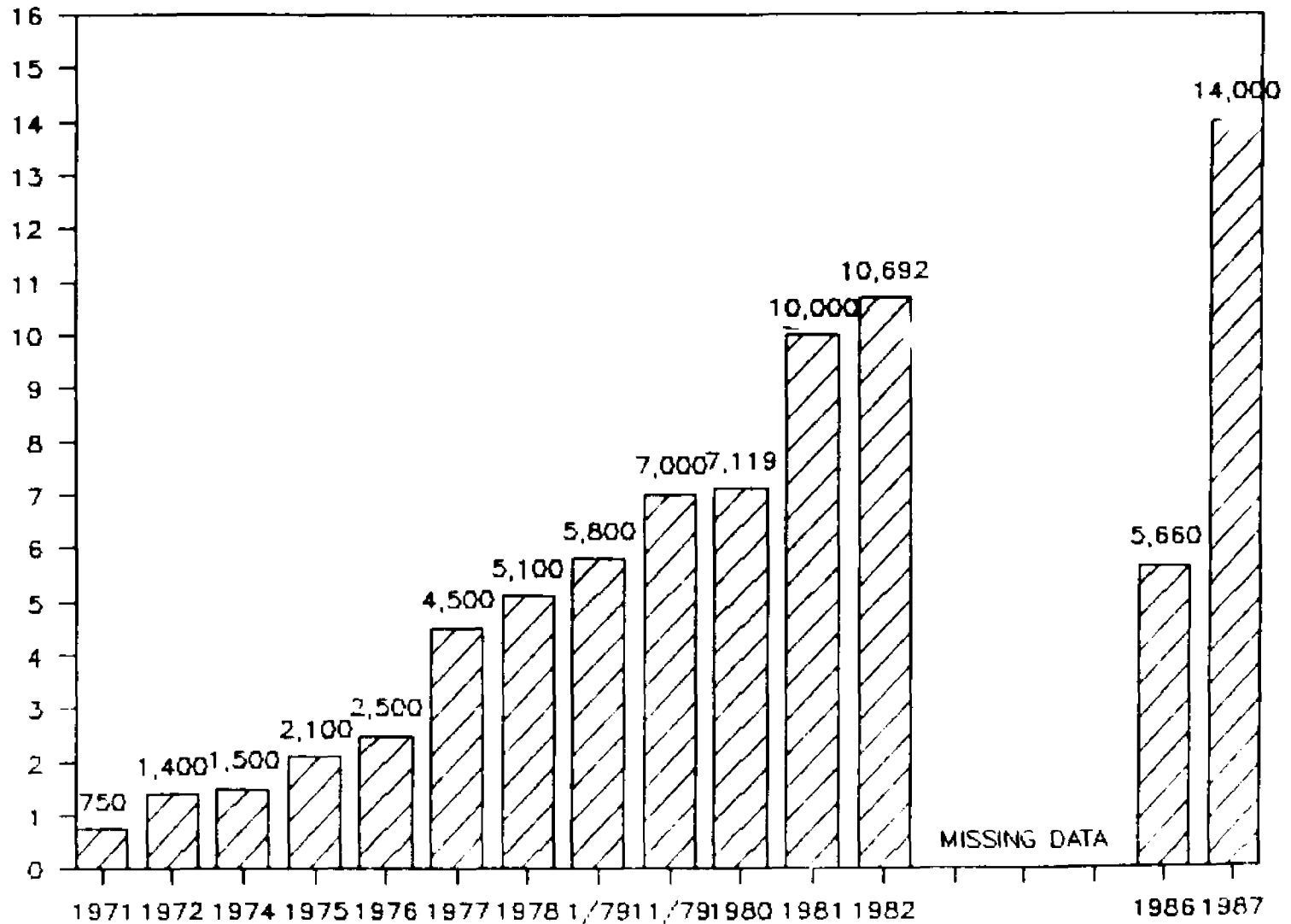
². In the preparation of this graphic I used data provided either by Argentine newspapers based on informations of this country's energy authorities, or by official publications related to the project. The estimate of US\$ 14 billion was made by a report of the Argentine intelligence service (see El Informador Publico, Buenos Aires, January 16th, 1987).

VARIATION IN ESTIMATES OF TOTAL COSTS

IN MILLIONS OF DOLLARS

GRAPH 1

(Times 1000)



studies prepared by different specialists - professionals linked to the water and energy development industry - such as civil and electric engineers, and geologists. It is self-evident that my aim was not to reproduce this kind of description ³.

From the point-of-view of a researcher in the social sciences, the technical studies are the source of descriptive information, guidelines that allow a plan to become reality. They are seen as blueprints that are marked by a given capacity of knowing and solving problems, i.e. they are social products relative to a given historical time with its possibilities of interpreting and changing natural and social realities. Actually a project is always an approximation. Its full a priori technical determination is practically impossible since several features of a work are subject to change, caused, for instance, by unforeseen physical characteristics of the terrain that may alter the requirements of the foundations, natural disasters, and economic, social and political factors that interfere in the scheduling or design of the work. Yacyreta is a case in point. Dam alignment was a major political issue between Paraguay and Argentina because of differential flooded areas in each country. Yacyreta's final design is as much a result of political dynamics as of technical considerations (see

³. My main sources for elaborating this section were EBY (1978 to 1981, 1983-1984), Harza News (1980) and Revista Construcciones (1985).

this chapter's third section). In this sense, an engineering structure reflects not only technical knowledge as an abstraction but also, and more importantly, the particular combination of people and institutions that are responsible for its elaboration and development. In order to appreciate this aspect of the planning, we now turn to the institutional characteristics of Yacyreta.

(2) Owner, Consultant, Main Contractor: the Institutional Triangle.

The most common model for the development of large scale projects is based on an institutional triangle composed by the owner, the consultant firm and the main contractor.

The owner is most often a public corporation. It leads the project in its preliminary phases since it organizes the competitive bids through which the other members of the institutional triangle are selected. It also promotes the technical and financial arrangements necessary to start both infrastructure and main civil works. Since the owner is responsible for the institutional relationships with other state organisms, and for the future operation of the facilities, it is the most visible public face of a project.

The consultant is most often a consortium of several national and international engineering firms. It is usually

responsible for the technical guidelines of the project from the feasibility studies to the final planning and design of the work. The consultant is selected in international competitive biddings. It is a powerful actor not only because of its planning, supervising and monitoring functions, but also because it is highly influential, with its technical advising, in the process of selecting the main contractor. Despite its power, the consultant occupies the most discreet position within the institutional triangle. This situation is assured by the relatively small size of the consultant organizational structure compared to that of the owner and main contractor, and by the related facts that it does not have either the public political accountability typical of the owner's position, or the large number of employees of the main contractor. On the contrary, in institutional terms, the consultant is characterized mainly by exclusive technical objectives and its staff of mostly highly qualified personnel. For these reasons, the consultant tends to be the least visible of the three main entities participating in a project.

The main contractor is often a consortium of national and international construction firms responsible for the execution of the works. The contract for the main civil engineering work is usually the largest within a project and is awarded through international competitive bidding. The main contractor tends to become the most important

actor once the construction of the works starts since, in its executive role, it controls the intricacies of the productive process of the facilities. For this reason, it develops a great amount of differentiated knowledge on the characteristics of the work. This generates an asymmetry of information possessed by each member of the project's institutional structure. In consequence, the public corporation (the owner) moves from the leading position of the first stage of a project's organization to a more vulnerable situation. In fact, during the construction of the main civil works, the state has the ownership of the project but does not really control the process. Given the extensive labor force needed to develop a large scale project, the main contractor is also the main employer of both skilled and non-skilled workers. The main contractor's public visibility is also determined by the impressive quantities of resources it manages and by the labor conflicts that unfold during the construction period.

These are the basic characteristics of what I call the institutional triangle. This triangular structure is visible down to the level of the working place, in the simultaneous presence of the main contractor executing the work, of representatives of the consultant supervising the execution of tasks, and of agents of the owner checking and controlling the operation of the system.

(i) The Owner: the Entidad Binacional Yacyreta (EBY).

Yacyreta, like most large-scale projects, has its own pre-history, i.e. a set of previous studies or statements on the importance of accomplishing the construction work. Indeed, the idea of constructing a dam on the site where it is currently being built was formulated in 1920 when the Argentine port authority commissioned a study that included an assessment of the hydroelectric potential of the Apipe Rapids. In 1928 and 1954 other studies were carried out corroborating this assessment.

In the first stages of the Yacyreta project, when the political decision of building the dam had not yet been reached, the main step consisted of the creation, in 1958, by the Argentine and Paraguayan states, of a binational organism, the Comision Mixta Tecnica Paraguayo-Argentina (CMT) - the Mixed Technical Paraguayan-Argentine Commission, the embryo of a future powerful corporation. The CMT was formally established in Buenos Aires on November 3rd, 1960. It was meant to promote technical and financial studies, and to articulate the complex political and administrative processes that resulted in the creation of the public corporation responsible for the developments of the works.

The signing of the Treaty of Yacyreta on December 3rd, 1973 by the Argentine and Paraguayan governments, marked the culmination of the processes of lobbying and bureaucratic

organization that intensified during the last years of the 1960's. The Treaty represents the legal instrument formalizing the intention of the two countries to build the dam. It created the Entidad Binacional Yacyreta (EBY) - the Yacyreta Binational Entity - that was given the "juridical, financial and administrative capacity, and also technical responsibility to study, project, manage and execute the works (...) to operate and exploit them as a unit from the technical and economic point-of-view" (EBY 1986: 5). Besides co-ownership of facilities, the Yacyreta Treaty stipulated equal rights to the energy generated by the dam, and a preferential purchasing right over the surplus energy not used by either of the two countries (EBY 1986: 9). The treaty also defined in its article XI that in-as-much-as possible and within comparable conditions, skilled and non-skilled man-power, equipment, material and services should be used in equal proportions from both countries.

The Entidad Binacional Yacyreta (EBY) was formally established on September 6, 1974, with headquarters in Buenos Aires and Asuncion, with a capital of US\$ 100 million equally shared between Agua y Energia Electrica (AyEE), the Argentine power authority, and Administracion Nacional de Electricidad (ANDE), Paraguay's power authority. Besides its Buenos Aires and Asuncion's offices, EBY has one office in Posadas (Province of Misiones, Argentina) and another in Encarnacion (Department of Itapua, Paraguay). These

regional headquarters are responsible for the resettlement of the population to be affected by the future reservoir. EBY also has field offices in the permanent villages constructed on both sides of the working site in the Argentine town of Ituzaingo, and the Paraguayan town of Ayolas⁴.

The statutes of the Binational Entity, an annex to the Treaty, specified that the members of the Board of Directors, and of the Executive Committee, the highest decision-making bodies within EBY's organization chart, should be appointed half by the Argentine government and half by the Paraguayan one. The statutes also established an "alternate principle" (EBY 1986: 19) within the Entity's power structure, in accordance with which the Executive Committee positions occupied by Argentine officials for one period should be exercised by Paraguayans in the subsequent mandate, and vice-versa. However, in a side letter signed simultaneously with the Treaty (EBY 1986: 67-69) Argentina and Paraguay agreed that during the first two five-year periods, i.e. until September 6, 1984, the strategic Executive Committee positions of Executive, Technical and

4. EBY's staff has increased as follows:

<u>Year</u>	<u>Paraguayan Personnel</u>	<u>Argentine Personnel</u>	<u>Total</u>
1978	239	211	450
1979	293	296	589
1983	352	345	697
1984	363	472	835
1987 (Feb.)	495	554	1,049

Financial Directors would be appointed by Argentina and the Legal, Administrative and Coordination Directors by Paraguay.

In fact, Argentina is the country that has led the project. The Argentine state has historically been the main promoter of the idea and necessity of building the Yacyreta dam. Paraguay's share of EBY's capital, for instance, was provided by an Argentine loan of US\$ 50 million to the Paraguayan power authority (EBY 1986: 7). It is also the Argentine government that finances with internal and external funds the costs of the project, the largest ever developed by Argentina. Yacyreta consumes more than 50 percent of the investments made in public works in this country, a considerable burden, specially in times of recession, for a heavily indebted state. International loans are exclusively guaranteed by the Argentine government. Once power will be generated, Paraguay - which is entitled to 50 percent of total power generation - will pay its share of the investment by selling energy to Argentina.

The significance for Argentina of keeping a leading position in the project's daily management was clear in an administrative reform carried out in 1982. Under Argentine initiative, both the government of Argentina and Paraguay agreed on December 2nd, that the Executive Director's term to begin on September 6, 1984, would be defined once more by the Argentine government (EBY 1986: 151). In reality,

Argentine officials will occupy the position of Executive Director, EBY's highest office, for three consecutive five-year periods. The administrative reform was also meant to rationalize EBY's bureaucratic and managerial organization, specially by reducing from twelve to two the number of members of the Executive Committee, thus facilitating the decision-making process by concentrating power in the figure of the Executive Director.

The internal administrative structure of the Binational Entity is marked by the six governments Argentina went through since the Entity's formal establishment in September 1974 (see table pg 71). From the Peronist government of Maria Estela Martinez de Peron (July 1st, 1974 - March 24th, 1976), to the four generals that headed the Military Juntas of the dictatorship of March 1976 to December 1983, and, finally, to the Radical Party administration of Raul Alfonsin which took office on December 10, 1983, the Yacyreta Binational Entity was managed by eight different Executive Directors. Each of them represented different connections with the different sectors that struggled for power during this period. The result was a layered structure within the Argentine administrative composition of the Binational Entity, formed by several waves of officials and employees linked to the successive power groups that occupied the institution's top positions.

During the new constitutional government inaugurated in

1983, the relationship between politics and the EBY's administration became explicit. A veteran member of the nation's ruling Radical Party, a lawyer and politician from the province of Corrientes, was nominated to the position of Executive Director. This move was intended both to politicize a supposedly purely technical-economic structure and to respond to Corrientes' (the province where Yacyreta is being built) longstanding claims against the centralization of the project's affairs in Buenos Aires⁵. Correntinizar became a fashionable word.

In the process of regionalizing and politicizing EBY's power structure several correntinos and members of the Radical Party were incorporated into the Argentine staff in different positions. Despite the fact that the elite of the province of Corrientes was guaranteed unprecedented influence over the Yacyreta project, the effort to promote regional participation and development proved to be fruitless. The main reasons for the failed attempt were both the regional elite's clientelistic conceptions of the management of the immediate benefits of the project (such as job distribution), and its inability to deal with an enterprise that is basically oriented by the interests of national and international power groups. Being powerful in

⁵. Porteno's centralism is a historical issue in Argentina. Indeed, Buenos Aires is a clear example of a primate city that dominates a vast national space. For a discussion on the formation of the Argentine economic space see Roffman & Romero (1974).

Corrientes is not the same as being powerful in Buenos Aires, especially when the scenario of the power struggle is heavily fetichized by discourses based on engineering and financial technicalities.

The retreat was foreseeable: the establishment of another "technical" administration in June 1985. A new Executive Director, an engineer averse to public notoriety, grounded the project again in the cold foundations of technocratic reason. Yacyreta demonstrated once more that the preferential image of a hydroelectric project is one depicting it as a pure "technical affair".

(ii) The Consultant: Harza y Consorciados, Consultores Internacionales de Yacyreta - CIDY.

The prefeasibility study of Yacyreta was prepared by the Mixed Technical Paraguayan-Argentine Commission (CMT) and was completed in 1964. In 1969, after a period without any major initiatives, West Germany made a loan of DM 12 million to the Argentine government for the development by German and Argentine consultants of studies related to the Yacyreta project (El Clarin, Buenos Aires, November 10, 1969). In 1971 the CMT called an international competitive bidding to select a consultant firm to prepare a feasibility study. There were speculations in the Argentine press as to whether national participation would be effective within the

would-be consultant and whether Paraguay was as interested in Yacyreta in as much as its partnership with Brazil in the Itaipu binational hydroelectric project, then also in its negotiating stages (El Clarin, January 20, 1971).

The request for proposals for a complete technical and economic feasibility study specified that the proponents should be independent consultants from the United States, Canada, Western Europe and Japan, in each case to be associated with one or more independent Paraguayan or Argentine consultants who should participate to the extent of no less than 50 percent. Selection of the consultant would be made on the basis of qualifications, not on price. Five consortia presented themselves. Besides the mandatory Paraguayan and Argentine partners, there were firms from Germany, Sweden, Great Britain, Switzerland, Italy, USA and Canada (El Clarin, Buenos Aires, June 16, 1971). On August 31st, 1971 the Mixed Technical Commission announced the winner of the US\$ 4,785,000.00 contract, Harza & Asociados, an international consortium of consultants, formed by Harza Engineering (the lead firm, from Chicago, USA), Lahmeyer International GmbH (Frankfurt, West Germany), Analisis y Desarrollo Economico S.A. (Buenos Aires, Argentina), Yacyreta S.A. (Asuncion, Paraguay) and Cuyum S.A.T.C. (Buenos Aires, Argentina). A fifteen month term was established for completion of the feasibility study. The contract was signed in Asuncion on October 20th, 1971 in the

presence of Argentine and Paraguayan authorities.

The preparation of the feasibility study represented a significant step toward the signature of the Yacyreta Treaty. The study was formally completed in December 1973, the same month the treaty was signed, and, among other things, it defined at the feasibility level, the dam's alignment, a major issue between the two countries given the greater amount of Paraguayan territory to be flooded by the reservoir.

In 1973 the Mixed Technical Commission (CMT) called another international competitive bidding to select the consultant for the preparation of the final design and for the technical supervision of project's execution. Four international consortia, including Harza & Associates, entered the competition. However, this time the bidding procedures of this multi-millionaire contract was surrounded by a controversy on the fairness of the selection. In contrast to the first awarding of the feasibility study that was done during the military government of General Alejandro Lanusse (March 23, 1971 - May 25, 1973), this bidding process was carried out under civilian rule, and its final stages were defined under the constitutional presidency of Juan Domingo Peron (October 12, 1973 - July 1, 1974). Argentine Congressmen and the press echoed charges that the selection was going to be decided under the pressures of a pro-Harza Paraguayan lobby, despite the fact that the

feasibility study had not proved to be totally satisfactory for the CMT⁶. The impasse was due to the fact that Harza did not win the highest score in this bidding process. During June 1974 the CMT held several meetings to solve the question. On June 17, 1974 the Mixed Argentine Paraguayan Commission decided that Harza, Lahmeyer and associates were going to be hired again as consultants.

Most of the final design for the project was done during the period of 1974-1978. The consultant also designed the infrastructure works related to the relocation plan. Currently, Harza & Consorciados, Consultores Internacionales de Yacyreta (CIDY), the consultant's new name, is a consortium formed by Harza, the American lead firm, Lahmeyer, the German partner, COADY, a group of six Argentine engineering firms, and ETIC, a group of six Paraguayan engineering firms. CIDY has a total of four offices, distributed in Asuncion and Buenos Aires (the two main design offices), and on the Paraguayan and Argentine sides of the dam's working site (field offices)⁷.

The 1974 decision to continue with the services of Harza proved to be a continuing issue related to the interactions of the several interest and power groups that

⁶. For this period see: El Clarin, June 9, 1974; La Nacion, June 13, 1974; La Razon, June 23, 1974; La Prensa, June 25, 1974.

⁷. In June 1984 CIDY had a staff of 333 persons, 107 in Asuncion, 151 in Buenos Aires and 75 in the working site. Almost 36% of the total number were professionals (CIDY 1984).

got articulated within and around the Yacyreta project. In the first months of 1975, during the last Peronist government, the question of the fairness of the bidding process was reopened by an Argentine Congressman, member of the then opposing Radical Party, who demanded whether the Argentine authorities had acted in the country's best interests. Later, in October 1980, during the Argentine military regime of March 24, 1976 to December 10, 1983, an ultra-nationalist vice-admiral, representative of a conservative right-wing sector of the Argentine Armed Forces and former vice-president during two military governments in the 1950's, declared that the awarding of the consultancy contract was a "transaction between Harza-Lahmeyer and general Alfredo Stroessner", Paraguay's president since 1954. These declarations caused considerable diplomatic malaise between Argentina and Paraguay. The vice-admiral was arrested for his statements ⁸. After the inauguration of the new constitutional Argentine government on December 10th, 1983, the Peronist opposition would recall the "doubtful circumstances of the hiring of the consultant" (Tiempo Argentino, Buenos Aires, January 27, 1984).

In fact, since its first 1971 contract, the consultant firm has been the center of several contentions, most of

⁸. In relationship to these questions see El Dia, La Plata, February 2, 1975; Gaceta, La Plata, March 14, 1975; La Nacion, October 8, 1980; ABC-Color, Asuncion, October 9 and 10, 1980; El Clarin, November 1, 1980. See also El Litoral, Corrientes, November 26, 1980.

them related to its relationships with different segments of the political and economic power system in both countries. In consequence of its international composition and geographical distribution, the consultant operates in a context where it manipulates and responds to pressures of the Argentine and Paraguayan states as well as of private construction companies of these countries and others interested in the construction project. Perhaps the clearest example of such a situation was the long and contradictory process of selection of the main contractor in the early eighties (see next section). CIDY's Asuncion office had positions closer to Paraguay's interests. The contrary was true for its Argentine office. Later in 1986, when the consultancy contract was being renegotiated, one sector of the Peronist opposition questioned the relationships between a powerful member of the ruling Radical Party and the highest decision-making levels of Harza and Associates. CIDY's contract was renewed in 1986, for US\$ 132 million, for a period ending in December 1996.

Given that CIDY is led by a US firm and, secondarily, by a German one, a significant part of the dam's project was designed outside of Argentina and Paraguay. The fact that the main guidelines of the planning were defined abroad, or by foreign firms that dominate the engineering process, is an indication of the non-local or extra-regional nature of the project that is clearly perceived by local and regional

actors who frequently refer to this situation. Indeed, foreign professionals, hired by the American and German partners of CIDY's consortium, hold important management positions within CIDY's hierarchical structure. They receive higher wages defined at the level of the international market. In Argentina, where engineering is a long established profession, foreign participation is viewed in terms of the economic and technological dependency they imply. After December 1983, with the new constitutional government, the foreign contribution has declined supposedly due to a relative increase in power on the part of the Argentine professionals.

(iii) The Main Contractor: Empresas Reunidas Impregilo-Dumez Asociados para Yacyreta - Union Transitoria de Empresas, ERIDAY - UTE.

On September 15th, 1983, after what is likely to be one of the longest and most complicated examples of bidding processes, the Entidad Binacional Yacyreta announced the awarding of a US\$ 1,4 billion main civil works contract to a consortium called Empresas Reunidas Impregilo-Dumez y Asociados para Yacyreta - Union Transitoria de Empresas, ERIDAY-UTE, (United Enterprises Impregilo-Dumez and

Associated for Yacyreta - Transitory Union of Enterprises)⁹. This represented the end of a highly aggressive competition - with mutual accusations of incompetence and corruption between the two final bidders for the so-called YC-1 billionaire contract. The consortium that won the contract was precisely the fusion of the last competing bidders, themselves two consortia, one led by the Italian firm Impregilo S.p.A. (Milan), an association of three Italian contractors specialized in the construction of large scale projects outside of Italy, and the other led by Dumez S.A. (Nanterre), a French firm interested in entering Argentina's large-scale project's market traditionally dominated by Italian capital. Impregilo and Dumez accelerated their fusion to facilitate the awarding of the YC-1, since Argentine internal and external politics were rapidly changing in consequence of the military defeat in the Malvinas War against England (April 2 -June 14 , 1982). The post-Malvinas presidency of General Bignone was clearly a transition towards a democratic government. The lobbies with which both Impregilo and Dumez were connected would certainly suffer with the deterioration of the military regime power. Furthermore, a boycott that the European

⁹. From the announcement of a pre-selection of proposals that was to be made during 1977's first semester (see El Constructor, Buenos Aires, December 20, 1976) to the awarding in September 1983, the bidding process of this contract took almost seven years. I discuss this process in the next chapter.

Economic Community had held against Argentina because of the Malvinas war, also preoccupied Impregilo and Dumez. Opinions were heard in Argentina against the awarding of the country's largest work to companies whose home countries had supported England in the international scene.

ERIDAY, the ad-hoc consortium for Yacyreta, was the legal solution that satisfied the thirty-two contractors that it comprised (thirteen led by Impregilo, nineteen led by Dumez); the World Bank and the Inter-American Development Bank that were supervising the bidding process since they had committed US\$ 210 million each for Yacyreta's construction; and different interest groups that were articulated either within and around the consultant (CIDY) or within and around the Binational Entity (EBY) both in Paraguay and in Argentina. The bidding process of the YC-1 contract was carried out in a seven-year period, a time that almost precisely coincides with the duration of the last Argentine military dictatorship. In consequence, the bid reflects the different contradictions of this period. EBY's decision to award the contract was undoubtedly made considering the imminence of the new constitutional government. It was formalized less than two months before the election of the new civilian rulers.

ERIDAY is a complex combination of international and national capital represented by thirty-two contractors. It has offices in Buenos Aires, Asuncion and on Yacyreta's

working site. Besides the Italian Impregilo that leads the consortium, and French Dumez, the co-leader, it includes four other Italian firms, two German ones, one Uruguayan, ten Paraguayan and thirteen Argentine¹⁰. ERIDAY's internal power structure is a function of each company's share of the consortium. Impregilo nominates the general manager and Dumez the vice-general manager. There are two sub-managers,

¹⁰. The thirty-two firms in ERIDAY are divided into an Impregilo group and a Dumez one. The first thirteen firms in the list that follows compose the Impregilo group. The other nineteen are the Dumez associates. 1. Impresit-Girola-Lodigiani IMPREGILO S.p.A., Milan, Italy; 2. Dott. Ing. Giuseppe Torno e Co. S.p.A., Milan, Italy; 3. Recchi S.p.A. Costruzioni Generali, Turin, Italy; 4. Italstrade S.p.A., Milan, Italy; 5. Compania Constructora de El Chocon Impregilo Sollazo S.A., Buenos Aires, Argentina; 6. Sollazo Hnos. S.A. Empresa Constructora Ind. y Com., Buenos Aires, Argentina; 7. Supercemento S.A.I.C., Buenos Aires, Argentina; 8. Conevial S.A.C.I.C.I.F., Buenos Aires, Argentina; 9. Sideco Americana S.A.C.I.I.F. (ex Impresit Sideco S.A.C.I.I.F.), Buenos Aires, Argentina; 10. Polledo S.A.I.C.F., Buenos Aires, Argentina; 11. Benito Roggio e Hijos S.A., Buenos Aires, Argentina; 12. Consorcio de Empresas Constructoras Paraguayas S.R.L., Asuncion, Paraguay; 13. Empresa Alvaro Palenga S.A., Montevideo, Uruguay; 14. Dumez S.A., Nanterre, France; 15. Ed. Zublin Ag, Duisburg, West Germany; 16. Dyckerhoff & Widmann Ag., Munich, West Germany; 17. Cogefar Costruzioni Generali S.p.A., Milan, Italy; 18. Jose Cartellone Construcciones Civiles S.A., Buenos Aires, Argentina; 19. E.A.C.A. S.A. de Construcciones, Buenos Aires, Argentina; 20. CODI S.A. and BABIC S.A., Buenos Aires, Argentina; 21. Petersen, Thiele y Cruz S.A. de Construcciones y Mandatos, Buenos Aires, Argentina; 22. Marengo S.A., Buenos Aires, Argentina; 23. Bidas S.A.P.I.C. y Tecno Bidas S.A. I.C.I.F., Buenos Aires, Argentina; 24. SACIFI S.I.F.I.S.A., Asuncion, Paraguay; 25. Promotec S.A., Asuncion, Paraguay; 26. Emparcon S.R.L., Asuncion, Paraguay; 27. Compania Integral de Construcciones y Asociados, Asuncion, Paraguay; 28. Empresa Constructora Atilio Heisecke S.A., Asuncion, Paraguay; 29. Electromec S.A., Asuncion, Paraguay; 30. Coservi S.A., Asuncion, Paraguay; 31. Arquitecto Jose Puentes y Asociados, Asuncion, Paraguay; 32. Ing. Francisco Scorza, Asuncion, Paraguay.

one nominated by the Argentine firms and the other by the Paraguayan group, completing the Board of Directors. The contract signed by the thirty-two companies assures the control of ERIDAY by Impregilo and secondarily by Dumez. Despite the contractual formalization of its overall power structure, ERIDAY's daily decision-making is often complicated by the clash of Italian and French managerial and technical conceptions. Italian and French managers perceive each other in terms of their ethnic identities and of their differential previous experiences with other large scale projects¹¹.

The most sensitive issue during the final stages of the negotiations for the establishment of ERIDAY was the percentage of each company's participation, especially of the Paraguayan and Argentine ones. Negotiations were held by the consortia led by Impregilo and Dumez. From the beginning, Impregilo's position was that it would not accept a solution that did not include its leadership of the new consortium (El Cronista Comercial, Buenos Aires, August 5, 1982). The idea was that the consortia led by Dumez and

¹¹. In February of 1986, ERIDAY's European personnel - mainly composed of managers and technicians - was the following: 87 Italians, 47 French; 10 Germans; 03 Austrians and 01 Spanish, in a total of 148 persons, the great majority (94 percent) working at the dam's site. In January 1987 there were 129 Europeans, representing 2.3 percent of ERIDAY's total labor force of 5,627 persons. The ethnic segmentation of the labor market is a central feature of large scale projects. For a discussion on labor force's characteristics see chapter five.

Impregilo would share the contract in equal parts, keeping their internal divisions. The Paraguayan firms argued that their share of the consortium should be of 25 percent and not the 15.25 percent that was being discussed. Despite arguments on the risks for "national sovereignty" a smaller share would imply, Paraguayans accepted the 15.25 percent participation in the new society and the offer of constructing 12 to 14 percent of the main civil works. Argentina accepted its 34.75 percent share in the consortium without discussion but argued for the construction of 24 percent of the civil works instead of the proposed 12 percent (Hoy, Asuncion, February 10, 1983). The final ratios of the Argentine and Paraguayan participations were not officially revealed, but they are supposed to be either the same or close to those mentioned above. Apparently, as part of these negotiations, Impregilo and Dumez also increased Paraguay and Argentina's participations in the main civil works by hiring their Paraguayan and Argentine partners as sub-contractors (ABC-Color, Asuncion, February 19, 1983; La Prensa, Buenos Aires, February 22, 1983).

National Paraguayan and Argentine participation has been a permanent issue within the Yacyreta project. It is specially true for the daily management of the civil works since ERIDAY - an European controlled consortium - is the most powerful of the actors operating in the construction area. The struggle for defining each company's ratio within

the consortium is an example of the negotiations into which national and international corporations entered to defend their interests. A thorough understanding of the national/international composition of ERIDAY needs to include the evident participation of Italian capital (some of it related to Impregilo) within some of the Argentine companies that are members of Yacyreta's main contractor. Moreover, not a long time after the constitution of ERIDAY, the Paraguayan Construction Chamber denounced the possibility that a Paraguayan consortium associated with the Dumez group was going to sell a substantial part of its participation to an Italian firm associated with Impregilo's group. Apparently, the negotiations were not completed (Hoy, Asuncion, April 8 and April 15, 1984). For the Paraguayan Construction Chamber, though, it was an indication of the existence in Paraguay of pseudo-construction firms that would participate in the bids only to meet formally the legal conditions related to national capital participation.

(3) The Meaning of Binationality.

This section's main focus is on the binationality question, it provides an example of how the intricacies of Yacyreta's political economy relate to the complex

articulation of different power groups over time¹² .

Yacyreta has two characteristics that increase the complexity that any large scale project represents as an object of analysis: its binationality and its rather long history that traverses an unstable period of Argentina's political and economic life. In this connection, the analysis of Yacyreta must consider (a) the relationships between the Argentine and Paraguayan states, (b) their respective positions within a regional South-American system, (c) the capacity of other states, multilateral financing agencies and multinational corporations to pressure one state or the other in search of their own interests, (d) the changing dynamics of the different power groups struggling for hegemony within each state (especially Argentina).

The political administrative reality of the Yacyreta project must be understood in light of the power relations between the Argentine and Paraguayan states which, in turn, are inserted within the larger context of the international relationships in this region of South America.

