

THE INSPECTION PANEL

OFFICE MEMORANDUM

DATE: September 16, 1997

TO: Mr. Stephen Lawani, Acting Vice President and Secretary, SECVF

FROM: Antonia M. Macedo, Acting Executive Secretary, IPN 

EXTENSION: 82617

SUBJECT: **Request for Inspection**
Argentina/Paraguay: Yacyretá Hydroelectric Project
Panel Review and Assessment

Please find attached for distribution to the Executive Directors and Alternates of IBRD a memorandum from the Chairman of the Inspection Panel entitled "Request for Inspection - Argentina/Paraguay: Yacyretá Hydroelectric Project - Panel Review and Assessment, " dated September 16, 1997.

Attachment

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT
INTERNATIONAL DEVELOPMENT ASSOCIATION

The Inspection Panel

1818 H Street, NW Phone: (202) 458-5200
Washington, D.C. 20433 Fax : (202) 522-0916
USA

Alvaro Umaña Quesada
Chairman

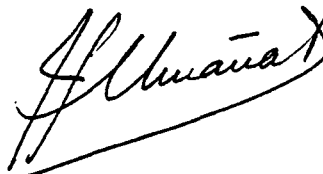
IPN REQUEST RQ96/2

September 16, 1997

MEMORANDUM TO THE EXECUTIVE DIRECTORS AND ALTERNATES

SUBJECT: Request for Inspection: Argentina/Paraguay: Yacyretá Hydroelectric Project
Panel Review and Assessment

1. On February 28, 1997 the Board invited the Inspection Panel "to undertake a review of the existing problems of the Yacyretá project in the areas of environment and resettlement and provide an assessment of the adequacy of the Action Plan as agreed between the Bank and the two countries within the next four months." At the same time, the Executive Directors decided that "independent of the above decision, the Inspection Panel [was] expected to look at the extent to which the Bank staff had followed Bank procedures with respect to this project." The attached Report responds to this request.
2. It may be noted that a Request for Inspection relating to the same Project had been simultaneously filed with the Inter-American Development Bank inspection mechanism. The President of that institution recommended and the Board of Executive Directors likewise agreed to a review of the project under similar terms of reference. Collaboration with the IDB inspection mechanism included a joint visit to the project area in July 1997 as well as an exchange of views on the main findings.
3. During the May 1977 visit to Posadas, the Panel received additional Requests for Inspection from groups of allegedly affected people on the Argentina side of the project area. The Panel proposed and the Board agreed--on a "non-objection" basis--that the matters raised in the additional requests could be regarded as falling within the scope of the review authorized by the Board on February 28, 1997. Therefore, the attached Report also deals with the additional requests and the Management Comments received on August 4, 1997.



THE INSPECTION PANEL

Review of Problems and Assessment of Action Plans

Argentina/Paraguay: Yacyretá Hydroelectric Project

September 16, 1997

Table of Contents

ACRONYMS AND ABBREVIATIONS	iii
INTRODUCTION	1
EXECUTIVE SUMMARY	4
Findings	4
Review	6
Massive Nature of the Project	6
Institutional Basis	6
Long Delays and Implementation Problems	7
Insufficient Financial Resources for Completion	7
Action Plans	9
Additional Requests	9
Compliance with Procedures	9
PART 1: PRESENT PROJECT PROBLEMS	11
1. RESETTLEMENT	11
Overview	11
1.2 Resettled Population	12
Paraguayan Side	12
Argentina Side	15
1.3 Future Resettlements	17
1.4 Review of EBY Consultant Report	18
1.5 Other Resettlement Issues	19
1.6 Findings	20
2. WATER QUALITY	21
2.1 Overview	21
2.2 Vegetation	21
Paraguay side	22
Argentina Side	23
2.3 EBY Monitoring Program	23
2.4 Sample Analyses	24
2.5 Water Table	25
2.6 Water Quality and Disease	26
2.7 Aña Cua Branch	26
2.8 Encarnacion Treatment Plant	27

2.9 Findings	28
3. EPIDEMIOLOGY	29
3.1 Overview	29
3.2 Paraguay	29
3.3 Argentina	30
3.4 Findings	30
4. BIODIVERSITY AND RESERVES.....	31
4.1 Overview	31
4.2 Paraguay	31
4.3 Argentina	33
4.4 Findings	34
5. FISHERIES	35
5.1 Overview	35
5.2 Paraguay	36
5.3 Argentina	36
5.4 Findings	37
6. ARCHEOLOGICAL AND CULTURAL SITES.....	38
6.1 Overview	38
6.2 Paraguay	39
6.3 Argentina	39
6.4 Findings	40
PART 2: ASSESSMENT OF ACTION PLANS	40
General	40
Plan A.....	41
Plan B.....	41
Review Of Resettlement And Environmental Issues.....	42
Resettlement.....	43
Environment.....	44
PART 3: ADDITIONAL REQUESTS	45
PART 4: COMPLIANCE WITH BANK PROCEDURES	55
FINDINGS	57

Attachment 1. Management Comments on Additional Requests for Inspection

ACRONYMS AND ABBREVIATIONS

ANDE	National Electric Administration - Paraguay
CDC	Conservation Data Center - MAG - Paraguay
CERIDE	Centro de Investigacion y Desarrollo - Argentina
COMIP	Comision Mixta Paraguay-Parana
DPNVS	National Parks Service - Paraguay
EA	Environmental Assessment of 1992
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan (included with EA 1992)
EBY	Entidad Binacional Yacyreta
FACEN	Department of Exact and Natural Sciences - UNAM
FAO	Food and Agriculture Organization - United Nations
FMB	Fundacion Moises Bertoni - Paraguay
GOA	Government of Argentina
GOP	Government of Paraguay
JICA	Japanese International Cooperation Agency
MAG	Ministry of Agriculture and Livestock - Paraguay
masl	meters above sea level
MHP	Ministry of Health-Paraguay
NGO	Non-governmental Organization
Panel	The Inspection Panel
PARR	Plan de Accion para el Reasentamiento y Rehabilitacion
PMMA	Plan Maestro de Manejo Ambiental
REMP	Resettlement and Environmental Mitigation Program (see also EMP)
Request	Request for Inspection
SAR	Staff Appraisal Report
SINASIP	National Protected Areas System - Paraguay
SSRN	Sub-Secretariat of Natural Resources - Corrientes Province Argentina
SSRNMA	Sub-Secretariat of Natural Resources and Environment - Paraguay
TOR	Terms of Reference
UNA	Universidad Nacional de Asuncion - Paraguay
UNAM	Universidad Nacional de Misiones - Argentina
UNNE	Universidad Nacional del Nordeste - Argentina

Request for Inspection

Argentina/Paraguay: Yacyretá Hydroelectric Project

Inspection Panel Report

on

Review of Present Project Problems and Assessment of Action Plans

INTRODUCTION

1. This Report responds to the World Bank ("Bank") Executive Directors' ("Board") decision to ask the Inspection Panel ("Panel"), on February 28, 1997, "to undertake a review of the existing problems of the Yacyretá Hydroelectric Project in the areas of environment and resettlement and provide an assessment of the adequacy of the Action Plans as agreed between the Bank and the two countries within the next four months."

2. At the same time, the Executive Directors decided that "independent of the above decision, the Inspection Panel [was] expected to look at the extent to which the Bank staff had followed Bank procedures with respect to this project." As explained in Part 4 of this Report, the precise extent and scope of this latter decision was not determined by the Executive Directors.

3. This decision arose as a result of the Board's consideration of the Panel's recommendation to them to authorize an investigation into the Request for Inspection related to the Project ("Request").

The Request

4. On September 30, 1996 the Panel received a Request for Inspection from SOBREVIVENCIA - Friends of the Earth Paraguay, representing people who live in Encarnación, Paraguay, who claim that their rights/interest had been affected by acts and omissions in the implementation of the Bank-financed Yacyretá Project. The Requesters claimed that they had been, and may potentially be, directly and adversely affected in their standards of living, health and economic-well being as a result of the filling of the Yacyretá Reservoir and the Bank's omissions and failures in the preparation and implementation of the project. The Chairman of the Panel registered the Request on October 1, 1996.

Management Response

5. The Management Response ("Response") to the Request was submitted to the Panel on November 1, 1996. In its Response the Management included a description of "Pending Actions" as Attachment A.

Panel Recommendation

6. The Panel, on December 24, 1996, recommended to the IBRD's Executive Directors that they authorize an investigation.

Executive Directors' Decision

7. On February 28, 1997 the Executive Directors considered the Panel's recommendation. During the meeting, Management presented Action Plans A and B. Action Plan A dealt with actions that should have been completed, but were not before the reservoir was filled in 1995 to 76 masl. Action Plan B proposed activities aimed at permitting the "continued operation of the reservoir at 76 masl in an environmental sound manner". These Plans had been agreed with authorities responsible for the project but at the time a number of elements had to be further defined and certain actions taken by March 15, 1997. In light of this the Executive Directors' decided to ask the Panel to conduct this review - the scope of which is in their decision quoted in paragraphs 1 and 2 above.

Panel Review & Assessment

8. The then Chairman of the Panel had designated Mr. Alvaro Umaña Quesada—lead inspector in charge of the initial review of the Request—as leader of this review and assessment authorized by the Board. Mr. Umaña who had visited the Project area in December 1996 for the initial review, returned there twice (May & July 1997) conducting consultations with Argentine and EBY officials and with local authorities, and affected people on the Argentine and Paraguayan sides of the Project.

Additional Requests for Inspection from Affected People in Argentina

9. During his second visit, Mr. Umaña was approached in the city of Posadas, Argentina, by several groups of people who allegedly were adversely affected by the Project and also by local political and community leaders, as well as local government officials. They submitted oral and written Requests asking the Panel to review several aspects of project execution which, according to them, are detrimental to the people, communities and the environment on the Argentine side of the project.

10. After a careful review of these Requests, the Panel concluded that—while some of the Requests could be regarded as new Requests for Inspection—in substance the issues they raised are substantially the same as in the original Request related to the same project. In the Panel's view, the matters raised in the additional Requests could be regarded as falling within the scope of the Board's February 28, 1997 mandated review.

11. As a result the Panel informed that Board that it proposed to proceed as follows: a) provide copies of the written Requests received to Management and ask for comments within the usual 21 business day period; b) include references to such Requests and Management's comments—as well as the Panel's specific findings thereon—in this Report; c) advise these new Requesters accordingly. The Board's approval was given on a no objection basis on June 23, 1997. Management Comments were received August 4, 1997. Attachment 1 contains Management Comments on the Additional Requests. The Additional Requests themselves are not attached, since they were submitted in Spanish and the Panel is satisfied that these Requests are adequately summarized in Management Comments.

12. The Panel met with Argentine authorities in Buenos Aires and Posadas during July and in Encarnación with Paraguayan authorities, the bi-national executing agency EBY and the NGO community. The Panel would like to acknowledge the full cooperation and thank both the GOA and GOP and provincial and local authorities, EBY staff as well as SOBREVIVENCIA for facilitating the Panel's task. The Panel benefited from a number of frank dialogues with Government and EBY officials and with people living in the project area and would like to express its thanks to them for their assistance. Finally, the Panel acknowledges the cooperative logistical help from Bank Management, and in particular the assistance provided by a consultant to the Panel for this review, Mr. Francis V. Fragano.

13. This Report is in four parts. Part 1 reviews the Project's present problems. Part 2 provides an assessment of the adequacy of Action Plans A & B. Part 3 covers the Additional Requests for Inspection and Management Comments on them. Part 4 addresses Bank compliance with its procedures.

14. The Request, Management Response and Panel Report and Recommendation to the Board can be found in a separate volume which has been available to the public since February 28, 1997.

EXECUTIVE SUMMARY

Findings

- After more than fourteen years under construction with investments (including interest) surpassing \$8.5 billion, the Yacyretá Hydroelectric Project remains riddled with problems, delays and uncertainties that cast serious doubts about the Project's future and its continued adverse effects on adjacent populations.
- Imbalance in execution between civil/electro-mechanical works on the one hand and resettlement and environmental measures on the other has been one of the fundamental problems of the Yacyretá Project. This imbalance has been exacerbated by the usual Bank practice of financing the former while leaving the latter for counterpart funding. The Panel believes that this practice should be reconsidered.
 - This imbalance is dramatically illustrated by the fact that the reservoir was filled prior to completion of the agreed environmental and resettlement measures which resulted in negative environmental impacts and placed populations living in low-lying areas on both sides of the reservoir at higher risk for a prolonged period of time. This action—to which Bank Management gave its non-objection triggering the Request for Inspection and the Panel's intervention—has caused risks of serious health hazards through exposure to unsanitary conditions and poor water quality. Other risks include potential loss of sustainable livelihood through loss of high quality clay and fish resources.
 - Such imbalance, leading as it has to rising social and environmental liabilities, now has a financial cost at least equivalent to the costs of Plans A and B (\$132 million) if the Project operates at 76 masl. To address the imbalance will take until at least the year 2000.
- Substantial issues raised by additional Requests for Inspection need to be addressed by Management including cost of replacement housing on the Argentine side; quality of housing and community infrastructure on both sides of the reservoir; economic situation of oleros and workers in the brickmaking industry and of fishermen.
- Despite extensive but inconsistent supervision efforts, the Bank has failed to bring the project into compliance with relevant Bank policies and procedures due to an poorly conceived Project design in the first place, compounded by changing standards and regulations over time, EBY bureaucratic procedures and lack of financial resources.
- Bank environmental and resettlement procedures call for continued participation of potentially affected people from the outset. The Panel has found that the process has been neglected and now is all but discontinued. Bank supervision will be essential to ensure resumption of the participatory process.
- Institutional strengthening of executing agencies in the areas of resettlement and environmental protection continues to be an issue that needs to be addressed by the Bank

- Although the macro and financial environment is highly uncertain, solution to the problems depends on implementation of Plans A and B strictly in accordance with the timetables proposed. However there are components of these Plans that are already lagging behind (e.g. creation and maintenance of biodiversity reserves) and the Project history of delays and non-compliance previously tolerated by the Bank does not allow the Panel to assess potential performance with any degree of confidence. For example:
 - Some fundamental studies critical to Plans A and B are either incomplete or have not been conducted, such as hydrogeological studies and the Ana Cua environmental assessment. These studies must be completed immediately. But, the conduct of the studies (and the resulting designs) must follow Bank procedures on environmental assessment and participation. This is likely to result in delays in completion of aspects of Plans A and B.
- Due to the significant long term involvement that both the Bank and IDB have in the Project, the two institutions should continue providing financial and technical assistance to correct the harms that have been identified and must remain committed to implementation of the REMP independent of formal ownership of Project.
- Presently operating at 76 masl, the lowest possible elevation, the Project's annual net cash flow is about \$50 million, which is insufficient to cover the social/environmental liabilities and meet the investments required to raise the reservoir above its present elevation. If the Project were to stay at the present operating level, the debt would never be repaid.
- Given the Government of Argentina decision to suspend allocation of additional investment resources to the Project during the last three years, privatization was supposed to provide the capital required to reach elevation 83 masl. However, both the Government of Argentina and the Government of Paraguay have failed to obtain approval from their respective Congresses for the legislation that would authorize privatization. Present plans are unclear.

The investment required to reach elevation 83 masl has been estimated by Management to be at least \$700 million beyond [that required for execution of] Plans A and B. This however does not take into account the actual costs of remaining expropriations (including thousands of hectares of land), resettlement of urban populations on both sides of the reservoir, and replacement of infrastructure (railroads, ports, airport) which would render the Management's estimate wholly inaccurate.

Review

15. The Yacyreta Hydroelectric Project ("Project") is a unique and complex undertaking, with many singular features that have an important bearing on the problems that the project has experienced. Among the project's most salient features are its massive proportions and impacts, its complex institutional basis, the long lead-time and persistent implementation problems that it has suffered, and considerable uncertainties with respect to the availability of financial resources required for its completion. All these interrelated factors, which contribute to a highly problematic present situation, are analyzed individually below.

Massive Nature of the Project

16. The Project consists of a 65 Km. earth dam in the main channel of the Parana River about 80 Km. from the cities of Posadas, Argentina and Encarnacion, Paraguay. The project is a low-head hydroelectric facility with 20 Kaplan turbines of 155 MW each for a total generating capacity of 3100 MW. In addition, the project also includes a navigation lock, fish-passage and other support facilities as well as a large program of infrastructure relocation, population resettlement, and mitigation of environmental impacts. The earth dam, with a uniform height of 86 masl, creates a reservoir of 1065 square kilometers and, if filled to its design level of 83m, would flood over 107,000 hectares and affect over 13,000 families, including a major impact on the urban areas of Encarnación and Posadas. Most of the impacts of the project can not be avoided and stem from the location of the large reservoir, huge areas to be inundated and the large numbers of people affected, including the second largest city in Paraguay and, to a lesser degree the city of Posadas.

Institutional Basis

17. The Project was started by a 1973 bi-national treaty between the Republics of Argentina and Paraguay. The Treaty of Yacyreta proposed to develop the hydroelectric potential of the Parana River, improve navigation in the area, mitigate the effect of severe river floods and promote irrigation. The Treaty also created the "Entidad Binacional Yacyreta" (EBY), an autonomous bi-national entity formed between an Argentine and Paraguayan utility, having equal rights and duties, as well as full legal, financial, administrative and technical capacity. Despite its equally shared ownership, Argentina agreed in the Treaty to secure total financing for the project.

18. As stated in the 1992 SAR for the Yacyreta II Hydroelectric Project, "Yacyreta has suffered from instability in the management of the project entity, lapses in technical direction, constant uncertainties of assurances and levels of future funding, excessive EBY Board interference, strains between the owners and in their dealings with international contractors, and a not fully satisfactory design of the resettlement and environmental protection plan, as well as its slow implementation." Unfortunately, five years later the same problems still persist, and some may have deteriorated. For example, throughout its existence EBY has had eighteen directors, the last three within the period after filing the Request.

Long Delays and Implementation Problems

19. The Project has been under design or construction for over 20 years, and the Bank's involvement goes back to the mid-seventies. Since the project has taken such a long time to complete, many standards have changed in the both environment and resettlement areas. For example, the Operational Directives on Environmental Assessment and Involuntary Resettlement were adopted after the two initial Bank loans had been approved, but before the last two loans were in place. At the time of the original design, some impacts, like drying-up a major river, were considered acceptable. Today, this is no longer the case. At the same time, there is considerably more appreciation today of the problems of resettling large numbers of people or the effects on urban centers.

20. The Project has suffered major implementation problems from its inception which have led to significant delays in completion and large financial problems. The Bank President's Memorandum to the Board for the Yacyreta II Project (August, 1992) refers to the "unforeseen political (initially the Southern Atlantic war) and macroeconomic instability since the Project works began, discontinuity in the Ministry of Economy oversight of the project and sector finances, recurrent difficulties with contractors over payment arrears, inadequate management of the project and differences between the Argentine and Paraguayan owners have led to extended delays, and form an enormous financial burden." Again, this assessment characterizes many of the project's present problems. Unfortunately, some of them have deteriorated considerably during the past five years

21. One of the areas of rapid deterioration deals with the impacts on the population to be affected due to the uncertain timing of the impacts and the low level of credibility that the Bank and EBY has among the population. The specific problems that triggered the Panel's intervention are derived from the filling of the reservoir to 76 masl. The Request claims that this action, carried out without having adequately implemented the required resettlement, environmental and social mitigation measures has harmed specific groups, such as the clay workers and urban populations living between 76 and 78 masl. The Bank's "no objection" to filling the reservoir was conditioned upon the agreement that all pending environmental and resettlement actions, which were not complete at the time of the reservoir filling, would be completed in the course of 1995. The premise that these pending actions would be completed shortly turned out to be tragically wrong, and by the end of August 1997, a significant number of them remain to be carried out.

Insufficient Financial Resources for Completion

22. The original cost of the Project was estimated by the Staff Appraisal Report ("SAR") in 1979, including physical and price contingencies, at \$3.7 billion. By 1992, the SAR for the Yacyreta II Project estimated the investment at \$5.5 billion. At the present time, estimated costs to date, including interest on the debt, surpass \$8.5 billion.

23. Although the civil and electromechanical works are almost complete, most of the "complementary works", particularly those related to resettlement and environmental management plans, remain to be done. In addition to the \$4.7 million undisbursed from Plan A, \$116.7 million are required for prolonged stay at 76 masl (Plan B), and at least an additional \$700 million for completion to 83 masl. However, this latter figure carries a high level of uncertainty because it includes expropriation of lands to be flooded—where costs could be considerably higher once expropriation is actually carried out—and other problems such as:

- the waste treatment plant for Encarnación, and

- the environmental protection works for the Brazo de Ano Cua for which alternative solutions are still under study, and
- the results of hydrogeological studies which have still to be carried in spite of the fact that they are fundamental to the future development of complementary works .

24. In late 1994, just months after the reservoir had been filled, the Government of Argentina, ("GOA") facing difficult macroeconomic conditions in the aftermath of the Mexican crisis, decided that it could no longer allocate additional resources to the Project, and that it would seek private capital to complete and operate the facility. Management's Response to the Request claimed on October 29, 1996 that the "...implementation of the REMP has been delayed for more than two years and is currently nearly halted, mainly because of the Government's decision to hold implementation until the privatization scheme for Yacyreta is approved by the Argentine and Paraguayan Congresses." The legislation required for privatization of the facility failed to obtain approval in either Congress, and the most recent plans include the privatization of the management of the facility while retaining bi-national ownership. This alternative would not require Congressional approval. Bank Management informed the Panel that as of late August 1997 there were "no plans for the privatization of Yacyreta."

25. The Panel requested Management to provide it with an analysis of scenarios of investment repayment periods for the different reservoir elevations. Management's response illustrates the Panel's concerns:

"Assuming that the total investment at elevation 76m would amount to about US\$5.5 billion, of which US\$0.3 billion are being financed by EBY from electricity sales, the net total investment amounts to US\$5.2 billion. It is estimated that the annual net cash flow, starting after completing Plan B, would be about US\$50 million. Under this scenario, it would take about 100 years to repay the investment. The US\$50 million were calculated as the difference between EBY's revenues and the sum of operating and maintenance expenses and the following deductions: (a) reduction from the tariff stated in the Treaty (US\$32/MWh) to the spot price of electricity (currently around US\$20/MWh; (b) compensation to Paraguay; and (c) payments of transmission cost and provincial allowances.

In the case of elevation 83m, it would take about 23 years to repay the investment, with an annual net cash flow of US\$240 million.

However, it should be taken into consideration that most of EBY's investment requirements have been financed by government loans and supplier's credits and commercial bank loans, the repayment period is much longer, because the repayment of the debt service should be added. 6% of the total investment at elevation 76m, and 11% at elevation 83m would be financed by EBY's own resources.

In this case, it would take 42 years to repay the total debt at elevation 83m, assuming that the works required to reach elevation 83m are completed by the year 2003. At elevation 76m, EBY's debt would never be repaid. It should be noted the government debt has an interest rate of 6% per annum.

Finally, it is necessary to take into account, that the privatization scheme proposed by Government assumes that the debt service payment obligation would remain with the Government, and would not be transferred to the Concessionaire."

26. Management assumes an investment of US\$5.5 billion would be required to reach 83 masl. It is evident that this is not the case. At 83masl the reservoir would flood a much larger amount of land (as indicated in the attached map), basic infrastructure such as railways and the airport, and the heart of improved urban areas of Encarnación and Posadas (including homes, businesses, commerce) all of which would have to be replaced or compensated at substantial cost. The range of incremental costs of going to 83 masl is reported to be from US\$800 million to around \$2 billion. The Memorandum suggests that at elevation 76masl EBY's debt could never be repaid. Given the facts just noted one has to question seriously whether the debt would ever be repaid at 83masl once the full costs are taken into account.

Action Plans

27. The panel was asked by the Executive Directors to assess the Action Plans presented to them by Management at the February 28th, 1997, meeting of the Board.

28. Plan A, with a projected cost of \$16 million and a completion date of December 1997, is intended to remedy actions that should have been carried out prior to filling the reservoir in 1994. At this time, while some elements are completed, it is also clear that important commitments, such as the hydrogeological studies, cannot be completed by the end of the year.

29. Plan B, with a projected cost of \$117 million and a completion date in the year 2,000; includes complementary works needed to permit prolonged operation of the project at 76 masl, now a likely scenario. Given the early stage of this Plan, it is difficult to assess progress. The Panel does note, however, that major decisions have yet been finalized with regard to wastewater treatment plants in Posadas and Encarnación, mitigating the effects of the dam on fisheries, and long-term supplies of clay to that major regional industry.

Additional Requests

30. In May 1997, the Panel received additional Requests from Argentine citizens alleging damage from the Project. The principal issues raised were the cost of replacement housing, quality of the housing and community infrastructure, and the economic plight of the Brickmakers and fishermen.

31. Management provided a response to these new Requests -- included as Attachment A -- and the Panel, recognizing the organic linkages between the original Request and these new Requests, recommended to the Executive Directors that they be treated in the same Report. As a result, the present Report covers all pending issues on the Argentine and Paraguayan sides of the reservoir.

Compliance with Procedures

32. Bank environmental and resettlement procedures call for continued participation of potentially affected people from the outset. The Panel has found that the process has been neglected and now is

all but discontinued. Bank supervision will be essential to ensure resumption of the participatory process.

33. Despite extensive but inconsistent supervision efforts, the Bank has failed to bring the project into compliance with relevant Bank policies and procedures due to an ill-conceived Project design in the first place, compounded by changing standards and regulations over time, EBY bureaucratic procedures and lack of financial resources.

34. Institutional strengthening of executing agencies in the areas of resettlement and environmental protection continues to be an issue that needs to be addressed by the Bank

PART 1: PRESENT PROJECT PROBLEMS

1. RESETTLEMENT

Overview

1. Resettlement constitutes the largest and most complex of the actions required to address the impacts caused by the Yacyretá project. To date, only a fraction of (25%) of the total population to be affected has been resettled. The Request and Management's Response regarding resettlement have considerably different views on the issues of: lack of institutional capacity of EBY and Government agencies to undertake a resettlement program; ineffective compensation systems; failure to maintain the productivity and standards-of-living of those relocated; and inadequate resettlement of the Mbya indigenous people.
2. This section of the Report is based on interviews with people in the project area conducted by the Inspector and a consultant employed by the Panel.
3. People in areas **to be resettled** were questioned on their status prior to EBY involvement and what information they had been given about their rights or benefits. A chronology of their cases was compiled to determine the average length of time they had been waiting to be relocated and what negative effects the uncertainties about relocation has had on them. They were also asked to provide information on their relationship with EBY and with whom they interacted. Other questions included their level of satisfaction with proposed compensation.
4. The experience of the **resettled population** was further assessed through extensive interviews.. Resettled individuals are divided into broad categories of urban residential, rural inhabitants and brick-makers which reflects the groupings used for the EBY programs of assistance. People from all categories on both sides of the reservoir were interviewed.. The resettled communities in Posadas called Villa Lanus(A-32) and Villa Yacyreta (A-1) and the Buena Vista and San Pedro neighborhoods on the Encarnación side were visited. The rural settlement of Caraguata, indigenous resettlement Pindo, and brick-maker resettlements of Nemesio Parma and El Porvenir (AR.) and San Pedro (PY.) were observed and relocated individuals interviewed.
5. There exists a large population not within the EBY 1990 census– called “adicionales” or “extra-censales”– which has been or is being relocated in the community of Ita Paso on the Paraguayan side. This settlement was also visited, as was a settlement of EBY compensated but self-relocated brick-layers in the area of El Porvenir in the vicinity of Posadas.
6. The resettled communities were observed to determine the quality of the infrastructure and services, access to cities and relative location with respect to previous locations. Questions followed similar lines as those for non-relocated individuals: on the quality and level of satisfaction with compensation; from where had they been relocated; what kind of on-going assistance if any, had they received; and what relationship they had at present with EBY. EBY officials responsible for relocation were also contacted for details on the process and their relationship with the communities.
7. The 1992 Resettlement and Environmental Mitigation Program (“REMP”) was reviewed to compare activities included in the present [Bank?] Action Plan with the policy and planning established in the REMP. The most recent Panel of Experts (“OP”) summary (VII Panel) which provided a status report of the implementation of the REMP programs was also reviewed.