Since colonial times Paraguay and Argentina have a history in many ways related to the Rio de la Plata and its tributaries, the Parana and Paraguay rivers, that were a natural entrance for the Spaniards into the South American

¹². This discussion will be completed with the analysis of the awarding of the turbines contract and the main-civil works contract in the next chapter.

hinterland. Control of the River Plate was a role Buenos Aires historically performed. Land-locked Paraguay depended exclusively on this route to trade with world markets until the 1960's, when the growth of Brazil's southeastern economy with its land transportation system created an alternative that linked Paraguay, via Brazilian harbors, to nations other than its neighbors.

Paraguay, Argentina and Brazil have a long history of triangular relationships. The last two countries are the largest South American powers and have - with more or less intensity - exerted their hegemony to place Paraguay under their political and economic influence. In the 1960's and 1970's, regional hegemony was a main issue between the governments of Argentina and Brazil, and the River Plate basin its scenario (Da Rosa 1983; see also Betiol 1983: 13-42). Brazil had built several hydroelectric dams in the Parana river basin and was in the process of beginning the construction of the world's largest capacity hydro-plant, Itaipu (12,600 MW), with Paraguay.

Following frontier incidents in 1965, caused by a controversy on boundary's limits, Brazil and Paraguay signed in 1966 an agreement on the common exploitation of the Parana river waters. This document is considered the precursor of the Itaipu Treaty (Betiol 1983: 18). Indeed, the disputed area between the two countries was to be flooded by the construction of Itaipu. The fact that the

Brazilian/Paraguayan agreement did not include consultations with the downstream countries (Uruguay and especially Argentina) on the use of the international waters of the Parana, caused considerable malaise. In consequence, the decision to construct Itaipu resulted in a significant deterioration of Argentine-Brazilian relationships. In this context, the possibility of building a third binational project, Corpus, was brought into play. This is another Argentine-Paraguayan hydroelectric plant which site lies on a stretch of the Parana river between Yacyreta and Itaipu, creating hydrologic interdependency between these three dams. Whether Corpus is going to be constructed or not is still, at the present, a matter of controversy in Argentina. However, Corpus strengthened Argentina's position. The interdependency between Itaipu and Corpus in terms of the maximization of the use of the river potential, led to negotiations that resulted in a trilateral agreement, the Accord Itaipu-Corpus, signed on October 19th, 1979, through which the major issues related to the international status of the Parana river were resolved (Da Rosa 1983: 95-96).

The decision to construct the Yacyreta dam is intimately related to geopolitical interpretations on Brazil's influence over Paraguay and Argentina's northeast (especially the Provinces of Misiones and Corrientes)¹³. The

¹³. Geopolitical interpretations are rather diffused in Argentina conforming an ideology especially cherished by

Itaipu Treaty was signed on April 26, 1973, providing the basis for the text of the Yacyreta Treaty, signed less than eight months later (see El Cronista Comercial, Buenos Aires, September 24th, 1973; and Betiol 1983: 27). In fact, one high level official of the Argentine energy sector, a specialist in Yacyreta, stated that the Treaty of Yacyreta is a translation to the Spanish of the Treaty of Itaipu.

Yacyreta was a "geopolitical response" to the growth of Brazil's influence and to what was considered Brazilian control over the Parana river which would be considerably increased by Itaipu. In addition to more classical discourses legitimating large scale projects, anchored either in such technocratic arguments as that Yacyreta was the "least cost solution" for Argentina's energy needs, or in developmentalist conceptions that fostered the idea that

military governments and some nationalist political sectors (for a typical example of an ultra-nationalist interpretation see Rojas et al 1980). On the other hand, the perception of the Brazilian state as an imperialist one is not uncommon in Spanish-speaking South America. There are at least four main reasons to sustain this vision. One is that the common Spanish colonial past shared by these countries imply a Spanish centered historical point-of-view. Brazil's expansion is often interpreted from the unrespectful Portuguese that crossed the lines of the Tordesilhas Treaty that divided what should be the Spanish and Portuguese empires in the New World. The second reason is that Brazil has incorporated in the past areas of other neighboring countries. The clearest example is the purchasing from Bolivia of what today is Brazil's Acre state. The third point is that the dynamics of Brazil's economic frontier pressures the neighboring areas of countries such as Paraguay, Argentina and Bolivia. Finally, the fourth reason is the ideology of some Brazilian military and political sectors of transforming this country into a world super-power.

the hydroelectric dam would promote socio-economic growth - the Argentine state legitimated the work taking into account its "geopolitical importance". A statement synthesizing geopolitical arguments offered by various sources might run as follows:

"Making abstraction of the different political frontiers of the River Plate Basin countries (Argentina, Bolivia, Brazil, Paraguay and Uruguay) it will be seen that everything disappears but two important economic axes, those of Rio-Sao Paulo and Buenos Aires-Rosario. Bolivia and Uruguay are too peripheral to the system, but the same is not true of Paraguay, the battleground where the hegemonic destiny of the region will be decided until mid XXIst century. The hydroelectric works are bridgeheads of this battle that will define the use of this region's rich resources. The energy they will produce is a secondary fact when their geopolitical importance is considered. Brazil has begun this process. Argentina has to match it if it wants to expand its economy and not become a Brazilian satellite. The natural and historical area for this confrontation is the Paraguayan territory".

This is a well-known model within the Yacyreta project, classified by many as pure "right-wing or military madness". It is currently politically out-moded given the Argentine-Brazilian projects of binational integration aiming at the formation of a regional common-market that started formally

in 1986 during the new civilian regimes. Nonetheless, the bearers and promoters of this model argue that it is the main reason why the Argentine state never abandoned the Yacyreta project, even though it was ruled by different regimes and beset by different problems. Indeed, the negotiator for Argentina of the 1979 Accord Itaipu-Corpus, and Minister of Foreign Relations during General Viola's presidency (March - December 1981) declared:

"The Argentine decision to sign the Yacyreta Treaty aimed at matching the Brazilian-Paraguayan achievement, the signing, some months before, of the Itaipu Treaty. There was an urgent reason to conclude with Paraguay a negotiation that was taking too long and that from the geopolitical and geoeconomic point of view could not be postponed (...) Yacyreta and Corpus were conceived like development poles. They are works that have a geopolitical justification, not only in terms of binational relationships, but also in terms of the situation of the Argentine northeast as a whole that is submitted to the geoeconomic attraction of the main Brazilian development pole, this country's southern and central region. This makes it mandatory for Argentina and Paraguay to place in these areas equilibrium points, because good relationships with neighbors are always based upon good relationships of forces. In this connection, Yacyreta represents one necessity for the Argentine northeast and a demonstration that Argentina has the conditions to do

jointly with Paraguay great works to equal the attraction that Itaipu exerts. If Argentina did not have the capacity or could not make Yacyreta in the future, its relationships with Paraguay - from now on - would be permanently under criticism" (ABC-Color, Asuncion, September 26, 1982).

In fact, specialists within the Argentine energy sector and within the Entidad Binacional itself agree that the dam project is un-economic and that its ultimate reasons are the Argentine/Brazilian competition for regional hegemony and the related need to respond to the Brazilian-Paraguayan Itaipu Binational project.

Despite the so-called "pendular diplomacy" that Paraguay would practice to defend its interests vis-a-vis Argentina and Brazil, it can be considered a junior partner in both binational projects on the Parana river (for a discussion on these questions see Da Rosa 1983). This does not mean, though, that Paraguay has no negotiating power in these processes. The history of Yacyreta shows that, in different moments, there were central issues for the project's development that were defined by Paraguay's perspective.

If Argentina's institutional life was characterized by instability since the creation of the Mixed Technical Commission in 1958 (in this period this nation was ruled by sixteen presidents and two military Juntas - see table 1), in Paraguay a personalized dictatorship - disguised by the

ARGENTINE PRESIDENTS SINCE THE 1955 MILITARY COUP.

<u>President</u>	<u>Period</u>
General Eduardo A. Lonardi	September 20, 1955 November 13, 1955
General Pedro E. Aramburu	November 13, 1955 May 01, 1958
Presid. Arturo Frondizi	May 01, 1958 March 29, 1962
Presid. Jose Maria Guido	March 29, 1962 October 12, 1963
Presid. Arturo Umberto Illia	October 12, 1963 June 28, 1966
General Juan Carlos Ongania	June 28, 1966 June 08, 1970
Military Junta	June 08, 1970 June 18, 1970
General Roberto Marcelo Levingston	June 18, 1970 March 23, 1971
General Alejandro Agustin Lanusse	March 23, 1971 May 25, 1973
Presid. Hector Jose Campora	May 25, 1973 July 13, 1973
Presid. (Provisional) Raul Alberto Lastiri	July 13, 1973 October 12, 1973
Presid. Juan Domingo Peron	October 12, 1973 July 01, 1974
Presid. Maria Estela Martinez de Peron	July 01, 1974 March 24, 1976
Military Junta	March 24, 1976 March 29, 1976
General Jorge Rafael Videla	March 29, 1976 March 29, 1981
General Roberto Viola	March 29, 1981 December 21, 1981
General Leopoldo Fortunato Galtieri	December 21, 1981 June 1982
General Reynaldo Bignone	June 1982 December 10, 1983
Presid. Raul Alfonsin	December 10, 1983

TABLE 1

functioning of some Republican institutions such as a closely controlled National Congress - has been in power since 1954. The Argentine-Paraguayan partnership in Yacyreta has been the motive of mutual distrust between the two states that have often raised doubts on each others willingness to accomplish the project. Since the beginning of the negotiations that would lead to the 1973 Yacyreta Treaty, Argentina has claimed that its partner was more interested in Itaipu - a project larger than Yacyreta¹⁴.

Being the third part of the triangle that defines the core of the River Plate Basin regional problematic, gave to the elite of Paraguay - one of the poorest countries in South America - the possibility of planning its future in terms of becoming an energy-exporting nation. Yacyreta was seen not only as a possibility of compensating for the end of Itaipu's developmental wave, but also as the assurance that "electrodollars" were the basis on which Paraguay's future could be planned. In this sense, Yacyreta had a different importance for each country involved in the project. For Argentina it represented the most important project it was willing to develop to reaffirm its presence as a major state in the region. For Paraguay it was an

¹⁴. Itaipu was constructed between 1975 and 1982. It caused a developmentalist wave in Paraguay that participated in the project with half of a 40,000 men work force. Project's total cost was estimated to be US\$ 15 billion, of which US\$ 1 billion were transferred to Paraguay during the construction period (La Voz, Cordoba, April 13, 1983).

experience - subordinated to Itaipu's previous one - that would further and consolidate a new and powerful connection of its national economy - marked by contraband and corruption - with the international market. From this position, Paraguay gained time and accumulated knowledge from the Itaipu process, to negotiate its new commitments.

Yacyreta's binationality caused several issues between Argentina and Paraguay. Some were related to the participation of Paraguayan capital in the largest contracts of the work, such as the main civil work and turbine contracts. Others were related to the amount of materials made in Paraguay to be used in the dam's construction. The quantity of cement is a typical example. Argentina also protested the speculation with the land value of the Paraguayan territory slated to be flooded. The argument was that areas owned by high-level Paraguayan authorities were over-priced. Of all the controversial points, two proved to be the most difficult ones: (1) the rate of exchange issue, and (2) the dam alignment and compensation for flooded territory.

Since Argentina is the country that finances the project, the payment for Paraguayan services and materials are calculated in Guarani, Paraguay's currency, converted to US dollars and transferred from Buenos Aires to Asuncion. The Paraguayan government has kept the Guarani over-valued so that for the same amount of Guaranis more American

dollars have to be transferred by the Argentine government. On several occasions Argentina stopped the flow of dollars to Paraguay, causing the indebtedness of the Yacyreta Binational Entity office in Asuncion. In 1982, for instance, Paraguayan firms that had payments amounting to several million dollars to receive, pressured their government. Argentina claimed that Paraguay should have a "realistic" Guarani exchange rate, since the difference between the official rate and the free market one was significant. Paraguay claimed that the country's monetary policy was a question of sovereignty and could not be negotiated under pressure from a foreign state. Finally, the solution came with the establishment of a Guarani/US\$ parity at an intermediary value between the official and the Asuncion's free market rates¹⁵.

During repeated negotiations over the years, Paraguay often questioned whether Argentina was really interested in constructing Yacyreta (see, for instance, ABC-Color, Asuncion, August 21, 1983). Later, in October 1985, the

15. In 1982 Argentina was transferring approximately US\$ 1 million a month to EBY's Asuncion office (Hoy, Asuncion, November 15, 1982). Argentina proposed a parity of 160 Guaranies/US\$, while Paraguay defended the 126 Guaranies official rate (Hoy, Asuncion, December 19, 1982). The impasse lasted several months. In August 1983 the difference between the official Paraguayan rate and the one of Asuncion's free market was of 160 percent (El Cronista Comercial, Buenos Aires, August 4, 1983). The Guarani rate of exchange is a question that remained as a potential problematic one (see, for instance, Ultima Hora, Asuncion, September 7, 1985; and La Razon, Buenos Aires, January 3rd, 1986).

exchange rate would become an important issue again. Argentina was transferring dollars using a 240 Guaranies/US\$ rate, while in Paraguay the free market rate was 775 Guaranies/US\$. Again, Argentines wanted to establish a "more realistic" rate. The flow of capital from Buenos Aires to Asuncion stopped. In consequence, Paraguay stopped the works in its territory where more than 70 percent of the activity is carried out, to pressure Argentina to start again the flow of American dollars (Ambito Financiero, Buenos Aires, October 8, 1985).

These were not the only times that one of the two countries threatened to definitively halting the project. Perhaps the most critical issue in this direction was the definition of the dam alignment, a question that unfolded in different moments. Indeed, the definition of the dam alignment was the first main controversy between Argentina and Paraguay. The question was first raised in 1972 during the preparation of the feasibility studies when several designs, with different technical and financial implications, were proposed. Argentina favored a less expensive solution that would imply a larger amount of flooded Paraguayan territory (La Razon, Buenos Aires, August 5, 1972). Paraguay chose a more expensive design that would preserve a larger amount of Paraguayan territory (ABC-Color, Asuncion, August 8, 1972). The question was immediately interpreted in Argentina as a submission of the Paraguayan

government to Brazilian interests related to the binational hydroelectric project of Itaipu (El Cronista Comercial, Buenos Aires, August 16, 1972). The Paraguayan-Argentine relationships entered a cold and tense period that coincided with the transition from General Lanusse's dictatorship (March 23, 1971 - May 25, 1973) to the beginning of Juan Domingo Peron's presidency (October 12, 1973 - July 01, 1974). In this period Argentina had two presidents - in a preparation to Peron's return to power (for a description of this period see Maceyra 1986). During the presidency of Peron - who maintained a longstanding relationship with Paraguay's dictator, general Stroessner - a definition was reached at the feasibility studies level, aiming at the signing of the Yacyreta Treaty in December 1973.

However, the question was not solved. It reappeared some years later during the so-called El Proceso, short for Proceso de Reorganizacion Nacional, the Argentine military dictatorship of March 1976 to December 1983. After what seemed an agreement on the dam's alignment formalized in 1977 with the signing of Side Letters by the two governments (EBY 1986: 83-84), the issue was reopened in 1979 with great intensity. In the meanwhile, these negotiations, as well as the delays in the prequalification process of the main contractor, had already caused a general delay of twelve months that meant an increase in the cost of the project of about US\$ 150 million.

Paraguay's argument was that with the dam alignment agreed upon in 1977, its flooded area would be almost five times greater than Argentina's (Ultima Hora, Asuncion, March 10, 1979) something a country with territorial scarcity could not support. Argentina denied the possibility of changing the dam's alignment given the technical, financial and safety problems this would cause to the project. The press of the two countries began an information war. The project entered a period of several months of uncertainty with officials of the two countries constantly travelling the Asuncion-Buenos Aires route. The World Bank and Inter American Development Bank, which had committed themselves to partially finance the works, pressured for a resolution of the impasse: August 31, 1979 was the deadline after which the international loans would be cancelled. Stroessner, in Paraguay, and the ruling military Junta, in Argentina, held several meetings to consider the issue. The possibility of solution came when the discussion turned from the dam's alignment to the establishment of a compensation arrangement for flooded territories. A compromise was reached by a compensation arrangement under which the Entidad Binacional Yacyreta would pay compensation for the flooding of Paraguayan and Argentine territories once the hydroelectric dam be in full operation. The new agreement was formalized by side letters between the two countries signed on August 30, 1979. Paraguay and Argentina would receive US\$ 21

million and US\$ 6 million per year respectively (Mercado, Buenos Aires, September 6, 1979). This compensation will be paid by Argentine power consumers as a result of what were obscure negotiations, a common thing in a project with which the word corruption is often associated (Engineering News Review, November 15, 1983).

In the course of the negotiations Paraguayan authorities denied that they were bargaining for other benefits - such as infrastructure works - that Argentina would commit herself to build in case a solution was reached. Nonetheless, three months after the end of this issue, the presidents of both countries signed in the last days of November 1979 an agreement through which it was determined - among other things - that to facilitate Paraguay's world trade, this country would have a free zone in the Argentine harbor of Rosario on the Parana river, and that Argentina would finance the construction of one bridge, two schools and two roads in Paraguay (Conviccion, Buenos Aires, November 30, 1979)¹⁶. Furthermore, this document announced that the necessary measures to start the construction of the Posadas-Encarnacion bridge over the Parana River had begun. This is a major bridge of 2.5 kms

¹⁶. Videla and Stroessner met three times in one month. First in the Argentine city of Salta, the 28th of October 1979. Then, for the signature of the World Bank and Inter-American Bank loans for Yacyreta, in the neighboring cities of Posadas (Argentina) and Encarnacion (Paraguay), on November 6th. On November 28th and 29th, 1979, they met to sign several bilateral agreements in Buenos Aires.

linking the Paraguayan town of Encarnacion to the Argentine Posadas, located some 100 kms away from Yacyreta's work site. It was later agreed that Entidad Binacional Yacyreta would finance this "complementary work" (El Cronista Comercial, Buenos Aires, July 3, 1981) considered as the main immediate advantage Paraguay obtained in compensation for its flooded territory.

CHAPTER III

THE POWER OF A DAM: ARTICULATING POWER GROUPS.

In the previous chapter I described the characteristics of the Yacyreta Hydroelectric High Dam, presented the institutional structure of the Yacyreta project and the particularities related to its binationality, in order to furnish an initial approximation that allows the understanding of the general context of the articulation of different power groups within and around the project. In the present chapter I focus on specific units of analysis, the bidding processes of the largest contracts of the Yacyreta project, in order to analyse how this articulation concretely occurs.

(1) Introduction.

Besides extensive amounts of capital and labor, the construction of a hydroelectric dam requires that its leading participants be familiar with complex technological and managerial procedures. The dimensions of the resources needed and the complexity of the arrangements involved in the productive process are factors that limit access to the main contracts for large scale projects to corporations that already operate at national and/or international levels. In

the engineering industry large scale projects are the cream of the market and contracts are highly contested by the top firms in the sector.

The relationship between large scale projects and leading consultants and contractors implies a two way movement. On the one hand, large scale projects require large corporations. On the other hand, large corporations look for opportunities to design and construct large scale projects and stimulate the market for them by indicating and proposing new works. Corporations also define the effective dimensions of projects by taking into account organizational, technological and financial constraints.

Other than civil engineering, several industrial branches take an active part in the construction of a hydroelectric dam. The electric and steel industries are important protagonists in the productive process: cranes, turbines, generators and transmission lines - for example - are important components of a hydroelectric project. Large scale projects are also a market for specialized heavy equipment such as off-road trucks. The complete set of requirements and elements needed for the civil engineering and electromechanical works cannot usually be provided within a single national political entity. There are, for instance, few steel-mills capable of producing the impressive turbines needed for a dam such as Yacyreta. A huge dam is a world market happening that articulates - with

the mediation of national states - national and international industrial capital.

In addition to the technological and managerial complexities created by and for a project, the scale of required financing make it necessary to look for credits from different international sources. Indeed, the capital needed to develop the works almost always amounts to several billion dollars. There is no single source that would commit itself to financing the totality of a large scale project. In consequence, financial capital also gets associated in an intricate way. The financial package is a composition of international, national, private and public capital most of the time guaranteed and/or supervised by the project's owner government, multilateral agencies and regional development banks. Yacyreta, for instance, is financed by the Argentine government electrical funds; the World Bank and Inter-American Bank that partially finance the main civil works; Export-Import Banks that finance the bulk of the heavy construction, power generation and electromechanical equipment; and several international private banks.

The diversity of financial sources underpins the participation, in a same project, of several transnational firms. A common financing mechanism are the so-called export or tied credits, i.e., credits that are given to a project's owner in case it purchases services or equipment from the country of the financing source. Most industrialized

countries have official banks that subsidize their national exports (EXIMBANKS). Firms of these countries frequently count on the lobbying of these powerful agencies and the special loan conditions of the official credits they offer¹. It is clear that a contractor that participates in bidding backed by special financing has an advantage in its favor. The description of the bidding process of the turbines for Yacyreta will provide a clear example.

The diversity of financial sources strengthens the participation of international firms and, inversely, the participation of different international contractors or suppliers reinforces the participation of different international financing sources.

The international character of a large scale project is further reinforced by the presence of multilateral financing agencies, an invariable actor of the so-called "development projects". The loans those agencies regularly make to hydroelectric projects give them important supervising and guarantor roles like the ones performed by the World Bank

1. Apparently, subsidizing financial capital for major American industrial corporations is a main cause of the American Ex-Im Bank growing losses. The "financial health" of this official Bank is a motif of preoccupation amongst the political and business communities of the United States. According to The New York Times (December 21, 1987) "behind the red ink are loans made in the late 1970's and early 1980's when interest rates soared. The bank lends to customers of American exporters at rates below the cost of the money it borrows from the Treasury. (...) the difference between the Ex-Im Bank's average cost of its money and what it receives from its loans was still around 3.5 percentage points through most of this year".

jointly with Inter-American Development Bank (IDB) in the Yacyreta project. The connections between multilateral agencies, class biased development and the preservation and reproduction of international capital on a world scale is clearly shown in Cheryl Payer's book on the World Bank (see, for instance, some of her conclusions, Payer 1982: 359-360).

Among the multilateral agencies the pattern of operation of the World Bank is archetypical. Most of its loans and credits are made for specific projects, electric power projects being a traditional World Bank type of lending². In Argentina the Bank has been involved with the energy sector since 1962 making loans, until the late 70's, to the major utility serving the Buenos Aires region (SEGBA) and to the construction of the 1,200 MW El Chocon hydroelectric power plant. It has typically pressured the Argentine government to implement a more realistic pricing policy for all energy products.

The World Bank's presence in a project may be relatively less important in monetary terms than in its meaning to other financing sources as a guarantee of appraisal and supervision by an agency that acts like an "organizer of creditors" (Just Faaland quoted by Payer 1982:

2. For Payer (1982: 100-101) "electrical power projects have been considered particularly suitable for Bank lending because they are heavily capital intensive, requiring expensive imported equipment produced mostly by the developed countries. As an "old-style" Bank project, this sector has been vulnerable to the deserved charges that its benefits go only to the already wealthy and powerful".

17). In Yacyreta, for instance, when the financial package was being elaborated, a World Bank loan of US\$ 210 million, to be paid over a period of fifteen years including a six year grace period, was valued more for what it meant in terms of the Bank's international power as a guarantee that would facilitate the participation of other sources of capital than for the amount per se (see, for instance, Compendio, Buenos Aires, September 1st, 1978; El Economista, Buenos Aires, January 19th, 1979). This is a strong reason why the promoters of large scale projects seek this multilateral agency's involvement. World Bank's support or lack of it may seal the luck of a project, since access to international sources of capital can become extremely complicated.

Naturally, beneficiaries of World Bank loans must comply with Bank requirements. The power of the World Bank was evident in Yacyreta in moments such as the hiring of the consultant (CIDY) when the contract that formalized the transaction was submitted to the Bank and considered "satisfactory" by it. The awarding of the main civil works contract was also defined when the Bank approved it. World Bank power is also felt on a more regular basis since it negotiated norms that Entidad Binacional Yacyreta (EBY) had to follow. These "agreements and recommendations" allowed for a substantial influence over EBY as well as over the Argentine energy sector as a whole. They included items

related to the evolution of the organization of the Argentine energy sector; to the execution of acceptable environmental and resettlement programs; to the financing and accounting system of the project; and to the control of Entidad Binacional's debt, for instance.

The most evident way through which the World Bank ties large scale projects to the interests of private international capital is by "insisting on procurement through international competitive bidding (ICB), which favors the largest multinationals" (Payer 1982: 19). Most of World Bank loans and credits are allocated through ICB supervised by the Bank.

"Although international competitive bidding is supposed to eliminate abuses, such as overpricing of aid-financed supplies, which are endemic to the system of tying aid donations to exports of a given country, some problems persist. For one thing, World Bank projects are often cofinanced with bilateral aid which is country-tied, thus diluting the presumed beneficial effect of the competitive bidding. Another is that ICB offers no defense against price-fixing cartels found, for example, in the electrical equipment supply industry. (...) A more serious problem is the fact that ICB is designed to keep or pry open markets in the poorer countries that might otherwise be covered by local suppliers" (Payer 1982: 36).

The importance of international competitive biddings is not exclusively due to the fact that they make transnational corporations' participation mandatory if projects' owners are to have access to international capital. They are also the visible scenario where international and national capitalist firms meet to compete for the award of million-

dollar contracts. A large scale project is a world of joint-ventures. In the selection of the winners, the representatives of national ruling elites have a prominent role operating through the public company that owns the project. The state is thus an active and powerful participant since the public corporation is the actor that formally organizes and defines the bidding processes. National and international firms fight for their share, pressuring national governments. The final decision is the result of long complex and sometimes harsh power negotiations. Corruption, networking, media blitzes, juridical demands, lobbying abroad and at the project home-country, are some examples of the measures taken to win the bidding war.

The intensity of a government's response to the pressures brought by national companies depends on the relative power of the national bourgeoisies to impose their role as an active development actor. In the case of Yacyreta the unequal development of the productive forces in Paraguay and Argentina was an important factor in governing the differential articulations of Paraguayan and Argentine elites with the representatives of international capital. This differential participation depends, in turn, on the relative development of the many industrial branches intervening in a project.

In Argentina, for instance, the cement industry has

reached a level of economic and political importance that led Loma Negra, one of the most powerful Argentine corporations, to be almost the exclusive supplier of cement to Yacyreta, displacing and subordinating the interests of Paraguay that did not possess a cement industry as strong as Argentina's. The Argentine steel industry was also powerful enough to secure for itself a substantial participation in the making of the turbines for Yacyreta. The argument of national companies is that their positions within a project must be assured in the name of policies supposed to stimulate national development.

Given state importance in the process, political networks are an outstanding consideration for both national and international participants. Insertion into a country's political life is, then, a cherished and valuable asset. Both national and international firms are aware of this and identify their associates not only by technical and financial characteristics but also by their political connections and capacities.

Briefly, international competitive biddings are crucial for the understanding of the dynamics of a hydroelectric dam such as Yacyreta because they are the scenario where international and national capital get entangled, clearly introducing political and power contexts. The state plays an important role by setting the stage and acting as referee, supervised by mighty multilateral agencies. The competition

begins when the other actors - the transnational and national corporations - encounter and make use of all means they dispose to win the contracts.

(2) The Most Significant Examples of Bidding Processes Within the Yacyreta Project.

The sequence of different power groups through the Argentine state marks the history of the Yacyreta project and is a most important conditioning factor complicating the bidding processes of project's largest contracts. The succession of high level officials meant different conceptions of national energy policy with varying emphasis or interpretations on the role of thermal and hydro plants in power-generation. As a consequence, the interplay of lobby groups defending the interests of national and international capital with the representatives of the Argentine state is a central characteristic that needs to be considered. The state, or rather its surrogate, the public company, may be seen as a field of tensions, as the locus where the conflictive and contradictory articulations of national and international interests occur.

Yacyreta's largest contracts are those related to the main civil works and the turbines, the so-called YC-1 and YE-1(t) contracts. Among several other contracts those corresponding to the provision of generators, main

transformers, power house cranes, spillways and power house locks, and equipment for the navigation locks stand out. The procurement of these contracts is typically made via international competitive bidding. Infrastructure works, preliminary tasks such as the construction of a transportation and communication systems, and of permanent camps in the Argentine town of Ituzaingo and in the Paraguayan town of Ayolas, were awarded in bids with the exclusive participation of national companies. The same is true for the works associated with the resettlement of the population to be affected by the reservoir.

The established rules of the bidding processes create formal similarities among them. Their differences relate to the particular industrial branches that they refer to (engineering, metallurgy, electric) and their differentiated relative development and power connections within Argentina and Paraguay.

The complexities of the two largest contracts, YC-1 and YE-1, provide the best scenario to scrutinize the equation formed by the state, transnational corporations, and national corporations. The description and understanding of these bidding processes are also a necessary step before getting to the discussion - in this chapter's last part - of a process I call "consortiation". In the next pages I will present a detailed discussion of the process that led to the awarding of the main civil works contract (YC-1). It will be

followed by a more succinct description of the turbines contract, YE-1(t), because most of the conjunctural factors are considered while analyzing the YC-1 case. Moreover, my intention in presenting the YE-1 case is to provide a comparative frame that allows me to highlight the greater negotiating power of the Argentine metallurgic industry vis-a-vis transnational corporations and the state, as well as a different financing scheme, and the subordination of Paraguay to the clear position of junior partner.

Despite the fact that the turbines' contract was awarded only in 1987 during the new Argentine civilian government, its fate was basically defined during the four governments of the military dictatorship of March 1976-December 1983, the so-called Proceso (short for the "Process of National Reorganization"). The main civil works contract, the most important one, since the dam is above all a construction work, was defined during the Proceso. A brief characterization of the 1976-1983 military regime is needed in order to understand the wider context in which these bidding processes unfolded.

- (i) An approximation to El Proceso, Argentina's military dictatorship (March 1976-December 1983).

Although the relationships of power groups during the military regime of 1976-1983 were generally subordinated to

the attempt to adjust Argentina to a "new international division of labor, modernizing its structures in function of the interests of transnational capital, monopolistic national sectors and financial capital" (Paz 1985: 88), they were neither homogeneous nor non-conflictive. This would become evident after the end of General Jorge Videla's government in March 1981 when the mighty Economics Minister left the power scene, fragmenting the coalitions and alliances that maintained Videla during five years as the head of the ruling military Junta.

The direct or indirect support of private international banks and multilateral agencies for the military coup and regime is asserted by some authors (see, for instance, Paz 1985:89; Vitale 1986: 283-290). There is little reason to doubt that international capital felt more comfortable with the predictability of the alliances it could develop under the military regime than with the economic and political instability of the last years of the Estela Martinez de Peron government. World Bank relationships with Argentina after the military coup increased rapidly. The negotiations of a major credit for the construction of Yacyreta were accelerated under the initiative of the new Economics Minister who in a meeting of the International Monetary Fund in the Philippines announced that the World Bank and the Inter-American Development Bank were considering a joint financing of Yacyreta (La Opinion, Buenos Aires, October

10, 1976). In August 1977 the sub-secretary of Hydroelectric and Thermal Energy announced that both banks had "given the green light" to the financing of Yacyreta (El Territorio, Posadas, August 28, 1977).

The International Monetary Fund (IMF), an agency with a long history of involvement in the Argentine economy, signed in August 1976, three months after the coup, a standby agreement³. International bankers gave more than US\$ 1 billion in credits to Argentina during Videla's first two years of government (Conklin & Davidson 1986: 237-238).

The displacement of national capital - especially of the manufacturing industry - by international capital was consistent with a process of deindustrialization that was fed by an economic policy that opened up Argentina's domestic market and overvalued the Argentine Peso. The result was the closure of a large number of nationally owned

³. In their article on the IMF and Argentina, Conklin and Davidson conclude that:

"The history of IMF involvement in the Argentine economy through its stabilization programs from 1958 to 1985 has been less than satisfactory from an economic, social, and political point of view. The IMF stabilization programs in Argentina have not improved prospects for economic growth and in fact have led to a decrease in the standard of living for a significant portion of the population. Furthermore, the implementation of the harsh conditions included in these programs has been linked to the forceful repression of labor and political instability. The overall impact of these programs thus suggests that they have contributed to violations of the economic and social human rights of Argentines" (Conklin and Davidson 1986: 262).

industries that could not compete with the waves of imported products. The financial policy of the period is registered in Argentines' memory as the plata dulce time, literally "sweet bucks" time. From 1976 to 1983 the foreign debt increased from US\$ 8,3 billion to US\$ 44,5 billion (Vitale 1986: 286). According to Pedro Paz (1985: 97) US\$ 23,4 billion, i.e. almost two thirds of the US\$ 35,6 billion Argentine debt as of December 1981, were literally stolen in a "financial orgy". The energy sector was a favorite masking device for the entry of external funds that would never be applied in the productive process⁴. Patria Financiera was the label Argentines coined to represent the hegemony of financial capital.

Massive evasion of hard currencies, financial speculation, fall of real wages, capital concentration, together with the exponential growth of the foreign debt and the partial liquidation of the national industry were the main economic effects of the Proceso's developmental policy. The economic program of the dictatorship represented an attempt to restructure Argentine social organization, by

4. In 1986, the president of the Argentine Water and Power authority (AyE) regretted the financial state of his company that had on June 30th of the same year a foreign debt of US\$ 2,072 million, "70 percent of which does not correspond to investments something that is equivalent to admit that, like in other public corporations of the energy sector, AyE was one of the windows used to give entrance to foreign funds and maintain the exchange (cambio) policy followed during the military regime" (in Informador Industrial, no. 90, July 1986).

changing class relationships and favoring a process of capital concentration, in contrast to previous developmentalist trends based on import substitution, in turn more connected with distributivist conceptions (see Azpiazu et al 1986: 89, 122-124, 185-203). This program's political implications were the most severe in Argentina's contemporary history. The National Congress was closed. Censorship and intolerance were the daily rules. Political adversaries were persecuted and disappeared. The working class was the main target of state terrorism:

"Political repression escalated to high levels during Videla's military regime. More than 5,000 arrests were reported during the first four months of his tenure. In three years under Videla, Amnesty International estimated that 15,000 people "disappeared", and one out of four of the "disappeared" were workers. According to an official investigative commission, the figure is even higher: 'Workers accounted for 30.2 percent of the disappearance - more than any other sector of the society' " (Conklin and Davidson 1986: 238-239).

Totalitarian power was not enough for the groups struggling within the military dictatorship. Despite amassing one of the most impressive concentrations of power a Latin American regime has had, an intestine power struggle began to develop after Videla's five year period of rule. General Roberto Viola's government began in March 1981. It was held in a contradictory grid of interests and was heir to an economic plan that was reaching its political limits. The Viola period is characterized by overall administrative indecision. In consequence of the power void, and internal

conflicts of the military, General Leopoldo Galtieri overthrew General Viola in December 1981. The decline of the military dictatorship was under way. With the defeat in the Malvinas war (April 1982-June 1982) against England, the military forced Galtieri out of office and began a period of transition that was to end in December 1983 with a new democratic government.

Before the new constitutional government of December 1983 the military intended to close the Proceso period and negotiate some of its pending questions. The endless dance of economic and political power groups around the Yacyreta project was one of the main scandals of the military dictatorship. General Reynaldo Bignone, the head of the last Military Junta (June 1982-December 1983), nominated in August 1982 a new Executive-Director for the Yacyreta Binational Entity. His task was to finalize the awarding of the main civil works contract (YC-1) before the inauguration of the next constitutional government. On September 15th, 1983, 45 days before national elections of the new constitutional authorities, the YC-1 contract was awarded. The goal was reached, Yacyreta became an irreversible reality. Although some arguments were presented for political and judicial revisions of the project contract, the main political parties that would once more rule Argentina assumed the responsibility of the country's "work of the century".

(ii) The Bidding Process of the Main Civil Works Contract (YC-1).

The YC-1 contract is the largest within the Yacyreta project. Since the first rumors in the last months of 1975 that the YC-1 bidding process was about to begin, the structuring of behind-the-scene connections formed part of the history of this contract. There were suspicions concerning linkages of powerful officials with the consultant, aiming at influencing its prominent role in the contract's awarding decision (Prensa Confidencial, Buenos Aires, October 8, 1975). In December 1976 news in an Argentine civil engineering publication announced a public and international preselection of proposals (El Constructor, Buenos Aires, December 20, 1976). Apparently this prequalification was never carried out. Videla's government decided to begin new studies, causing considerable delay for the project. This decision was made in a context where the lobbies linked to the interests of thermal plants were highly influential⁵. In February 1978 another competition

⁵. In a series of interviews made by a Paraguayan newspaper with high level Argentine officials that had been linked to Yacyreta, Entidad Binacional Yacyreta's first Executive-Director (September 1974-November 1976) said he was fired by Videla's mighty Economics Minister as a way of protracting the execution of the project. According to him the "pro-thermal" energy interests first formed by British coal-fired thermal plants would progressively get associated with local interests; "they are not many, but are individuals that exert a lot of power because of the positions they occupy. They get connected with all de facto

was announced. The importance and repercussion of the US\$ 1,4 billion main civil works contract attracted the attention of 85 contractors from 17 countries organized in 15 consortia⁶.

In 1979 many steps were taken towards the concretization of Yacyreta: several bids were announced; the Accord Itaipu-Corpus disentangled the Argentine-Paraguayan-Brazilian impasse over the international use of the Parana River; the dam alignment issue - a factor of tension between Argentina and Paraguay - was resolved; and, in October, five consortia previously prequalified received the bidding conditions for the main civil works contract⁷. The bidding established that the consortia should be led by foreign companies to "avoid rivalry between the sister Republics of

governments, and from within them impulse their plans" (ABC-Color, Asuncion, September 15, 1982). The assertions of a former Financial Director and an ex Juridical Consultant confirmed the influence of the pro-thermal lobby in the first moments of Videla's government (ABC-Color, Asuncion, September 11, 17, and 18, 1982).

6. Twenty two of these eighty five companies were from Argentina, fourteen from Paraguay, ten from Italy, six from Mexico, five from Korea, five from West Germany, four from Spain, four from Holland, three from Brazil, three from France, two from the United States, two from Yugoslavia, and the rest from Switzerland, Sweden, Uruguay, Canada and Taiwan (see EBY 1978: 16-17).

7. Besides Empresa Constructora Yacyreta led by Impregilo, and the consortium led by Dumez (for their internal composition see footnote 10 of chapter two) the other pre-selected consortia were: Yacyreta Joint Venture (led by Dragados y Construcciones S.A., Spain); ICA S.A. and Associates (led by Ingenieros Civiles Asociados S.A., Mexico); and Morrison-Knudsen International Company Inc. (U.S.A.); see EBY 1979: 20.

Paraguay and Argentina" (Botana 1982: 39). On June 2nd, 1980, the five contenders presented their offers priced as follows:

Dumez Consortium	: US\$ 1,480 million
Impregilo	: US\$ 1,706 million
Dragados	: US\$ 1,764 million
ICA	: US\$ 1,811 million
Morrisson Knudsen	: US\$ 2,390 million

The Entidad Binacional Yacyreta, with the advise of CIDY, its consultant, had few months to study the offers and indicate the winner of the contract. This was the beginning of a long process in which the number of likely awardees was reduced to two: the consortium led by the French contractor, Dumez, and that led by Italian Impregilo. Dumez strongest card was that it offered the cheapest proposal. In the competition for a contract, bidders always try to offer the lowest bid because price is a financial and politically decisive criterion. The guidelines for procurement of the World Bank, the ultimate referee of the YC-1 contract award, moreover, favor the awarding to the bidder with the least expensive offer. On the other hand, Impregilo's strongest asset was that in Argentina, where Italian capital moved towards a predominant participation in the engineering industry after World War II (Panaia 1985: 23), the company had been in the center of the country's hydro-projects construction market since the 1960's.

The first moments of the tug-of-war between the two top contenders for the YC-1 contract witnessed a lobbying visit of a Dumez mission to Buenos Aires and Asuncion in the end of August 1980, with an immediate demand of Impregilo that Dumez be rejected on the basis that it had not complied with the bidding conditions (see La Razon, Buenos Aires, August 22, 1980; ABC-Color, Asuncion, August 26, 27 and 28, 1980).

Impregilo's main arguments during the almost three and a half year period of the contest were that Dumez (1) had deliberately omitted a price adjustment formula, (2) did not present either an adequate method for closing the cofferdam or an adequate timetable, (3) did not foresee the construction either of a service bridge linking Argentina with the Yacyreta island (Paraguay) or of temporary camps, and (4) was trying to manipulate labor costs by establishing low wages, excluding workers meals from its calculations, and proposing the possibility of importing foreign cheap labor (see, for instance, ABC-Color, May 4, 1981, that published a letter in which Impregilo lists its objections). The last considerations were important because Impregilo could insist that their competitor's inexperience in Argentina implied a misconception of local labor relations that would lead to a management of the labor force doomed to constant confrontations with the Argentine unions and, consequently, to costs overruns. Impregilo was evidently

maximizing its social and political capital in Argentina. It had built or was building the largest Argentine hydro-projects such as El Chocon, Planicie Bandeirita, Alicura and Salto Grande, and was in a position to transfer to Yacyreta equipment, labor force and experience accumulated working under Argentine conditions. Furthermore, their Paraguayan partner in the bidding was CONEMPA, a consortium that participated at the construction of Itaipu, that could also count on a large labor force experienced in another huge binational hydroproject.

Despite the efforts made by Dumez in Argentina, Paraguay was undoubtedly its main ally; strong lobbying could be more effective in a country in which the large scale project market was not dominated by its contender. Binationality was manipulated by the two competing consortia: the consultant's office in Paraguay tended to back the awarding of the contract to Dumez, while Impregilo was CIDY's choice in Buenos Aires. Consultant's personnel who participated in the study of Dumez and Impregilo's proposals, both in Asuncion and Buenos Aires, have not forgotten the political pressures to which they were exposed.

Before getting to a point where the binationality line clearly split into one Paraguayan/pro-Dumez side versus an Argentine/pro-Impregilo side, the process would be

complicated by the dynamics of the internal struggles within Argentina's military regime.

- (a) "The Competition for Yacyreta is a sort of horse race in which everything is allowed" (Botana 1982: 95).

In the competition for the contract, Dumez, without counting on the several years of presence in the Argentine market as Impregilo, established a lobby by recruiting influential figures of Buenos Aires elite. The most tangible evidence of this group's existence and activity is the book El Caldero de Yacyreta (Botana 1982)⁸. As a piece of the lobbying war, this book is evidently a one-sided perspective. However, its importance as a source - that was checked with information published in Argentine and

8. This book is replete with allusions to Catholic faith. Its last sentence, for instance is in Latin: Finito Libro sit Laud Deo Christo et Mariae. This rare mixture in a pragmatic tool for very mundane objectives must be understood in light of the frequent use - by fractions of Argentina's conservative elite - of religious discourse to construct an acceptable and legitimate identity. Argentina is a Catholic country where the church hierarchy is eminently conservative and has played important symbolic and political roles within the country's ruling elite. This is especially true for the period of the military dictatorship that was closely connected with the Catholic church conservative hierarchy and subscribed to the most regressive practices of religious intolerance. From a literary and logical point of view El Caldero de Yacyreta is a badly written book, with old and unelegant metaphors based on moral, religious or historical prejudices that are supposed to denote erudition. The author does not hesitate to recur to anecdotes that are intended to expose what he perceives as his opponents (i.e. Impregilo's backers) reproachful social and cultural habits.

Paraguayan newspapers as well as with the interviews I did with Argentine officials - stems exactly from its biased perspective: it was written to debilitate Impregilo's power connections by publicizing them. There are references to industrial espionage, betrayals by people that were working for one side and were bribed by the other, backstage agreements between the bidders to manipulate the awarding result (see Botana 1982: 43,44,47). The power of the Italian consortium became clear in the first months of 1981. In January of that year, a report of the consultant (CIDY) that was widely publicized in Paraguay, though less so in Argentina, recommended that EBY started negotiations with Dumez and, if these reached a satisfactory result, to award the main civil works contract to the consortium led by the French company. The central point was the US\$ 226 million difference between Dumez and Impregilo's proposals. However, the Argentine government faced a conjuncture of transition with the approaching inauguration of General Viola's administration in March 1981. There was an overlap between the power groups related to General Videla's departing government and General Viola's incoming administration. This ambiguity was reflected within the Entidad Binacional Yacyreta(EBY). The decision on the awarding of the YC-1 contract was subordinated to the expected change of Juntas Militares (El Territorio, Posadas, January 30, 1981; ABC-Color, Asuncion, February 19, 1981).

Following the consultant's indication, EBY's Executive-Director intended to award the contract to Dumez. With the active participation of Impregilo's lobby, the decision was finally postponed. Apparently, the intention was to give General Viola an important fact, the awarding of the country's largest public project, to begin his government in March 1981. In the meantime, the Executive-Director who had been nominated during general Videla's government was experiencing a gradual loss of power within EBY. This corresponded to the increase of influence of the Financial Director, a protege of the entering president, General Viola (for this period see Botana 1982: 105 and following). Following his progressive isolation within the new power structure that was defining the luck of the YC-1 contract, the Executive Director resigned on April 21st, 1981, less than one month after the inauguration of the Viola government.

EBY's direction remained uncertain for almost two months, a period in which new facts were produced. The most important one was the fabrication of a report, attributed to the consultant, criticizing the Dumez offer. This document was sent to the highest Argentine authorities, the World Bank and Inter-American Development Bank that were supervising the awarding of the YC-1 contract. This "report" was published and discussed by the Argentine press (Buenos Aires Herald, September 10, 1981; Botana 1982: 120-121). The

forgery was discovered, causing further conflicts among the directors of the Entidad Binacional. This process was to culminate with the firing of one director who had written a report stating that the Dumez offer could not be disqualified under the allegation that it did not comply totally with the bidding conditions, because this was also true for the other proposals. He also concluded that the awarding had to take into account the US\$ 226 million difference between the two best offers, otherwise "moral values, like the correct behavior, good name and prestige of the responsible officials would be exposed to doubts and suspicions hard to dissipate" (this report, dated of April 6, was published by a Paraguayan newspaper, La Tribuna, November 3, 1981).

The next chapter in the struggle for hegemony within Yacyreta centered around the departure, in September 1981, of the Finance Director, who had survived different Executive-Directors, was also Sub-Secretary of Finances and Foreign Investments of the national government, General Viola's protege and, according to Botana (1982: 90, see also p. 106), one of the most important allies of the Impregilo lobby. The fact that he was at the same time EBY's Financial Director and sub-secretary of Finances and Foreign Investment of the national government was the immediate reason to force his leave. The underlying question was that he was considered a competitor of the Executive-Director's

power within EBY's hierarchical structure. Indeed, the Executive-Director had to wait for several weeks until the resignation of this Financial Director.

The overall political uncertainty of General Viola's brief government (March 1981-December 1981) was increasingly felt within Yacyreta. During this period the Binational Entity had no clear directives on what decisions to make on the YC-1 contract. The Paraguayan government attributed the project's delay to Argentina (La Tribuna, Asuncion, August, 28, 1981). There was a change of Executive-Directors, and the different lobby groups were restructuring their compositions and strategies. The new Executive-Director held several meetings on the YC-1 contract issue with the Argentine president without coming to a definite official conclusion. The awarding of the YC-1 was one of the most common subjects in the Argentine press.

In August 1981, EBY's new Executive-Director, nominated in June 1981 by Viola, sent his report on the awarding of the YC-1 to the Argentine presidency, recommending the award to Dumez (Botana 1982: 153). The document was not accepted. The unofficial decision of the Argentine government to award the work to Impregilo was clear.

As part of the lobby war first Dumez, and later Impregilo, published page long advertisements in Argentine and Paraguayan newspapers in October and November 1981,

defending their offers⁹. Dumez message finished by stating that Argentina and Paraguay should not pay a higher price for the Yacyreta project. Its last sentence was a metaphor indicative of the qualities of the power conflicts that had been developing for several months; an appeal to "moral values": "What is really at stake is the greatest of all reasons: Justice". Impregilo's pragmatism or self-assurance based on its Argentine networks might be what led the company to begin its advertisement by making allusion to the general difficulties the leadership of El Proceso, the military dictatorship, was confronting. It stated that the company had broken silence with the intention of "avoiding confusions that affect not only Yacyreta but El Proceso". The message's introduction is an attempt to demonstrate an identity between the military dictatorship and the company.

However, the Paraguayan government did not intend to share a surcharge of US\$ 226 million, especially because this overcost did not have a strong technical justification. The Paraguayan Adjunct Executive-Director had declared to a newspaper of Asuncion (ABC-Color), in May 1981, that "Argentina's sympathy with Impregilo was a withdrawal from the established norms" (quoted in La Nueva Provincia, Bahia

⁹. The following are some of the Argentine newspapers on which Dumez published its ad on October 29th, 1981: La Prensa, El Cronista Comercial, Ambito Financiero, Clarin, La Nacion. On November 1st, 1981, Impregilo matched its opponent publishing a larger advertisement on the same newspapers mentioned above plus Conviccion and La Razon.

Blanca, November 3, 1981). Argentine authorities tried a last move: to offer Paraguay a compensation in public works to accept the transaction (Hoy, Asuncion, October 28, 1981; Botana 1982: 150) . In the meanwhile, CIDY, the consultant, prepared another report, this time recommending the awarding to Impregilo.

Since the bidding process was supervised by the World Bank and the Inter-American Development Bank (IDB) a mission was sent to Washington to obtain their endorsement. In the first days of November, the Executive-Direction of the Binational Entity made an "informal" presentation of their conclusions to these banks. At the same time the Paraguayan ambassador in Washington told the press that Impregilo would construct Yacyreta (Ultima Hora, Asuncion, November 6, 1981; La Prensa, Buenos Aires, November 8, 1981). In reality, he was making public a decision that could not be officially confirmed because Entidad Binacional Yacyreta had to wait for the assessment the World Bank and IDB were to make on the new situation. The decision-making center was now displaced to Washington.

But, Argentine political instability would intervene once more. General Viola was overthrown by the military, and the new Junta Militar began its ruling on December 21st, 1981. Argentina was heading for even more instability.

The drastic measures on public expenditures announced by General Galtieri, the head of the new Junta, affected

Yacyreta to such an extent that the doubts whether the project would be carried out at all returned to the foreground. The new rulers' connections with thermoelectric lobbies produced additional uncertainty about the project's future.

The two first months of 1982 were marked by (a) discussions on the budgetary deficit; (b) what was seen as the misunderstanding by the new Junta Militar of the geopolitical value of Yacyreta ("Strategic needs are not measured in dollars", wrote Conviccion, a newspaper linked to the Navy, on January 14th, 1982); and (c) the expectation on the World Bank's position on the report that the Executive-Directors had taken to Washington in November 1981.

The repeated rumors that the project would be discontinued provoked the mobilization of local populations in the provinces of Corrientes and Misiones. In the Correntina town of Ituzaingo, the people of the area where Yacyreta was going to be constructed demonstrated against the possibility of dismissing the project. The rally was organized by the town's Chamber of Commerce and Industry. The governor of Corrientes - another General - playing the role of his province spokesman on the Yacyreta issue, asked for an appointment with General Galtieri in Buenos Aires. His appointment with the president - widely publicized as a regional defense of the project - was denied (La Nacion,

March 3, 1982).

In the first days of March 1982 an official of the World Bank visited Buenos Aires, bringing with him the Bank's position on EBY's intention of awarding the YC-1 contract to Impregilo. Following the argument that Dumez had presented the least expensive offer, the Bank suggested that EBY should enter contractual negotiations with Dumez, but added that it would not have any objection if EBY preferred to make another proposal. The World Bank was immediately classified as pro-Dumez and accused of interfering in Argentina's internal affairs (La Prensa, March 6, 1982; Conviccion, March 7, 1982)¹⁰.

¹⁰. Conviccion, that five days before had defended Yacyreta agitating the Brazilian ghost/influence on Argentina's Northeast, published a news on March 7, 1982, with the following heading: "Are Chileans the ones that do not want us to make Yacyreta?". Chile is another of Argentina's "geopolitical concerns". During the El Proceso military dictatorship, Argentines almost went to war against Chile because of frontier problems over the Beagle Canal. The common interpretation is that Chile has a permanent goal of incorporating the Patagonia Region to its national territory to have access to harbors on the Atlantic Ocean. The following is a translation of a part of the news published by Conviccion: "The World Bank is doing everything it can to delay or to definitively hinder the construction of Yacyreta. Beyond the pressures that Dumez can exert on the World Bank, it is a mistake to believe that this is only a battle between the Dumez and Impregilo corporations. This is what is visible. What is not that visible is the "coincidence" that it was ... the Chilean representative at the World Bank who has been placing the largest obstacles for the awarding of the credit to Argentina. And what is more astonishing is that [this official], this Chilean [official] is presently in Buenos Aires, trying to convince the Argentine government that there should be a new bid on Yacyreta. That means to delay the work for five or six years. Better saying, never doing it. It seems that Chile has already "decided" for us".

Concurrently, Entidad Binacional Yacyreta's Executive-Director resigned on March 25th. He had been experiencing a gradual loss of power since General Viola's government and then faced General Galtieri's lack of interest in Yacyreta. During these three months of Galtieri's government the Executive-Director did not receive any orientation on the place of Yacyreta within the new government plans. On the contrary, he was "systematically excluded from the committees and meetings carried out to analyze the future of the Entity and the work" (Hoy, Asuncion, March 27, 1982). Uncertainty ruled at Entidad Binacional Yacyreta which became leaderless for several months.

In fact, Argentina was on the eve of an even more unstable political and institutional time. The climax would come with the Malvinas War against England (April 2nd, 1982 - June 14th, 1982) when the country entered a period of war effort. Yacyreta was a secondary issue during these months of public commotion in Argentina. The beginning of new public works was suspended, the priority was defense expenditures (El Clarin, April 12, 1982). In the meanwhile, the two top contenders for the main civil work contract became increasingly aware of the risk of losing the possibility of constructing the dam. The World Bank had not accepted the report that favored the awarding of the YC-1 to Impregilo, and insisted that negotiations should be carried out with Dumez, the contractor that had presented the lowest

bid. Under these circumstances the two consortia began a process of negotiations that would lead to their fusion in a new entity ERIDAY (for a detailed description of this process see chapter II).

The Malvinas defeat announced the end of the military regime and the beginning of a period of transition towards democracy. The perspective of a constitutional civilian government in a post-Malvinas period as well as a growth of nationalist conceptions became a distinct possibility. Both France and Italy were in disfavor with some military factions because as members of the European Economic Community they had supported England by participating of an economic boycott and voting against Argentina in the United Nations during the war. Furthermore, these countries began to put pressure on the Argentine military dictatorship, because the crimes against human rights began to be discussed openly.

The awarding of the YC-1 had to be accelerated and the fusion of the two consortia was a solution. Rumors about the imminent fusion were constantly reported in the press. The Military Junta that was organizing the transition to democracy, declared, through General Bignone, the last military president, that it favored the concretion of Yacyreta (El Territorio, Posadas, June 30, 1982). A new Executive-Director began his mandate on September 1982 with the explicit goal of awarding the YC-1 contract. In

November Argentina's minister of Public Works announced the fusion of Impregilo and Dumez (Conviccion, Buenos Aires, November 12, 1982).

At the same time, an administrative reform of Entidad Binacional Yacyreta was formalized, simplifying the decision-making process by concentrating power in the Executive-Director. Some days later the World Bank and the IDB approved the fusion of Dumez and Impregilo (Hoy, Asuncion, December 15, 1982). In the first semester of 1983, the thirty two contractors led by Impregilo and Dumez negotiated the legal creation of ERIDAY. The frequent exchange of information between EBY and the World Bank is another indication of this institution prevailing role in the final stages of the awarding of the main civil works contract. Finally, on September 15th, 1983, the US\$ 1,4 billion contract was officially awarded to ERIDAY. The signing of the contract between EBY and ERIDAY on the 20th of October was the last act of what is certainly an example of one of the most complicated bidding processes. On December 3, 1983, ten years after the signing of the Yacyreta Treaty the main civil works were officially started. The new constitutional government that was inaugurated one week later (December 10th) had to deal with a de facto situation.

(iii) The Bidding Process of the Turbines: the YE-1(t)
Contract.

The YE-1 contract represents the electromechanical segment of the Yacyreta project. The YE-1 is a set of multi-million dollar contracts that, since they were first announced in a prequalification call in 1976, attracted several transnational corporations. Later, in December 1978, Entidad Binacional preselected seventeen contenders to participate in the YE-1 contract bidding¹¹. The set of twenty 138 MW Kaplan type turbines - the largest in the world with 9.5 m of diameter each - was the most expensive part of the electromechanical components. Some of the largest corporations of the world entered the competition for the YE-1(t), the turbines' segment of the YE-1 contract¹².

11. There were three consortia: ACWEST, formed by Allis-Chalmers Corporation and Westinghouse (USA); Yacyreta-Apipe, formed by Siemens AG, (West Germany), Energomachexport (USSR), and G.I.E. (Italy); Japan Consortium (Mitsubishi, Hitachi, Toshiba, Fuji) and Voith (West Germany). Nine individual firms were also preselected: Alsthom (France); Ingra (Yugoslavia); Creusot Loire (France); Asea (Sweden); Boving and Company (England); Voest-Alpine AG (Austria); Elin-Union (Austria); Escher Wyss (Switzerland); Skodaexport (Czechoslovakia). The following five participants were selected under conditions: Duro Felguera S.A. and La Maquinista Terrestre y Maritima S.A.; A.E.G. Telefunken (West Germany); Dominion Engineering Company (Canada); General Electric Co (USA); Brown Boveri (Switzerland), (see EBY 1978: 19).

12. The YE-1 contract covers other electromechanical components of the Yacyreta hydroelectric dam such as generators and regulators. Not all corporations that

The availability of an adequate and attractive financing scheme - the so-called export credits - is a common way of enhancing a corporation's competitiveness in a bidding process. Special financing offered by export-import banks is as important as a corporation's reputation. In this connection, the governments of these corporations' countries back their industries with special credit packages that are going to be open to the purchasing country. In consequence, during decisive moments of the bidding process of the YE-1 contract, pressures from governments favoring different contenders were intense. Several governments of the competing bidders sent lobbying missions to Argentina ¹³.

But, since the first moments of what was going to be another long bidding process (resolved only in 1987), the most important actors were clearly defined. On one side was the American corporation Allis-Chalmers and the U.S. EXIMBANK. On the other side, METANAC, a consortium of Argentine metallurgic industries.

participated in the bidding process of the YE-1 contract presented offers to all of its segments. I will consider only the process that led to the awarding of the turbines, the so-called YE-1(t) contract. For simplicity sake, instead of YE-1(t) I will use the term YE-1 to designate the turbines' contract.

¹³. Until the definition of the top contenders Argentina and, secondarily, Paraguay were visited by the US subsecretary of Commerce (March, 1980); USSR's viceminister of Foreign Trade (April, 1980); an Austrian mission (June 1980); the minister of International Trade of Canada (September 1980). All of them had Yacyreta as a main subject of their agenda.

(a) The Turbine War.

The massive violations of human rights by the military dictatorship furnished the reason for pressures from the Carter administration on the Argentine government. One of the episodes of this confrontation included in July and August 1978 restrictions on a loan that the U.S. EXIMBANK would make available to Allis-Chalmers to compete for the procurement of Yacyreta's turbines (El Argentino, Gualeguaychu, July 28, 1978; La Arena, Santa Rosa, August 22, 1978). However, less than two years later, when the project was in a more stable conjuncture, an American lobbying mission, formed by high-level government officials and managers of the American corporations interested in Yacyreta visited Buenos Aires and Asuncion ¹⁴. They announced the availability of a US\$ 700 million EXIMBANK credit to finance the purchasing of American equipment and machinery to Yacyreta, if American corporations won the contract. In an optimistic and positive atmosphere, where Videla's economic policy was praised, the U.S. vice-secretary of Commerce affirmed the Carter administration's

¹⁴. The participants of this mission included the U.S. subsecretary of Commerce, one director of the EXIMBANK, an Adjunct vice-secretary of State, the president of Allis-Chalmers' board of directors, the vice-president of Westinghouse's board of directors, and the vice-president of Morrison-Knudsen company, among others (see El Clarin, Buenos Aires, March 10, 1980; ABC-Color, Asuncion, March 11, 1980).

"new vision of the commercial relationships with Argentina", and that EXIMBANK's loans were independent of human rights or other subjects of international politics. EXIMBANK offered a twenty year loan with a 10-year grace period at an interest rate of 7.75 percent per year (La Nacion, Buenos Aires, March 12, 1980). Allis-Chalmers was now in a strong position to compete with the other international corporations and with the representatives of Argentina's heavy industry that claimed a greater national participation. Four months later, in July 1980, with an offer of US\$ 172 million, Allis-Chalmers was considered the strongest candidate for the awarding of the turbines contract. The bids on the turbines were:

Allis-Chalmers Corp. (USA)	US\$ 172.0 million
Dominion Engineering Co. (Canada)	US\$ 182.2 million
Consortium Yacyreta-Apipe (Energomachexport, USSR; Siemens, West Germany; GIE, Italy)	US\$ 201.5 million
Neyrpic-Voest (France-Austria)	US\$ 201.6 million
Mitsubishi & Voith (Japan, West Germany)	US\$ 233.3 million
Boving-METANAC (England, Argentina)	US\$ 242.2 million
Escher Wyss (Switzerland)	US\$ 305.8 million

The participation of the Soviet ENERGOMACHEXPORT in the Yacyreta-Apipe consortium was controversial in Argentina as well as in Paraguay. The USSR is a traditional purchaser of

Argentine grains and beef. The commercial balance between the two countries is historically favorable to Argentina. The purchasing of equipment, especially for the energy sector, is a frequently mentioned way of compensating for this difference (Convicción, Buenos Aires, April 11, 1980). Indeed, the Soviet Union had supplied Argentina with turbines before, for the Salto Grande binational project on the Uruguay river. However, their competitors divulged that these turbines were not delivered on schedule, and more importantly, that not all of them were in perfect order. But the most influential argument against Energomachexport's participation was politically grounded. One of the ideological basis of Paraguay's three decade old dictatorship has been a fierce anti-communism. Paraguay does not have diplomatic relations with the Soviet Union and despite favorable financial conditions was radically against the purchasing of turbines from that country¹⁵.

Allis-Chalmers was the most powerful contender in what

¹⁵. The financing scheme of the Soviet partner of the Yacyreta-Apipe consortium had the following characteristics: the period of grace would cover the whole construction period, payments would begin with the dam's completion and operation, in a ten years period with a 4.5 percent interest rate per year. The USSR would commit herself to purchase from Argentina 70 percent of the value of the YE-1 contract in traditional export goods, and the remaining 30 percent in non-traditional exports. At least one Argentine newspaper published a news stating that the Soviet turbines for Salto Grande had had no problems (Ambito Financiero, January 28, 1981). For a typical anti-communist rethoric in relationship to the possibility of awarding part of the generators contract to Energomachexport see ABC-Color, Asuncion, October 24, 1981.

the Argentine press called the turbine war. Its strongest adversary proved to be METANAC, the consortium of Argentine metallurgic industries, associated with English Boving, the lead firm. METANAC was created in 1978 with the objective of participating in large scale energy projects in general, and at the bids for Yacyreta's locks and turbines, in particular. Four major Argentine corporations associated to form the new consortium: COMETARSA (Construcciones Metalicas Argentinas S.A.), Astilleros Principe y Menghi, Establecimientos Industriales FEBO S.A., and, specially IMPSA (Industrias Metalurgicas Pescarmona), all of them with previous experiences in Argentine hydroelectric projects. Since its creation METANAC insisted that national participation at Yacyreta depended on political decisions, and that it was important to give the Argentine industry a precedent to enable it to compete in other international biddings of works of the same scale as Yacyreta (Veritas, May 15, 1979).