1.2 Resettled Population

8. The resettled population affected by the Yacyreta Dam project encompasses several categories of people which are provided assistance by EBY programs based on their presence in the planned flood areas when a census was taken in 1990, land tenure, and occupation. Those individuals that were part of the 1990 comprehensive census, those with title to land, and those people who were counted and work as brick-makers, are considered for, or entitled to, some level of compensation from EBY. These are people who are the targets of the Plan for Resettlement and Rehabilitation (PARR). This plan was prepared in 1992 with the assistance of the Bank and is one of the guiding documents for the Plan of Action (Programa Base) presently in place to consolidate the 76-78 masl.

9. In addition to the resettled population recognized by EBY as their responsibility, there are additional families that have moved into the areas. These families have been attended to by the government agencies of the two countries involved in the project. The problem of additional families is serious because the numbers continue to increase and it is now estimated that the additional population is of the same order of magnitude as the original population to be resettled according to the 1990 census.

Paraguayan Side

10. The main resettlement communities on the Paraguayan side of the Parana River are the neighborhoods of Buena Vista and San Pedro. These are urban neighborhoods where families were relocated in houses built by EBY. These houses were provided at no cost to the present occupants.

Buena Vista

11. Complaints center around the quality of some aspects of the houses (electrical, plumbing, etc.), and the amount of time EBY took to respond to their needs. Most took possession approximately 4 years ago after waiting many years. Some did not receive prompt compensation for their productive infrastructure (store, workshop, etc.) and lost money due to the time lag while replacements were constructed (Request paragraphs 32, 33). The owners interviewed did have title to their property and were to a large degree satisfied with their houses. Houses have one architectural style but come in several different sizes that are distributed according to beneficiary family size.

12. The relationship with EBY was regarded as very inadequate. Most of the information they receive is by television or radio or visits to EBY offices given the proximity. Several were unsure of why they had been compensated first while others stayed behind, including family members who were not title holders.

13. EBY confirmed that there are 170 unoccupied houses in the Buena Vista neighborhood. It was explained that to avoid creating social conflicts the houses are being reserved for similarly higher income property owners who will be affected when the reservoir is filled to higher masl levels. A large piece of property exists adjacent to the Buena Vista neighborhood also owned by EBY. The school appears large and relatively well cared for. Most urban services seemed to be provided.

San Pedro

14. The poor quality of the houses was singled out as one of the primary concerns of lower income occupants. Field visits to the neighborhood confirmed the poor quality of the infrastructure.

After 3 years of occupancy houses showed serious signs of deterioration and most of the inhabitants compared their houses with the ones in Buena Vista neighborhood. Some houses were abandoned and had been vandalized. Several people complained about the high costs of services after moving to the new neighborhood. The school seemed large but showed some of the same construction problems as some of the houses (roofing tiles falling off). Community infrastructure such as plazas and soccer fields appear unfinished.

15. With regard to the relationship of the community with EBY, people expressed concerns with the length of time they have been waiting to receive all of the promised infrastructure and support. They regard the EBY with suspicion based on having received little response to their requests and unmet promises. Neighbors have now organized themselves into a community group to present petitions and improve the quality of their life. Among their requests is a bridge that would link them directly to the city (as they were prior to resettlement) since they presently have only one access to the main highway and those who walk across the Mboi-cae bridge are in serious danger of being hit by heavy traffic.

16. Many of the interviewed said that their immediate material situation had improved substantially. But they found difficulty in re-entering productive economic activities (Request paragraphs 29, 32, 33). Several small shop-owners and other service-providers indicated that they had lost many clients who were left behind and had a hard time making ends meet. They stated that they do not receive support for recomposing their productive workspace from EBY. Most felt that the brick-makers were privileged and received significant support from EBY for their economic activities and they expected the same treatment.

San Pedro Brick-makers

17. In the area for relocated brick-makers there appeared to be satisfaction with compensation. Main concerns were related to long-term availability of raw material. The present location of the brick-makers is on land without clay deposits and EBY transports clay from deposits. Based on suggestions by the Bank there seems to be a move towards organizing the brick-makers and providing them with equipment to transport raw material to their factories. They are unsure of how this will work out.

18. Each beneficiary will receive an allotted amount of clay based on their previous production levels. The general view was that those who had received cash compensation for their production were in worse shape since many did not have the capacity to manage or invest their money prudently.

Caraguata Rural Resettlement

19. The roads to the Caraguata rural resettlement community are rocky but adequate. The roads within the community however seem poorly finished and narrow. The agricultural land is of mixed quality, with some families settled on sandy areas more suitable for pasture than agriculture. Inhabitants acknowledge having received food assistance and technical assistance for about 20 months but feel that conditions are very different and that it is difficult to make a living out of agriculture under the new conditions. The new lots are large (7 ha without house or 4 ha with house) and owners expect to get title.

20. Concerns are that on the islands where these people previously lived many animals could be maintained on large open expanses which settlers now no longer have, land was exceedingly fertile and the humid climate was ideal for fruit growing, and incomes were typically supplemented by hunting, fishing, and honey collection. This diversity of possibilities does not exist in the new resettlements.

Several also mentioned that the inhabitants of the community of San Miguel Potrero (also relocated islanders) were much worse off since they were about 30 km. inland from the river although they have a good outlet for their agricultural production in the town of Coronel Bogado.

21. The extent of EBY support at present seems limited to technical assistance for production of traditional crops for family consumption and some small sales of excess production if possible. EBY social workers indicated that they are working on aspects of health, education, community organization, and relations between neighbors (a problem has arisen from the transition of living on a sparsely populated islands to living now in close proximity.).

San Cosme

22. Houses seemed well built and most lots had small vegetable gardens in a small village of relocated fishermen in the town of San Cosme. Those interviewed said that their titles were being processed. They generally had problems finding work. On the island they could collect honey and wild animals and that input into their incomes was lost now. They denounced illegal fishing by outsiders. They feel that islanders should have special access to fisheries but they are harassed by the authorities.

Ita Paso

23. Ita Paso is a resettlement neighborhood located approximately 8 kilometers outside of the city of Encarnación. This area was purchased by the Government of Paraguay (GOP) through the Ministry of Public Works and Communication to fulfill the commitment to settle additional families who are not listed in the 1990 census performed by EBY.

24. The settlement is somewhat distant and surrounded by rural/semi-rural property. No housing is provided by EBY or the GOP. Services available include water tanks at several corners of the neighborhood which are filled approximately three times per week. Housing consists generally of small, wood plank houses constructed by the settlers and outdoor latrines. Most of the lots are about 12 x 30 meters in size and there appear to be many vegetable gardens. Bus services are available. A school was established in a small two-room house outside the neighborhood. Tent awnings have been added to the school to add space. Recently, Paraguayan news publications have highlighted the poor conditions of this school for educating the large number of children in the Ita Paso community.

25. The people interviewed appeared satisfied to be owning a piece of property no matter what the conditions. They are able to make improvements to their housing and have security of tenure which they did not have in the Barril Paso neighborhood. Most indicated that they had been small farmers who had come from Itapua to the city seeking to improve their economic conditions. Lack of work nearby was a problem. The need for improved school and health services was highlighted as was the need for running water because the water tanks typically run out of water on the weekends.

Pindo

26. The Mbya indigenous settlement of Pindo is home to approximately 20 families settled there after leaving Yacyreta Island in the 1970's. The property was obtained from the National Electric Administration (ANDE) by EBY which explains the presence of high tension wires crossing the property and questioned in the Request (paragraph 35).

27. A consultant anthropologist has recently been hired by EBY to provide a full assessment of this settlement and propose solutions to be funded under the Action Plan. In the past EBY support has ranged from food donations to agricultural extension services under different Bank loans. A few of the members of the group have been supported in their high school and university studies by EBY.

28. The present plan will analyze the capacity of the agricultural soils this community is settled on. The anthropologist intends to seek alternatives for long-term sustenance through diversification of crops and possibly arts, crafts, and herbal medicines.

29. The issue of ancestral territories and ethnohistory of this Mbya group is to be included in the EBY review. The traditional uses of the forest resources of the region will also be analyzed and the results may indicate the adequacy or not of the present solution to support certain aspects of their culture, referred to in the Request.

Argentina Side

Area A-1

30. The main problem with this community known as Villa Yacyreta lies in the cost of the houses. The owners allege that the costs have been readjusted and the monthly payment is quite high given their income levels. EBY professional staff confirmed that the costs seemed to be high and the owners are being offered a deferred payment schedule that allows them to lower the monthly cost to a more acceptable level.

31. Owners are now being asked to title their land at the offices of the EBY notaries. The people do not want to sign however for fear of entering into a mortgage that they cannot pay and have their houses foreclosed on in the future. This option also requires people to begin paying municipal taxes and payment for several services that EBY now covers. Little or no information has been provided to them and EBY officials do not seem to have an official plan to ameliorate this situation.

32. This situation is exacerbated by the fact that the future houses to be provided by EBY will be at no cost to those relocated and one basic model. It is expected that this will cause friction with the paying population of homeowners and at the same time the newly relocated may have higher expectations for their housing after seeing the quality of the previous resettlements. It is not clear at present how this situation will be addressed. However EBY seems to be analyzing alternatives.

Area A3-2

33. This neighborhood is a newer settlement which has not been fully finished for a variety of reasons. Infrastructure such as the school and recreational center have not been completed due to what seem to be contractual problems with the construction firm.

34. Water services are said to be insufficient for the number of people living there and a police station is not available yet. The neighborhood does have sewage collection and treatment in large settling ponds east of the city of Posadas. Houses have different layouts and the occupants pay for their houses at rates set by EBY but with options based on their payment capacity.

35. Several people here mentioned that they relied on day jobs to survive and the distance from the city and cost of transportation were burdens that they did not have to bear previously. Many jobs were said to be lost in the brick-making industry. Payment for the houses was becoming difficult because the houses were re-appraised recently and people were being pressured to sign titles with mortgage clauses, causing some fear.

36. EBY has announced publicly that it is in process of solving the problem of unfinished infrastructure. The Action Plan includes the construction of new housing (approximately 500) to resettle the remaining population located between 76 and 78 masl.

El Porvenir Brick-makers

37. The settlement of El Porvenir is comprised of brick-makers from the Zaiman Stream area who received compensation in cash from EBY and relocated themselves on an area with clay to the south-east of Posadas. EBY is supposed to provide some infrastructure such as access roads and water that they have not received yet.

38. These brick-makers indicated that the Nemesio-Parma brick-maker settlement has a problem with access to clay. Only some of those relocated at that settlement have clay on their property. They prefer El Porvenir since all properties have clay—even though the clay is not as good in quality—and it is closer to the city.

39. This settlement seems to have adapted best to resettlement, possibly because they picked the area themselves and also received cash to begin their activities at the same time. Some complained that the time before they received their compensation was extended and caused delays and hardships during their resettlement. It has taken two years to regain prior levels of production.

40. Biologists at UNAM highlighted this site as containing many important plant species, including some endemic ones, and were worried about the impacts of the settlement.

Nemesio Parma Brick-makers

41. The Nemesio-Parma settlement is located several kilometers outside of Posadas, to the West of the city. The settlement was established for a large group of brick-makers (94) relocated from different areas. The brick-makers are in the process of creating and consolidating an Association with the support of EBY social workers and programs. The Association was formed partially as a result of Bank oversight. The Association is needed to help solve the issue of unequal access to clay deposits in the settlement. Only 45% of those resettled have direct access to clay deposits.

42. The *oleros* (brick-makers) indicated that they were originally unhappy with the choice of property for the settlement. EBY followed the recommendations of the Mines and Geology Ministry which indicated that the clay was adequate for brick-making. The *oleros* have specific requirements for their clay because of the rudimentary techniques they use. They indicated that the clay on this settlement was known by the *oleros* to be inadequate and they protested but eventually moved because no other options were available to them. Areas west of the zone of Nemesio are more adequate for their needs and they hope that in the future, when the Association is financially stronger, they may buy other clay deposits.

43. The *oleros* would like to modernize their production. However many factors conspire against this such as the high cost of production relative to Paraguayan brick, and a factory which would be

quite costly. EBY intends to provide machinery to the Association to distribute clay to the *oleros*. It is not clear what will happen if certain *oleros* are not a part of the Association or if internal political issues break down an equitable clay distribution system. The Bank anticipates that at least 70% of the *oleros* will join the association. There may be no other choice for those without clay deposits.

44. The Action Plan has programs to continue assisting the Nemesio-Parma *oleros* with a \$250,000 budget for 1997. It is unclear if the assistance will continue over a longer period of time if necessary to ensure the economic sustainability of this settlement. Several activities were under implementation such as installation of a water system and construction of houses for extra-census *oleros*. The assistance by the social workers seems to emphasize strengthening of the Association and appeared quite participatory. Approximately 5 to 6 general assemblies of the Association were scheduled for the year. Participation of *oleros* in the assembly taking place at the time of the visit was high.

1.3 Future Resettlements

The number of people included in the 1990 census is far below the total number of people in the areas. EBY personnel estimate that the number on the Argentina side outside of the census is larger than those that have been counted. Problems have also arisen now that many of the EBY beneficiary families now have grown children that have families of their own living on their parents' property. These people are not counted as beneficiaries and can be expected to become a growing problem as resettlement activities advance with the Action Plan and peoples' expectations rise. Several complaints were heard about the inaccuracies of the census in 1990, particularly from people who had moved out of the areas canvassed because of floods that year and did not move back in time to be counted. EBY social workers agreed that the census has errors and areas had even been left out.

45. In general, the people interviewed about future relocation said that relocation delays have been most damaging, particularly for those in the 76-78 masl interval. These people do not move out because they understand that if they do they lose their rights to be compensated and therefore continue to live in very unsanitary conditions. On both sides of the river the lack of support and investment by city and provincial services was evident in areas to be flooded.

46. Most of those interviewed did not have much knowledge about the resettlement process, though they generally knew what rights they had. They could not mention any particular mechanism of communication that the EBY had set up for consultation on the places to which they would be relocated or the conditions they were to expect in the new areas. Several described situations in which their (now) grown children who were included in the earlier EBY census will not be able to move with them since they have subsequently married. This is a special category of people who are part of the census but get no compensation for their loss of housing.

47. It is evident that confidence in EBY by people to be relocated has deteriorated to the point of complete disbelief. EBY social workers acknowledge this. The type of work these social workers can do is largely limited to informing people of whether they have a right to compensation. Presently on the Posadas side there has been some work by EBY in trying to ensure community organization which would allow people to petition services from the government offices in the face of uncertain time frames for relocation. On the Paraguayan side the social workers' work in urban areas seems to be limited to providing information about the status of beneficiaries.

48. Data is collected monthly on the Argentina side and reviewed to provide modifications in the programs carried out by the social work team. People on the Posadas side also seemed to be more aware of the location of neighborhood offices and could identify the social workers. On the Paraguayan side this was not the case. No similar quantitative data was provided for that side and the general feeling of EBY personnel was that the work was somewhat less flexible and adaptable, relying strictly on the PARR. Most affected people could identify only the head of the resettlement program or the Director of EBY in Encarnación.

49. EBY social workers did feel that they would need to increase personnel and resources once shifting people began. Presently they have approximately 28 people on each side, one vehicle and three computers at their disposal which they feel is insufficient for the number of people they serve.

1.4 Review of EBY Consultant Report

50. The independent consultant report that evaluates the PARR—mentioned in the Management Response to the Request—was prepared in 1995 by two consultants who now are members of the Expert Panel on Resettlement. They provided a five volume evaluation which covers the rural, brick-maker, and urban resettlements on both sides of the Parana River.

51. The objective of the study is to evaluate the “pertinence, efficiency, efficacy, and impacts” of the PARR. With respect to the objectives of the PARR and the programs adopted to deal with them the study indicates a relatively good correlation in the urban programs. However the rural and peri-urban methods and programs do not adequately respond to the stated objectives of the PARR.

52. The report states that the group of peri-urban (mostly islanders and *oleros*) and rural inhabitants was not well analyzed before the rise in water level to 76 masl possibly because, among other reasons, EBY was restructuring its Social Welfare Department. The population was not studied well and alternatives based on the aspirations and profile of the affected families before the flooding were not analyzed in depth. These groups are also characterized by weak or non-existent community organizations, unlike the urban inhabitants. This meant that their needs were relegated to second place while the approach of the reservoir flooding prompted protests and waves of negotiations in the urban areas.

53. Conclusions regarding the urban resettlements indicate that the “product” is adequate based on the objectives of the REMP. However, the study criticizes the process through which the solutions were reached. The results in terms of physical infrastructure are satisfactory and recuperation of economic activities is progressing favorably. It points out though that those groups that were most affected are the ones least able to cope with loss of income. Problems include restructuring and relocation of the brick-making industry, inflation, and declines in small commercial activity in the port area of the city.

54. The San Pedro resettlement was particularly impacted in this respect according to the study. The costs of transportation and improved infrastructure have caused a significant increase in expenses for household maintenance and food.

55. Another impact criticized was the mode of compensation implemented in Posadas. The fact that payments have been made by those relocated has changed the compensatory nature of the relocations. For newly resettled families a standard size house will be provided **at no cost**. The study

predicted conflicts based on these inequalities in solutions and recommended that EBY forgive the debts of the already relocated families. The experts recognized that this does not solve the conflicts but levels the playing field by making all those relocated non-paying.

56. The study's major conclusion on brick-makers indicates that the relocation and resumption of productive activities were seriously delayed, especially in Argentina. At the time of the study in 1995 the pre-conditions for production had not yet been achieved. The major positive aspect observed by the study was in the high level of housing infrastructure that has been provided for those relocated (including "extra-censales").

1.5 Other Resettlement Issues

Participation

57. The levels of participation identified and confirmed by affected parties varies significantly on each side of the Parana and within the relocation programs themselves.

58. The REMP calls for a continual process of participation throughout the design and implementation of the relocation activities. This process was observed being implemented by EBY only with the Nemesio-Parma brick-layers—although other instances may exist. Solutions appear to be negotiated to a degree but primarily in the rush of completion or fulfillment of deadlines rather than in a well thought out participatory approach. The Action Plan calls for mainly "informational" type activities in regard to future resettlement.

Income Generating Activities

59. Although the independent consultants study indicates successful recovery of income generation in resettled urban communities, to maintain the material improvements for most of those relocated requires an increase in income for others as well. This aspect does not seem to have been contemplated by any particular EBY program (except for brick-makers and restricted to owners) and is an important limiting factor affecting many already relocated as well as those to be relocated in the future. This is particularly evident in the San Pedro neighborhood in Paraguay and in A3-2 in Argentina. Future relocations should take this issue into consideration.

Outreach

60. There appears to be an intensive public relations campaign on TV and radio. This campaign emphasizes the benefits that the Yacyretá Dam Project is having on communities, the environment, fishermen, and brick-layers in the zone of influence.

61. Most people interviewed reacted negatively to these campaigns, particularly the ones affected by the dam and who had been waiting for some time to receive compensation. The REMP indicated in 1992, in its "lessons learned" section, the need to avoid creating false expectations in the population through propaganda and institutional messages. It specifically recommended avoiding these messages in the future. Outreach and public relations are not discussed in the recent reviews of the REMP.

1.6 Findings

62. Information gathered shows that there has been monitoring and oversight of the programs implemented, primarily through POE visits and the presence of a Resettlement Coordinator working closely with the social workers on both sides of the Parana. Review of the original 1992 REMP (previously known as the PARR/PMMA) revealed that it addressed most of the issues included in the Request, including the need for ongoing participation, the dynamic nature of the population to be resettled and the need to reevaluate the beneficiary population, and the negative impacts of prolonging resettlement.

63. The main issues of concern revolve around the length of time taken for the implementation of the REMP program which has led to a significant breakdown in community relations. Compounding this is a weak program of social communication caused to a great extent by the lack of information available to ground teams of EBY to provide to the populace. Fragmentation of the community framework by transferring people by successive flood levels rather than seeking to maintain social structure has also caused significant stress and hardship on the resettled communities. This fact was emphasized particularly by EBY resettlement workers and officials as a major obstacle to successfully carrying out their tasks. This fact has also been highlighted by the most recent POE meeting in May of 1997. Definition is needed on the entire communities that are to be affected (78 and above), if they are to ultimately be moved.

64. The fragility of the models selected for rehabilitation of certain groups is also of concern. The fishermen and island inhabitants seem to have a particular vulnerability given the radical change in lifestyle and the assumption that they can be productive in other environments. Previously they benefited from a diversity of wildlife, crops, and good soils that are not available to them in their present situation. Now the reality seems to be that they were placed into an urban commerce environment around Encarnación, San Cosme, Carmen del Parana, and Ayolas, on the Paraguayan side.

65. The impact of the relocation on certain segments of the San Pedro neighborhood (Encarnación), as highlighted in the Request, seems to be confirmed by this review and the independent consultant studies. Adverse affects on their incomes from the increased cost of transportation and changes in the brick-making industry have not been analyzed and programs based on such analyses developed to consolidate this relocation effort. [Analyze the issue of income and job loss in San Pedro and design support programs where pertinent.]

66. In Posadas, there are no plans for the solution of conflicts that may arise due to the differentiated housing between future and former resettled communities (i.e. new houses come in one size while older houses come in various sizes). Bid documents have already been distributed for the unique style housing solution to be constructed which negates the possibility of substantially altering this type of solution as alluded to in the Independent study. However, as outlined in Part 3 of this review, considerable progress has been made with the decision to reduce the cost of housing to all Argentine beneficiaries, and reduce it by 90% for those who cannot pay.

67. On both sides of the river, the solution of organizing the brick-makers into associations and cooperatives will need a long period of support by EBY or other groups. These types of organizations have significant internal political issues to overcome in many instances and lack strong administrations without support programs such as the ones EBY is providing. Longer term support for the brick-maker

settlements of Nemesio-Parma and San Pedro is needed to consolidate their organizations and promote self-sufficiency.

2. WATER QUALITY

2.1 Overview

Specific issues raised in the Request include the presence of submerged vegetation that was not removed which could negatively affect water quality (paragraphs 38,43,44,45) and movement of water in the lake(44); effects on the water table and hydrogeology(46); and water quality as a factor in the increase of water-borne diseases(34).

68. A survey of the sanitary conditions of lateral bays of the cities of Encarnación and Posadas was carried out to assess the present and potential effects on the populations of these cities. Meetings were also held with personnel of the EBY Environmental Department to clarify issues raised by the Requesters and to inquire about the water quality monitoring system presently in-place, or if such a program existed.

69. The areas visited included the major streams affected near the cities of Encarnación and Posadas, the Quiteria and Mboi-cae on the Paraguayan side and the Zaiman and Martires in Argentina. Other smaller streams crossing the city, particularly in Posadas were also observed. Field visits to the west of Encarnación in the cities of Carmen del Parana and San Cosme provided information on the Tacuary Stream and Aguapey Stream.

70. After a visual inspection, water samples were taken at the larger streams in Encarnación and Posadas. Six samples were taken including one blank sample as a lab control. These samples were taken only to provide confirmation of complaints by neighbors and EBYs own water quality analyses and provide a "snapshot" of the overall conditions of the streams. Finally, a review of documents and sample data provided by EBY were analyzed and reviewed for adequacy and comprehensiveness.

2.2 Vegetation

71. The Request makes specific references to the impact of emergent and submerged vegetation that was not removed prior to filling at 76 masl. Specific concerns are that the vegetation would provide conditions for growth of aquatic weeds, decrease water circulation and inhibit oxygen distribution among others (paragraphs 38,43,44,45).

72. The 1992 Environmental Assessment ("EA") states, regarding vegetation removal, the need for studies to determine the priority areas for deforestation or clearing for the purpose of preventing anaerobic conditions caused by decomposition of rotting organic matter. "Given the cost of the deforestation, it is necessary to perform in-depth studies that permit the definition of specific areas for biomass removal". Problem areas were identified in the EA including the areas around the floodplain of Ombu Stream, Yacarey Stream, and Rincon Santa Maria, Isla Talavera and the center of Yacyreta Island.

73. Review of documentation provided by EBY indicates that there were unforeseen problems with organic matter from wetlands on the flooded island of Yacyretá that loosened from the sandy substrate of the island and floated towards the dam causing problems for the generation of electricity in

December 1994. These large floating mats of vegetation are being diverted by a private contractor to the Aña Cua branch spillway. There is some concern that this method of disposal could pose problems with the quality of potable water in the Paraguayan city of Ayolas. Interviews with members of the contractor team indicated that they were towing the islands in the direction of the right side of the Parana, in small inlets, and allowing the wind and waves to break them up. This is a recurring problem of considerable magnitude that should be included specifically in operating costs as well as with respect to environmental impacts and the Ana Cua branch solution.

Paraguay side

74. General conditions on the coast near the city of Encarnación indicated that vegetation had been removed prior to the filling to a large extent. Some small patches of emergent or rotting vegetation along the Parana River coast were observed from the area between the Mboi-cae and Quiteria streams and the area up to Isla del Medio. Local fisherman indicated that the vegetation had been cleared up to the Tacuary Stream approximately. No large stagnant water areas or masses of floating vegetation were observed growing on the Parana River. Many recreational and professional fisherman were noted along the coast and in canoes.

Arroyo Mboi-cae

75. An important area where submerged vegetation was observed was at the entrance of the Mboi-cae. Rotting vegetation, some slightly higher areas with live vegetation, and areas of attached macrophytes have created some miniature bays or enclosures of water around the mouth of this stream. In these bays along the side of the stream are large quantities of floating aquatic weeds. Movement of the water was observed superficially to be inland from the river with little removal of weeds and floating matter on the bay. Heavy rains produced some flushing of floating vegetation and solids and some accumulation in sides of enclosed areas of baylets.

Arroyo Quiteria

76. This stream presented no major areas of submerged vegetation. This stream has a wider low-lying grassy floodplain used as animal pasture and some evidence of rice growing. Some smaller areas of floating aquatic vegetation are dominated primarily by "camalotes" (water hyacinth). There appeared to be no dying or dead fish to indicate anoxic conditions in the bay. The areas immediately surrounding this stream are somewhat more uninhabited than other urban streams observed.