Boving-METANAC bid for ten turbines of which the Argentine consortium would make five. Each METANAC's turbine would cost US\$ 600,000.00 more than those of the cheapest offer. But, asked IMPSA's president - the leading metallurgic corporation in Argentina - "is it worth losing the benefits of producing them in the country because of this difference" ? (El Clarin, Buenos Aires, December 9, 1980). The most frequent arguments for a strong

participation of national industry were (a) that this work would imply a contribution to the development of the country in general because it would represent, for instance, one million hours of Argentine work; (b) that it was not strategically wise to depend solely on one supplier; and (c) that the Argentine government's support would be to the benefit of the national state since local producers are also local tax-payers. In order to increase the competitiveness of METANAC it was also suggested that the taxes they would pay in connection with the production of the turbines should be reduced.

Allis-Chalmers was aware of the sensitivity of the national participation issue. In fact, since 1978 it had been negotiating the formation of a concern with AFNE (Astilleros y Fabricas Navales del Estado S.A.), Argentina's state-owned shipbuilders controlled by the Navy. AFNE-Allis would be controlled by the American corporation (by ownership of 80 percent of its capital) and would construct a US\$ 40 million plant in case it was awarded the YE-1 contract. In the course of the negotiations Allis-Chalmers offered Argentina a participation of 6 percent, in case they were awarded ten turbines, and 14 percent if they obtained the contract for the full set of twenty. These percentages covered only small parts of the equipment (El Economista, November 28, 1980). For Allis-Chalmers, the Yacyreta contract represented a possibility to recover from an

increasingly debilitated economic situation.

The Argentine government was considering splitting the contract to different bidders. Nonetheless, Allis-Chalmers had a strong ally: the U.S.-EXIMBANK and its US\$ 700 million loan. In the beginning of Ronald Reagan's administration, in a visit to Washington, the Argentine and Paraguayan Foreign Ministers were informed of the American government's interest in the procurement of the electromechanical equipments (Conviccion, Buenos Aires, September 2, 1981; ABC-Color, Asuncion, September 2, 1981). More importantly, the Argentine minister was reminded that the U.S. EXIMBANK had established September 15th, 1981 as the deadline after which the US\$ 700 million loan's interest rate would change from a 7.75 percent yearly rate to 10.75 percent.

Under these circumstances, METANAC was offered participation as a subcontractor for AFNE-Allis, Allis-Chalmers' local partner and subcontractor. METANAC's political power was clear. The consortium had entered the competition for the YE-1 contract associated with Boving, but now was a candidate to build several turbines under Allis-Chalmers leadership¹⁶. Allis-Chalmers' offer was not accepted by METANAC, which had recently won (April 1981) an important contract to make the spillways' locks, and

¹⁶. Another bidder, a Canadian based corporation, would later send a letter to the Junta Militar and to Entidad Binacional Yacyreta stating that the bidding process of the YE-1 contract "was far from any logic and causality" (La Nacion, Buenos Aires, September 15, 1981).

aspired to build at least three or four turbines. METANAC insisted that a position like the proposed one did not guarantee the consortium a status that represented the precedent it needed to enable it to participate in other international competitive biddings.

Under pressure of EXIMBANK's deadline, Entidad Binacional Yacyreta declared, on September 11, 1981, that Allis-Chalmers' was the "most convenient offer", a legal solution that allowed further negotiations with AFNE-Allis and METANAC. In fact, an agreement was reached in November 1981. Under terms of this contract, Allis-Chalmers Corporation was to supply sixteen turbines, two of which had to be constructed by AFNE-Allis. The remaining four turbines were contracted for US\$ 24 million to METANAC (Engineering New Review, November 15, 1983).

The year of 1982 was marked by the overall deterioration of the Argentine dictatorship accelerated by the military defeat in the Malvinas War. In relationship to Yacyreta the predominant question was the urge for a definition of the main civil works contract. But an important fact related to the YE-1 turbines' contract began to unfold in the 1982-1983 period: the deterioration of the AFNE-Allis association. Allis-Chalmers was given a term, ending in April 1982, to make the necessary investments to open its new factory with AFNE in Argentina. The deadline had passed and the transition government of General Bignone

was not favorable to the concession of a new period. In this context, Allis-Chalmers considered the dissolution of the partnership with AFNE and a restructuring of its offer. The space was opened for a greater participation of the Argentine private industry that began to postulate the making of ten turbines (El Cronista Comercial, March 15 and April 27, 1983). In light of the prospects of more Argentine national participation, the U.S. EXIMBANK reduced its loan from US\$ 700 million to US\$ 400 million and called for negotiations on the exceptionally good 7.75 percent yearly interest rate that would be maintained to cover only the turbines but not the heavy machinery imported from the United States (El Clarin, Buenos Aires, April 21 and 24, 1983). In the second semester of 1983 a new accord was reached under which Allis-Chalmers Corp. would build twelve turbines with no local participation and METANAC would fabricate the remaining eight with technical assistance from Allis-Chalmers (Engineering News Review, November 15, 1983). Paraguay's share would be the mounting of thirteen turbines by CIE - Consorcio de Ingenieria Electromecanica S.A., (La Nacion, Buenos Aires, January 15, 1983).

After the inauguration of the new civilian government (December 1983) an increasingly powerful factor came to the fore: Argentina's foreign debt. During a long period EXIMBANK's loan to the Yacyreta Binational Entity depended on the negotiations the Argentine government carried out

with the International Monetary Fund and with the international bankers members of the Paris Club (Ultima Hora, Asuncion, June 11, 1984). The dynamics of the international conjuncture had also changed the values of the different currencies of the YE-1 bidders' countries of origin. These movements had made the German and French offers especially attractive (El Periodista de Buenos Aires, January 18-24, 1985).

But Allis-Chalmers' financial conditions worsened significantly with the increasing difficulties it was experiencing in its home-country and in the world market. In the last months of December 1984 rumors of Allis-Chalmers' bankruptcy were intense in Argentina. They lent fresh support to the argument of greater national participation. The possibility of engaging other international corporations such as Dominion Engineering Works, Canada, began to be considered (La Prensa, Buenos Aires, January 11, 1985). In these circumstances the strongest candidate for the awarding of the YE-1 contract would rapidly become a new consortium formed by Allis-Chalmers and Dominion Engineering Works. The latter had offered, years ago, the second lowest bid. At the same time, there were rumors of intentions to start conversations with Voith, another of the original bidders. This German corporation had claimed that by accepting successive requests of reformulations of the original offers, Entidad Binacional was breaking the principle of

equality of treatment that should rule any bidding process (La Razon, Buenos Aires, February 13 and 15, 1985). In view of this situation Voith GmbH wanted to be considered again as an active competitor for the YE-1 procurement.

On March 14th, 1985 Entidad Binacional Yacyreta announced that its board of directors had approved the awarding of the turbines contract, for US\$ 213,8 million, to the Allis-Chalmers/ Dominion Engineering Work consortium. Legal conditionalities included (a) the presentation by the two firms of a joint guarantee; (b) the implementation of US-EXIMBANK's loan of US\$ 400 million (still on hold because of Argentina's foreign debt problems); and (c) to the obtaining from the Export Development Corporation of Canada of an export credit. Allis-Chalmers would fabricate nine turbines, Dominion Engineering Works, four, and METANAC, seven. Paraguayan firms would participate in the mounting of the equipment. Local supplies would be financed by special credit lines of the Argentine Central Bank (El Territorio, Posadas, March 15, 1985). On March 19th, EXIMBANK and the Binational Entity signed a loan agreement for US\$ 400 million. However, this credit would remain non-operational for a long period since it continued to be subsumed to the negotiations of the Argentine debt with the IMF and the Paris Club. The YE-1 contract award was not signed.

In 1985 the financial difficulties of Yacyreta caused by a lack of external financing and the overall Argentine

economic crisis, led to a rescheduling of the project. The peak of the work force was substantially diminished, postponing the completion date from 1990 to 1992. The problems of the Argentine economy were directly reflected in Yacyreta's main internal source of funds, the Fondo Nacional de Obras Electricas (FNGOE - National Fund for Electrical Works). In 1986, for instance, FNGOE transferred to Yacyreta less than two thirds of its assigned contribution to the project. Entidad Binacional Yacyreta had to obtain the difference from the Argentine Treasury or from international creditors. In 1987, the internal financing situation tended to worsen (El Cronista Comercial, Buenos Aires, January 16, 1987). Indeed, during this year out of an estimated US\$ 200-280 million FNGOE contribution, nothing came from this electric fund.

The delays on the signing of the YE-1 contract also meant extra financial costs to the project. Since 1983, when Argentina accepted the US-EXIMBANK loan, the country had to pay US\$ 2 million annually, a 0.5 percent commitment commission. This loan was unblocked only in January 1987. Increasingly dependent on foreign financing, in December 1986 Entidad Binacional got a loan of US\$ 63 million from the Export Development Corporation of Canada to cover 85 percent of the Canadian imports (Ultima Hora, Asuncion, December 12, 1986). A new US\$ 900 million World Bank and Inter-American Development Bank loan was expected to be

received in 1987. This credit was conditioned upon adjustments of the electric tariffs, a classic World Bank condition (El Clarin, Buenos Aires, October 25, 1987).

Although the awarding of the YE-1 contract had been approved in March 1985, it would be signed only in mid 1987. The fact that Allis-Chalmers and Dominion had still not formally concluded the creation of the new consortium, together with the Argentine debt crisis, were the main factors preventing a solution. At the same time, the rumors on Allis-Chalmers bankruptcy proved to be correct. The conditions of this corporation worsened considerably with its economic deterioration in its home country. Allis-Chalmers' problems had aggravated to a point that its Hydro Division was sold to German Voith GmbH in September 1986 (Ambito Financiero, Buenos Aires, August 1st, 1986).

On May 22nd 1987, Entidad Binacional Yacyreta's board of directors authorized the signing of the awarding of the turbines contract for US\$ 270 million. Finally, in the last week of June, in the Paraguayan town of Ayolas, the contract was signed between Entidad Binacional and the winning consortium. German Voith, that had acquired Allis-Chalmers and continued to benefit from US-EXIMBANK's loan, would fabricate nine turbines; Canadian Dominion Engineering Works, four turbines, and METANAC, the Argentine heavy industry consortium, seven. Paraguay's Consortio de Ingenieria Electromecanica will produce components

equivalent to the costs of one turbine (El Clarin, Buenos Aires, June 28, 1987). This was the end of a bidding process taking almost eleven years.

(iv) Comparative comments on the YC-1 and YE-1 cases.

The description of both bidding processes highlights the difficulties of generalizing and finding a common underlying pattern. In Yacyreta this is further complicated due to the binational character of the project. Paraguay and Argentina are countries with different levels of development of their productive forces. Despite Paraguay's bargaining power, an emphasis on the Argentine characteristics of these processes is appropriate since the hegemony of Argentina is unquestionable.

Although the bidding for the YE-1 contract was subject to the same political instability that caused the frequent changes of Entidad Binacional Yacyreta's top management, its distinguishing characteristic, in contrast, was the active and almost constant confrontation between Argentine heavy industry and foreign interests, especially those represented by Allis-Chalmers and the EXIMBANK. During the bidding process for the main civil works there was not a significant resistance by Argentine contractors to the dominance of foreign companies. Comparatively, Argentine heavy industry counted on greater support from the Argentine state,

including during the military dictatorship. The greater sensibility of the Argentine dictatorship to the claims of the steel industry was consistent with the military policy of favoring monopolistic capital. Moreover, it showed that this Argentine industrial sector was more powerful than the construction industry that did not - or could not - pressure the military regime with the same intensity as the steel-making companies did. It must be added that behind the leadership of IMPSA - the largest member of METANAC - there was not only the power of monopolistic capital but also a history of connection with the military. IMPSA has played an important role in the country's military industry, especially producing the sophisticated TAM tank, and has also participated actively in the country's nuclear plan (Convicción, Buenos Aires, January 4, 1981). In a political conjuncture when "geopolitical and strategic questions" were explicitly influential within the state bureaucracy, decision-makers surely considered that an industry with a high strategic value should be protected¹⁷.

The consideration of the differences between the biddings of the YC-1 and the YE-1 contracts is relevant

17. Other comparative advantages of the Argentine metallurgy vis-a-vis the construction industry could be that contrary to Impregilo, Allis-Chalmers did not dominate the local electromechanical market of large scale projects. On the contrary, Boving, METANAC's initial partner, had previously participated at the El Chocon project. Furthermore, Impregilo did not have the economic problems that Allis-Chalmers faced in the period.

because they show how different industrial branches - and the related segments of a national bourgeoisie - may have different power vis-a-vis the state and international capital. The YC-1 contract shows a segment of the Argentine industrial bourgeoisie more vulnerable to foreign capital, in a subordinated position, given its relatively smaller power of negotiation. Generalizing from this example would take us close to a dependency approach. Dependistas tend to emphasize the vulnerability of local bourgeoisies since it is an approach deeply rooted in an effort to strengthen Latin American national bourgeoisies in the 1950's and 60's¹⁸.

But the YE-1 case shows another segment of the Argentine bourgeoisie that can compete with international capital and get a larger share. This case would lead us to a discussion closer to the post-dependency debate (see, p.eg. Becker 1983, 1984; Chase-Dunn 1982; Evans 1985), a debate that, in one sense, reflects more recent changes occurred within the most industrialized Latin American countries, and, in another, the influences of a world-system approach. It is not fortuitous that authors working in this direction

18. Celso Furtado (1985), an active author in the development of dependistas interpretations, in an autobiographical book suggestively called "The Organized Fantasy" shows clearly the origins of the dependency approach in CEPAL, U.N.'s Comision Economica para la America Latina, in the fifties, a time when import-substitution was a current perspective among Latin American elites. Furtado consistently stresses the importance of the Argentine economist Raul Prebisch in this period.

did studies on industries with high capital concentration.

However, the simultaneous consideration of the YC-1 and YE-1 contracts, with their typical negotiations between national and foreign capital, suggests that one part of the bourgeoisie may act in ways that approximate a dependista model, while another bourgeois segment may follow avenues more in line with post-dependency patterns. This difference is due to the differential relative development of these fractions of the bourgeoisie which, in turn, forms the basis of their differential negotiating power vis-a-vis the state and transnational capital.

The possibility of constructing a general interpretation capable of anticipating the behavior of the different actors involved in all bidding processes is extremely limited given that these processes are immediately sensitive to changing conditions of the national and international political-economy. However, there is a common element that appears with regularity: the presence of consortia in all associative levels. In the next part of this chapter, I am going to argue that the common feature of all biddings is a process I call consortiation.

(3) Consortiation: Articulating different political/economic groups.

The central importance of consortia for the development of large scale projects is evident in Yacyreta. Consortia proliferate within the project, articulating a large number of transnational and nationally based corporations. The winner of the YC-1 contract is a consortium of thirty-two contractors from Italy, France, Germany, Argentina, Paraguay and Uruguay. The winner of the YE-1 (turbines) contract is another consortium of German, Canadian, Argentine and Paraguayan heavy industry corporations. Generators were awarded to a consortium led by Japanese corporations. Consultant's consortium is formed by American, German, Paraguayan and Argentine firms. The infrastructure of the project on the working site, as well as the resettlement housing scheme were built by Argentine and Paraguayan consortia. Briefly, any relevant contract is submitted to a bidding process in which the participation of consortia predominates.

Indeed, a large scale project such as Yacyreta is an arrangement of multiple segments of a centrally planned productive process. Given the gigantism and internal differentiation of such projects there is not a single corporation that can control all productive processes involved in a project's completion. The project is thus

divided into numerous segments that are offered in the market under the form of contracts to be awarded to several capitalist firms, the winners of different competitive bidding processes. At the same time, each separate contract, taken by itself, commonly represents a complex arrangement requiring/resulting (in) the combination of several firms. Therefore, a large scale project is also a set of legal contracts that define different responsibilities and rewards for the participants. Association is a guiding principle that trickles down from the main contracts joining the largest international and national corporations, to smaller ones where firms operating at local or regional markets get articulated with national corporations. I call this process, through which a large scale project promotes the articulation of different capitals, consortiation.

Looking at Yacyreta as a whole, as a project where different capitalist firms became associated to participate in the process, there is a line that clearly separates biddings where international and national capital form new consortia from those where only national participants are present. This differentiation is not only due to the technical complexities of the scale of the work (that may have a relatively less important weight), but also reflects exigencies/limitations introduced either by the international financing agencies (multilateral or export-financing banks) acting as brokers of transnational

corporations, or by the national state acting as a broker of national industry. I will come back to this point below.

In Yacyreta's largest bidding processes - such as those for the main civil works, turbines, and consultancy contracts - international capital participated in a leading position. The Argentine and Paraguayan corporations are the junior partners of these consortia. The part of the project that was left exclusively to national capital of both countries was the construction of the infrastructure works (housing and transportation system) and of the new housing related to the resettlement of the 40,000 people affected by the reservoir. Here Argentina and Paraguay clearly count on companies that are prepared for the development of the tasks as a whole. The argument that scale or technological complexity make obligatory the participation of international corporations cannot be applied to this situation. The different infrastructure works were thus carried out by consortia of leading national corporations.

The contracts related to the construction of new housing and urban equipment for the resettled population in Posadas (capital of the Argentine province of Misiones) are especially interesting in terms of illustrating the articulations of capitalist firms in consortia within Argentina. The scale of these jobs have been, for a period, an impediment for local level (i.e. Posadas based) construction companies, since they did not count on the

financial, managerial and technological qualification to win the contracts. The determining factor for the exclusion of local firms was the great number of houses to be constructed. In this context, the subordination of national capital to international capital within the main contracts is reproduced internally to Argentina. This time the terms of the contradiction were defined by the larger concentration of capital existing in the Great Buenos Aires area compared to the rest of Argentina. In consequence, powerful Buenos Aires-based construction companies dominated the contracts for the construction of the urban equipment of the resettlement segment of the project to the detriment of local level firms.

This typically occurred during the military dictatorship (1976-1983) when the prevailing economic policy was clearly biased towards the concentration of investments and procurements to the corporations operating at the level of the national market. After the new constitutional government's inauguration, the interaction of power groups was no longer exclusively limited to the rules dictated by monopolist capital.

One of the most frequent ways of legitimating a large scale project is to appeal to its supposed positive effects on national as well as regional development. The clearest evidence of the democratic government sensitivity to the claims of regional participation was its attempt to

regionalize Entidad Binacional Yacyreta's power structure (see chapter two). In this conjuncture local and regional level firms could lobby the political administrative structures of their provinces. Regional participation, decentralization, became an issue. One solution was to offer the new housing contracts for the dislocated people in smaller lots that could allow the effective participation of the small local Posadas-based construction companies. But, at this level, consortiation also remained important. A leading Posadas firm formed a consortium with a Buenos Aires based company, thus becoming the strongest participant in this segment of the larger investment that represents the Yacyreta project.

Consortiation is a chain-like movement that - through the organization of new task oriented economic and administrative entities - actually links, within a project, international, national and regional capitals. It is a way to reinforce capitalist relationships in a pyramidal fashion where upper levels hegemonize lower levels. The political-economic process of consortiation in large scale projects directly affects the potential of such undertakings for socio-economic development. Consortiation seems to imply that such projects reinforce competition and the concentration of capital among capitalist firms; it facilitates the process of capital concentration by eliminating weaker competitors and coopting a few selected

ones.

If we think of consortiation as a chain-like process that may reach local level, it will be seen that it involves a two-way process. On one hand it allows selected smaller companies to participate as junior partners in tasks larger than what their financial, technological and managerial capacities would allow. On the other hand, it is a way of facilitating the access of larger corporations to new and most often protected and highly disputed markets.

The different discourses based on project's potentiality for regional and national development are a means through which the weakest partners in the associative chain legitimate their claims for larger participation. "Regional development" is, thus, a common argument of companies that operate at the local or regional level in their struggle against nationally-based corporations. By the same token, "national development" is the argument national corporations use to defend their interests vis-a-vis international capital. Given the "two-way" characteristic of consortiation, the discourses on regional and national development may be an argument that the strongest partners - i.e. those representing larger capital concentration - use to legitimate the need for the project. The eloquence of the developmental argument is self-evident when the cooptation of smaller unities down the scale is needed.

The vital importance of consortia for "macro-project development" has been pointed out before (Murphy 1983: 86). For Kathleen Murphy the central reason for a joint-venture is a matter of managerial rationality, aiming at risk-sharing and the increase of corporations' competitiveness. These features are presented as a result of a reading of market forces, where political power, or rather, power networking and negotiations do not seem to play any role. However, the descriptions of Yacyreta's YE-1 and YC-1 cases make clear the importance of lobbying, power groups pressures and the incidence of political factors in the bidding processes as well as in the definition of consortia's members responsibilities and rewards. Moreover, they indicate that the common presence of consortia in large scale projects is a result of both regulations of the global market of large scale projects by multilateral agencies and the regulations of nation-states to protect or stimulate different fractions of national bourgeoisies. Consortia are a means corporations have to optimize the use of different networks that must be activated for reaching different economic and political goals within a project. For instance, a consortium operating at the conjunction of the international and national systems, and formed by national and transnational capital, may lobby both national and international/multilateral institutions.

Since there is not a transnational state, transnational

capital influences world markets through multilateral agencies or creditors' cartels such as the Paris Club. The scale of the works and, more importantly, the rules of international financing give transnational corporation's the lion's share of a large scale projects' total investments. National corporations are given the possibility to participate in a greater or smaller degree within the ad-hoc consortia according to their specific power connections and to the particularities of concrete political conjunctures informing the development policy of a nation-state.

Large scale projects are unique opportunities to promote in a regulated environment the articulation of international and national capital under the supervision of different national states and supra-national organizations. The consortium is the concrete social, economic and political entity that operates this articulation. Forming a consortium always implies a negotiation that is not only a process based in economic or market criteria. The intervention of powerful actors - the state, national and transnational capital - generates a field of power negotiations that is eminently politically structured. Choosing national partners, for instance, is a decision in which the possibility to count on stronger political support within the national state may be more valued than others. In fact, the definition of each companies' share in a contract is at least in as much due to political articulations,

networkings and lobbying as to technical assessment of a company's technical productive and financial capacity.

Consortia allow and legitimate the entrance of transnational capital in a given national large scale projects market. At the same time, they are part of the scenario (bidding conditions) where national corporations pressure state to guarantee their share or larger participation of a project's mass of investments. Finally, being the field where these interests get crossed, the state regulates and legitimates the final proportions of national capital participation, and the project as a whole, in the name of a given national development policy. The formation of consortia -marked by the strategic objective of winning a contract - thus promotes the articulation of transnational and national capitalist interests with those of managerial and political elites within the state. In this context, the limits to effective individual capitalist participation at the process of consortiation are defined by a complex combination of (a) differential access to technology, capital and complex managerial processes; (b) the lobbying efficacy of a corporation's political networks; and (c) the kind of development policy stimulated by the state.

CHAPTER IV

THE MOON LAND: YACYRETA'S TERRITORIAL SEGMENTATION.

(1) Introduction.

A large scale project rearranges the previously existing local space organization creating settlement patterns adjusted to its own productive needs. It also creates a large labor force that participates differentially in a labor market formed by the junction of several class segments with different ethnic, migratory, ideological and cultural backgrounds. Because large scale projects' are a world system happening that articulates international and national levels of determinations, and because they occur in concrete local settings that are part of regional systems, the participating population strongly reflects these different levels of determinations. The internal differentiations of a large scale project are translated into concrete features of the settlement pattern of a project's territory that have important social determinants behind them, and at the same time, create new social constraints. In this chapter, I will describe the structure of reproduction of social life in the area of the Yacyreta Project in order to understand the setting where actions unfold, and the importance of this setting for the

perceptions that social actors have of each other's positions and privileges within Yacyreta's project labor market.

(2) The Moon Land: The Creation of Space for a Large Scale Project.

- (i) Project's immediate area of influence and territory.

Since the project creates its own territorial reality it is important to describe it.¹ The impact of large scale projects in regional systems has been a major concern for Argentine social scientists, urban and regional planners. However, the determination of how far the influence of the project goes is not my main goal here. Rather, my point of departure is from the immediate area of project's influence. For analytical purposes, I will make a distinction between (a) project's immediate area of influence - that includes the surrounding areas of the civil work's physical location and the future reservoir area with the population to be resettled - and (b) the project's territory, i.e., the areas that are immediately geared to the construction activities and that at the same time are directly influenced by the daily needs of project's productive process and social life.

¹. See maps on pages 42 and 195.

The area of direct influence of the Yacyreta project covers a large surface of Paraguay and Argentina. In Paraguay, it includes part of the department of Itapua, where most of the population to be resettled lives (especially in the city of Encarnacion, Itapua's capital), as well as part of the department of Misiones where construction site offices and project's residential areas are located near the pre-existing town of Ayolas.

On the Argentine shore, the project's direct area of influence also includes parts of two provinces - the political-administrative units equivalent to Paraguayan departments. One is the province of Misiones. Its capital, Posadas, is inhabited by most of the Argentine population to be resettled. The other is the province of Corrientes where working site offices and Argentine residential areas are located near the pre-existing town of Ituzaingo.

The project's territory can be defined as the set of areas either directly regulated by the needs of the project and its internal institutional power structure - the main contractor's permanent camps and the construction site, for example - or, like in the case of the two pre-existing towns, areas radically dependent or subordinated to the project's political and economic power. In this connection, I will consider the Yacyreta's project territory as the area that includes the construction site, the residential and service sectors directly linked to the project, i.e. the two

Villa Permanente and two 1,000 Viviendas camps on both shores of the river, as well as the towns of Ayolas (Paraguay) and Ituzaingo (Argentina).

The construction site, i.e. the set of places where works such as the navigation locks, power house, spillways and dikes are being constructed, comprise a distinct area within project's territory. Besides the actual construction sites, the most important units related to the productive process are located in this area: the main contractor's site office, project's harbor, the cement and concrete plants, conveyor belts, workshops, garages, etc. A labor camp for Paraguayan non-skilled workers is found on the island of Yacyreta. In Argentina a similar camp, the El Pinar camp, is located outside the working site area, five kilometers far from its entrance.

Yacyreta, like many other geographic features in the region, is a Guarani name given by the pre-columbian native population to the 450 km² island where main facilities such as projects' power house are under construction. It means "the moon land". The island is Paraguayan territory and divides the Parana river into the Ana-Cua and Principal branches. A service bridge constructed over the Principal branch links Argentine territory with the Paraguayan island of Yacyreta. Another bridge links the island to Paraguay's mainland.

These bridges created a physical connection between the

two countries in that region. The construction site is not opened to public access. Nonetheless, Argentine authorities have constantly reported the smuggling of commodities through the construction site. Indeed, contraband is a major political and economic force in Paraguay, a country known in the region for its smuggling of cigarettes, liquor, perfume, electric appliances and Brazilian stolen cars².

The distinctiveness of the construction site is marked by the fence that surrounds it. There are only two road entrances to the project. One in Argentina, the other in Paraguay. Both of them are controlled by projects' own security forces, by customs' officers, or, in Paraguay, by the Army. The presence of Paraguayan soldiers carrying automatic weapons is visible in the Paraguayan entrance of the construction site as well as in different checking points. Since the working site is a restricted area, access is permitted only to authorized vehicles belonging to the different corporations involved in the project.

The Yacyreta working site is a binational territory of 1,200 ha where a set of protocols agreed between Paraguay and Argentina on matters such as the traffic of vehicles, customs, labor relations, security and taxation, regulate

2. For reports on smuggling between the Paraguayan town of Ayolas and Argentine Ituzaingo (El Informador Publico, Buenos Aires, January 16, 1987). See also the news "Smuggling in Ituzaingo: the Investigation goes on", in El Litoral, Corrientes, October 29, 1985.

the relationships between individuals, private firms, and the government agencies of both countries involved in the project (see EBY 1986: 189-237). The main reason for these agreements was that the project is a unit, a special one from the juridical point of view since it represents a binational entity that cannot be treated only from a Paraguayan or from an Argentine legislative perspective ³. There was thus a need for common uniform ways of solving problems to avoid dealing constantly with the specific legislation of each country.

Given the binational character of Yacyreta, the same residential and administrative infrastructure built on one side of the project had to be duplicated on the other side, in a mirror-like structure. For example: 1,000 houses were built to equip the main-contractor's permanent camp on the Argentine side of the project. The same was done in Paraguay. The architecture of the residential and administrative buildings, however, differ on each side

³. The Yacyreta project illustrates clearly what I defined as one general feature of large scale projects : juridical ambiguity (Ribeiro 1987), that is, the creation of a specially regulated territory where the power of the main institutions involved in the productive process can be stronger than the power of national states in those areas. Entidad Binacional Yacyreta has claimed its special juridical status to hinder the investigations of the Argentine Attorney of National Administrative Investigations (Fiscalía Nacional de Investigaciones Administrativas) on mismanagement of public funds (Revista Humor, no. 157, 1985). In 1987, after threatening confiscating the documents he was searching, the Attorney was able to proceed with his investigations (Revista Lider, March 1987).

according to each country's architectural traditions.

Planners took advantage of the existence of two nineteenth century towns in both countries, Ayolas and Ituzaingo, that were the basis for the period of construction of the residential and transportation infrastructure of the project. The history of Ayolas and Ituzaingo is intimately related to the Parana river since for several decades they were the harbors that connected the then remote Paraguayan and Argentine regions with markets as far as Buenos Aires and Asuncion. These towns remain the only urban areas where a non-project-controlled environment is available.

The following considerations are based on research conducted on the Argentine side of the project, where the largest concentration of project-engaged population is. Research carried out in the Paraguayan side of the project, however, would reveal substantial descriptive and analytical differences, due to Paraguay's position as a junior partner within the Yacyreta project as well as that country's different socio-economic, political and cultural reality.⁴

⁴. The expression "project's territory", when found in the text from this point on, will not include projects' residential areas in Paraguay nor the nearby town of Ayolas. It will refer to the Argentine side of the project plus the working sites area.

- (ii) The structure of reproduction of social life in the project's territory.

There is a basic distinction that needs to be introduced concerning the settlement pattern of the project's territory destined to the social reproduction of the population directly or indirectly related to the productive process. This distinction refers to whether the spatial organization of the residential areas and the transportation system were designed by the project according to its internal conceptions and necessities or whether they refer to pre-existing settlement patterns that were rearranged and/or became a part of the project. Evidently, this distinction can only be made in historical terms because once a project is installed in an area it intervenes massively in the local settlement pattern, reorienting the spatial, social and cultural characteristics previously in existence⁵. This does not mean that pre-existing settlements totally lose their characteristics and importance. But they do undergo intense change provoked and almost always controlled by the external force represented by a project.

The first distinction to be done is in terms of defining two qualitatively different areas. One is a non-planned environment, the pre-existing Correntino town of

⁵. For a discussion on how large scale projects affect regional settlement patterns see Laurelli (1987).

Ituzaingo, a non-project controlled area. The other is the project's planned housing and infrastructure equipment. This area, designed and controlled by Yacyreta, is divided into three main sections. The internal characteristics of the Ituzaingo non-planned area, and the project's housing and infrastructure equipment is going to be depicted in the next pages.

(a) The pueblo of Ituzaingo, province of Corrientes.

Ituzaingo is a small town, a pueblo, founded on the shore of the Parana river in 1864 in the Northeastern province of Corrientes. It is located at a distance of approximately 230 kilometers from the city of Corrientes, the province's capital, some 90 kilometers from Posadas, the capital of the neighboring province of Misiones, and almost 1,200 kilometers from the city of Buenos Aires, the federal capital.

Corrientes and Misiones, together with the provinces of Chaco and Formosa comprise the Argentine Northeastern region. Since colonial times Corrientes has been the most important province of the region. The power of Corrientes kept neighboring Misiones, for instance, under its political-administrative control until 1881 (Rofman 1983: 20). The founding of the city of Corrientes in 1588 (Romero 1986: 28), at the junction of the Paraguay and Parana

rivers, was extremely important for the control and maintenance of these rivers' navigation routes.

Corrientes' sui generis political history as well as its distinct ethnic and cultural background clearly differentiates it from other members of the Argentine federation. The contradictions between portenos and correntinos is a historical issue that reflects the broad centralization of national political and economic power in the hands of Buenos Aires based elites to the detriment of regional elites. The uneven exchange between Buenos Aires and Corrientes was aggravated during the Military regime of 1976-1983 (Rofman et al 1987).

Correntinos often refer to centralismo porteno, a major Argentine political issue, in terms of cultural incompatibilities. Indeed, in Corrientes bilingualism is common, since Guaraní is widely spoken. Furthermore, for a longtime the proximity to Paraguay, and especially to its capital, Asunción, once a most important colonial center, created strong ties between Correntinos and Paraguayans.

The economy of the province has been historically based on agricultural production and cattle ranching. Despite the importance of Corrientes' production of tobacco, rice, yerba mate and cotton, its main individual source of wealth is cattle ranching ⁶. Cattle ranching based on large

⁶. For data on Corriente's gross product discriminated by sectors of economic activity and covering the 1970-1981 period, see Rofman et al (1987: 73).

landholdings, with its associated gaucho culture, characterizes an extensive area of Corrientes, including its department of Ituzaingo, in the province's northeast, on the border of Misiones.

Seventy five percent of Ituzaingo's area is dedicated to cattle ranching. The concentration of large land holds in the hands of few characterizes the land tenure of the department (Provincia de Corrientes 1986: 25). The town of Ituzaingo has been the residence of the department's estancieros (cattle ranchers) and tradesmen, given its privileged location for the flow of commodities in the region.

Ituzaingo's history is intimately associated with the Parana river. First, as an important regional harbor⁷, and later, as the Argentine seat of the works of the Yacyreta project. The Apipe rapids, located few kilometers upstream from Ituzaingo, is the immediate reason for this town's existence and present importance. It was because of the Apipe rapids that Ituzaingo became a harbor - it was necessary to channel the production of Misiones to the Buenos Aires and Asuncion markets. The movement of passengers was also significant. Larger boats could not go

7. The town was a harbor in the nineteenth century even before its formal foundation in 1864. In Corrientes the harbor of Ituzaingo is second only to the province's capital harbor. Almost 160,000 tons, mostly of construction materials, passed through it in the year of 1978 (Provincia de Corrientes 1981: 173). The town of Corriente's harbor movement was of 177,542 tons in the same year (idem).

further than Ituzaingo where loads were transferred to smaller boats and taken to Posadas until the mid 1940's when the construction of a road, Ruta Nacional no. 12, between Corrientes and Posadas meant a strong competition for Ituzaingo's harbor. According to a local historian, Miguel Lopez Breard, during its busiest moments the harbor of Ituzaingo had 30 to 40 boats being loaded and unloaded. These tasks involved a considerable labor force. This transshipment harbor's importance declined when Ruta Nacional no. 12 was paved in the 60's. It is also because of the Apipe rapids that the Yacyreta Hydroelectric High Dam is being constructed, leading the pueblo of Ituzaingo to call itself the capital of energy.

Following the general trend of the province of Corrientes, Ituzaingo had high ratios of emigration until the nineteen seventies⁸. During this decade, with the Yacyreta project, the pueblo underwent intense change in its demographic, social and cultural composition. The population of the department of Ituzaingo, that had been diminishing

⁸. The evolution of Ituzaingo's ratios of emmigration is the following:

<u>Years</u>	<u>Ratios (%)</u>
1946	10.1
1950	36.3
1955	35.9
1960	33.4
1965	29.6
1970	25.0

(Source: Meichtry 1978: 93)

Migrants would most often either go to the province's capital or, following a general national trend, to the Greater Buenos Aires area. For a description and analysis of Corrientes' demographic structure see Meichtry (1978)

since the forties, increased rapidly in the seventies:

Ituzaingo's
Population:

<u>1895</u>	<u>1914</u>	<u>1947</u>	<u>1960</u>	<u>1970</u>	<u>1980</u>
3,292	8,126	14,278	13,939	13,502	20,122

(Source: Provincia de Corrientes 1981: 39)

Almost 60 percent of the department's population is urban. The town of Ituzaingo itself grew from 8,687 inhabitants in 1980 (Provincia de Corrientes 1986: 7) to 13,202 in 1984 (Provincia de Corrientes 1984: 1).

Yacyreta's most intense impact on Ituzaingo must be understood in terms of two different periods, one related to the construction of project's infrastructure (1978-1983), the other unfolding after the beginning of the main civil work with the arrival, in early 1984, of the main contractor and its employees who occupied the housing infrastructure previously built. The relationship between the pueblo and project-generated social change varies according to each period.

Population growth was much stronger and disorganized during the period of construction of project's infrastructure (1978-1983) - with heavier immediate social impact on the Ituzainguenos than after the beginning of the main civil works in 1984. One of the main reasons for this is that the initial stages of the project attracted a considerable amount of migrant labor that came to look for

construction jobs or to participate in the economic boom that is supposed to accompany any large scale project. Another main reason is that the preliminary works of a project are destined to create the conditions to reproduce the large labor force that is to be engaged in the construction work. There was no pre-existing significant project housing infrastructure in Ituzaingo until 1981 when the Villa Permanente was opened. Before that, project's employees - from the Yacyreta Binational Entity and from the consultant firm (CIDY) - lived either in the town itself or in a small set of barracks, the Villa Transitoria, in the area that would later become the Villa Permanente. According to my informants, this Villa Transitoria was constructed in 1974.

The main residential infrastructure to be constructed were (a) the 300 houses of the Yacyreta Binational Entity's Villa Permanente, and (b) the 1,000 Viviendas permanent camp, one thousand houses for the main contractor labor force. In this period workers were living in precarious temporary camps mostly located within Ituzaingo's limits or within walking distance. The constant and numerous presence of outsiders in the pueblo was, thus, much more intrusive than after the project's housing scheme was prepared. Permanent and temporary camps were built with many hundreds of houses, community centers, canteens, educational, recreational, security and health facilities. When the

population to be engaged in the main civil work arrived this infrastructure was ready. It must be noted that this migratory population is different from the one that participates at the construction of the project's infrastructure.

Although I was unable to find precise records on the total number of workers who participated in the construction of the infrastructure, I tend to agree with the most frequent evaluations that mention a maximum of 3,000 men. By the time of a study conducted by the Buenos Aires office of the International Organization of Labor (1980), the number of men working at the construction of the Villa Permanente stood at 1,500 (Gaggiano 1980: 16). One of the first leaders of the local union of construction workers estimated that during the infrastructure construction the union had between 3,000 to 3,500 members. This seems to be a reasonable approximation for the number of men working during the peak moment of the preliminary works (1980-1981) when the construction of the Villa Permanente (1978-1981) overlapped with that of the 1,000 Viviendas (1980-1982).

During the building of the infrastructure there was a developmentalist boom in the town; small-entrepreneurs made investments in the service sector, rents sky-rocketed and a mini-localized inflation arose. The boom brought with it an excess male population that could not find either a job or a place to live. They had to either pay the extremely high

rents that were being charged for beds on family-houses, or to join the growing numbers of homeless people sleeping on the town's plaza or streets. Squatting and prostitution became visible social issues, and so did public security.

The local representatives of the Entidad Binacional Yacyreta, the several Argentine contractors with the respective bodies of migrant labor they attracted for the construction of the infrastructure, were the main social actors involved in the conflicts and interactions that occurred between the Ituzaingueno population and project related population. From the beginning, there developed a tension between task and profit oriented outsiders, who viewed the project as a moment in their search for upward social mobility, and local people. The latter also viewed the project as an economic opportunity for social mobility but kept, at the same time, a sense of community, of pertaining to a common local history and culture.

The situation of conflict of interests generated by the project and its representatives was and still is often perceived as a confrontation between outsiders and local people that develops within the larger context of the contradiction between national government and local people. In Argentina, federal power means Buenos Aires' political and economic power. The outsiders versus local people issue, created by the Yacyreta project, soon came to be represented in terms of portenos versus correntinos. Prejudice and

discrimination against people from provinces such as Corrientes is part of the ideology of some sectors of the Buenos Aires population. Cabecita negra is the label the chiefly European descended portenos coined to classify the migrants coming from different regions of the country (Ratier 1971). The Argentine national headquarters of the Entidad Binacional Yacyreta (EBY) are in Buenos Aires, permanently imparting to the EBY an undisputed porteno flavor.

The integration of Ituzainguenos with project related people has been until the present an important issue in the area. Since the construction of project's infrastructure local people started to protest against what was seen as the creation of two Ituzaingos: one, the historic, poor Ituzaingo, represented by Correntinos that were mostly hired as unskilled laborers by the Yacyreta project; the other, the new powerful, national and international Ituzaingo, geared to the binational hydroelectric dam, the project that soon became the most important economic and political force in the region.

The decision on the location of Yacyreta's housing infrastructure was perhaps one of the most important ones in which the province of Corrientes could take an active part. During the Peronist government of 1973-1976 a mixed Entidad Binacional Yacyreta/Provincia de Corrientes committee was established to make decisions on this subject. According to

an Ituzaingueno politician, a former member of this committee, the Binational Entity tended to foster the construction of camps at a distance of more than ten kilometers from the town of Ituzaingo. Through the initiative of the Correntino politicians this idea was abandoned in favor of the urbanistic integration of the historic settlement with the new ones to be constructed.

In fact, the Villa Permanente, a housing area for the Entidad Binacional's personnel, began to be constructed in a peripheral area contiguous to Ituzaingo in 1978. For its construction, 270 Ituzaingueno families had to be resettled. Most of them were squatters living in ranchos, precarious dwellings where they could have small animals and plant some important staples, such as manioc, corn and several fruits in the backyard⁹. They were resettled in another area of the town where the poorly built 180 Viviendas housing project was erected by the government of the province of Corrientes. Residents of the 180 Viviendas frequently complained of the bad quality of the houses, and of the small size of the lots - where they could not plant nor keep as many animals as before (see, eg., El Litoral, Corrientes, August 28,

9. According to a research carried out by the Province of Corrientes and Entidad Binacional Yacyreta, squatters were 68 percent of the population living in this area (Provincia de Corrientes 1980a). They were characterized as a "semi-rural" population that did odd-jobs either to cattle-ranchers or to town's dwellers. After the resettlement they were increasingly recruited to work at the construction of the project's infrastructure (Provincia de Corrientes 1980b, see also Provincia de Corrientes 1978).

1980)¹⁰.

An issue that clearly illustrated the tension between local people and outsiders arose in early 1981 when the Villa Permanente began to be inhabited. In this area, approximately 300 houses for urban professionals were erected. After the construction period, the fence that was built to cordon-off the construction site was not demolished. This new housing area became in practice a semi-private tract of land owned by the Argentine Federal government. The Villa Permanente had only two entrances where Ituzainguenos had to identify themselves and tell where they were going before being allowed to get in the area. This created intense malaise since Ituzainguenos considered the Villa as part of their town and felt humiliated by the fence. Some of them called it the Berlin Wall, a symbol of porteno arrogance and disdain, others regarded it as an index of the degree of militarization that Argentine society was undergoing during the dictatorship of 1976-1983.

Both judgements were partially right. On one hand, the security of project's residential area is, in last instance, the responsibility of the federal government. On the other hand, the Villa Permanente, with its brand-new comfortable

¹⁰. The loss of peasants' fund of subsistence (represented by domestic edible animals and plants grown in backyards) has negative impacts on populations undergoing a process of proletarianization caused by dams' related resettlement (Sigaud 1986).

modern houses, was being occupied by professionals, managers and highly trained technicians transferred from the Buenos Aires headquarters of the Entidad Binacional to the working site area. Most of these were receiving wages and enjoying a style of life that they could not keep in metropolitan Buenos Aires. Many held pejorative views of Correntinos as a "feudal", backwarded population when compared to Buenos Aires' modern, European-like life. Briefly, the Villa Permanente represented a sparkling architectural, class and cultural contrast with the old, historic, Correntino Ituzaingo.

In September 1981, following the increasing protests of local leaders, the "Berlin Wall" was finally torn down. El Litoral, a newspaper based in the city of Corrientes, the province's capital, wrote that this was the end of "the two Ituzaingos, in which the native inhabitants living in the old town seemed to be relegated to a condition of second class citizens, characterizing a sort of unusual discrimination" (El Litoral, Corrientes, September 15, 1981). However, the fence symbolized an objective distinction. Historic Ituzaingo is a heterogenous urban space that kept its overall pueblo appearance with its local architecture and unpaved streets. The pueblo's urban services, such as sewage, public lighting and telephone, although highly improved - and sometimes installed with the arrival of the project - cannot be compared to those at

Villa Permanente. The latter is a homogeneous urban professional housing area, presently separated from the rest of the town by a paved street, a line that represents, to use a local expression, a mental wall. The interaction between outsiders and Ituzainguenos remains problematic and subject to the mutually biased perception of porteno and correntino identities, as well as to differential access to the main power structure operating in the area: the Yacyreta Project.

This framework is partially valid in helping to understand the relationships between local people and an important institution that established itself within the area of historic Ituzaingo: the union of construction workers. Ituzainguenos view the union as an institution mostly linked to the national power sphere. Union leaders view Ituzaingo as an old Correntino cattle-ranching pueblo that has not yet left its traditional past behind nor understood what the presence of the Yacyreta project implied. UOCRA, Union de los Obreros de la Construccion de la Republica Argentina (Union of the Construction Workers of the Argentine Republic), opened its local in Ituzaingo in 1977 in response to the growing numbers of workers arriving for the preparation of the infrastructure¹¹.

¹¹. One of the first leaders of local UOCRA described to me several wildcat strikes during the infrastructure construction. These confrontations were mostly due to delays in workers payments and happened during the military dictatorship of 1976-1983, a particular difficult moment for

The adding of a great quantity of men to Ituzaingo's population brought changes others than UOCRA's presence. Many of the new comers were participating in a migratory labor system (Burawoy 1976), a typical situation for the non-skilled segment of large scale project labor markets that is basically composed of males unaccompanied by their families (Ribeiro 1987). However, not all of these men were living in contractors' temporary camps. Those that could not afford the extremely high rents lived either on the streets of Ituzaingo or squatted in the periphery of the town. The great number of males constituted an unusual demographic pressure on the town. On one hand, prostitution flourished. On the other hand, several new families were created. The demographic dynamics of the town was already intimately related to the quality, rhythm and intensity of investments made by the Yacyreta Project in the area.

After the peak period of construction of the Villa Permanente (1978-1981) and of the 1,000 Viviendas (September 1980-December 1982) there was a lessening of activities that lasted until the mobilization of the main contractor's labor force in early 1984. This critical period began to unfold with the political changes in Argentina's national government represented by the advent to power of General Galtieri (December 1981) and the budget restrictions his government imposed. The Federal Government was not sensitive

the Argentine labor movement.

to the mobilization of the local and regional population for the continued support of the rhythms of investment in the area. The situation strongly deteriorated during the Malvinas War period (April 1982-June 1982). With the sharp decline of the construction activity, the end of the building of the 1,000 Viviendas (December 1982) and the uncertainty on the project's future, contractors, and the jobs they represented, left the area. Many men abandoned the families they had recently formed¹².

The 1982-1983 period, when the luck of the main-civil works contract was uncertain, was a period of stagnation that represented the end of a developmental cycle created by the Yacyreta project. This period demonstrated vividly not only the subordination of the local population to the project's dynamics defined at the national level, but also the end of the expectations of steady progress created

12. According to my informants this situation created a significant number of matrifocal families especially on the periphery of historic Ituzaingo. Indeed, out of 2,405 Ituzaingueno families, 321 are headed by women (Provincia de Corrientes 1984: 57). On December 4, 1984, El Litoral, the newspaper from the city of Corrientes, as part of a discussion both on the consequences of the period of construction of the infrastructure and the lack of adequate preparation of the local population for project related social change, published the following considerations: "when there were almost 5,000 workers [in Ituzaingo], although there was a red light district especially destined for this male population of outsiders, many men preferred the 'stability' of other relationships, that, of course, would be temporary. They created real families that were soon to be abandoned to their own luck. There also were many births. In consequence mothers and children were abandoned, generating , in many cases, true social dramas".

around Yacyreta by different national and regional agencies. Official assessments on the potential impacts of a project had identified a need for new investments in services, and ultimately represented one way through which expectations that could not be fulfilled were created (see, for instance, Provincia de Corrientes n.d.). These expectations had given rise to a flow of people into services, a hope that did not materialize. According to a former president of Ituzaingo's Chamber of Commerce, many small entrepreneurs, that were attracted by the discourse on regional development, went into bankruptcy. These expectations were stimulated by the developmentalist/modernizing discourses commonly attached to large scale projects¹³.

The relationship between Ituzaingo and the Yacyreta project changed substantially after the arrival of ERIDAY, the main contractor, in early 1984. The housing infrastructure was ready and the town's urban structure did not feel the intensity of demographic pressure as in the

¹³. On January 26, 1982, El Litoral, Corrientes, published a news entitled "The Delays in EBY's timetable generates problems". Its main comments were the following: "The complaints brought to this paper are endless. The state is reproached for having called up entrepreneurs, tradesmen and producers to invest to start the development of Ituzaingo following the undertaking, but now does not respond to the expectations that it has provoked itself. (...) it seems that the government does not care about the risks that are being taken by many people who had believed in its announcements, in a work that should never be paralyzed like now, generating losses. This is the general opinion in Ituzaingo. The activity has decreased totally. There are stores that scarcely sell. Others have closed, especially those that came to install".

previous period. ERIDAY's buses began taking workers and administrative personnel from different residential areas - including Ituzaingo and its periphery - to the working site, thus detouring the flow of pedestrians from within the pueblo. More importantly, the El Pinar camp, the residential area of the main contractor's unskilled labor force, i.e. male workers unaccompanied by their families, was located ten kilometers away from Ituzaingo.

Furthermore, one of the first works built by ERIDAY was a bridge, open to traffic in 1985, on the Parana river's main branch between Argentine territory and the Yacyreta island, thus completing a crucial road connection between Argentina and the main working sites in Paraguayan territory. Argentine workers had then the possibility of going across Yacyreta island to Paraguay's mainland, since the bridge over the Ana-Cua branch had been put in service in 1983. This road connection is another factor that contributed to a substantial reduction of the pressures due to the presence of an additional adult male population in Ituzaingo. On one hand, workers were now able to cross to Paraguay, where commodities and services were cheaper than in Argentina, and spend their money on Paraguayan bars and brothels. A night in the red-light district can cost almost four times less on the Paraguayan side than in Argentina. On the other hand, Paraguayan prostitutes could cross to Argentina on a regular basis.

The main contractor not only employed a large and growing labor force but also managed - and manages - most of the resources directly involved in the construction project. After the arrival of ERIDAY, some of the most important issues affecting Ituzaingo - such as the conservation of its infrastructure, the integration of the different sectors now forming the town, adequate educational and health attention - became related to the increasing presence and power of ERIDAY in the area. For Ituzainguenos the Entidad Binacional Yacyreta was no longer the only interlocutor. The solution for Ituzaingo's problems are now mostly sought in tripartite negotiations involving the town's politicians, the Yacyreta Binational Entity and ERIDAY.

(b) Project Housing and Infrastructure Equipment.

The construction of the infrastructure (1978-1983) was used by Argentine authorities as a testimony that despite the prolonged uncertainty about the awarding of the main civil work contract, Yacyreta was slowly but concretely being carried out. The infrastructure work became a subject of controversy in Argentina due to the high costs of the housing projects and the luxurious quality of some of the units destined for the absentee directors of Entidad Binacional. The Argentine press frequently alluded to the price of "camp houses" that cost many times more than

comfortable apartments in Barrio Norte, an elegant section of Buenos Aires¹⁴.

The main housing areas that Yacyreta planned and constructed in the Argentine territory are the Villa Permanente, the 1,000 Viviendas and the El Pinar camp. There is also a compound for the main contractor's single administrative staff, the G2 camp, located nearby Ituzaingo¹⁵. Argentine contractors built these housing projects and the main urban infrastructure equipment - such as a plant for water purification, a sewer treatment plant and a thermoelectric power plant - with capacity to attend Ituzaingo and the three project constructed housing areas.

14. On August 14, 1981, La Prensa, wrote: "In Ituzaingo a villa of 300 houses is about to be finished for the amount of US\$ 170-190 million. But the Binational Entity's employees are not going to be the only people to have a house granted. For each director of that organism, for instance, the construction of a modest US\$ 500,000.00 chalet is foreseen, a cost that does not include, for sure, the price of the infrastructure, nor, perhaps, that of the sauna". In the Villa Permanente there is an area of twenty-eight houses, designed for Argentine Binational Entity's managers, that were never occupied and remained empty at least until 1987. On the Paraguayan side of the project there is an exclusive villa, surrounded by gardens and a fence, where six luxurious houses remain at the disposition of directors, high-level officials and VIP visitors.

15. Equivalent housing projects were constructed on the Paraguayan side of the project. The totality of project's housing occupied by the main contractor and its subcontractors has been divided into eight groups classified as G1, G2 until G8. I will not describe the G2 camp nor the infrastructure located within the construction site such as project's harbor and administrative quarters, canteens, cement and concrete plants, workshops, etc.

In Ituzaingo's main plaza a "cultural center" was built and the town's Catholic church was renovated by the project. Preliminary works also included the construction (1979-1983) of a major bridge on the Ana-Cua branch of the Parana River, linking the Yacyreta island to Paraguay's mainland¹⁶.

A description of the Villa Permanente, the Mil Viviendas and the El Pinar encampment will provide a first approximation to the labor market segmentation and hierarchical organization of Yacyreta, issues that are going to be discussed in detail in the next chapter. A characterization of the planned settlement pattern will show clearly how project's internal stratification is translated into spatial realities. In fact, these housing projects are sui generis residential areas prepared for Yacyreta's managerial elite (Villa Permanente), middle-class and skilled-workers (1,000 Viviendas), and unskilled workers (El Pinar camp). Their locations were defined within a field of tensions where the main poles of attraction were the pueblo of Ituzaingo and the hydroelectric dam construction

16. The following contractors were associated with the preparation of the infrastructure in Argentina: Consorcio de Empresas Correntinas (Intemec S.A.I.C. - C.I.A.S.A. - Clebaner Ing. Civil S.A. and Jacobo Levitzky, Ing. Civil); Tecsa S.A.; Consorcio Econar Riva; Cibelli Construcciones S.A. - Gennaro y Fernandez S.A. de I. y C. (see EBY 1978: 21). The Ana-Cua bridge contract was awarded to an Argentine-Paraguayan consortium called CAPPAC, formed by Techint S.A., Argentina, and the following Paraguayan firms: Perez y Yamepy Construcciones S.A., Compania de Construcciones Civiles S.R.L., Campo Grande S.A., Techint Eng. Co. and Coservi S.A. (see EBY 1979: 21).

site. These places are fifteen kilometers far from each other. Hopefully, the following pages will make clear that the rationale governing the urban and architectural project is class biased.

The Villa Permanente.

The Villa Permanente is a set of 300 houses constructed between 1978 and 1981 in an area contiguous to Ituzaingo for the elite of the Yacyreta project¹⁷. Until 1984, with the arrival of main contractor's labor force, it was the main area inhabited by project related personnel. It is located at a distance of some fifteen kilometers from the construction site. During the construction period it will house the personnel of EBY-Entidad Binacional Yacyreta (the vast majority of its dwellers), of the consultant (CIDY), and the top managers of the main contractor (ERIDAY). Once the project is completed it will be the residence of the people responsible for the operation of the hydroelectric dam.

¹⁷. Although the total finishing of the Villa Permanente happened only in 1982 (Summa 1984), I am considering 1981 as the completion year because it was when this housing project began to be inhabited. Before its opening a small number of EBY's employees lived first in the pueblo and later in the Villa Transitoria, a simpler and more camp-like area that is currently part of the Villa Permanente and inhabited by the Binational Entity's rank and file personnel.

The area is administered by the Yacyreta Binational Entity. Its security is provided by the Argentine National Guard that has a guard post right in the beginning of the paved road that marks the separation between the Villa and the pueblo of Ituzaingo.

The main offices of EBY and CIDY in the project's area were located in the Villa Permanente until 1986/1987, when they were almost entirely transferred to the working site. The Entidad's public relations office, the most important institutional interface with the general public (most often tourists and students attracted by the project) is also located in the Villa Permanente.

An elementary school that serves both the Villa and Ituzaingo was built on the banks of the Parana. By the riverside there is a large three-story building that is at the same time a lodging for EBY's single personnel (pabellon de solteros), a hotel for visitors, and a club with restaurant and bar, a place where the project's elite meet¹⁸. These facilities also include a swimming pool, basketball and volley-ball quarters that are usually empty. The appearance of emptiness is a quality shared by the whole area of the Villa Permanente that is invariably deserted. To understand why the use of public space is so limited in this housing project I need to advance further in the

¹⁸. The building that was constructed to be a hotel, equally located by the riverside, has been finished for some years but was never opened.

description of its overall social composition.

Most of the Villa Permanente's inhabitants are Argentine administrative personnel, technicians and professionals transferred from Buenos Aires with their families. A segment of the Villa's population came from the city of Corrientes in the period the project was run by a Correntino Executive-Director (December 1983-June 1985). Although under the new management there began a steady erosion of this group's political-administrative power, it remained an important identifiable network. A small number of foreigners, the top in-site managers of the consultant and of the main contractor, also live in the Villa Permanente.

Despite the fact that the Villa's inhabitants are the project's elite in the working site area, they share with other segments of Yacyreta's labor market a central characteristic of their social experience: they are migrant labor. But, being an "uprooted", a label constantly used to classify this situation, is differentially experienced according to one's occupational and migratory background. An engineer who has participated in several construction projects in different geographical contexts, and who is used to suburban or small villages social experiences, is less likely to suffer from the isolation and loss of his previous social networks than a lawyer transferred directly from

metropolitan Buenos Aires¹⁹.

Social integration is an issue in this community of migrants. Indeed, despite organized efforts, for the Villa Permanente inhabitants the household became the focus of their daily lives. The sense of community oriented-life has deteriorated due to the overlapping of the residential space with the working space. Dwellers of the Villa, especially those working for the Yacyreta Binational Entity, i.e. the majority, agree that living there means never to leave your work environment. In fact, most of the offices could be reached in a walk of five to ten minutes from any house in the Villa. More importantly, office hierarchy and daily work-place relationships mark the interactions between neighbors in the area. The general assessment is that labor related conflicts ultimately invaded the totality of the social interactions, thus influencing the mutual perceptions of individuals.

In this connection, Villa Permanente's public space was strongly conditioned by the logic of the productive activity not only because it was a space designed as part of a larger planned production scheme, but mainly because daily labor relationships did migrate from the working place to the residential area. Activities conceived to develop a notion of *communitas*, such as sports' tournaments, were,

¹⁹. In chapter five I explore the complex issues involved in the relationships between migratory experience and labor market segmentation.

nonetheless, still informed by the same principle. The teams of a volleyball championship organized in 1986 mirrored the organization chart of the Entidad Binacional Yacyreta. On a given night the Technical Department would play against Public Relations, or Security against Personnel.

In previous works (Ribeiro 1980, 1987) I suggested that social life in large scale projects housing areas - especially in workers' camps - might well fit the notion of total institution (Goffman 1962) where the power of a central administration regulated individuals' daily activities. In Yacyreta, as in other large scale projects, housing is also a fringe benefit, a compensation for environmental and social hardships. In fact, the project grants not only rent-free housing but also standardized furniture. This ultimately restrains the possibility of individualization, creating a uniform appearance of private spaces, an additional reinforcement for the housing project homogeneous architecture as well as for the perception of living in a monotonous steady world where one never leaves work.

The appearance of emptiness of the public space, epitomized by a clean and attractive but nonetheless non-attended leisure area, is, in last instance, a consequence of the organization of production that ultimately subordinates other spheres of social life to its own logic, inhibitting the development of project-free social

interactions. The Villa Permanente is experienced as a community closed on itself where the reproduction of social daily life - with its basic implications for the predictability, monitoring and attribution of individuals positions - is directly referred to the bureaucratic power structure of the Yacyreta project. For the small population of the Villa Permanente social control is potentially, and sometimes virtually, intertwined with labor control. As one employee of the Yacyreta Binational Entity said: "you don't go to the club's swimming pool because you do not want to see the same office faces, nor, what is worse, a hierarchical superior with whom you have been developing disagreements".

"Golden Cage": this is how a high-level official characterized the Villa Permanente, in a shrewd comprehension of the ambiguous situation of being in a privileged position within Yacyreta's hierarchical structure and, at the same time, leading a limited daily social life.

The 1,000 Viviendas.

The 1,000 Viviendas constitute a whole compound in itself, independent, so-to speak, of other residential areas in the Yacyreta project area. As its name indicates this is a housing project of one thousand houses. Las mil (the one thousand), as it is informally called, were constructed

between September 1980 and December 1982 to lodge the main contractor's skilled labor force during the construction of the main civil works. Designed to last fifty years, its destiny after the project's completion is uncertain and represents a major concern for local politicians. It is separated from the Villa Permanente by a ditch and is approximately fourteen kilometers away from the working site. The "One Thousand" is where most of the Argentine population of the Yacyreta project lives. In June 1986, nine hundred and five of its houses were occupied, 90 percent of which (816) by ERIDAY's employees.

There are two main types of residences in the 1,000 Viviendas. The number of bedrooms may vary internally within each type, but the immediate distinction between them is roof color. This difference operates as an index of ERIDAY's internal stratification. Red-roofed houses are larger and occupied by persons in higher positions within ERIDAY's hierarchical structure. These houses are not grouped in any special section of the 1,000 Viviendas. Their tenants are professionals, highly skilled technicians and managers. Grey-roofed houses, the majority, are smaller and inhabited by skilled workers, service and administrative personnel in general.

The 1,000 Viviendas has a service center where there is a branch of the Banco de la Provincia de Corrientes, a post-office, newstands, stores and a complete supermarket run by

ERIDAY and open to the general public. This supermarket has been a focus of contentions that expose one facet of what may be called the "developmental contradictions" of the Yacyreta project. It benefits from the exemption of Federal taxes that covers all transactions involved with the project. However, the prices of the products it sells do not reflect this tax-exemption. In consequence, on one hand the supermarket has released workers and the Ituzaingueno population from the weight of local commercial speculation and overpricing caused by the presence of the project. But the fact that the supermarket's prices are not discount values still means for most of the project related population that the main contractor is making profits by selling goods subsidized by the Federal government. On the other hand, local retailers and entrepreneurs - one of the local groups supposed to benefit from project's presence - claim that they cannot compete with a powerful seller that buys in large quantities in Buenos Aires' markets.

Other major structures of the 1,000 Viviendas' consist of a church near the service center, a club with facilities that include a large swimming pool, and the barracks of the Argentine National Guard, the Federal force responsible for project's security. One of the houses of this residential area is the local seat of UDEGOC - Union de los Empleados en Grandes Obras y Conexas, (Union of the Employees in Great Works and Connected). In contrast to the UOCRA-Ituzaingo

(the union of construction workers that are paid in an hourly basis), UDEGOC represents the part of main-contractor's labor force that receives monthly wages. The segments of the labor market covered by UDEGOC range from skilled-workers, to foremen and engineers.

In comparison to the Villa Permanente, the 1,000 Viviendas housing project is neither marked by the constant presence and power of the Yacyreta Binational Entity, nor by a conflictive history with the pueblo of Ituzaingo. At the same time, both its greater size and its more heterogeneous social composition seem to have significantly reduced the totalizing connotations of the "Golden Cage". Public space is not as deserted as in the Villa Permanente giving to the "One Thousand" an appearance of greater sociability.

There are two basic cleavages within the social composition of the 1,000 Viviendas population, both related to structural characteristics of the labor market. The first is a line distinguishing production controllers from workers. Professionals, managers, highly specialized technicians and foremen live in the same area with skilled workers but, as described before, in different type of houses. A second line distinguishes the national Argentine population from Europeans. The Argentine population, the vast majority, is segmented by provincial origin. The composition of the European population parallels the internal contractual divisions of the ERIDAY consortium. The

European personnel of the main contractor is basically divided into Italians and French who represented, in February 1986, 59.3 percent and 32.1 percent, respectively, i.e. 91.4 percent of a total of 140 Europeans in the working site area.

In Yacyreta the European population is mixed with the local national population. European quarters are a common part of large scale projects worldwide. The absence of an exclusive European compound is a cause of resentment for many Europeans who were used to previous experiences where they had housing privileges based in racial and ethnic differentiation. According to an Italian manager, in comparison to other projects where he had previously lived, both in South America and in Africa, the 1,000 Viviendas settlement pattern is more classist than racist.