Carmen del Paraná and San Cosme & Damian

77. The margins of the town of Carmen del Parana showed signs of having vegetation removed. Ybycui island in the Parana River had large areas of emergent rotting vegetation. The port area of this town had some vegetation impeding easy access to Parana River. From the town of San Cosme vegetation around the Yacyretá Island was clearly visible.

78. Representatives of the local government and a rural inhabitant of Carmen del Parana alleged that EBY showed Bank teams a site specifically prepared for the occasion which did not reflect the true extent of vegetation removal which was far less than scheduled. These representatives also indicated that the town of Coronel Bogado had already spent substantial resources of their own budget on removing vegetation which had been adversely affecting their tourist sport-fishing industry. They feel that there is an increase in the mosquito and bat population since the reservoir was filled.

79. The Mayor and City Council of San Cosme allege that the vegetation removal process is incomplete and that large tires had been burned by EBY on the Island of Yacyretá and the banks to make it look to the Bank representatives over-flying the area as though vegetation removal activities were being carried-out.

Argentina Side

80. The coast along the Argentina side of the Paraná River has a steeper drop than along the Paraguay side and less vegetation was noted there. This bank also presents more human alteration and ongoing development of the waterfront from Posadas moving west to the mouth of the Martires stream, as evidenced by the many recreational clubs and housing developments.

Arroyo Martires

81. This stream has a long parallel line of submerged and semi-submerged vegetation along the entire mouth of the bay. Significant quantities of attached and floating aquatic vegetation are growing in the more stagnant areas. The area was also visited for sampling after a heavy rainstorm and did not present the flushing phenomenon observed in some of the other streams and bays. Significant amounts of floating vegetation remained even after the rainstorms. Little water movement was noted.

Rincon Santa Maria

82. From the coast of the Santa Maria Reserve, general observations were made of the water quality and presence of aquatic vegetation. No extensive areas of submerged vegetation were noted, nor extensive floating masses of vegetation. No dead fish, foul odors, or other indicators of anaerobic conditions were detected.

2.3 *EBY Monitoring Program*

83. A summary of EBY's water quality monitoring results indicate that there are three major impacts on water quality as a result of Yacyreta Dam. The first is the gas super-saturation phenomenon which caused large fish kills in August and October of 1994. The second is the appearance of large floating masses of vegetation coming from the wetlands on the submerged island of Yacyreta posing a threat to the dam turbines and quality of water for the city of Ayolas downstream. The third impact is the decline in water quality in the urban stagnant areas created in the floodplains of streams such as the Martires Stream.

84. The program carried out by EBY is a joint program between the Paraguayan and Argentina side. Activities of the Environment Department are coordinated primarily out of the offices in the towns of Ayolas and Ituzaingo.

85. The watershed above Yacyretá Dam is over 1 million km² and over 50 dams exist within the Parana basin. Yacyretá is not the only factor affecting hydrology downstream and in the reservoir. Data on historical levels of the river indicate that floods of up to the 80 masl level have occurred with some frequency. The new EBY budgets and programming (Plan Base) provide mathematical models capable of indicating problem areas in the reservoir and assisting in the management of water quality.

86. EBY indicates that removal of vegetation in the area was carried out based on mathematical modeling done by EBY to indicate areas of water movement, thermal stratification and oxygen

response to the filling of the reservoir. The Department has prepared a table of average flow and retention times in the reservoir which indicate that average flow is more similar to a lotic (flowing) system rather than a lentic (lake) system. It was not clear if the flow continued to be monitored in the field as part of their normal data collection. It was indicated however, that the present water quality monitoring stations had been located in important areas they thought could be problematic due to lower water flows.

87. Water quality has been monitored since 1993 through agreements with the University of Misiones, CERIDE of Cordoba, and the National University of Asuncion (FACEN). These higher education institutions were asked to perform the studies because they are considered capable of providing an independent assessment of water quality and permit training of qualified local human resources.

88. A baseline study was performed in 1993 which indicated high levels of contamination of bacterial origin around the cities of Posadas and Encarnación which exceeded PAHO health standards. Measurements have been made continuously since that time. Water quality is monitored along the river above Posadas from the city of Puerto Yguazu. A map was presented to indicate the number of monitoring stations and data provided as evidence from a number of these stations on oxygen concentrations and other parameters. Sampling is performed monthly for physical/chemical/bacteriological parameters and every three months for pesticides and heavy metals. A more refined monitoring program is included within the Master Plan for Encarnación to be implemented under the Action Plan. This is necessary because present monitoring systems were designed to address overall quality in the reservoir and not with the purpose of assessing risks to the urban population.

89. EBY believes that water quality has not declined significantly thanks primarily to the significant flow of water through the reservoir. Problems however exist in regard to the people in contact with the rising waters and water tables which will be improved through the relocation efforts and the implementation of the complementary works to be constructed in the cities adjacent to the reservoirs. They do expect problems such as eutrophication in the bays in the future due to heavy phosphorus loads and higher retention times. Water table changes have also been anticipated in the preparation of Terms of References for these studies (See 2.5 below).

90. EBY professionals highlighted the fact that they have the capacity to respond to impacts not contemplated in the EA and other studies. They feel they have been able to effectively alter the operations of the dam spillways to solve the fish-kill problem and have contracted for the removal of floating vegetation. Ongoing experiments and studies are being carried out with the Universidad Nacional del Nordeste of Corrientes, on the effects of gas super-saturation. These studies will provide monitoring methods to detect problems and guide dam operations in the future.

2.4 *Sample Analyses*

91. Samples were taken in the main streams of Encarnacion and Posadas to confirm data presented by EBY. Five samples were taken in total. Sampling was performed in areas with easy access and which would demonstrate to the greatest extent, the impact of urban/suburban discharges to the system. Samples were taken on May 20, 1997, as indicated below :

Number Location

Q-1	Arroyo Quiteria
MC-1	Arroyo Mboi Cae

QC-1	Blank sample
Z-1	Arroyo Zaiman
M-1	Arroyo Martires (side stream)
M-2	Arroyo Martires

Samples were sent to Asuncion for analysis at a local private laboratory. Parameters analyzed for are BOD, COD, pH, and phosphorus. Labs were not able to provide fecal coliform analysis however, they indicate that Ammonia analysis is a good surrogate measure. The analyses performed confirm findings of previous analyses in these urban streams and follow patterns expected given the contaminant loading they receive from each watershed.

92. The Paraguayan bank streams indicate higher levels overall for Biochemical Oxygen Demand, Ammonia, Phosphorus, and Suspended Solids. These streams receive high loads of contaminants from urban settlements, a garbage dump, and a slaughterhouse. Ammonia levels are particularly high in the Mboi-Cae Stream adjacent to the slaughterhouse. The continued operation of the Encarnación slaughterhouse with raw discharge into the reservoir in one of the most flagrant violations to environmental and health standards yet there is still no plan for its relocation or other permanent solution.

93. The Argentina side streams show the highest values in the Zaiman Stream which also receives slaughterhouse effluents and has the Posadas municipal garbage dump located in its watershed (as indicated by EBY technical staff). The Martires Stream, located on the Western side of Posadas, indicates higher values at the Rowing Club (near its confluence with the Parana) after it receives substantial contaminant loading from large housing settlements.

2.5 *Water Table*

94. The Request highlights the impacts of the dam on the hydrogeology within its zone of influence (paragraphs 30 and 46). These sections call for studies on the effects on the water table in the urban areas and along the right bank (potentially produced by the bentonite wall under the dam).

95. The EA of the Yacyretá II Hydroelectric Project (1992) mentions ground waters only briefly (three paragraphs) in general terms. The study highlights that the increase in the reservoir can impact underground waters by connecting aquifers and cause the water table to rise. Problems may occur in urban and rural areas causing the formation of swamps, salinization of soils and provide conditions for disease vectors to spread. However, no comprehensive studies have been carried out to measure long-term impacts and changes in soil characteristics.

96. The issue of groundwater quality and the rising water table was brought up on both sides of the river by inhabitants, representatives of local groups and EBY social workers. Inhabitants pointed out that their latrines have been flooded in large part with the rise of waters to the 76 masl. Absorptive capacity of the land has also decreased and post-flood drying of the areas takes much longer.

97. In the town of Carmen del Parana the rising water table is of particular concern to the Mayor and individuals interviewed, since there the water table is very shallow even at the highest levels (avg. 1 to 3 meters below surface) They feel that even raising the level to 78 masl could create a great problem.

98. The situation of underground water flow and water table levels in the area of influence of the Yacyreta dam has to date not been the subject of an objective scientific study according to EBY officials.

99. EBY officials indicated that they have distributed the bid documents for the initial hydrogeological studies. At the time of this Report the final bids should have been received. However, these studies seem to be limited to the urban areas and have a budget of \$534,840 in accordance with the Action Plan funded under Bank Loan 2854. This is clearly insufficient and Management is urged to develop a GIS-based monitoring system to correlate all data on a reservoir wide scale.

2.6 *Water Quality and Disease*

100. The issue of water quality as a factor in increasing the incidence of water-borne diseases is included in the Request. (paragraph 34). From an epidemiological point of view it is analyzed in section 3 below.

101. The analyses performed, in addition to the reports reviewed at EBY, indicate that a contamination problem existed in the urban areas of Posadas and Encarnación before the reservoir. Water quality monitoring has been performed by different consulting firms contracted by EBY since 1980. The information shows high levels (above acceptable limits for potable water use) of fecal coliforms around the Posadas coastline and somewhat lower levels in the Encarnación area (with the exception of the Mboi-cae Stream areas). The human settlements in proximity or direct contact with the banks of the Parana river and adjacent urban streams are presently (and have been for some time) at high risk for water-borne disease.

102. The EBY summary of water quality effects of the reservoir indicates that one of its impacts is the formation of stagnant bays in the floodplains of urban streams and a subsequent decline in water quality, especially the dissolved oxygen and pH levels, resulting in more unfavorable conditions for humans in these areas than had already existed due to urban contamination.

103. The Action Plan presently being implemented by EBY includes several actions to address the existing and potential problems that may arise due to these conditions. Among the actions being carried out under this plan are:

- Closure of the Municipal Slaughterhouse of Encarnación.
- Wastewater collection and treatment systems for Encarnación and Posadas.
- Cleaning and de-populating the coastline and closure of latrines up to the 78 masl.
- Continue the Ministry of Health cooperative agreements to support public health.
- Preparation of an Emergency Action Plan for Floods.
- Preparation of industrial waste guidelines.
- Disease vector monitoring.

Each of these actions should be monitored closely.

2.7 *Aña Cua Branch*

104. The effects of the Yacyreta dam on the Aña Cua Branch of the Parana River comprise issues related to biodiversity, water quality, and fisheries. The Request makes specific allegations regarding this part of the river in paragraphs 38, 40-42. Specifically it refers to effects of the drying of the branch for long periods during lower flows in the Parana and to statements the Requesters have received

from the Inter-American Development Bank ("IDB") and EBY that the mitigation programs would not be implemented.

105. Management Response to these claims states that programs exist to:

- construct mini-dams downstream from the spillway;
- monitor water quality and effects on flora and fauna;
- design "ecological" operating guidelines;
- relocate water and sanitation infrastructure for Ayolas;
- control illegal fishing; and
- provide for community fisheries programs.

106. The POE in its most recent review analyzes the possible alternatives for the branch and agrees with the implementation of the mini-dams. It indicates that this solution presents some problems regarding commercial and sport fishing, fish migration, and possible increase in vegetation growth and presence of disease vectors. This appears to be correct based on interviews, analysis of the Action Plan, and discussion with Bank staff. Presently \$14 million is budgeted for the construction of the mini-dams and complementary works. It is not clear how the mitigation measures are to be carried out, or whether they are being planned with participation of the affected parties, especially the fishermen of the Ayolas area.

107. The proposed mini-dam solution to the Ana Cua branch requires proper environmental assessment and close coordination with operation of the reservoir. It is bound to have significant ecological impacts since it would change a free-flowing river with 3 mini-reservoirs. Impacts on fishing are also likely to be significant.

2.8 *Encarnacion Treatment Plant*

108. A review of the proposed wastewater treatment plant was requested by the Panel because of allegations in the Request (paragraph 34) of detrimental environmental health conditions presently prevailing in several riverside communities of Encarnación as well as specific claims made by these neighborhoods directly to the Panel.

109. The Master Plan for Encarnación, prepared by EBY as part of the mitigation measures for filling of the reservoir creation includes the expansion of the sewage collection system of the city and the treatment of wastes in a plant planned for construction in the vicinity of the Quiteria Stream.

110. The planned treatment for the wastewater involves a series of anaerobic and facultative lagoons to degrade the organic wastes. The system was originally proposed in 1993 and the final plan impact statement was presented in 1996 for approval by the MAG authorities. Final approval of the EIA was granted in October 1996. In the approval decree, the MAG requires EBY to minimize the impacts on human settlements and provide for a 200 meter buffer zone around the plant.

111. Beginning in 1995 the neighborhood commission of Barrio Nueva Esperanza has campaigned actively against the establishment of this treatment plant. The commission alleges potential impacts on health, tourism, environment, and recreation and has requested revisions of these plans including the relocation of the proposed plant.

112. The EBY coordinator for the urban sanitation works, and IDB officials indicated that the final design of the proposed treatment plant was going to be fully reviewed and alternatives presented by an

independent consultant chosen by the Municipality and community groups. The final options for design and relocation will be decided based on consultation with the Municipality and public hearings.

2.9 Findings

113. Based on the information gathered, review of existing documentation, and interviews with professionals in EBY, universities, and private consulting firms, the Water Quality Monitoring Program being implemented is providing adequate data on the evolution of the reservoir, provides information for the actual management of the Yacyreta dam and guidance for implementation of the mitigation programs. However, more specifically targeted data is required to assess risks to the population living near the stagnant lateral bays in urban areas.

114. Areas that may be strengthened or could benefit from further evaluation (especially to determine if the magnitude of the efforts proposed in the Action Plan are enough) include:

- **Hydrogeology:** The present scope of the hydrogeological studies, which are about two years overdue, seems to be limited to the urban areas around Encarnación and Posadas and does not provide a regional overview of the effects of the reservoir to permit mitigation of negative effects where necessary.
- **Vegetation removal:** The Mboi-Cae and Martires Stream sub-reservoirs may benefit from improved vegetation monitoring/removal programs. Even with the improvements in wastewater treatment, there will still be significant nutrient loading from urban runoff and retention times will increase as water level rises. It was unclear from the interviews and EBY documentation, to what extent vegetation removal in these areas is contemplated in the Action Plan.
- **Reservoir Management:** EBY personnel seem to be promoting a more integrated approach to water quality management (and fisheries use) and this has been demonstrated through efforts in establishing watershed management guidelines and legislation. EBY is reluctant though to take a leadership role in this process and is looking to entities such as the Comisión Mixta Paraguay-Paraná (COMIP) to do so. However, given the reality that the Entity is the largest water user and one of the financially strongest in terms of environmental funding (as compared to local and national government agencies located within the watersheds), it is seen as the leader in this respect and might inevitably activate more discussion and implementation of policy for sustainable management of the dam zone of influence.
- **Aña Cua Branch:** Provision for participatory planning mechanisms—needed to mitigate some of the social impacts highlighted in the POE review and other analyses—should be included in the design and implementation of the Aña Cua Branch mini-dam projects.

3. EPIDEMIOLOGY

3.1 Overview

115. The Request refers to health and epidemiology issues in paragraphs 30,34, and 51. The impacts stated are: effects from contaminated wells and filled latrines; potential for increase in water-borne diseases such as diarrhea, anemia and parasitic diseases; complaints by affected population of fevers; inadequate health center attention; and impoverished nutrition due to adverse impacts on fish resources.

116. The EA indicates the presence of numerous water-borne diseases in the area prior to filling the reservoir. These include diarrhea, cholera, parasites, malaria, and typhoid. At the 76 masl the EA does not predict major impacts on human health. Potential impacts include schistosomiasis, and malaria. Maximum potential for health impacts is predicted for higher levels of the reservoir, especially in the urban and suburban areas.

117. Epidemiological information was gathered through interviews with Ministry of Health officials on the Paraguayan side, on the Posadas side with EBY representatives from the Social and Environmental Departments along with professionals in epidemiology from the Ministry of Health of the Province of Misiones.

3.2 Paraguay

118. The Ministry of Health of Paraguay (MHP) collaborates with EBY through a cooperative agreement with the objective of monitoring health and epidemiological data and to introduce specific programs to stem the increase of water related diseases such as diarrhea, parasitic infections, and malaria.

119. MHP statistics indicate no cases of Dengue Fever, Yellow Fever, or Malaria since 1992. Schistosomiasis has not been detected in the reservoir area. However the snail which is a vector has been detected and in coordination with Argentina, the snails are collected weekly for analysis. Statistics for diarrhea apparently show an increase since 1993 but the number of people included in the sample population has increased from 23,000 to 139,000.

120. The data indicate an increase in respiratory illnesses which are primarily attributed to poor living conditions in the marginal areas and the length of time people now are in contact with contaminated water and poor nutrition in those communities. Statistics are taken in a global context and populations affected or closest to the reservoir are not sampled independently or analyzed separately to determine changes in their specific situation at new water levels. Therefore, since there is no specifically targeted data for the population at risk, it is not possible to make any conclusion with respect to the impact of increased water levels on health conditions.

121. The incidence of canine rabies also seems to have increased because of vampire bats that have come to the mainland from flooded islands as well as a poor animal vaccination program. A new program started in 1996 aims to stem this problem through massive vaccination.

122. The MHP emphasizes education as one of the most important aspects and is carried out with some support for salaries from EBY. They did emphasize that the amount received from EBY was somewhat small and did not provide funds to increase staffing in response to needs created by the reservoir. The funds have allowed them to improve the salaries of employees and extend their

working hours, to strengthen some clinics, and to provide medicine. EBY will provide approximately US\$150,000 in 1997 for health programs on the Paraguayan side.

123. Monitoring of vectors are deemed to be very good. The Servicio Nacional para Erradicación del Paludismo (SENEPA) is responsible for vector monitoring and community control and education. Larval mosquito levels are said to be low.

3.3 Argentina

124. EBY has started its own program to support health education and extension in the neighborhoods in the face of diminished services from the Ministry. The objective is to organize groups that can channel some of the needs and requests to government services. Some tradition medicine practitioners have also been incorporated into training programs to help cover needs.

125. Vector monitoring is done periodically through agreements with the University of La Plata for identification of entomological samples. Data was not available at EBY for basic health or vector statistics.

126. Information available was compiled from specific health centers around the city. Social workers in the neighborhoods known as "efectores" provide information to the centers based on their knowledge of the health of individuals in each sector of the city. Statistics are compiled by disease and reporting from the local health clinics is spotty. The best data came from the regional or larger health centers, making it difficult to determine the exact location specific cases of disease came from.

127. Malaria and Yellow Fever have been tracked for many years in the Province and is not found even though the Aedes mosquito has been detected. Monitoring for Schistosomiasis is also done but has not been detected.

128. Regarding the agreement with EBY, the representatives felt it was adequate. The greatest problem stemmed from the slow pace at which counterpart funds were made available by the Government of Misiones to implement the programs. These delays slowed implementation even though EBY was ready to provide support. Presently, an expedited mechanism has been found to circumvent the need to transfer funds from the Ministry of Finance and allow shorter reaction times.

129. As in Paraguay, the funding available from EBY goes in great part to supplement salaries of personnel already working for the Ministry and to fund existing programs. Specific programs in the areas of Health Extension/Education are enthusiastically welcomed by the Ministry, but they have few materials to work with.

3.4 Findings

130. Based on the information gathered it is not possible to distinguish the effects of the reservoir on affected or at-risk populations, from the rest of the population in Posadas, Encarnación, and the neighboring areas. The data presented however, shows little or no presence of the more serious diseases associated with epidemics such as malaria and schistosomiasis.

131. The counterpart agencies on both sides of the Parana River seem to have the capacity for data collection and monitoring of diseases. The programs implemented by EBY are significant in terms of the financial support to the regional and Provincial health agencies but do not specifically address the needs of people in the riverside neighborhoods most affected by the reservoir. The funding is

general in its support of the Ministries and does not provide specific personnel to the support the impacted areas and populations. More specifically:

- There is insufficient support for neighborhood extension and the presence of doctors, especially for those waiting to relocate and are between the 76 and 78 masl.
- Disaggregated data is not available for population at-risk to allow accurate monitoring of health impacts and direct assistance.

4. BIODIVERSITY AND RESERVES

4.1 Overview

132. A major emphasis of the Request is on the issue of biodiversity conservation and reserves (paragraphs 26,37,38,52-63). The Request criticizes the Environmental Assessment ("EA") for not having been prepared with local participation and having left out many important environmental issues. The lack of an Environmental Trust Fund, inadequate biodiversity baselines and compensatory reserves programs, and the undermining of international environmental treaties are alleged. Criticism is also aimed at the animal rescue program and the fact that most of the reserves established are in Argentina.

133. The EA provides baseline biological information based on studies of the Centro de Datos para la Conservacion (Ministry of Agriculture – Paraguay), the Ministerio de Ecologia y Recursos Renovables Naturales de Misiones, EBY professionals, and consulting firms. The study indicates 107,600 ha of different ecosystems to be flooded at 83 masl.

134. Mitigation measures are included in the REMP. Three major themes are emphasized to rehabilitate and protect natural resources: ecosystem rehabilitation, delineation and management of reserves, reforestation and re-population of species of flora and fauna affected by the reservoir.

135. In addition to a documentation review, visits were made to reserves and EBY personnel responsible for reserve management and implementation were interviewed. Biologists, representatives of NGO's and government officials were interviewed in Paraguay and Argentina regarding the protected areas programs established by EBY.

4.2 Paraguay

136. Ecosystems that belonged to Paraguay constitute the largest portion of territory flooded by the creation of the Yacyreta Dam reservoir. Approximately 80,000 ha of Paraguayan ecosystems are to be affected at 83 masl.

137. According to the latest documentation regarding EBY's implementation of the REMP, protected areas in Paraguay within the scope of the Action Plan (76 masl) include the Yacyreta Island Protected Area (9000 ha) and continued support of the zoological collection in the Atinguy refuge. Approximately US\$550,000 are budgeted in the Action Plan to consolidate tenure of the area and US\$180,000 over three years to create the reserve. In 1999 implementation is planned for the Yabebyry Reserve (30,000 ha).

Fundacion Moises Bertoni

138. The areas of greatest biological importance are Yabebyry and the western tip of Yacyreta Island. The first is a mosaic of habitats adequate for the Marsh Deer and contains some tall forests. Downstream islands were assessed for their conservation potential. However they are subject to periodic flooding and if other dams were to be constructed in the future any efforts would be negated.

139. Yacyretá Island is seriously degraded by human presence and the impacts of dam construction but it presents important examples of ecosystems that were lost on the east end of the island. Ecological studies conducted prior to the flooding were general, providing information primarily on structure and not on function of the systems.

140. The Paraguayan System of Protected Areas lost a great deal in the flooding that has not been compensated. Paraguay lost a unique protected area that was not subject to intense human pressure. The reliance of EBY on the decree establishing Yabebyry may be inadequate. The creation of Yabebyry and Yacyreta Island reserves would be a good start to the protected areas system of Yacyreta but EBY may need better trained staff to establish and manage the system.

141. During the public consultation on the design of the REMP and evaluation of the EA knowledgeable NGOs only had two days to review the documentation provided for the meeting.

Direccion de Parques Nacionales y Vida Silvestre

142. DPNVS and EBY had a cooperative agreement regarding fauna (during the rescue program) which has now expired. EBY had made a commitment to purchase the area but later said that the funds were not available for the purchase. The cadastre has been prepared for the purchase.

143. The DPNVS feels that as in the case of Itaipu Dam, the EBY should also have its system of protected compensatory areas. The expectation is that a large entity such as EBY will provide the funds for purchase similar to the Itaipu experience. The resources EBY is providing for Yacyreta Island would be better used in the implementation of Yabebyry in their view. The tip of the island is subject to intense population pressure that will grow in time and doubts the capacity of EBY to implement it. Animals relocated from the rescue operation are being hunted.

144. The priority for investments in land purchase at this time for the DPNVS is in areas of the SINASIP such as Ypoa Lake (proposed Ramsar site) and San Rafael (Interior Atlantic Forest). These areas are subject to greater pressures and are a higher priority for conservation. The limited funding for land purchases and the presence of a large Bank financed project practically negate the possibility of receiving funds for investing heavily in the Yabebyry Reserve.

145. Inquiries about the animal rescue program, which DPNVS collaborated with through a cooperative agreement with EBY and the Japanese Cooperation Agency (JICA), were made with responsible personnel. They indicated that the most recent telemetry data on relocated Marsh Deer had positive and negative results. The Marsh Deer seemed to have adapted well to their new environment however, up to 50% of them had been hunted in the area of Yabebyry. Confirmation was also obtained from CITES personnel that sites used to release monkeys on Yacyreta Island had been cleared recently.

146. Regarding the issue of why the implementation of Yabebyry was delayed until the 83 masl was not clear. Implementation of the reserves up to this point in time has been carried out by EBY without an agreement with the Sub-Secretariat of Natural Resources and Environment of Paraguay (SSRNMA).

147. Implementation is presently advanced for Yacyreta Island Reserve. The TORs for infrastructure (including fencing and lookouts) and equipment for Park Guards have been prepared. The dumps on the Island have been closed and an agreement is being prepared to sign with the Paraguayan Air Force to cooperate in protecting the reserve.

148. Biodiversity studies are contemplated under the Action Plan in the amount of \$27,000 and appears to be for a Rapid Ecological Assessment of one of the Paraguayan reserves by the SSRNMA.

4.3 *Argentina*

149. The majority of the protected areas proposed for the compensation and mitigation activities are in Argentina, largely in the Province of Corrientes, west of Yacyreta Dam. Approximately 120,000 ha are contemplated for protection under 10 reserves with implementation dates ranging from 1997 to the year 2002. The immediate plan is the protection of 52,500 ha in the reserves of Galarza, Apipe, and Santa Maria. The development of these reserves is included in the Action Plan with estimated budgets of \$450,000.

150. The establishment of the reserves in the Corrientes Province responds primarily to an urgent need before the filling of the reservoir. This fact is confirmed in the Management Response, paragraph 3.55 (public land available, more favorable expropriation law). Implementation of the declared areas has been delayed for several years since declaration for lack of funds. In 1996 money began flowing for implementation which began with Santa Maria Reserve that now has one Park Guard and one new pickup truck.

151. The specialists recognize that Santa Maria Reserve is ecologically poor but has some interesting grasslands and is a good environmental education medium which they hope to emphasize in the implementation. Galarza and Apipe Reserves are to be managed by the Sub-Secretaria de Recursos Naturales (SSRN) of Corrientes Province. EBY will be funding the implementation of these areas under the Action Plan, including the hiring of Park Guards and the construction of Guard Posts. One guard is planned for Galarza and two for Apipe Reserve. Money restrictions limited guards to this number. The SSRN requested four Guards for Apipe and two or three for each unit in the Ibera wetlands.

152. The configuration of the Ibera wetlands reserves (4) could not be explained clearly. The four reserves are disseminated throughout the wetland area. Three are square in shape and one in a narrow L-shape. According to the EBY, it conforms to the need to conserve certain core areas. The Galarza reserve appears to cut a large lake in two portions.