Although Yacyreta's settlement pattern does not reproduce the colonial foreigners/natives separation, it has a reminiscence of this "colonial bias" that has caused resentments, this time amongst the Argentine population. In an isolated area located some kilometers far from the 1,000 Viviendas there is a Club Hipico (equestrian club) where the European population of the project, especially its most powerful members, keeps horses and gives parties. Although the entrance of Argentines is not forbidden, this club is in fact only open to Europeans. Several of the gatherings are ethnically informed celebrations and some of the few

Argentines who have been invited to the club felt discriminated against. Here the ethnic line clearly crosses with the internal power hierarchy of the project. In such an arena, Europeans may perform rituals to reinforce their ethnic identities free from exposures or perceptions that could lead to "misreadings" capable of calling into question their power positions within the project. Indeed, ethnicity is an issue in the 1,000 Viviendas, and in the Yacyreta project as a whole, since for most of the pressing problems of projects' daily life -labor relations, for instance - Europeans are decisive power holders. In this connection, class and labor conflicts tend to be perceived also in terms of ethnicity. Moreover, since Europeans are a closed power elite within the project, the club is also an arena where top managers may engage in joking relationships, in rituals that temporarily dissolve differentiations defined by the working place, but that at the same time reinforce their unity as a power group vis-a-vis other power groups.

Another important marker of the presence of ethnicity as an issue in the 1,000 Viviendas refers to the educational structure of this housing project since the ethnic segmentation of the labor market is reflected directly in the educational system. There are three buildings of great importance for the understanding of the 1,000 Vivienda's community; they are the three schools that serve its children. The largest of the schools is a public elementary

school for the children of ERIDAY's Argentine employees. The two others are Italian and French schools for the children of ERIDAY's European employees²⁰. The institutional and pedagogic organization of these schools observes Argentine, Italian and French standards of formal education, respectively.

Both Entidad Binacional Yacyreta and ERIDAY are influential in the school system of the project as a whole²¹. They may provide either institutional support, acting as a liaison with regional or national educational organisms, for instance, or material aid, such as grants, minor construction and maintenance works in school facilities. At the working site area Entidad Binacional Yacyreta has a small staff, headed by a B.A. in Education, that struggles with a chronic lack of funds to deal with the several, complicated educational problems of the local schools.

The Argentine school at the 1,000 Viviendas is managed by the Province of Corrientes with additional economic and

20. A German school, consisting of a classroom with five children in different grades, is part of the Italian school building. The importance of schools for the maintenance of main contractor's skilled labor force is considered in chapter five.

21. The school system of the Yacyreta area includes a project-built kindergarden and elementary school on the border of Ituzaingo and the Villa Permanente. An older Ituzainqueno high-school and a few other elementary schools receive some support from the Binational Entity.

orientational assistance from Entidad Binacional Yacyreta and eventual material support from ERIDAY. Since early 1984, when it was opened to attend the children of ERIDAY's skilled labor force, until 1986, the number of its students has tripled. In March 1986, at the beginning of the school year, seven hundred and seventy-four children were matriculated. As of September 1984, out of 557 students, the single largest group came from the province of Corrientes (26 percent), followed by children from Entre Rios (16.7 percent) and Neuquen (12 percent). Sixteen other Argentine provinces were represented in the students' population²². There were also forty-one children from four Southamerican countries: Paraguay, Uruguay, Venezuela and Peru. Uruguayans made up 83 percent of the latter group.

The heterogeneity of the provincial and national origins of students as well as the unusual rate of weekly admissions are the most challenging difficulties faced by the Argentine school. Children with different curricular background and a constantly growing number of students per classroom are problems that ultimately reflect the dynamics of Yacyreta's labor market formation. The growth of the main contractor's labor force is expectedly intense in the first years of a project's execution. Correntinos apart, the largest groups of children quoted above came with their

²². These data correspond to students' origins. These do not necessarily coincide with place of birth.

families from Salto Grande and Alicura, other hydroelectric dams erected by Impregilo, the lead firm of ERIDAY's consortium. Salto Grande is a binational project constructed on the border of the Argentine province of Entre Rios and Uruguay, while Alicura was constructed in the province of Neuquen.

The Scuola Italiana Cisalpina di Yacyreta is the largest of the 1.000 Viviendas' European schools. It is directly linked to the general services Impregilo, the Italian contractor, provides for their personnel. Scuolas - some larger than Yacyreta's - are common in the large scale projects where Impregilo participates in different areas of the world. They are part of the services that major international contractors need to offer if they want to maintain their skilled labor force in a world scale.

The school year follows the Italian calendar, starting when it is Fall in Europe and Spring in Argentina. Perhaps the most important reason for the observance of the Italian calendar is to prevent mistimed transferences of students to other Italian schools located either at home or in a different working-site abroad. In September 1985, the beginning of the 1985-1986 school year, the Scuola Italiana Cisalpina di Yacyreta had sixty-two students distributed in all different years of the Italian pre-university educational system, ranging from kindergarden to liceo. The sixty-two students were distributed as follows:

ASILO	PRESCOLARE	ELEMENTARE	MEDIA	LICEO
12	7	18	14	11

The fact that the school's activities are programmed according to the Italian school calendar creates a sort of anachronism, a temporal mismatch indicative of the cultural ambiguities experienced by teachers and students. The seasonal cycles of the Southern hemisphere are the opposite of those in the Northern hemisphere. When Argentine children are having summertime vacation, Yacyreta's Italian children are going to school as if they were in their home country. Accordingly, after a geography class on the characteristics of winter and mountain life in Italy, children go home in a hot, humid Southern hemisphere summer day in Corrientes' flatlands. Indeed, cultural ambivalence is a problem that teachers face in the school. Students are taught as if they were in Italy, but, commented a teacher, when they open the door of the school, they found themselves in a working-site community in the Northeast of Argentina on the border of Paraguay.

The scuola's children also experience a bilingual environment, primarily because Spanish is the predominant language used in the vast majority of public spaces. At the same time, their homes are usually attended by Spanish-speaking Argentine maids. Local television is also in

Spanish. Furthermore, binational couples are common within the project's European population. In fact, the mothers of some of these children are Spanish-speaking natives²³. Spanish was thus the first language for a small but significant number of children, while Italian was learned at school as a second language²⁴. Cultural ambiguity, i.e., the simultaneous experiencing of different systems of signs and practices, ultimately invaded not only the classes of geography but also those of writing and reading.

As we shall see, when I discuss the large scale project's migratory circuit associated with Yacyreta, being "neither fish nor meat" - to use the Italian expression that was told me to describe this situation - is a major characteristic of the social lives of the European projects' population.

23. Several younger Italian technicians and professionals working for Impregilo have married Uruguayan women during the construction of the Salto Grande Argentine-Uruguayan dam. This situation is shared by the European male-population in general and in relationship to different large-scale projects carried out in different areas of the world.

24. I was not able to determine the number of Italian/Latin American couples. However, children born in Spanish speaking South American countries represented 36.5 percent of the total number of registered students for the 1986-1987 school year. That does not mean, though, that all of them are children of Italian/Latin American couples.

The El Pinar Camp.

El Pinar is the name workers gave to the Rincon Santa Maria camp, or G3, because of a pine wood that exists nearby the area. It is a compound of forty-two dormitories totalling 2,688 places available for the unskilled labor force. In each two-story building there are sixteen bedrooms per floor and four collective bathrooms at the end of each floor. Stores, offices, a first aid place and a large mess hall with its own industrial kitchen are also part of this housing project.

This camp began to be built in August 1984 (La Prensa, April 2, 1985). Almost two years passed between the arrival of the main contractor at the construction site in early 1984 and the opening of the El Pinar camp in late 1985. There are indications that in this interval there was no appropriate housing for the unskilled segment of the labor force of the project as a whole. Indeed, an Asuncion paper published news on Paraguayan workers protesting the housing conditions before the opening of project's labor camps (Ultima Hora, March 27, 1985).

In June 1986 there were 915 men living in El Pinar²⁵.

²⁵. In this same month there were 826 men living in the Isla Yacyreta labor camp on Paraguayan territory. The total population of workers living in Yacyreta project's labor camps was of 1,741 men, i.e. 51 percent of the total number of persons (3,354) living in the residential areas managed by the main contractor. In that same month there were 4,958 persons working for ERIDAY and its subcontractors.

It is classified as a residential area for single unskilled workers despite the fact that many of its inhabitants are married men unaccompanied by their families. Delimiting a residential area exclusively for "bachelors" is a project response for the great numbers of males attracted or recruited by a large scale project. These workers typically participate in a migratory labor system, i.e., the social reproduction of their families takes place in areas different from that where they work (Burawoy 1976).

The El Pinar camp is located ten kilometers from Ituzaingo and five kilometers from the construction site. Its location between the main residential areas for skilled workers and the construction site is indicative of the class bias that informs the planning of the settlement patterns of large scale projects. This sizable population of male workers is viewed as potentially dangerous for the families of the other people in the area. First, a large population of unskilled labor workers is recruited without the possibility of bringing their families. Then these men are concentrated in labor camps clearly separated from the other residential areas where skilled workers and professionals live with their families.

The rationale underlying the concentration of unskilled workers in camps is a combination of least-cost solution reasoning with social and generational preconceptions influenced by class, generational and gender oriented

biases. It is clear that the costs for housing projects compatible with family life are much higher than the construction of dormitories for bachelors. The existence of a separate camp for "single" administrative personnel, the G2 camp, points to the need to relativize the importance of class biased preconceptions in the segregation of male workers. However, besides being a much smaller camp, there are other meaningful differences between G2 and El Pinar²⁶. Apart from the expected fact that the facilities in the G2 camp are better, many single women, part of ERIDAY's administrative staff, also live in G2. Furthermore, in contrast to El Pinar, G2 is located close to the pueblo of Ituzaingo. The rationale seems to be that although many men put together are always potentially dangerous (thus the creation of singles' areas) it is more likely to be so if additionally to being men they are also workers - thus the location of the workers' camp in areas distant from residential areas for families. In the end, the class line is more determinant than marital status.

The possibility of having access to a house seems to be the result of a complex combination of class and generational preconceptions. These are related to differentiated positions in the labor market hierarchy as

²⁶. The G2 camp is composed by 21 dormitories totalling 296 places. It has its own restaurant and leisure facilities. In June 1986 there were 140 persons living in this area.

well as to different access to power positions within the project as a whole.

Civil construction is a male industrial activity with one important particularity: the productive process is mounted and discontinued every time a new job is begun. It is not an industrial activity where fixed capital is installed and permanently attached to a determinate location, such as a factory. Moving the productive process from one place to another is a common routine in the construction branch of the economy. This creates specificities in terms of the necessary "immobilization of the labor force".²⁷ Barracks for workers are a common solution found in construction sites including those in urban situations. In a large scale project this solution is magnified.

El Pinar is surrounded by a barbed wire fence and its entrance is permanently guarded by the Argentine National Guard. The fence and the constant presence of the military imparts the immediate character of a total institution to this housing area. Indeed, some people call it "Alcatraz". Workers have to conform to the organization of spatial and temporal patterns intimately related to the needs of the organization of production. The absence of families in the labor camp destroys the possibility of having household

²⁷. See my discussion of Leite Lopes (1979) in Chapter 5.

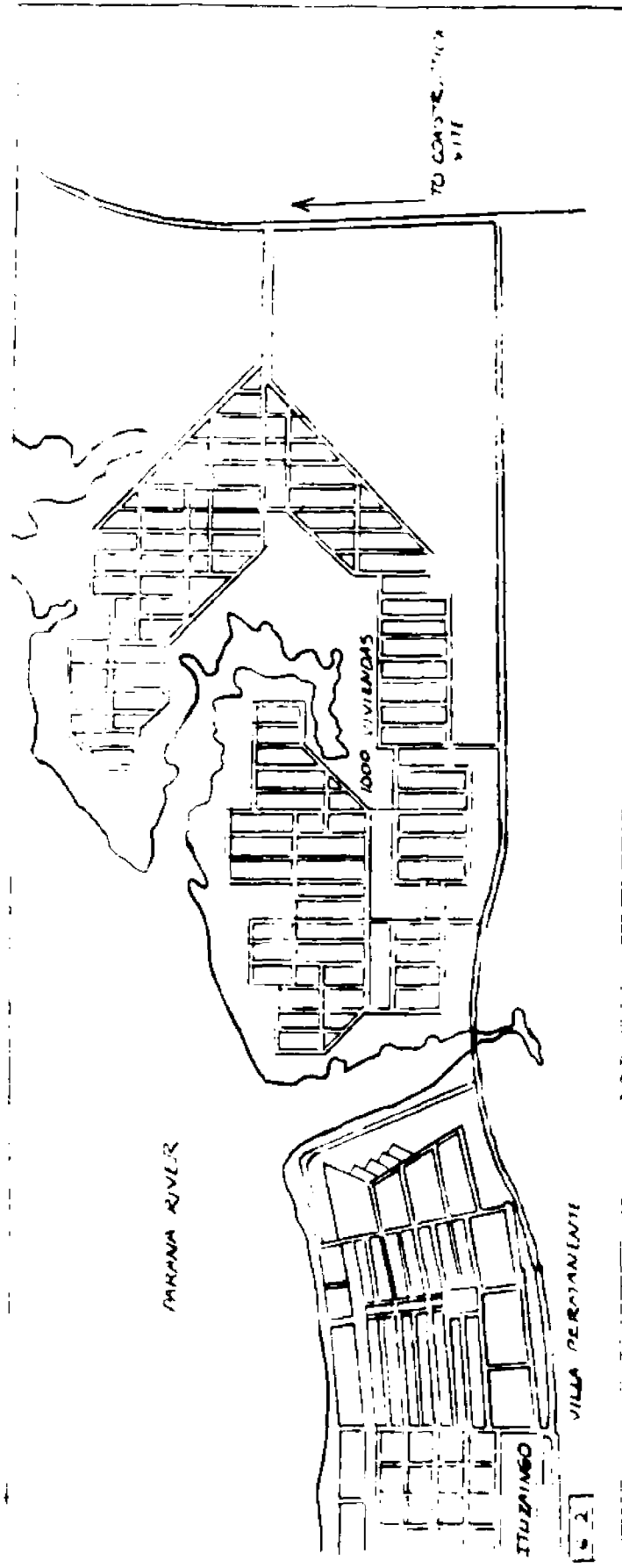
private space. Private space is conditioned by the work sphere to a much larger degree than in the Villa Permanente. Workers are managed through different collective daily experiences organized by the administration of the project such as daily meals in the mess hall and the moments of going from the camp to the construction site and vice-versa. The project has a transportation system that includes a fleet of buses to transport workers from and to their residential quarters²⁸.

The concentration of males in a singular housing project raises particularities that are often dealt with as a security problem. One of these involves the sexual lives of these men who are isolated from daily interaction with women. The development of large scale prostitution is a characteristic of large scale projects in general, a reflection of the skewed demographics created by the kind of labor market and migratory flows associated with these projects (Ribeiro 1987). In Yacyreta men cross the construction site area and go to the cheaper Paraguayan brothels. At the same time there has been traffic of

²⁸. The internal differentiation of ERIDAY's transportation system reflects the labor market's hierarchy. The company provides its managers, professionals and technicians with pick-ups and cars that are also used for personal purposes. The quality of buses varies according to positions in the labor market. Administrative personnel use smaller and more comfortable buses than workers, for instance. ERIDAY's buses are free and connect all residential areas of the project including the pueblo of Ituzaingo. They are also used by the local population.

Paraguayan prostitutes to the area of El Pinar, for stays of shorter and longer periods. Homosexuality is also common in the El Pinar camp.

The El Pinar indicates that, in a crude reflection of class relationships, in the formation of the labor force the unskilled segment of the labor market tends to be (pre)conceived as a potential source of social conflicts. At the same time the conditions created by the project to govern the daily lives of these men propitiate and even stimulate their potential for social conflict. Straining labor-days, conflictive daily labor relations, spatial and social isolation, the skewed demographic composition and the "total institution" character of the labor camp are some of the project related factors that shape the social experience of this segment of the labor force.



MAP 3

CHAPTER V

DIVIDING THE WORLD: THE DYNAMICS OF YACYRETA'S LABOR MARKET SEGMENTATION.

(1) Introduction.

At the same time that a large-scale project like Yacyreta creates a new territorial segmentation it also creates a new segmented social reality. The discussion in the previous chapter showed how the settlement pattern reflects the internal social differentiations of a project. In this chapter I will approach the core of the question by looking at the formation of the project's labor market, its segments, internal dynamics and hierarchy. I will also consider a migratory circuit specifically connected with large scale projects. A final part of this chapter attempts to summarize the discussion in terms of understanding the internal differentiation of the labor market as related to different permanence of the segments in large-scale projects' circuits.

The analysis of a large-scale project's labor market is likely to be particularly productive because the planning of the labor market is a central component of an entirely planned process. Such market planning is a sophisticated task performed and controlled by highly specialized

professionals, such as senior engineers and/or business administrators with graduate degrees. The timetable is carefully designed to respond to different project needs over a long-term cycle of production, a cycle that is susceptible to several kinds of fluctuations and variances, such as lack of adequate financing or political changes.

Assuming a perfect disturbance-free world, the planning of the labor market tends to be a combination of different variables related to logistical needs - entries of differentiated equipment, material, and manpower, for instance; and to technical requirements of overlapping sequential productive phases. The peak of the complexity of the arrangements coincides with the peak of the growth of the labor force. It occurs when the construction work overlaps with the arrival of the electromechanical equipment and the beginning of its installation within the dam. This moment represents, thus, the most complex combination of productive activities and the height of the internal differentiation of a hydroelectric dam's labor market.

The differentiated labor market is frequently represented by means of graphs where the main variables are time and different technical and professional needs; a large-scale project is a set of multiple tasks with different deadlines to be accomplished. The total labor force of a project is depicted in terms of an imaginary curve representing the optimum growth of the labor force.

This curve is used as a parameter to keep control of the ideal and real growths of the labor force in relationship to the scheduling of the project as a whole. Labor managers keep track of the growth of the labor force, and issue reports that are part of monthly assessments of the state of the job.

Similarly to what occurs with other planned actions, there is a difference between what is initially conceived and what becomes reality. The planning of Yacyreta's labor market could not be immune to the changes of the Argentine economy which, in turn, also reflects changes in the world economy. Indeed, in the mid-eighties, in view of the Argentine economic crisis and the lack of access to international financial sources caused by the indebtedness of the Argentine state, the project underwent deep restructuration in its scheduling. The 1990 deadline for the start of the operations of the first turbine became 1992. The peak of the main-contractor's labor force (9,250 men) that was supposed to occur in 1987, was reestimated and reduced by one third of the initial assumption. The difference between the planning of the labor market and the process through which it is created has to be confronted frequently by labor managers.

Any project has its own labor needs. They are defined in a variety of ways related to the multiple activities that have to be carried out in the erection of a complex

structure such as a huge hydroelectric dam. The differentiated labor needs of a project cannot be entirely fulfilled either by the local or by the regional populations. People have to be brought to the construction site from different points within the national territory or from abroad, to fill different positions within the labor market structure.

Civil engineering is a highly hierarchized industrial activity. On one hand, in it there can be found clear-cut unskilled labor, i.e., workers that are at the lowest hierarchical levels, and that basically make use of their capabilities of moving objects and of responding to commands to perform simple operations ¹. On the other hand, there can be found sophisticated technicians and professionals such as engineers, architects and geologists.

Upward mobility within the system is frequent, including among workers, since it is common to learn new skills in the work place. This process is highly marked by a hierarchical system, and heavily dependent on personal relationships with social actors who occupy higher positions. Patron-client relationships exist, but this situation cannot be purely characterized in terms of clientelism. To do so would underplay the need for mutual

¹. This is particularly evident in countries, such as the Latin American ones, where construction is a labor-intensive activity. In these cases, unskilled positions are often occupied by recently proletarianized men.

predictability and trust that is part of the work situation in engineering.

There is a limit, though, for upward mobility and it is defined by formal education. Despite a worker's knowledge, he will not cross the line that separates engineers and other professionals - the controllers of the productive process - from technicians and skilled workers. This does not mean, however, that personal relationships and practical knowledge of the jobs cease being important. Foremen that have begun their careers as rank-and-file workers can play important advisory and mediating roles between managers and skilled workers. In Yacyreta, for instance, foremen who, in the last thirty years, had participated in the construction of several dams worldwide, were highly valued by engineers for the practical knowledge they command.

In a large scale project such as Yacyreta, the segmentation of the labor market is defined by the internal hierarchical organization of the labor division as well as by other factors associated with the processes of formation of large scale projects' labor forces. In fact, there are several labor flows structuring the formation of these labor forces. Different positions in the labor market are associated with different migratory phenomena. The intricate relationships between position within a labor market and migratory flows is going to be discussed in parts three and four of this chapter. Before reaching that point, it is

necessary to introduce a notion of labor market segmentation that goes beyond the internal hierarchical logic and division of labor of civil engineering as an industrial branch.

Labor market segmentation is a notion that is useful to interpret broad units of analysis, such as a given nation-state labor-market, or more concrete and situated units such as a given unit of production - a plantation, a factory or a large scale project, for instance. This notion has been developed by authors discussing differentiated access to the labor market. It has been especially marked by the analysis of sociological contexts where racial or ethnic factors are crucial to understand positions in the labor market (Gordon 1972, Bonacich 1972). This conception has been introduced into the body of anthropological literature. Eric Wolf (1982: 379-381), elaborating on previous discussions, stresses the ethnic underpinning of the formation of labor markets world-wide. He is interested in the "juxtaposition of groups of different social and cultural origins"².

². Wolf discusses the ethnic segmentation of the labor market in relationship to the historical process of capitalist expansion: "... social and cultural heterogeneity ... must itself be located in the organization of the labor process. The diverse groups brought together did, of course, make use of distinctive cultural forms to build ties of kinship, friendship, religious affiliation, common interest, and political association in order to maximize access to resources in competition with one another. Such activity, however, cannot be understood without seeing it in relation to the ways different cohorts of the working class were brought into the process of capitalist accumulation" (Wolf 1982: 379).

Yacyreta's labor market is ethnically segmented since several populations with different social and cultural backgrounds are put together by the project. But a further distinction needs to be drawn in relation to Yacyreta. Within the Argentine segment of the labor force, for instance, the segmentation is marked by different regional origins, i.e., there are different groups of workers that come from different provinces and regions of Argentina.

In the next pages, I am not going to consider the formation and dynamics of the labor market related to the period of construction of the infrastructure of the project, when the domination of the construction process by Argentine contractors implied a simpler labor market structuring. I will focus instead on Yacyreta's labor market when the main civil work contract, the core of this large-scale project, began to be executed. In fact, the coming of ERIDAY to Ituzaingo in early 1984, meant the beginning of the full unfolding of the complexity of Yacyreta's labor market.

(2) The labor market segmentation of the Yacyreta Project.

In a project's institutional triangle, the main contractor is the principal actor in terms of labor relations. I will thus focus on ERIDAY's labor force, the largest and most representative of the complexity of Yacyreta's labor market. The ethnic segmentation of the

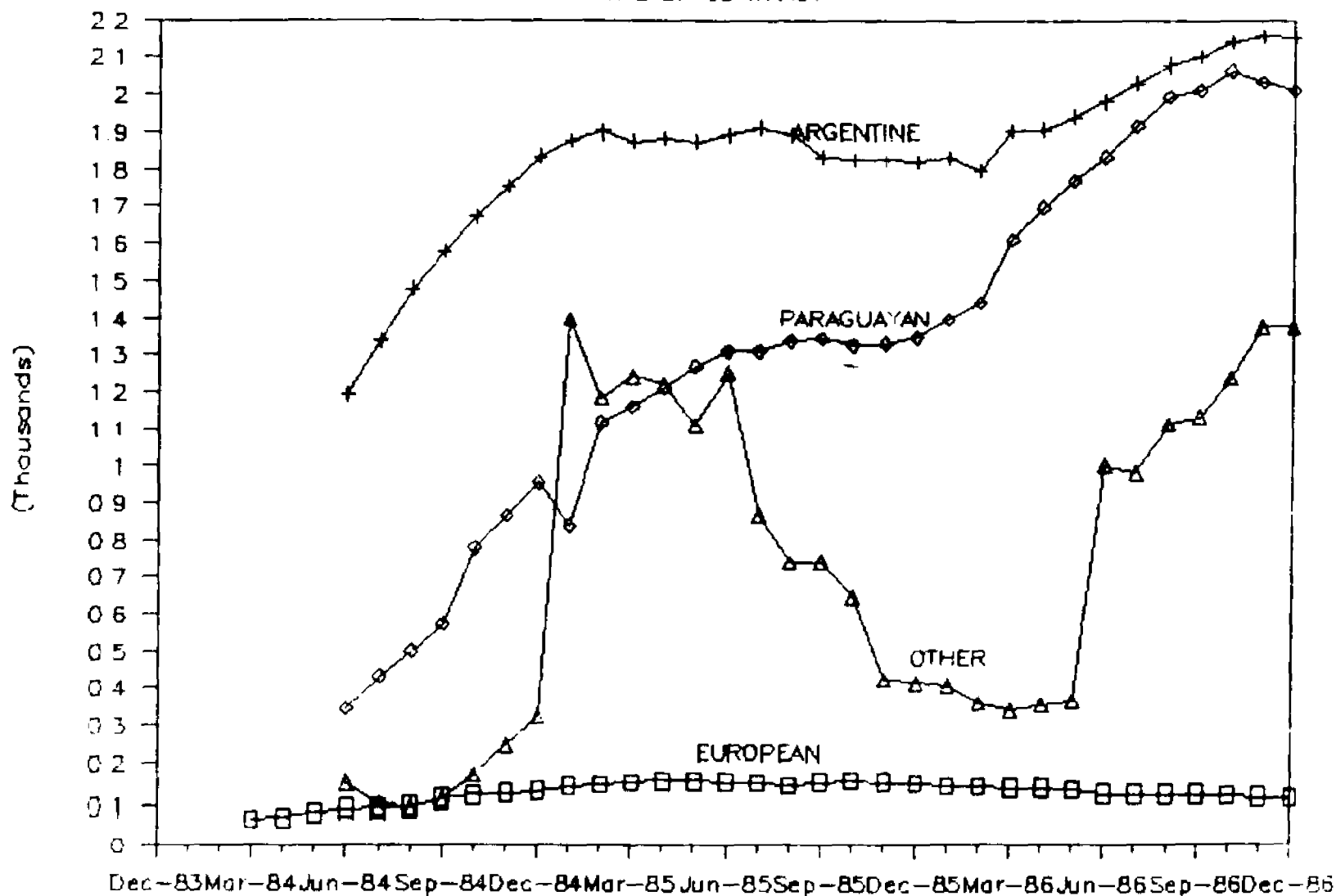
labor market stands out in the construction of Yacyreta: there are thousands of Paraguayans and Argentines working together under the direction of European managers. Each of these segments of the labor force has specific legal labor relations with their employer, ERIDAY. These relations are classified in terms of three different labor contracts: Argentine, Paraguayan and European labor contracts. The consideration of Yacyreta's labor market ethnic segmentation is important, thus, not only for its demographic and cultural implications, but also because it is directly related to different labor relations.

(i) The Argentine/Paraguayan dividing line.

The first line cutting across Yacyreta's labor market splits it into two large segments, one Paraguayan and one Argentine. In February 1986, for instance, ERIDAY employed 1808 bearers of Argentine contracts and 1448 of Paraguayan contracts (for an evolution of the total labor force discriminated in terms of the different contracts see graph 2). The Argentine/Paraguayan division was defined in the beginning of the formal existence of the project by the Yacyreta Treaty signed by the two governments in December 1973. This legal obligation generated interesting sociological, juridical and anthropological questions. We are in front of a labor market that is necessarily split in

GROWTH OF CONTRACTOR'S WORK FORCE

BY TYPE OF CONTRACT



source: company records

GRAPH 2

terms of nationalities, that is, we confront two working classes with different historical, political and cultural backgrounds working for the same employer, ERIDAY.

Labor/capital relationships are regulated by distinct bodies of labor legislation that ultimately reflect the different levels of development of the Paraguayan and Argentine productive forces and the histories of class relations in each country.

Given Argentina's relatively higher industrial development, the local working class is sizable. The Argentine working class has a powerful tradition of unionism, one that makes it a necessary interlocutor - via C.G.T, Confederacion General del Trabajo (General Confederation of Labor), in the country's political and economic life. The political and mobilization power of the unions is an every day fact in Argentina. UOCRA - Union de los Trabajadores de la Construccion Civil de la Republica Argentina (Union of the Workers in the Civil Construction of the Argentine Republic) is one of the largest unions in the country. The fact that Yacyreta is the largest concentration of civil construction workers in Argentina gives the local Ituzaingo-based union a clear visibility on the national scene³. Yacyreta labor managers are aware that

³. The history of the local UOCRA reflects a permanent contradiction between grass-root unionists and regional and national UOCRA's leadership. The latter is often seen as having become a bureaucracy primarily interested in its internal power dynamics and its relationships to other

they are dealing with highly politicized union leaders who are capable of stopping the construction work in search of better socio-economic rewards, or in response to C.G.T.'s calls for national strikes to protest national economic policy.

Paraguay's national economy has been structured basically around agricultural production and contraband to Brazil and Argentina. However, the construction of the Paraguayan-Brazilian Itaipu hydroelectric dam (1975-1982) represented a shift in the country's socio-economic profile. The completion of this dam meant the end of a developmental illusion, a bonanza period in which US\$ 1 billion entered Paraguay. It also generated a recession composed of three main factors (a) the stop of the flow of hard currencies associated with the Itaipu project; (b) the idle-capacity of the Paraguayan contractors, a sensitive question in the post-Itaipu era since after agriculture, construction is the second most important economic activity in terms of employment generation (Hoy, Asuncion, September 13, 1985) ; (c) the lay-off of thousands of recently proletarianized workers (The New York Times, July 3, 1985). Indeed, half of Itaipu's total labor force of 40,000 men came from Paraguay.

important national political actors. The ideological spectrum of the Ituzaingo-UOCRA ranges from the Peronist right to the Peronist left, with a parallel sizable influence of legal marxist-leninist parties, especially the PCA, the Argentine Communist Party (see Que Pasa?, the official PCA newspaper, of October 1st, 1986).

Paraguayan firms intended to transfer equipment and manpower from Itaipu to Yacyreta, in order to counterbalance the recessive effects of Itaipu's completion. This finally happened, but with an important peculiarity: the completion of Itaipu's main civil works did not coincide with the mobilization of Yacyreta's main contractor of which CONEMPA, a major Paraguayan contractor that had participated in Itaipu's construction, was a member. Furthermore, given the Argentine economic crisis, Yacyreta never took off with the intensity expected in Paraguay (Hoy, Asuncion, September 13, 1985).

In contrast to Argentina, Paraguay did not have a working class with an industrial labor past nor with political importance in national affairs. Quite the contrary, in a country dominated since 1954 by a conservative authoritarian government, the prospect of developing a unionized and politically active working class was a probable outcome of the country's participation in two major construction projects, Itaipu and Yacyreta, and was not exactly welcome. This was all the more in relation to Yacyreta because Paraguayan officials feared that the contact with a working class conscious of its political importance, such as the Argentine one, would produce, in the long run, undesirable side-effects on Paraguayan class relations. In the daily contact in the working site Paraguayan workers would get acquainted with the power of

Argentine unions and with the comparatively more advanced Argentine labor legislation, as indeed they did.

The inherent contradictions of bringing together two working classes were first dealt with in juridical terms. Argentina and Paraguay have labor and social security laws that reflect the histories of these nations and the negotiating power of their working classes. However, citizens from both countries were going to be working in a binational area - Yacyreta's construction site - and, mostly, for a same employer, ERIDAY. A new arrangement to deal with this reality was necessary. The legal solution was a hybrid piece of international law called the Protocolo de Trabajo y Seguridad Social, a sort of internal labor legislation of the Yacyreta project, supposed to supersede the Paraguayan and Argentine legislations (see EBY 1986: 189-198). Juridical ambiguity - typical of large-scale projects - was translated into a formal legislation that proved to be ambiguous in itself. Indeed, to work in the Yacyreta project does not mean that national labor legislations automatically cease to protect a person from his/her employers. The importance of citizenship rights is reflected in the legal relationships ERIDAY keeps with its personnel. There is a basic distinction between people hired on the Paraguayan side or on the Argentine side of the project. A third category, much smaller but very powerful because of the position its members occupy, is formed by

people that have "European contracts".