153. The capacity of the SSRN to manage the conservation units was viewed as weak. The Province is not managing any parks outside of the ones being implemented with EBY and therefore has little experience. The technicians are trained primarily as hunting and fishing wardens. Only one person is presently the liaison between EBY and the SSRN.

154. Biodiversity studies were performed on the Argentina side primarily after funds became available in 1992. The Paraguayan side had begun somewhat earlier with the CDC studies of 1987. Areas which were highlighted for further studies include the floodplain of the Garupa Stream in Misiones Province. These studies are not contemplated in the present Action Plan.

155. In The Santa Maria Reserve the Guard Post is well constructed and has an adjacent storage shed. The facilities are not well configured to receive visitors at present. There do not seem to be significant pressures from human settlements and its proximity to the dam and border crossing offers some measure of protection. The area seems to be covered to a large degree with pine trees and the grasslands have been used for rice planting. Plans are being made to slowly eliminate the foreign tree species but keeping the disturbance to the Marsh Deer at a minimum if possible.

Universidad Nacional de Misiones

156. According to the Universidad Nacional de Misiones, botanical surveys were done prior to the flooding and were focused primarily on the determining the presence of endangered species. Thorough surveys were not possible. Important areas for biodiversity conservation have been lost in Misiones, such as Nemesio Parma and El Porvenir where EBY settlements were established.

157. Extensive surveys of fish have been done over the years in the Parana from Yacyreta Dam to the Yguazu River in the North. Approximately 214 species have been identified to date. The floodplains of the streams to be flooded at future levels, especially the Yabebyry (AR.), appear to be important for fish spawning in the region and require further studies. The presence of birds such as *Xanthospar flavus* and the endemic *Aylacostoma* mollusk are indicators for the scientists that important species were very likely lost in the region and therefore studies on biodiversity must be deepened before higher dam elevations.

4.4 Findings

158. The issue of compensatory reserves within the context of the Yacyreta Dam has two dimensions, an ecosystem dimension and a political dimension. Presently the arguments between the Requesters and EBY/Bank Management revolve around these two dimensions. EBY/Bank Management (and the Panel of Experts) response to the Request is that the number of hectares compensated for and the ecosystem types are roughly equal or greater. The political dimension of conservation is ignored, however, by this approach. Given the fact that the ecosystems lost cannot be replaced, the reserves program largely lies in the realm of political and financial constraints.

159. A participatory planning approach would have prevented this unequal situation to arise between two cooperating countries. All the Paraguayan official agencies, scientists, and NGO's interviewed regarding the reserve system of Yacyretá have asserted that compensation for Paraguay's lost natural patrimony should be responsibility of EBY through the creation (i.e. purchase) and implementation of areas on the Paraguayan side. This expectation is heightened by the existence of another large dam project in Paraguay, Itaipu, that manages a large reserve program of its own. Few of the interviewed, including several Argentine nationals, felt that the present configuration of reserves adequately addresses the principle of "repayment" (*resarcimiento* as the Panel of Experts has referred to it).

160. The reliance on weak government conservation agencies with little funding in both countries (in the case of Argentina, a Provincial government) to carry out the protection of large expanses of

territory was a decision made with little analysis of the institutional capacities of these agencies to take on the responsibility of purchasing and managing these areas.

161. The budgets established for the reserves to be implemented provide only minimal protection and much investment will go to infrastructure in the beginning. Recurrent costs of protection, a needed increase in patrolling capacity, and effective outreach (especially in Ibera) will require larger investments not presently contemplated from the information available in the Action Plan and other reports.

162. The EA information on biodiversity was found to be general and focuses mainly on mammals, birds, fish, and to a lesser degree, reptiles. Based on the preliminary findings available at the time, one would expect main the examples of endemism, on the Yacyreta Island in particular, to be found among the reptiles, amphibians, and invertebrates. Management Response regarding the lack of biodiversity studies is that the surveys would have taken years and the information would not be used to change project design or operation in any case. This comment is a fatalistic one that downplays the role of biodiversity conservation. Even though the dam could not be relocated at the time of the surveys, programs are established and modified based on the information collected and seeking to maximize protection of biodiversity. Examples of this at EBY are rescue programs such as those presently in place for the endemic mollusk and operation of the dam modified based on protection of fish species affected by the gas super-saturation. Biological surveys (and resettlement programs) are largely limited by the funding available to carry them out.

163. The issue of biodiversity studies by EBY, with the exception of fisheries, does not appear to be directed in a meaningful way or done with the depth needed to understand what will be lost at higher dam elevations. This knowledge can be used to provide valuable inputs when determining environmental costs and future mitigation investments (as demonstrated by the EBY investment in zoo's, rescue programs, and captive breeding). A coherent program needs to be developed in this regard and has been highlighted by the Panel of Experts in its most recent review.

- Increased investments in implementation of proposed reserves on the Paraguayan side including (at a minimum) a phased plan for purchase of Yabebyry and stronger presence of DPNVS. Alternatively; firmer commitments by the GOP to purchase the area are needed (although, not in detriment of investments in other conservation areas of higher priority in the SINASIP).
- Greater support for institutional capacity building of conservation agencies in both countries and incorporation of more technical personnel in conservation in EBY management.
- Deepen biodiversity studies in areas programmed for future flooding, particularly within ecosystems such as the Interior Atlantic Forest of global importance and large floodplains of streams adjacent to the Parana.
- Increased numbers of Park Guards for areas more vulnerable to human pressure such as Yacyreta Island and Galarza and provide more funding for outreach programs, private reserve programs, etc.

5. FISHERIES

5.1 Overview

164. The Request alleges that there have been significant effects of the dam Project on the commercial fisheries and biodiversity of the Parana River (paras. 38,47-50 and 52). Most concerns relate to the interruption of migration patterns of fish, but also addresses the impact to the income and livelihood of fishermen in the vicinity of the dam.

165. The EA specifically addresses the issue of impact to fish populations. At the time of the EA, the river had already been affected by the civil works and the movement of fish had been impeded in large part since 1990. Major impacts cited were: blockage of migratory patterns of fish; alteration of coastal habitats; water quality changes; hydrological changes; and possible increases in illegal fishing, among others.

166. Mitigation actions called for in the EA include scientific monitoring of fish transfer facilities, water flow management, fish re-population, and control of illegal fishing. Presently EBY has on-going programs for the study of fish populations and commercial fishing upstream, gas super-saturation monitoring, fish elevator efficiency, watershed management, and fish populations downstream of the dam. These programs are carried out with the support of the UNNE, UNAM, CERIDE and COMIP in Argentina, and by UNA in Paraguay.

5.2 Paraguay

167. The UNA Veterinary Sciences Department is the counterpart institution studying fish population and composition, side-stream monitoring, and fisherman survey programs for EBY through a cooperative agreement. Sampling activities started under this agreement in 1997 and will continue through 1998.

168. The University expects that at least five years of data collection will be needed to provide good stock assessments. Information gathered will be processed in computer models developed by the FAO. They hope their studies of the commercial fisheries will provide a basic understanding of the dynamics and pressures of this sector and provide management tools in relation to the productivity of the reservoir.

169. Their recommendation, based on the Itaipu Dam experience, is to implement some form of biological research program of aquatic life forms. This program is deemed necessary, not to repopulate the reservoir at present, but to understand captive breeding of the most important species in case the population studies or management of commercial stocks require it.

170. The Action Plan includes a budget of \$52,000 to maintain the aquaculture facilities in Ayolas. These facilities presently allow only the most basic research and have been established with materials and infrastructure readily available at EBY. Budgets are also included to continue funding the studies with the UNA. Funding will continue from EBY budgets at this low level. the Bank did not consider the research station a priority and stated that the Bank would not be funding it.

171. Fishermen believe that there have been changes in the river and in fish populations. Fish species captured are mainly Carimbata (*P. Scrofa*) and Boga (*Leporinus spp.*), of inferior commercial value as compared to Surubi (*P. Corruscans*) and Dorado (*S. Maxilosus*) species. Relocated fishermen were said to be returning or planned to return to the riverside, particularly those located in San Miguel Potrero.

5.3 Argentina

172. Most of the research activities on fisheries are carried out by universities and research institutes in Argentina. The UNAM is studying the fish populations in the reservoir and upstream while the UNNE is studying them downstream. UNNE is also involved in the research on the gas bubble

phenomenon and its physiological effects on fish. The CERIDE, a research institute in the city of Santa Fe is studying the efficiency of the fish elevator which is cited in the Request (paragraphs 48-50).

173. UNAM Department of Exact and Natural Sciences (FACEN) carried out the first ichthyology studies in 1982 with the COMIP for the Corpus Dam Project and the collection campaigns have continued with several interruptions to this day.

174. The Yacyretá dam effectively became a barrier in 1990. The closure was done at a bad time because it was done after fish the migration downstream, leaving only a small remnant population upstream to continue reproduction, if viable. Sports and commercial fisheries have since moved down river and the FACEN has been working with EBY since 1990 to determine the impacts and monitor the recovery. Commercial fishing dropped off strongly in 1990 but is growing back slowly.

175. The general feeling is that fish are showing up and reproducing. Large older fish (6-8 years.) are being found and very young ones (1-2 years) indicating some reproduction is happening. The reproduction of species has to surmount not only the dam problem but also the fact that adjacent streams are being severely degraded by human intervention and contamination. The elevator is viewed as useful for maintaining the genetic exchange between fishery stocks.

176. Fishing is not controlled effectively by the Ministry of Ecology in Misiones and needs to improve. Estimates made by acoustic methods will assist in determining biomass which can be used in the implementation of fisheries management programs. More emphasis on this type of estimation would be worthwhile.

177. UNNE feels that the studies are valuable and a great deal of data is being acquired with modest resources. The studies are unique for this region. The Parana is a huge system and very complex which makes it difficult to cover completely. The level of effort in data collection is adequate now but not enough.

178. Important information has been collected on the effects of gas super-saturation that has helped management of the spillways. The fish now present fewer signs of parasites and no evidence of gas bubbles. The studies are also providing information on fish movements and reproduction and now that they know the reservoir well, are ready to expand the sampling area. They would like to look at biomass and productivity of fisheries in the future. Three years of data should provide enough information for biomass estimates.

5.4 Findings

179. The monitoring programs appear to be comprehensive in their coverage of the zone of influence and the implementing organizations seem professional and well qualified for the data collection and analysis. There also is satisfactory use of the information gathered, in the case of gas super-saturation, for modification of the spillway management and minimizing the fish-kills experienced in previous years.

180. Aspects that may be improved are the intensity of sampling and overall compilation, analysis, and use of data gathered. The fish sampling agreements with UNAM, UNNE, and UNA are using fixed points to collect fish. Generally two to four points are being sampled from the margins of the Parana. This type of sampling provides good information at those points but do not indicate what is happening in the rest of the reservoir at that same point in time.

181. The reservoir is very large and the potential for missing important parts of the fish population may exist with few data points. Presently the EBY fisheries personnel plan to have the sampling stations moved to different locations. Over time this will permit the viewing of a "snapshot" of the reservoir (from the coast at least) by superimposing data from different locations at similar times in the year.

182. EBY officials mentioned that they are also assisted by the use of advanced sonar equipment to determine fish locations and densities. There seem to be some problems using this technique at some locations because of noise from turbines and bubbles from gas super-saturation but the problems are being studied for resolution.

183. Data is being worked on by different groups with coordination in the methods used. There does not appear to be some central collection point or technical person in EBY heading the compilation and analysis of the data to present in a useable form by those charged with managing fisheries.

184. The issue of the fish elevators included in the Request seems to be under study by the EBY. Although the number of fish transferred seems low, most of those interviewed consider it important to allow a flow of genetic material across the dam barrier.

6. ARCHEOLOGICAL AND CULTURAL SITES

6.1 Overview

185. The Request addresses the issue of archeological and cultural sites in paragraph 54, alleging that cultural property was not properly assessed and protected before the flooding to 76 masl. The Request asks the Panel to determine to what extent the Bank complied with its policy on protection and enhancement of cultural properties.

186. The EA of 1992 briefly mentions the issue of impacts on cultural patrimony. Background information at the time indicated the existence of pre-Colombian settlements of the Umbu and Tupi-Guarani Indigenous Peoples. At the time most of the investigation had been limited to the Argentina side of the Parana however it was assumed that the Paraguayan side also contained similar archeological sites.

187. The six Jesuit Reductions of the 1600's in the area of influence, the remains of several battles of the XIX century, Spanish colonial and early XX century historic buildings in Posadas and Encarnacion were also cited as culturally relevant.

188. The EA called for the following mitigation programs to offset the impacts of the flooding:

- Archeological rescue programs
- Establishment of museums and presentation of representative artifacts
- Environmental research

189. The REMP also calls for archeological rescue programs and indicates the need to coordinate with municipal agencies to seek alternatives for preservation of historical buildings.

6.2 *Paraguay*

190. The REMP lists more of the Argentinean cultural sites than Paraguayan sites, particularly regarding indigenous settlements. This seems to be a result of the existence of better information on the Argentine side.

191. On the Paraguayan side, EBY has an archeologist on staff that is presently reviewing areas above 76 masl with emphasis on the important islands that are not submerged. There are several areas of interest to be prospected before final elevation of the reservoir such as the battlegrounds of Tacuary in the vicinity of the stream of the same name, the historic center of Encarnación (especially the train station), and the civil war of 1922 near Coronel Bogado.

192. The Jesuit World Heritage sites are above the flood levels and managed under the Tourism Directorship of Paraguay. EBY does not have any program for these areas.