The ambiguity of the legal framework has been a constant source of conflicts in the area. The Protocolo, in general lines, tends to be more advanced than Paraguayan legislation and less so than Argentine law. Yacyreta's workers manipulate two bodies of legislation, i.e. their respective national legislations, and the "binational" labor legislation, the Protocolo.

Evidently, workers are not the only ones to manipulate the effects of the Argentine/Paraguayan segmentation divide. Managers also do. An immediate way of doing it, is to constantly consider the differential costs of the social reproduction of the two working classes, a well-known form of manipulating labor market segmentation. Argentine workers have access to better welfare systems and are used to higher social standards of living. At the same time, Argentine economic reality makes living more expensive in that country than in Paraguay. Paraguayans receive smaller wages when compared to Argentines in a hard currency. This is an important consideration for economic actors who operate at the level of the world-system, especially because the book-keeping currency of the project is the American dollar.

Managers may manipulate the binationality of the labor force by hiring differentiated numbers of Paraguayan and Argentine workers according to different technical segments of the project. For instance, in Yacyreta, given the

technical characteristics of the job, earth movement is an important activity performed by skilled workers. Argentine union leaders were increasingly disconcerted with what they understood as a propensity of managers to hire Paraguayan personnel for the earth movement sector. Managers' reasons were not exclusively based on economic factors, such as wages, but also on political ones. Earth movement Argentine workers are a segment of the Civil Construction Union that is especially active in the local labor movement. Argentine union leaders also disliked the fact that a sizable number of Uruguayans, who have been working for main contractor's leading firm since the construction of the Uruguayan-Argentine Salto Grande dam, occupied powerful positions within ERIDAY.

Knowledge of how to relate with the local working class, i.e., to have a grasp of its political history and cultural characteristics, is an asset for managers directly involved with labor relations. Some of the firms of Yacyreta's main contractor, including the European ones, have a longstanding knowledge of Argentine large-scale project workers. Most of the managers I interviewed within ERIDAY and Entidad Binacional Yacyreta, displayed a knowledge about the Argentine working class, that - although marked by class and sometimes ethnic biases - included references to technical, cultural, political and ideological differentiations. ERIDAY also counts on the experience of a

Paraguayan firm, CONEMPA, that was an important contractor in Itaipu's construction. Actually, the transference of men from one construction site to another is an essential characteristic of large scale projects labor markets . It creates longstanding social networks that keep their cohesiveness by participating in a same sequence of large-scale projects. The importance of this characteristic of large-scale projects' labor markets is going to be discussed in another part of this chapter. Before reaching this point, a word must be said on the internal segmentation of the Argentine working class.

(ii) The Regional Segmentation of the Argentine Labor Force.

For the purposes of the following analysis I am going to use the following expressions with these meanings attached to them: (a) Local level population will mean the population of the Argentine Department of Ituzzaingo and other adjacent Departments of the province of Corrientes; (b) regional level population will include the population of the Departments of the province of Corrientes located far from the construction site, and the other Provinces forming the Argentine Northeast (Misiones, Chaco and Formosa); (c) national level population will mean the population of all Argentine provinces but the ones previously mentioned.

The main contractor's personnel hired on the Argentine

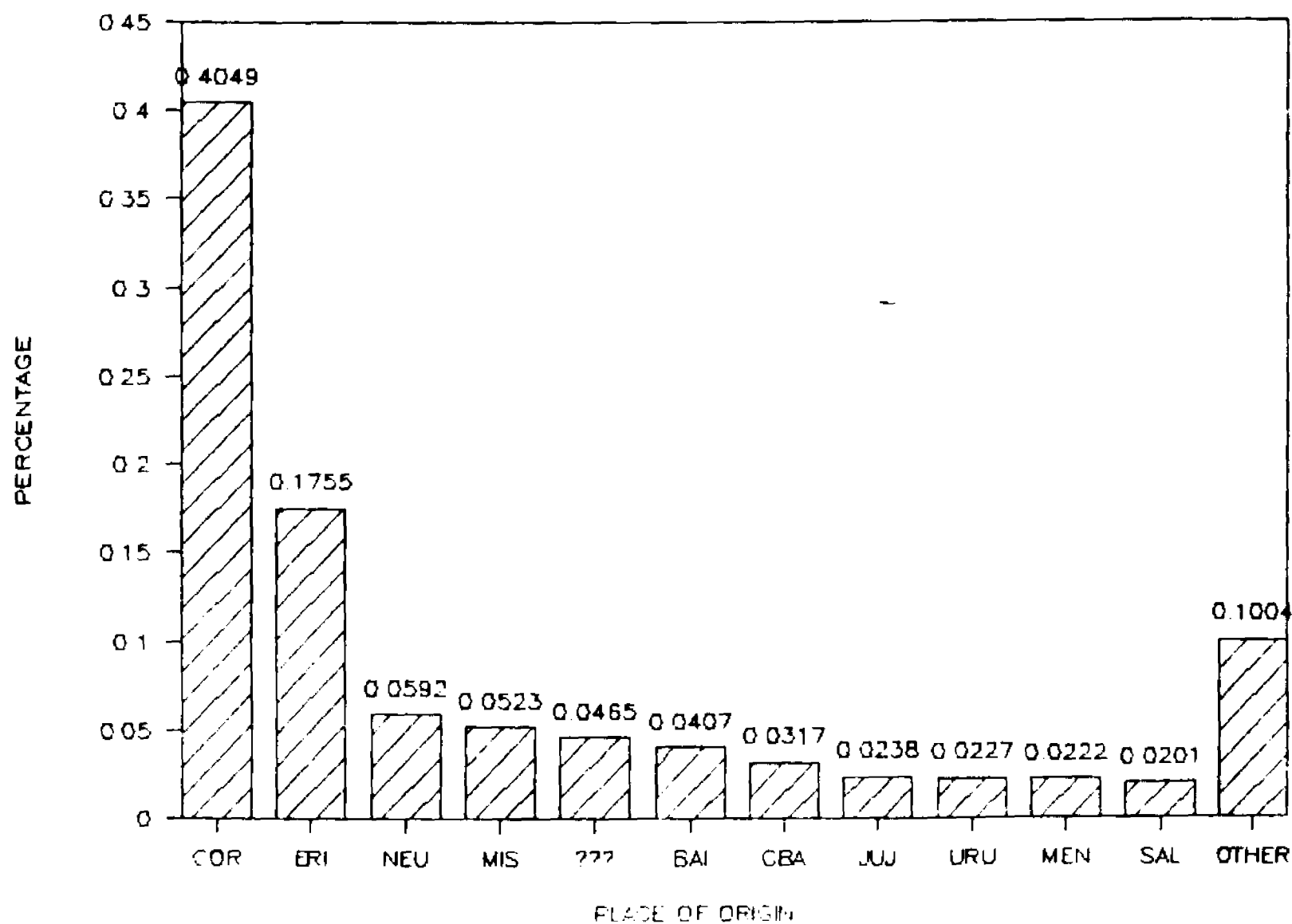
side of the project is segmented by provincial origin (see graph 3)⁴. Although they come from all Argentine provinces the differentiated weight of the provincial origins seem to be more correlated with factors stemming from the logic and circuits of large-scale projects in Argentina, than with geographical proximity or the power of attraction that the project may represent to migrant labor.

Almost 70 percent of a total 1808 Argentines had come, in February 1986, from four provinces: Corrientes (40.46 percent), Entre Rios (17.54 percent), Neuquen (6.00 percent) and Misiones (5.23 percent). This distribution allows us to think about the relationship between the formation of Yacyreta's labor market, its power of attraction and the labor flows associated with large-scale projects within Argentina.

First, it clearly shows that the province of Corrientes, where the project is located, supplies by far the largest number of men to the labor market. According to data elaborated by the main contractor at my request, in June 1986, approximately half of the Correntino segment of

4. According to the February 1986 Argentine payroll, foreigners - Uruguayans (the largest group), Paraguayans, Bolivians and one Italian - accounted for only 3.53 percent of a total of 1808 bearers of Argentine labor contracts. The following analysis is based on data from this document and from newly generated information on Yacyreta's labor market that were given to me in Ituzaingo both by EBY and ERIDAY. In graph 3, the following abbreviations were used: COR - Corrientes, ERI - Entre Rios, NEU - Neuquen, MIS - Misiones, BAI - Buenos Aires, CBA - Cordoba, JUJ - Jujuy, URU - Uruguay, MEN - Mendoza, SAL - Salta.

ORIGIN OF ARGENTINE LABOR FORCE



the Argentine labor force had come from the department of Ituzaingo itself. The Ituzainguenos, though, typically occupied the non-skilled segment of the labor market (86.3 percent out of a total of 395 workers). Before the advent of the Yacyreta project in the area, the pueblo of Ituzaingo was the head of a cattle-ranching department where most of the local labor force was engaged in activities connected with agriculture and cattle-ranching. The project caused a shift from agricultural activities, involving mixed relations of production typical of populations undergoing processes of proletarianization, to full wage labor relations. However, this population filled the most subordinate positions within the project labor market. Perceiving with insight that his structural position had not changed with the presence of the project, a local cowboy, a gaucho currently working in Yacyreta said: "for me ERIDAY is just another estancia" (cattle-ranch). In fact, the local population generally enters the project as unskilled labor⁵. However, given the possibilities of upward mobility typical of civil engineering labor markets, it is likely that some individuals from Ituzaingo will learn new skills and reach positions of skilled workers.

The fact that the province of Corrientes contributed

5. Yacyreta also meant a strong demand for services in the area. Some of them, such as the everyday cleaning of offices and domestic services for the elite of the project, are performed mostly by local women.

the largest number of workers for the formation of the Argentine segment of Yacyreta, could lead one to overemphasize location, and, perhaps, proximity to the site of the project as the main factors underlying the creation and internal differentiation of the Argentine segment of the labor market. If this were the case, we could expect to have a large segment of regional population participating at the project. However, this does not occur. In February 1986, for instance, people coming from the other provinces of the Northeast region accounted for only 7.71 percent.

Neighboring Misiones - a province that, due to the proximity of its capital, Posadas, has historically been influential in the economic life of the Ituzaingo area - contributed with 5.23 percent of the participating regional population. Chaco and Formosa contributed with only 1.74 percent and 0.74 percent, respectively.

Furthermore, amongst the four largest contributors to the formation of the Argentine labor force, and ahead of Misiones with 17.54 and 6 percent respectively, were the provinces of Entre Rios and Neuquen. The argument that the project's proximity is the prime factor would explain the significant number of workers from Entre Rios. In fact, Corrientes' southern border is with the province of Entre Rios. But, how to explain that Neuquen, a province located in the south of Argentina, more than 1,000 miles from Corrientes, is the third largest source of labor force,

ahead of neighboring Misiones ?

The answer is easier than the formulation of the question. Entre Rios was the site of the construction of a major project, the Salto Grande Argentine-Uruguayan hydroelectric dam, in which Impregilo, the lead firm of Yacyreta's main-contractor, has also participated. By the same token, Neuquen is a province where several main Argentine hydroelectric dams have been built in the last decades by Impregilo. In fact, this contractor is currently building another dam in Neuquen, Piedra del Aguila. We may thus conclude that the different weighting of the main provincial segments of the Argentine labor market is heavily influenced by the transference by contractors of manpower from previous working sites to Yacyreta. In this connection, Yacyreta's labor market is structured more by the action of contractors than by "spontaneous" factors such as project's power of attraction or physical proximity.

The following are the different large-scale projects from where almost 30 percent (as of June 15, 1986) of ERIDAY's total working force (bearers of Argentine, Paraguayan and European contracts) came to Yacyreta. They are listed in order of importance:

1. Salto Grande (Entre Rios).
2. Itaipu Binacional (Brasil/Paraguay).
3. Alicura (Neuquen).
4. Planicie Banderita (Neuquen)

5. Acaray Central Hidroelectrica (Hernandarias, Paraguay).

The sixth position is formed by the following set of projects: Casa de Piedra (Rio Negro), Central Atomica Embalse Rio Tercero (Cordoba), El Chocon (Neuquen), Carrisal (Mendoza), Valle Grande (Mendoza).

The transfer of people from one large-scale project to another on a national scale generates an important migratory movement associated with large-scale projects. When unskilled labor is available at the local level, a contractor can hire local people to fulfill unskilled positions. This is why the participation of Correntinos is so prominent. However, the higher one goes in the scale of technical and professional qualification, the more likely one will find that the contractor will resort to transferences of its personnel from previous jobs - be they completed or still in execution. The continuous transference of manpower from one project to another is a phenomenon I call the large-scale project migratory circuit. Although a substantial part of the Argentine labor force participates in this circuit - 54.2 percent as of June 15th, 1986 - I will describe the circuit's internal characteristics after I discuss the segment of Yacyreta's labor market that illustrates it the best: the European segment of the project.

Before I do so, let me point briefly to some of the effects of project's regional segmentation on the social

life of ERIDAY's employees. The 1,000 Viviendas, the residential area of ERIDAY's skilled personnel, is intensely marked by regional segmentation. Although there are major blocks of people from particular provinces, the diversity of regional origins is so strong, that several of the 1,000 Viviendas dwellers commented that they were now able to see and experience a cultural diversity that they thought did not exist in Argentina.

Besides allowing the perception of Argentina's cultural diversity, regional segmentation also created problems, such as the heterogeneous educational background of the children studying at the 1,000 Viviendas Argentine school (see chapter 4). Integration among Argentines is also an issue that is most often dealt with through the manifestation of cultural markers such as food preparation, different styles of mate drinking, music, etc. A Music Festival organized in 1986, under the initiative of Ituzainguenos and sponsored by Entidad Binacional Yacyreta and ERIDAY, was intended to "cement" the mosaic of regional and national cultures. According to one of their organizers, music was thought of as the best way to integrate people. He said: "if you don't like music, you don't like anything".

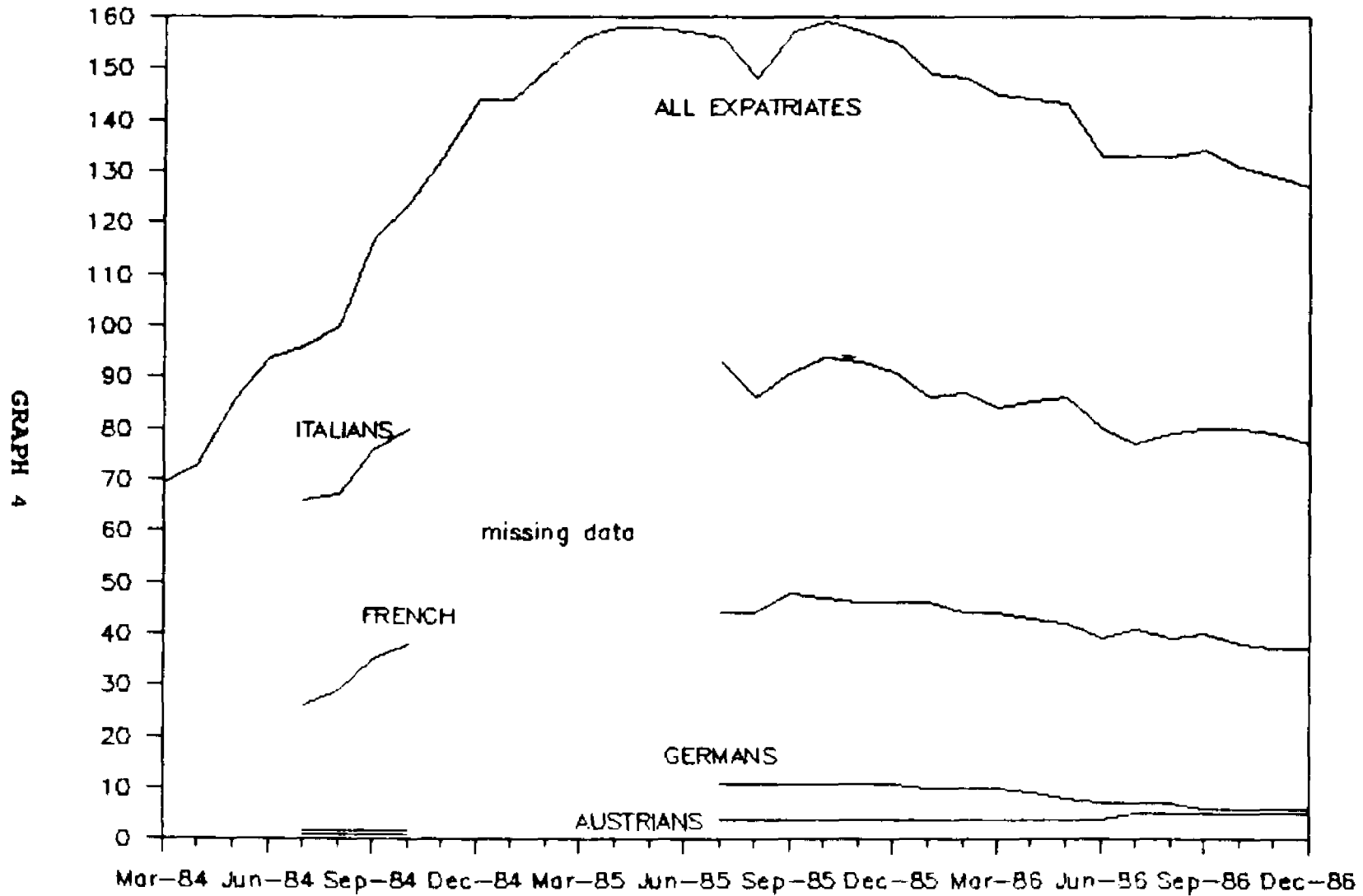
(iii) The Expatriate European Segment.

Expatriates are a common presence in large-scale projects worldwide (Murphy 1983: 32) . In fact, the labor market of the expatriate is the world market. In this sense, they can be thought of as inhabitants of the world-system, or, better, as inhabitants of the small-villages of the world-system. Their numerical importance varies according to project location and complexity. Thus, when a project is developed in countries where the local labor force has little experience in large-scale construction works, the number of expatriates tends to increase. According to some of the managers at Yacyreta, the less industrialized the country, the larger the expatriate segment tends to be. Consequently, in some cases, transnational companies may transfer to work sites not only the typical components of the expatriate segment, professionals, highly skilled technicians and administrative personnel, but also unskilled workers.

The internal composition of the European segment of Yacyreta's labor market replicates the arrangement among several European contractors which formalized the creation of ERIDAY (see chapter 2). Italians represent the largest population of foreigners in the Yacyreta project, followed by French. The growth of the total number of holders of European labor contracts working in the construction site is

COUNTRY OF ORIGIN

PRINCIPAL EXPATRIATE GROUPS



shown in graph 4. As we know, their importance in the project stems not from their numbers but from the fact that they form a closed managerial power elite. On February 28th, 1986, for instance, there were 140 Europeans, less than 4 percent of ERIDAY's labor force, living in Yacyreta. Their nationalities were distributed as follows:

<u>Italians</u>	<u>French</u>	<u>Germans</u>	<u>Austrians</u>
83	45	10	02

Italians and French accounted for 91.4 percent of the total number. In Yacyreta, Italians are relatively more powerful than French, another fact reflecting the negotiations and formalization of ERIDAY's existence. It is not only because of differential access to managerial power that ethnicity is an issue among these managers. Indeed, ethnic identities always arise in a contrastive context. Italian and French managers I interviewed, also perceived each other in terms of their nationalities and what that meant for the daily administration of the project. Italian managers, for instance, think of themselves as more pragmatic, less bureaucratic and more site oriented people, professionals who can make decisions on site without engaging in further studies in the office. They often talk about their personnel in the construction site as if they were a family. On the other hand, Frenchmen see themselves

as more acquainted with modern corporate ideas, with an impersonal conception of management. Both Italians and French tended to blame each other for daily administrative problems. They seldom socialize together. In fact, Italians, French and Germans tended to form separate closed groups.

Since the Italians represented the largest and most powerful segment of the European population in the working site area, I focused my attention on them. Most of what follows could be applied for other foreigners, including those working for CIDY, the consultant.

ERIDAY's Italian personnel has been transferred by Impregilo from several large scale projects, most of them located in Argentina and other Latin American countries⁶. In June 1986 out of 86 Italians working in Yacyreta, 77 (89.5 percent) had previously participated in at least one project. Reflecting Impregilo's longstanding presence in the Argentine market, fifty-two had come from the Salto Grande (17) and Alicura (35) projects in Argentina. A group of ten had come from Pakistan, and the remaining fifteen had previously worked in construction projects in Peru, Ecuador, Colombia, Panama, Venezuela and in Itaipu (Brazil/Paraguay).

The Italians working for ERIDAY are bearers of "European labor contracts", a category that entitles them

⁶. I believe international contractors tend to transfer their personnel within a same world region not only because of cost efficiency, but also because knowledge of the local language is a valuable asset in the working site.

to a set of fringe benefits. The distinction of treatment of the European personnel is visible within ERIDAY's administrative structure. There is a separate department of personnel that deals with the specific questions of the European staff. Some of the benefits most Italians have, such as having a car permanently available, stem from the high positions they occupy within the labor market hierarchy, rather than from the fact that they are Europeans. However, they are entitled to services that are directly related to their conditions of expatriates, such as periodical trips to their home country, stays in first class hotels in Buenos Aires on their ways to or from Italy, access to health care in international centers, access to Italian video-tapes, magazines and newspapers, and a more generous treatment from the powerful Servicios Generales (General Services), ERIDAY's administrative unit that takes care of communitary life.

Technicians and professionals experienced in large-scale projects are a valuable asset for transnational corporations. Managers want to keep the skilled segment of the labor market from leaving their jobs. Expatriates who have worked in different countries under different working conditions are highly considered in the market. The provision of adequate services is one of the measures through which managers keep the expatriate segment within a given large scale project labor market. However, despite

the fact that fringe benefits, such as free housing in project's residential areas, are an important consideration, expatriates are primarily attracted to large scale projects by immediate comparative economic advantages represented by higher wages. In Yacyreta, an Italian technician, for instance, may earn three times more than in his home-country. Furthermore, expatriates receive an extra payment - the carovita, or "pocket money" - intended to cover their local expenses. In Yacyreta some of my informants considered that the "pocket money" paid was not sufficient, forcing them to use part of their regular wages. However, expatriates could save either their entire wages or a substantial part of it, making investments back in their home country. Saving is possible not only because of the fringe benefits and higher wages, but also because living in a working site community reduces the general cost of reproduction of this segment of the labor force. Expatriates cannot have full access and exposure to the sophisticated markets and consumption patterns of their home countries in these isolated areas. Indeed, as one of them told me: "living in Ituzaingo makes me feel like a peasant when I go to Posadas [the capital of Misiones and largest city close to Yacyreta] and see all those stores".

Although it is true that becoming an expatriate is a condition into which individuals enter for economic reasons, it cannot be reduced to individual economic calculations. On

one hand, managers are increasingly aware that the large-scale project environment is conducive to the creation of several social conflicts due to the specificities of life in a working site. They, therefore, foster the creation of a "community sense" among the labor force as part of the internal managerial rationale to develop a large-scale project⁷. On the other hand, expatriates do enter large-scale project markets for economic reasons, but they remain within it for several reasons. In order to understand the range of factors involved in this question we need to consider the existence and dynamics of what I call the large-scale project migratory circuit and the creation of the so-called bicho-de-obra identity.

7. Kathleen Murphy in her book directed to assist managers involved in large-scale projects' administration, states the following: "The expatriates - or 'expats', as they frequently call themselves - are out of their element, living on the fringes of a strange environment. The conditions are tough; the climate is often hot; tropical diseases are common. Medical problems are intensified, due to a shortage of doctors and hospitals. (...) As is common in most 'marginal' situations, social unrest is widespread, leading to alcoholism, divorce, boredom, supermarket complaints, fist-fights, and sometimes even murder. Thus, the project manager must somehow create a sense of community among these expats to diminish the sense of social isolation" (Murphy 1983: 32). She also considers that creating "a sense of community" is a way to minimize turnover (idem: 166).

(3) The Large-Scale Project Migratory Circuit and the Creation of the "Bicho-de-Obra" Identity.

(1) Introduction.

Industrial capital needs to establish stable labor forces since industrial activities demand a predictable number of workers on a daily basis. A way of confronting overcosts caused by turn-over is through what Jose Sergio Leite Lopes (1979) calls the immobilization of the labor force through housing⁸. This situation is accompanied by specificities in the relations between labor and capital such as an invasion by the production domain into "extra-labor relations domains", like housing and daily life outside the factory. Workers' quarters are conceived as a way of concentrating a great number of workers that become

⁸. Given the importance of housing for large-scale projects I will briefly elaborate on Leite Lopes conceptions. Leite Lopes did a historical and anthropological analysis of the development of what he calls the "complex factory-with-labor-quarters" in a textile industry in the Northeast of Brazil. He showed how from a initial need of immobilizing a labor force recently proletarianized, this complex grew to become a city. He was also interested in the interference of the industrial productive logic in workers private lives through the manipulation, by management, of the factory's housing quarters. For Leite Lopes "the fact that some industries provide housing to their workers, in return for either a rent deducted from the wages, or for economic or non-economic obligations that were not explicit in the labor contract but incorporated to the behavior of workers as part of the rules of the game, implies a direct and visible interference ... of the factory's management in workers' individual consumptions" (Leite Lopes 1979: 42).

dependent upon management not only through wages but also through housing. Furthermore, housing is also seen as an effective way of maintaining a population constantly present and available for productive ends. It also facilitates the political control of workers since quarters may be used as another element of pressure and negotiation.

Following Karl Marx's (1977: 818-822) indications of the existence of a "nomad proletariat" , typical of large-scale construction projects such as railroads, Leite Lopes estimates that such work force can be considered nomad only when connected with a sequence of employments. Nomadism would refer, thus, to the sequential movements from one employment to another. But "within each job experience the 'nomad proletariat' is immobilized through housing in the sense that the employer controls other spheres of a worker's life beyond the work relationship (...) this control would be even greater in the case of the 'nomad proletariat' in comparison to a stable work force" (Leite Lopes 1979: 46).

As we know, spatial mobility is a central specificity of the engineering industry, since the mobility of investments induces the rotation of the labor force (Panaia 1985: 11 and following). Migrant labor is thus directly associated with this industrial branch. This is especially evident when construction is being done in isolated areas. Everytime a new job begins in isolated areas, contractors have to transfer manpower and equipment to the new working

site.

The formation of a large-scale project labor market entails several migratory movements and associated social changes. It is true that what could be called industrial nomadism is a condition that affects workers, but it is not exclusive to them. In the next section I will focus on the segment of Yacyreta's labor market that most fully lives within the limits of a closed migratory circuit: skilled workers, technicians and professionals. Before moving ahead to this discussion, though, I will present other migratory related social changes associated with large-scale projects. These considerations are important for the development of this chapter's last part - a description of the relations between the formation of Yacyreta's labor market, migratory movements and different speeds of rotations of the segments of the labor market.

When a large-scale project is underway, local population is almost always forced to resettle and/or to become proletarians engaged in the lower levels of projects' labor markets. Regional and sometimes national populations may also be recruited through what I called "organized labor flows"⁹. In these cases, the relationships

⁹. "An organized flow supposes the existence of a structure, normally provided by the state, that controls access to the territory of a large-scale project. Several agencies, or most likely a singular large one, recruit, select, and send workers to the area, thus assuming brokerage functions. By deliberately controlling recruitment, selection and access to the area these agencies

between migration, the labor needs of the projects and the effects on the socio-demographic structure of the created population are transparent.

The experience of a significant part of large-scale project workers, approximates what Michael Burawoy (1976) defines as "migratory labor systems". A central characteristic of these systems is the geographical separation between work place location and the region where the social reproduction of workers' families occurs. Labor contractors - in situations such as those described by Burawoy for migrant mine workers in South Africa and among migrant farm workers in the United States - take advantage of the differential costs of the social reproduction of workers' labor force. According to Burawoy (1976:1050) "one consequence of a system of migrant labor is the externalization, to an alternate economy and/or state, of certain costs of labor-force renewal - costs normally borne by the employer and/or state of employment". In this sense, the unskilled segment of large-scale projects can be thought of as participating in "migratory labor systems". As was shown in chapter four, the housing area prepared for them, the labor camps, has no space for family life. In

define the general profile of the labor force that is to be engaged in a large scale project: male, young and healthy workers unaccompanied by their families. The organized flow prevents demographic pressures on the territory by people not directly useful to the project -- old and unhealthy men, women and children. The typical dynamics of the organized flow is observable among unskilled workers" (Ribeiro 1987: 14).

contrast to the unskilled segment of the labor market, most of the skilled workers, technicians, professionals and part of the administrative personnel have access to family life in projects' sites. Indeed, since managers are interested in keeping their specialized personnel, corporations provide the services needed for the reproduction of the skilled segment in project's territories. It is the differentiated value of this segment in the labor market that makes it the archetypical component of large-scale projects' migratory circuits.

(ii) The Large-Scale Project Migratory Circuit.

Corporations that operate in large-scale project markets develop several works both in a given moment and over time. The simultaneous maintenance of several construction jobs is as important as a sequence of projects. Firms need new projects to sustain their economic viability in time and to ensure increasing returns of capital. Assignments need to be done not only for jobs that are underway (and that may be themselves in different stages with distinct labor needs), but also for the new ones that are won through bidding processes. In this connection, depending on whether it is a corporation operating at the level of the national or international markets, firms establish national or global circuits of large scale

projects. The operational and administrative control of these circuits is ultimately centralized in corporations' national or world headquarters. Corporations, thus, either transfer personnel that are already working within the system or recruit new people who may become migrant labor following their employers' investments.

It is clear that if every time a construction is completed a firm had to dismiss its entire labor force and equipment, it would not survive for long in the market. In reality, all firms are striving constantly to maximize both their fixed and variable capitals, either synchronically or diachronically. Large-scale projects form a system, composed of different units of different sizes and complexities, that may grow or shrink. Maximization of both the simultaneity and sequence of works is thus a main preoccupation to keep and enhance the profitability of this system, since transferences of man-power and equipment is constantly going on among its units.

However, corporations do not always need to maintain all their work force, and transfer it from one job to another. Unskilled labor, for instance, may be found at the local level. There is no immediate economic reason why unskilled workers should be transferred from a project to another if there is a sizable local population that can be recruited. In this case, it may prove to be more economic to dismiss the unskilled segment of the labor force every time

a construction is completed, and form this segment again every time a new construction starts. That is not the case, however, with the skilled segment. The more qualified and experienced the worker the more likely corporations will compete for his work. The more a corporation is able to keep its body of highly trained and experienced personnel, the less it will need to search for them in the labor market. Therefore, it is the trajectory of the skilled segment of the labor force that most clearly typifies the existence of migratory circuits internal to the market of large scale projects.

The parallel between access to better services and greater qualification indicates management's awareness of the importance of providing their skilled personnel with the possibility of reproducing a more regular social life, a "sense of community". In this connection, the possibility of reproduction of family life in construction sites is part of the necessary measures that corporations need to provide to keep their skilled personnel. Besides the provision of family houses, the strongest evidence of the importance of this particularity is the availability of education for the children of the skilled segment of the labor force. The possibility of social reproduction within large-scale projects environments is the basis that possibilitates the existence of large-scale projects' migratory circuit. It is also the main feature distinguishing it from other less

skilled forms of migrant labor.

Professionals and technicians who work in large-scale projects tend to become specialists in such undertakings, forming a relatively reduced pool of persons that are frequently invited by public or private corporations to participate in different construction projects. At the same time, they are career oriented persons.

In Yacyreta personal relationships developed in several previous working experiences were visible in the circle of Argentine engineers, geologists and technicians working for the Entidad Binacional Yacyreta, the consultant (CIDY), or the main contractor (ERIDAY). Personal acquaintance gets entangled with professional careers when knowing each other's capabilities may mean indications for future jobs. Indeed, for these persons the labor market is not a totally abstract entity controlled by "objective" laws of offer and demand. It is also structured by several social networks where professional capability and prestige is an asset that sometimes cannot be separated from qualitative aspects of intersubjective interaction - such as personal admiration, friendship and previsibility of actors' behaviors - that are irreducible to economic determinations or calculations ¹⁰.

¹⁰. The importance of social networks for labor migration has been clearly stated by Alejandro Portes and Robert L. Bach: "labor migration can ... be conceptualized as a process of network building, which depends on and, in turn, reinforces social relationships across space" (Portes

A typical trajectory of a senior Argentine engineer involved participation in the construction of five dams in a period of almost twenty years. Since his first assignment after completion of his university degree, each new job meant upward mobility in his career. In his case, as in those of almost all other professionals I interviewed, personal relationships were instrumental in moving from an assignment to another. Friends and colleagues either revealed new opportunities in the market or pointed at that person's capability for a new position. In Yacyreta this engineer met again with colleagues and friends that had made the Argentine circuit of large scale projects through itineraries that did not totally coincide with the one he had experienced.

Because Impregilo, the lead firm of Yacyreta's main contractor, has had for decades a central position in Argentina's public works, the El Chocon-Salto Grande-Alicura-Yacyreta (dams that Impregilo constructed) is the most common trajectory among Yacyreta's personnel participating in large-scale projects migratory circuit. For this reason, I consider that trajectory as the clearest illustration of a national large-scale projects migratory circuit related to Yacyreta.

But Yacyreta is also a world system happening. This is why it is also part of an international circuit of large-

scale projects. In reality the foreign segment of Yacyreta's labor market, more than any other, fully illustrates the existence of large-scale projects migratory circuits. Both CIDY and ERIDAY, the two components of the project's institutional triangle that count on foreign personnel, had professionals in Yacyreta coming from jobs executed in countries such as the Philippines, Iran, Pakistan, Nigeria, El Salvador, Brazil, Venezuela, Peru, Ecuador and Panama¹¹.

In this connection, a large-scale project articulates national and international migration through the intersection of national and international large-scale project migratory circuits. In this intersection members of a national migratory circuit may be coopted to participate in the international circuit. In Yacyreta, the visible presence of Uruguayans is certainly more related to Impregilo's previous presence in Salto Grande, than to the proximity of that country to Yacyreta's working site¹². Although the likelihood that a participant of the international circuit be coopted by the national circuit is a small one, it is potentially real. Indeed, some of the

11. The neutralization of expatriates' citizenships is a beneficial by-product of large-scale projects' migratory circuits for the corporations. Being "world-system citizens", expatriates lose their political capabilities of intervening in the organized labor movements or in the body politics of the countries where projects are being carried out.

12. In December 1986, out of a total labor force of 5,641, there were 126 Uruguayans working for ERIDAY, forming the largest group of foreigners in the project.

Italians that have been working for Impregilo in Argentina for more than ten years considered the possibility of fixing residence in that country. At this level, personal reasons - such as having formed a binational couple or being in a stage of the developmental cycle of the domestic group where stability is prioritized to the detriment of mobility - were influential¹³.

In contrast to the most common streams of labor migration, the large-scale project migrants most often find themselves in a more powerful position than the local population, since they tend to occupy the upper levels of the labor market. Contemporary discussions emphasize labor migration as occurring in a larger scenario structured by the uneven works of capitalist expansion. The analysis of large-scale projects' migratory circuits certainly corroborates conceptualizations, like the following one, that look at labor flows as internal to the same economic system:

"Migration has a dual economic function: from the standpoint of capital, it is the means to fulfill labor demand at different points of the system; from the standpoint of labor, it is the means to take advantage of opportunities distributed unequally in space" (Portes & Bach 1985: 9).

The large-scale migratory circuit can be considered as

13. The impact of large-scale projects' migratory circuits on family life is an important question that needs to be further researched. Many of my informants mentioned what they considered to be an unusual number of divorces within Yacyreta's population.

an example of occupational migration, i.e. a migratory movement that is basically determined by the mobility of a person's occupation. Different occupational categories could be analyzed considering this type of phenomenon. An industrial activity that certainly generates a migratory circuit of its own is the oil industry (see, for instance, Olien & Olien 1982). Parallels and analogies between the large-scale projects migratory circuit and the transferences of military and diplomat personnel could also be explored. But to further explain the complexity of the large-scale project migratory circuit I need to focus on its typical inhabitant: the bicho-de-obra.

(iii) Ambiguity and Permanence: the Bicho-de-Obra.

Bicho-de-obra is an expression Argentine participants in the large-scale projects migratory circuit use to classify themselves¹⁴. I will use it to mean the population that typically develops its labor life within these circuits. My attention was first directed towards the importance of the existence of the bicho-de-obra when I

¹⁴. The literal translation of bicho-de-obra would be "construction site insect". However, considering the existence of an American expression such as "party animal", I believe that the best translation would be "work site animal". In Brazil barrageiros is the label used to characterize large-scale project circuits' people. It literally means "the dammers", but does not have the possible negative connotations that the English word suggests.

noticed that a sizable part of Yacyreta's population had previously participated in other projects. I then began to investigate when, why and how people entered the large-scale project migratory circuit. However, the question why many of them never seemed to leave the circuit soon became more important than all others. Although it was clear that people entered the circuit because of (a) professional reasons - such as career requirements proper to engineering, geology and other technical occupations of the construction industry - or because of (b) economic calculations aimed at taking advantage of fringe benefits due to jobs' hardship; they also remained within the circuit despite the fact that their economic objectives were fulfilled.

I began to consider, then, that the participants of large-scale projects migratory circuit formed a discrete social category - defined basically by the dynamics of its labor life but not reducible to it. Inter-generational continuity and occupational endogamy, for instance, seemed to occur. Indeed, typical participants of these circuits presented themselves or discussed about their own trajectories in terms of a distinct social identity, the bicho-de-obra identity. The understanding of this social category and its related social identity became crucial for the analysis of large-scale projects as a form of production

that generate their own internal dynamics¹⁵.

Becoming a Bicho-de-Obra.

Like many migrants, a person entering the large-scale project migratory circuit is mainly driven by the possibility of having access to better economic opportunities and, ideally, to saving money to enhance the quality of the reproduction of his/her domestic group. The would-be bicho-de-obra conceives of what is actually the first step of a long migratory sequence as a temporary move. Most often, the hardships of large-scale projects' surrounding environments together with the peculiarities of living in isolated company-towns are factors deterring individuals from conceiving their coming experience as permanent as far as their labor lives are concerned.

Whether a given migratory experience is permanent or temporary is an important issue that has been analyzed in different migratory contexts. It has been shown, for instance, that a substantial part of Portuguese migrant labor also conceives of its stay in West Germany as a temporary one, despite the fact that "going back home" is either a decision constantly postponed or that is never made

¹⁵. Mining is another activity that creates several particularities in the structuring of its labor force (see, for instance, Tilly 1985). Anthropologists are increasingly interested in the study of mining (Godoy 1985).

(Klimt 1987a, 1987b). Concerning large-scale projects, though, it must be said once more that "temporariness" is a central dimension of these undertakings - works are actually finished, forcing segments of the labor force to move from one site to another.

Italian temporary migrant labor can be considered as having a "target earner" perspective, an expression Michael Piore (1979) uses to qualify migrants motivated to accomplish pragmatic economic goals in order to achieve upward social mobility in their home countries. But, these migrants' experience also created difficulties for their readjustments in the local village setting¹⁶.

16. According to Janet M. Schreiber, Italian temporary migrants "defined the situation in the host country as a passing state of relative unimportance compared with the benefits it would provide them when they returned to their home community. A migrant who is focused upon resolving his status position and demonstrating his personal adequacy for his significant others does not plan his goals in terms of the area to which he migrates. He is migrating to maximize his conditions and family status in the place of origin, not the place of immigration, and his actions are consequent to this interpretation" (Schreiber 1975: 268). In a section called "the emigration mentality", William Douglas (1984: 107-108), describing the Italian returnee's "difficult, and frequently unsuccessful, readjustment" quotes the following passage by Masciotta: "The few years spent in America as a laborer make him a demanding man, a man who has need of beer, of liqueurs, of steak, and in the evening even of a little bit of theater or horse racing. Returned amongst us with many new needs, few of which he can satisfy here, he feels nostalgia for foggy Pennsylvania or Canada, and he no longer works with desire because he finds the work to be almost uncompensated. And thus, having spent the savings scraped together abroad in the town taverns, he once again procures a passport for a second or third voyage" (Masciotta, Giambattista - 1914 - Il Molise dalle Origini ai Nostri Giorni, vol. 1, Naples, p. 345).

It is hard, and perhaps impossible, to demarcate from the outset the limits of a migrant's definition of the economic rewards he is searching¹⁷. Indeed, goals often expand once the migrant enters the circuit. More importantly, it is not uncommon to find amongst the skilled segment of the labor force bichos-de-obra who have fulfilled their previous economic goals, usually by making investments in their home-countries and accumulating a sizable quantity of money, but that nonetheless do not want to leave the circuit. On one hand, this means that the logics of the occupation has taken over the initial intentions behind the trajectory of these migrants. In fact, the idea of a career in engineering, for instance, may naturalize a person's understanding of the occupational migratory circuit. On the other hand, there are other factors that intervene. I will first consider how the logic of the occupation may restrain a person from leaving the large-scale project migratory circuit. I will then describe mechanisms that refer to broader social determinants.

First, a person that has participated in a large-scale project acquired an occupational background that made him a

¹⁷. Since construction is almost exclusively a male occupation I will consider the typical bicho-de-obra as being a man. That does not mean that there are no women participating in the large-scale projects migratory circuit. Women's most typical insertion, though, is in their positions of relatives (wives and daughters) of employed men. Some of these women may be hired in the working site to do administrative work or to teach at the camps' school.

specialist in certain tasks and/or a desirable commodity in the large-scale projects' market. It is very likely, thus, that this person either will consider participating in another project or -in case he considers leaving the circuit - will be convinced by his employers with the offer of better wage and/or better position in the next job. Furthermore, since large-scale projects are the cream of the construction industry market, their wages and fringe benefits are already highly attractive. When a person leaves a large-scale project in-site job and considers getting back to an urban occupation, it is hard to locate equally rewarding jobs in his home town or country. It is likely that he will find the available wages cannot match those he was used to receiving, especially if fringe-benefits such as free-housing are considered. Moreover, since this person has been for several years working in an isolated area, he has lost access to the social networks that would facilitate his entrance in a given urban labor market. In these crucial moments of a person's labor trajectory, it is not uncommon to come to the decision of getting engaged in another large-scale project. Projects, anyhow, are temporary jobs.

At this point, a major restructuring of the subjectivity and intersubjectivity of the would be picho-de-obra is already underway: the loss of the social networks that this person used to have "back home". He begins to become a non-meaningful concrete actor to his previous

social networks, an image, a memory. This gradual process entails different moments and decisions by the migrant. Going "back home" to reaffirm his membership to his original social network is usually what the young bicho-de-obra does during vacation time. Gradually he begins to perceive two related things: (1) his vacations are becoming mandatory visits to the houses of relatives with different psychological and social costs for himself and his family; (2) he is losing his meaning as a social actor in the broader social network he identifies as his original one. The passage of time tends to intensify the unfolding of this process. The already bicho-de-obra increasingly realizes that the quality of his membership in the original network is changing and is problematic. He begins to conceive of himself as "uprooted". Visiting his family/home town becomes a secondary option during his vacations. He wants to have real vacations, he wants to rest from his work.

Parallel to this process of loss of a migrant's previous social identity, there develops a new process of identification. The large-scale project camp slowly becomes "home", he begins to consider the people he interacts in a daily basis on the project environment as his original social network. Ambiguity installs itself. The bicho-de-obra is still an individual from a certain country, or from a certain province, but he feels like a stranger when he goes back to his original place. Some friends and relatives had

died, others have changed their positions within the kinship system (marriages, divorces, births). A single migrant might have gotten married to a woman of the country where the construction is being carried out or to a neighbor of the company town. These migrants face in their "homelands" the results of the unfolding of developmental cycles of many domestic groups. Since they could not follow those unfoldings as active members of these social networks, they find that their original place is not the same anymore. Indeed, getting out of a given social network for a lengthy period of time means the impossibility of accompanying the daily, multiple and differentiated interactions that make social actors meaningful to each other because of their sharing of the intricate webs of intersubjective interactions in a regular basis¹⁸. Briefly, the migrant looses what Anthonny Giddens called "practical consciousness" ¹⁹. However, "practical consciousness" is a

18. What is difficult to estimate here is the amount of time this process takes to unfold fully. It certainly varies according to individuals. During my research in Yacyreta, I was frequently led to think whether the reasons for becoming a picho-de-obra (beyond professional-economic considerations) were not also related to conflictive relationships being developed by the would-be migrant within his original network. Furthermore, being originally from small cities or disliking large urban environments was another recurrent characteristic among some of these persons.

19. Practical consciousness is a notion that refers to the routinization of social actions and the predictability that it entails in daily social interactions. In this sense it is a basic constituent of social actors since it allows for a necessary margin of predictability in individuals' mutual monitoring of their actions, and conveys a sense of

characteristic of social life anywhere. In this sense, it may be true that an expatriate loses, for instance, the small Italian town practical consciousness, but he "acquires" another: that of the large-scale project migratory circuit.

"Neither Meat nor Fish": Being a Bicho-de-Obra.

Some of the labels these migrants use to classify themselves, such as uprooted, expatriate and gypsies, are indicative of their being conscious of the migratory experience working in a large-scale project implies. Furthermore, they also indicate a perception that combines nomadism and ambiguity. "Uprooted", for instance, is the most frequent category that Argentine participants of the large scale project migratory circuit use to classify their experience. Its metaphorical power alludes to the loss of a previous stable, grounded situation that is replaced by a new environment where readaptation is mandatory if one is to survive it. Since the Argentines are working in their own country, nationality is not the apparent issue it is for

security and stability to the system of interactions. Giddens considers that "routinization is vital to the psychological mechanisms whereby a sense of trust or ontological security is sustained in the daily activities of social life. Carried primarily in practical consciousness, routine drives a wedge between the potentially explosive content of the unconscious and the reflexive monitoring of action which agents display" (Giddens 1984: xxiii).

expatriates. "Expatriate" also alludes to a loss, in this case of a fatherland, and tends to approximate negative connotations such as forced resettlement or exile. In this sense, both "uprooted" and "expatriates" allude to experiences that social actors wish would be temporary. However, "gypsy", a category frequently used by participants of both the national and international migratory circuit, is indicative of the assumption of temporariness as permanent, of being a member of a nomadic life-style. Indeed, this is the case for many bichos-de-obra.

In Yacyreta, I met - and was told of their existence in other working sites - several individuals who had spent their whole labor life within the large-scale projects migratory circuit. Their trajectories varied according to whether they were in the Argentine or international circuits. But most of them had had six or more participations in large-scale projects, in a manner similar to a long step-migration chain. Furthermore, many had raised their children in different large-scale projects in Argentina or around the world. I met third generation of bicho-de-obras, a clear demonstration of intergenerational continuity. For a family living in a large-scale project, the crucial moment is when its young members have - for educational or occupational reasons - to leave the circuit. In Yacyreta, for instance, and amongst the Italian segment, this may be a two-moment sequence. First, when the child is

entering secondary level training. Despite the existence of Italian schools in all projects they have participated in, some people considered that their children can have better education "back home". The separation of parents and teenagers is common. Indeed, there are few teenagers in Yacyreta's Villa Permanente or Mil Viviendas. If the teenager has remained with his/her parents attending the camp's school, the hard separation decision for these migrants' families may be faced later when the teenager finishes his secondary training. At this point s/he will either have to follow higher education or to work. Going "back home" is a solution. However, the presence of second and even third generation of pichos-de-obra in Yacyreta shows that not all of them leave the system. Furthermore, and more interestingly, it is not uncommon to leave it and come back.

Indeed, in one family whose members had been exposed to large-scale projects for more than three decades, all children were working or living in different projects around the world. One of them had married another participant in the project migratory circuits, a fact that is not uncommon. It is interesting to note that although they are second generation of participants in this migratory process, like other migrants that conceive their experiences as temporary

(Klimt 1987a), they think of Italy as their "homeland"²⁰. I met young people who had tried to live in Italy, out of project's environment, but had failed. They said they knew they were not like the other Italians, they were not satisfied with the provincial vision of the world Italian youth seemed to have, nor with the low wages and extremely competitive daily lives they had to adjust. They also considered that after living for so long under a corporation's influence, they had become "corporation brats", they had been spoiled by Servicios Generales, the community action department of the contractor, and they had been given more attention than children in other contexts because of their parents feeling guilty for raising them in adverse circumstances. In fact, if something breaks in a project camp, for instance, one calls "general services" to fix it immediately, free-of-charge. It also takes care of your documents and travel tickets, something important for a population that is constantly travelling ²¹. After several

20. In this case, the role that mutual-aid associations use to play in the maintenance of migrant identities (see, p.eg., Maeyama 1979; Szuchman 1980), is performed by services the corporation provides (such as the distribution of Italian papers and video-tapes) and - more importantly - by the school (see chapter 4). Interestingly enough, Uruguayans, a sizable foreign population in Yacyreta, did not count on any separate school for their children but had their mutual-aid association. The European segment of the labor force makes national-related celebrations in their Club Hipico.

21. For the skilled segment of the labor force the sense of "Big Brother is watching you", mentioned by Murphy (1983: 167) goes together with a sense of "Big Brother is

years of feeling like strangers in Italy, these young adults decided they belonged to construction sites, and reentered the circuit. A young woman who had spent her whole life in projects and was about to return to Italy, doubted whether she would remain in Europe. She considered making an attempt because she could always go back to a project to work in the corporation's in-site office. A young Argentine man, second generation of large-scale projects' migrants, and the father of two children, also deemed he would hardly leave the circuit. These examples are not exclusive to the second-generation of bichos-de-obra. Cases of first-generation individuals who had failed to settle down in an urban environment at some point of their migratory sequences were frequently reported. The explanations for these failures varied from inability to readapt to urban environments (although large-scale projects housing areas resemble small villages, they represent unique residential experiences) , to the absence of a daily life marked both by a clear-cut structure of privileges and the synergy of large-scale construction projects²².

helping you", or, better saying, of "company paternalism", something typical of industries with immobilization of labor force via housing (Tilly 1985, Leite Lopes 1979).

22. Life and work in construction sites involve a great deal of out-doors activity, hectic interaction, cooperation with several labor teams and a clear sense of accomplishment. Most of the professionals, technicians and workers described their jobs as fulfilling a need for concrete achievement. As an engineer told me: "when we come to a place there is nothing. While we are working we see the

Intergenerational continuity and the potential for bicho-de-obra inbreeding, or occupational endogamy, are factors that reinforce a conceptualization of them as a permanent migratory population, attracted and created by the logic of large-scale projects migratory circuits in national or international scales. In this sense, it does not matter whether retiring individuals leave the circuits. They will carry their identities in ways analogous to retired military personnel or diplomats. As long as large-scale projects exist, bichos-de-obra will exist.

(4) Final Comments on Labor Market Segmentation: the Different Rotational Speeds of the Segments.

A discussion of labor market formation that contemplates corporations' labor needs as well as migratory processes and their associated social changes, prompts a complex and dynamic vision of the labor market, one where

transformation and accumulation of our work. Once we are finished, it is as if we face dead work. It is time to move again". They talked about nature as a powerful entity that needed to be understood in order to be tamed. Damming a river is seen as a challenge taken to the benefit of the progress of civilization. Engineers, technicians and foremen are also powerful actors in projects' sites, sometimes commanding hundreds of men. For the transformation of engineers into the Messiah of a messianic movement of natives affected by a hydroelectric project in Mexico, see Barabas (1977).

several processes unfold with distinct rhythms and directions among the various segments occupying different positions. Hopefully, the analysis of Yacyreta's labor market showed that - albeit in different positions and with different consequences - the project merges local, regional, national and international populations. For the sake of this study, it was important to conceptualize the labor market as analytically divided into skilled and unskilled segments of the labor force and, simultaneously, crossed by ethnic segmentation. Indeed, it was such a conceptualization that led to an interpretation of the several segments of Yacyreta's labor market as linked to different processes of labor flow and social change, segments that were ultimately unified, although temporarily, by the galvanizing presence of the large-scale project.

The labor market could thus be understood as being structured by processes of proletarianization affecting the local population; by processes of labor recruitment affecting local/regional and, potentially, national populations that participate in organized labor flows and enter migratory labor systems; by processes of creation of an "internal market" where national and international populations enter large-scale projects migratory circuits becoming bichos-de-obra²³. Evidently, given the

23. I find the following definition Portes & Bach's gave to oligopolistic corporations' internal markets, partially appropriate to understand the creation of a

possibilities of upward individual mobility there is a flow between these different layers of the labor market. For instance, a person that became proletarianized through employment in a given large-scale project may become a skilled worker and, potentially, a bicho-de-obra.

Spatial mobility is an important feature of large-scale projects related to their temporariness which, in turn, is a result of the multiple displacements of capital and labor required by the productive process in the engineering industry. The crossing of spatial mobility with the differentiated structure of the labor market made it possible to see not only that migratory processes and associated social changes are not the same for all segments, but segments' permanence in a specific large-scale project or within the migratory labor flows they cause is also differentiated. If large-scale projects are considered dyachronically we would see (a) that the higher one goes in

structured labor market permanently attached to large-scale projects: "Internal markets means the division of work into finely graded job ladders. Hiring is generally at the bottom, and access to higher positions is usually through internal promotion rather than external recruitment. Stability is promoted by the fact that workers confront not the arbitrary orders of a boss or foreman, but rather a set of explicitly laid-out rules. More importantly, job ladders offer the incentive to remain with a particular firm, since seniority and training are rewarded with increases in pay and status. Oligopolistic corporations are able to create internal markets because of their size and because they can compensate for increases in labor costs with increases in productivity, higher prices for the final product, or both. Wages in this sector of the economy are thus higher and fringe benefits and work conditions more desirable" (Portes & Bach 1985: 17).

the labor market structure the longer a segment will stay connected with the large-scale project migratory circuit; and (b) that the lower segment tends, on the contrary, to have unique experiences with large-scale projects. If a large-scale project is considered in its singularity, as one event that is not part of a synchronic or dyachronic chain, the higher one goes in the labor market structure the shorter the time-span in which a segment will remain within a specific large-scale project. The lower one goes, the longer a segment will stay in the same project, and the more likely it will be demobilized, returning to its previous occupations or entering migratory labor flows other than the large-scale projects migratory circuit. This is what I call the differentiated speed of rotations of the labor market segments. It ranges from a situation where spatial mobility, over the years, is almost none, to one where every two or five years a move occurs.

In reality, there are groups constantly attached to large-scale projects that experience even shorter periods within a given project. The so-called "task-forces", for instance, are groups of highly specialized technicians that have short assignments in a project, most of the time to solve specific questions or to mount and install sophisticated equipment. Their permanence in a project can

vary from periods of few weeks to a few months²⁴.

Undoubtedly, "experts" form the group developing the highest speed within this system. They are a small minority of professionals based in worldcenters, highly specialized in sophisticated problem-solving (river closure, for instance) that stay in a project for some days or few weeks. Their activity would typically involve brain-storming with the technical elite of the project, site-inspection, and the preparation of reports. Experts rely on the comparative knowledge they have been able to develop in different large-scale projects. In this sense, the more projects an expert has visited, the more expert s/he will be. Besides the fact that these activities involve different kinds of labor, there could be a relationship between rotational speed and economic rewards. In fact, if we reduce our argument to the professional group of the skilled segment, it seems to be that, over a sequence of projects, the least a person stays in a project the higher the rewards.

Finally, the analysis of the Yacyreta project has showed that its internal differentiation relates to a hierarchy of positions determined by the project's division of labor and by the concrete contexts where project labor needs are defined. The latter are not a priori defined by a pure consideration of the technical needs of the productive

²⁴. For a literary account of a typical Italian bicho-de-obra that participated in several "task forces" see The Monkey's Wrench, a novel by Primo Levi (1987).

process. As we know, Yacyreta's labor needs were conditioned by legal instruments, such as the Yacyreta Treaty and its labor protocol; by political processes underlying the awarding of the YC-1 contract and the creation of ERIDAY (see Chapter 3); by the fact that the lead-firms of the main-contractor are Italian and French; and by its location in an area relatively populated, something that allowed the recruitment of local people as unskilled labor.

CHAPTER VI

CONCLUSION

Rather than summarizing the arguments of the previous chapters, I would like to conclude by addressing a most important issue underlying this dissertation, one question that I always had in mind during the field research and that I tried to examine in consistent terms with the help of first hand ethnographic data: do development projects promote development? Although this is a simple question to pose, it surely has no simple answer. Indeed, after two years of research and organizing data, I found that an answer which could do justice to the complex issues involved would require the work of an inter-disciplinary team, a team that could easily include engineers, architects and urbanists, urban and regional planners, historians, economists, psychologists, linguists, political scientists, geographers, sociologists and anthropologists. The developmental impact of a project constitutes a topic of research that needs the most detailed attention if planners, state-officials and political parties, for instance, are to become more aware of the intricacies and results of the massive investments whose costs are frequently borne by the general public.

In the present dissertation, I was guided by the

conviction that although the complexity of the issues involved often transcended the frontiers of anthropological work, I should neither restrain myself from addressing them nor avoid the possible contributions - controversial, perhaps - that this work could have for a discussion of development. During field research I often came face to face not only with the impersonal aspects of capitalist accumulation, but also with a clash of conceptions on what development is or should be. Large-scale projects such as Yacyreta will always generate a multiplicity of possible points of views on the part of planners and participants. It is thus one of the tasks of the anthropologist to do justice to the multiplicity of contending visions.

The process undergirding the decision to construct a hydroelectric project such as Yacyreta is highly marked by claims to legitimacy firmly grounded in developmentalist ideas that conceive of economic growth as a steady unilineal movement to be initiated or enhanced by the presence of a large-scale project. The legitimation effort can be described as a set of discourses frequently fetichized by technicalities. They may vary from sophisticated analysis where a project naturally appears as the least-cost solution for a long-awaited necessity, to the sheer belief that the mere availability of a factor of production, in this case energy, will promote development by itself. Since projects are often carried out in isolated areas, another common way

of legitimating them is to state that they also promote regional development. However strongly the promoters of "development projects" emphasize their economic rationality and need, their tendency to underplay class differences and the political factors intervening in development planning (the importance of which I hope this dissertation has made clear) fosters a vision that is clearly partial. I consider the legitimation effort - carried out before, during and after the execution of a project - to be a key characteristic of large-scale projects, because it is directly responsible for generating the ideology that that project is the best and more reasonable solution for an economic and/or social problem of national or regional scope.

The acceptance and promotion of a project is imbedded in an ideological universe ruled by notions such as progress and development. The latter are perhaps the most powerful notions informing Western conceptions of time, history and mankind's destiny¹. In Yacyreta, the discourses of

¹. This is not the place to elaborate on the complex issues involved with the role and importance of the notions of "progress" and "development" for the Western world. However, some points can be highlighted. First, the idea of progress or its correlated can be traced as far as Ancient Greece. Philosophers and historians attribute to this idea a major place in the history of Western thought. It has also been identified as part of the Judeo-Christian vision of the world. Second, the idea of progress is a metaphorical conception that stresses continuity and directionality, based on the observation that persons and other living beings experience growth. In this connection, the idea of progress always entailed its immediate and competing

"development promoters" - especially of those occupying powerful positions - often contrasted with those of local and regional leaders who claimed that the project was directed towards the Greater Buenos Aires area, had brought new social problems to the area and, ultimately, would leave just a huge reservoir. This is an apparent indication that the conceptions of progress and development are not homogeneous and may even have different connotations for local and regional elites.

Indeed, the ways projects are structured internally - with their different linkages among powerful public or private, national and international corporations - is a factor that limits the efficacy of most developmental claims of the part of their promoters. Two objective limitations stemming from the internal logic of large-scale projects were described in this dissertation's Chapter Three ("The

opposite, the idea of decadence. Third, the idea of progress becomes central and dominant as part of the new social contract and ideological universe accompanying the rise to power of the bourgeoisie in the 18th century with the impressive development of the productive forces - especially of technology - that this implied. Fourth, as part of the processes of secularization and rationalization that unfolded in the 19th century, development - the twin-idea of progress - and the possibility of rationally intervening in social processes, became an explicit ideology of ruling elites, including intellectuals, providing the context for the appearance of socialist utopias (Fourier and Saint-Simon, for instance) and a project such as Comte's of founding a social physics. Evolutionism is also closely related to these processes. Evidently, the social sciences are marked by the historical context in which they originated. For discussions related to these issues see Dodds (1973); Hildebrand (1949); Delvaille (1969) and Binder (1986).

Power of a Dam: Articulating Power Groups") and Five ("Dividing the World: the Dynamics of Yacyreta's Labor Market Segmentation"). First, the process of consortiation, a strategy of articulation of different levels of capital (international, national, regional/local) tends to stimulate the concentration of capital despite the fact that some smaller firms may be coopted in the process and eventually grow. Second, the large-scale project migratory circuit - a type of labor flow linked to structural characteristics of large-scale projects such as their temporary character - points to the cyclical character of projects as investments carried out worldwide. Small segments of the local and regional populations may eventually be drawn into better labor market positions through the large-scale project migratory circuit, but, then, they will move to other places. The internal developmental contradictions of large-scale projects can be summarized as follows: "development projects" immobilize huge amounts of resources by concentrating them in a point in space; they drain the best human and natural resources of an area, and move them to another; finally, once the work is finished, the bulk of the investment that flowed into an area during the construction period will dry up, thus increasing the probability that massive activity will be followed by an economic

depression².

But, there remains the question about the developmental impact that may be produced by the facilities once they start operating. Most of the times these facilities are linked to the national economy and are not designed to attend local/regional level needs. On one hand this tends to reinforce the pre-existing economic disparities. On the other hand, sometimes, as in the case of Yacyreta, whether the investment is profitable is highly controversial. To put it in other way, it is common knowledge amongst specialists in the Argentine energy sector that Yacyreta was not the best investment for the sector. The reason for the implementation of the project lies more within the realm of politics than economics³. Many Argentine specialists whom I interviewed claimed that better alternate solutions would have been to build smaller dams, to build the Parana Medio dam on the same Parana river but within Argentine territory (avoiding the problems caused by binationality), or to take advantage of the availability of gas in Patagonia, in the south of the country.

My analysis of Yacyreta led me to conclude that this

². In the case of hydroelectric dams such as Yacyreta, rivers are dammed, huge reservoirs are created displacing human population and affecting ecosystems, mostly to generate energy to individual and industrial consumers located outside of the region where the natural resource lies.

³. See the section on "the meaning of binationality" in Chapter Two.

project does not so much produce development as it constitutes a form of production linked to economic expansion. In this sense it represents an outpost of an economic system that is pivoted on several central places - worldwide and within the Argentine territory. Moreover it is the kind of outpost that does not furnish consistent and stable economic opportunities for the local and regional population. If the definition of development minimally includes active participation of local/regional social actors, sustenance and continuation of growth over time, a large-scale project can hardly be conceptualized as a "development" project⁴. This is why, from the regional and local perspective, it is hard to consider it as a promoter of development, even in the restricted economic sense of the expression.

Moreover, I suspect that what is also at stake is a confrontation between a conception of development that overstresses physical mobilization of natural and human resources in a pure pragmatic economistic sense, and a conception of development that gives priority to the need of fulfilling the social needs of populations that are located in specific cultural and historical scenarios. The "pragmatic" mobilization of human and natural resources ends

⁴. I am not including here, under a minimal definition of development, "any real improvement in the quality of life of the people at large" as some authors do, see, for instance Becker (1983: 7-8).

up reinforcing existing disparities because it favors competitors that, from start, can move more resources. This may be why such a conception is favored by social actors who typically reproduce their lives within the circuits of a national political-economy and/or within the world system. Local and regional social actors are bounded by a sense of history and culture that orients their visions of their social reality towards more parochial objectives. This is one reason why the prospect of economic change is not necessarily welcome. Change for whom and in what direction?

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