193. Regarding the sites on the islands and below the 76 masl the deadline for flooding was the determinant for the investigations. Many sites were flooded even as they were being dug. Most of the important sites were explored and many artifacts extracted. Locations of items were mapped on the islands and laboratory analysis needs to be performed on the extracted items to accurately date and catalogue them.

194. The Catholic University was contracted by EBY to implement the archeological rescue program before the filling of the reservoir. The program was not well implemented according to those interviewed, and aspects such as the construction of museums and historical aspects were emphasized rather than the systematic study and rescue of sites. Delays in designing and planning delayed the rescue activities up to the time of flooding.

195. Although studies of pre-Colombian sites were concentrated in Argentina, the Paraguayan side seems to show a stronger indigenous presence and is richer in archeological sites. The reasons for this are unclear or only speculated upon at the time by the individuals interviewed.

196. A museum was built by the EBY in Ayolas that houses the artifacts extracted. Presently there is no evidence of ongoing systematic analysis of the materials collected. The Action Plan does not contain archeological programs for this analysis. The significance of the archeological findings in terms of the ancestral rights of the Mbya, mentioned in the Request (paragraphs 35,36, and 58) has not been analyzed yet. These issues may be included in the Action Plan program for support and evaluation of the Pindo Mbya Indigenous resettlement but are not specified.

197. The railroad station of Encarnación is a historically important structure for the city. It is unclear what the final solution, if any, for this structure will be. There is interest in the community for its protection or relocation, however the issue still appears under negotiation between the city and EBY.

6.3 *Argentina*

198. As mentioned in the previous sections, Argentina has been investigating archeological sites for several decades. Investigation and rescue of artifacts was done primarily in the decade of 1980.

199. Most of the material has been rescued for the pre-Colombian and some colonial sites in the town of Posadas. A map and guide of the archeological sites in Misiones were published in 1995 with EBY support. Activities that need more support would include finishing the analyses on the materials

excavated and systematizing the information. Presently the Action Plan does not contemplate a program for this.

200. The World Heritage Sites (Jesuit Reductions) on both sides will not be affected. In Argentina these sites have museums and have been studied by the University of La Plata.

201. Colonial and recent urban historically and culturally important buildings will be affected by the reservoir at higher water levels. Studies of the railroad stations and similar buildings have been done in the past however it is not clear what the final status of these structures will be. Documents presented by members of the Posadas City Council indicate EBY complementary works, including the preservation of the Posadas railroad station. The Action Plan does not have a program for the relocation or protection of these structures at present.

6.4 Findings

202. Aspects of cultural and historical property alleged in the Request appear to have been carried out to a significant extent on the Argentina side of the Parana River.

203. The delays in the design and implementation of salvage and research programs on the Paraguayan side seem to have resulted in incomplete or rushed surveys being performed before rising water levels. Weak institutional capacity of counterpart entities that were to assist in the rescue also seem to be partly responsible for this outcome. More emphasis seems to have been placed on the rescue and exhibition of artifacts rather than systematic scientific analysis and study (hence the existence of a complete museum and incomplete publication and cataloguing of information).

204. The Management Response to the Request indicates that additional surveys (and salvage) will be done as required by the REMP before higher reservoir elevations. However there do not appear to be plans for consolidation of the information already collected and participation in the programs by communities involved. More specifically:

- Support to finalize the systematic analysis, publication, and conservation of artifacts salvaged on both sides of the Parana.
- Disclosure and discussion with municipalities and communities of the proposals and plans for conservation of historically significant buildings in Posadas and Encarnación to be affected by the reservoir.
- Determination of the significance of the archeological information collected on the flooded islands with respect to the culture of indigenous Mbya-Guarani communities in the region and regarding claims to ancestral territories, if any.

PART 2: ASSESSMENT OF ACTION PLANS

General

205. At the February 28, 1997 Board Meeting of the Bank's Executive Directors, Management introduced the categories of Plan A and Plan B to distinguish those remaining actions that should have been but were not carried out before filling the reservoir (Plan A) from those related to the prolonged operation of Yacyreta at 76 masl.

Plan A

206. Plan A includes actions on both the Argentine and Paraguayan sides of the reservoir. On the Argentine side the Plan includes potable water supply for resettled populations, urban and rural housing, and issuing property titles for the resettled population. On the Paraguayan side, the main actions in the Plan include expropriations, biodiversity reserves, urban and rural housing, indemnification to tile makers, and titling for the resettled population. The total cost of Plan A is approximately \$16 million and an initial deposit of \$8.1 million was made in an escrow account at Banco Corrientes to provide the financial resources to support the Plan.

207. According to the Bank Task Manager, implementation of Plan A is now expected to be completed by December 1997. As of mid June 1997, total undisbursed amounts are \$4.7 million (about 29% of total cost). Even if completed according to the present schedule, these actions will have been delayed by over three years and these delays have resulted in additional risks to the population. The most important pending actions deal with investments for the compensatory reserves of Apipe Grande, Galarza and Isla Yacyretá as well as with issuing property titles to the resettled population. Another critical pending action is the hydrogeological studies to assess the macro impacts of the reservoir on adjacent soils and lands.

208. Although disbursement is often a useful indicator of overall progress, since Plan A has many different components, disbursement alone does not constitute a sufficient measure of progress in the execution of individual components. According to the June 1997 Progress Report, the latest available data, the most important pending actions on the Argentine side are the provision of potable water and construction of an elevated tank for the resettled population, communal infrastructure for urban settlements and over 1700 titles for the resettled population. The most important pending actions on the Paraguayan side are expropriations, equipment for the Yacyreta Island Reserve, communal infrastructure for rural settlements, clay supplies and infrastructure replacement for brick makers, indemnification for tile makers, and titling for resettled population in the Barrio San Pedro.

Plan B

209. Plan B is based on the actions required for prolonged operation of the reservoir at 76 masl elevation. This includes resettlement of the population living between 76 and 78 masl, and it implicitly recognizes that the people living in this band have suffered the effects of prolonged reservoir operation at this elevation. The cost of the program is approximately \$117 million, \$46 million for the Argentine side, \$48 million for the Paraguayan side, and \$23 million to actions related to both sides. This Plan is presently scheduled for completion by the end of 1999, over five years after filling the reservoir.

210. More specifically, Plan B includes approximately \$30 millions for expropriations and indemnification (\$14.3 million in Argentina and \$12.5 in Paraguay), \$10 million for resettlement, \$9 million for environment and sanitation and \$8.5 million for consulting, civil works and equipment (\$8.3 for equipment). In addition, there is a \$12 million Bank loan funds that has not been assigned, most likely to be utilized for contingencies.

211. The financial resources to carry out Plan B are primarily \$52.9 million from Bank Loan 2854, \$3.63 million from Bank Loan 3520, \$50 million from a commercial loan obtained by EBY and close to \$2 million from the Inter-American Development Bank ("IDB"). Funds from the commercial loan obtained by EBY will be deposited in an escrow account specifically designated to meet the objectives

of Plan B. EBY will prepare bi-monthly reports on the implementation of the Plan, and in June 1997 agreed with the Bank on the format of these reports.

212. During the first semester of 1997, the Bank disbursed approximately \$2 million, equivalent to 1.73% of the total cost of Plan B. This is the latest report available to the Panel with regard to the implementation of Plan B. Given the early stages in the implementation of the Plan and the low level of disbursements, it is difficult to assess progress.

213. While the Bank considers completion of Plan B essential to the future Project, its scope is limited since it deals only with environmental and social liabilities that the Project has incurred, and according to many people interviewed, including some local and federal authorities, the treatment of existing problems under Plan B is by no means complete.

214. Among the contentious issues related to Plan B are the questions of wastewater treatment for the cities of Encarnación and Posadas, the level and effectiveness of coastal treatment and the compensation and resettlement of highly heterogeneous groups ranging from merchants to indigenous people. Design, construction and operation of sewerage systems and wastewater treatment plants for the cities of Encarnación and Posadas are essential to sustainable solutions to health and sanitation near both cities, and particularly to affected groups living in low-lying areas. The original design of the wastewater treatment plant for the city of Encarnación is undergoing revision: both the technology chosen and the site are being opposed by local neighborhoods.

215. An additional contentious issue is the impact on fisheries and the economic losses suffered by fishermen due to the presence of the dam on the Parana River. Although it is too early to be able to establish statistically significant conclusions, there appears to be some impact on commercial quality resources such as the Surubi and Dorado species.

216. Another critical area for specific target groups, such as the clay workers, is the loss of high quality clay resources. Although EBY has attempted to locate alternative deposits, and made commitments to supply displaced clay cottage-industries with up to 5 years supply, the low level of technology utilized somewhat limits the alternatives for some people. The workers of the clay industry, identified already by the Panel in its earlier report, constitute one of these groups.

217. Reporting schedules and formats appear adequate to guarantee successful monitoring of implementation of Plan A and Plan B. Full and timely completion of both Plans are critical elements in the deployment of a permanent solution at 76 masl for the people affected by the Yacyretá Project, as well as for rebuilding the credibility of the Bank and EBY with the entire population. Although, the main elements of the Plans, including identification of the detailed actions to be carried out, as well as the financial resources for their respective implementation appear to be in place for timely completion of the project, a long history of delays and non-compliance tolerated by the Bank does not allow the Panel to provide a realistic assessment of future project performance with any degree of confidence.

Review Of Resettlement And Environmental Issues

218. The adequacy of Plans A and B can only be properly analyzed in the context of the overall resettlement and environment problems of the Yacyretá Project. For example, although over 13,000 people have been resettled so far, this represents about one quarter of the total population of approximately 50,000 people that it was originally envisaged would be involuntarily resettled once the project was to reach its design elevation of 83 masl. However, given the long delays and persistent

invasions of people to low-lying areas, present estimates of the total population to be resettled are 70,000 people, with an annual growth rate of about 1,500 people per year.

Resettlement

219. The resettlement activities carried out under the REMP include housing communities for the relocated population on both sides of the Parana River, support for the rehabilitation of productive economic activities of affected groups such as the clay workers, and rural resettlement programs. Overall performance of these programs is mixed and has been considered in detail by the Panel of Experts on Environment and Resettlement ("POE"). Infrastructure and access to services for those relocated have generally improved in urban areas, although there are specific groups who do not share this view. Among these are the inhabitants of Barrio San Pedro, in Encarnación.

220. There is general agreement that the length of time and process of implementing the solutions has not been adequate. Brickmakers, for example, are only now beginning to organize and consolidate their production once again. However, their long term future is uncertain. Rural resettlements and indigenous groups need longer-term support to diversify crops and provide sustainable sources of income.

221. Resettlement in the Yacyreta Project has been a particularly difficult task due to the large numbers of people affected, the heterogeneous nature of the specific groups (urban and rural poor, merchants, clay industries and workers, indigenous people), and the long delays that they have experienced. In addition, resettlement standards have changed during this period, lack of resources have paralyzed the programs, and weak programs of social communication characterized by absence of information have led to a significant breakdown in community relations.

222. Given all these conditions, it is not surprising that there have been problems and that there are people who feel that they are not better off after resettlement. In particular the Panel received many complaints in the Argentine side of people who felt that they could not afford to pay for the houses, and therefore they were refusing to accept title (which would make them liable for repayment and taxes). The POE has reviewed the situation and has concluded that, in general, the housing and infrastructure are considerably superior than existing ones and that agricultural lands could support sustainable solutions for these groups. The longer term survival of the clay industries is constrained by the raw material supply after the five years of EBY commitment to supply them with clay.

223. Information gathered by the Panel shows that there has been monitoring and oversight of the programs, primarily through the POE and the Resettlement Coordinator. The original 1992 REMP for the Yacyretá Project addressed most of the issues raised by the Request, namely the need for ongoing participation, the diverse nature of the population to be resettled, the need to re-evaluate beneficiaries, and the negative impacts of prolonging resettlement. However, the original document, which was intended to be flexible and subject to on-going reviews and participation by affected groups, became rigid in some basic aspects such as resettling people according to flood levels. This has led to a fragmentation of community networks and social structure that has caused significant stress and hardship on the resettled population.

224. Another important issue raised by the POE is the lack of adequate identification of vulnerable groups who required special assistance, among them indigenous people, island inhabitants and fishermen. These groups have particular vulnerabilities due to the dramatic changes in lifestyle that

they have undergone. All these groups were supposed to be resettled in agricultural based occupations which represents a radical departure from former lifestyles. Other groups, like indigenous people and brick makers (in particular those of Barrio San Pedro in Paraguay and Nemesio-Parma in Argentina) require prolonged assistance and special attention to consolidate their organizations and promote self-sufficiency.

225. Despite the many difficulties encountered, the experience of resettlement so far, and the capacity building that has been developed by EBY pose important lessons for the future. As noted earlier, today there is a much deeper appreciation for the problems of displacing and resettling very large numbers of people than there was when the project was designed over a quarter century ago. Resettlement under Bank standards introduced further complexities, in particular due to the heterogeneous nature of the groups affected. One essential element for any future solution must include preventing the inflow of new people to the areas.

Environment

226. The basic framework for the present environmental management efforts was the Environmental Assessment ("EA") for the Yacyretá II Hydroelectric Project carried out in 1992 under the new OD on Environmental Assessment. This process introduced important changes in project design, the most important of which dealt with the proposed long-term solution for the so-called Ana Cua Branch of the Parana River (which carries approximately one third of total river flow). Under the original design of earlier decades, a 23 kilometer segment of the Ana Cua would have been dry 80% of the year. This solution was no longer acceptable and a satisfactory solution has yet to be found. There are alternatives under consideration but their respective impacts have not been analyzed. The present solution of maintaining a minimum flow of 1,500 cubic meters per second is considered acceptable on environmental grounds, but is very costly in terms of forgone generation, equivalent to two turbines or 10% of total capacity.

227. Implementation of environmental management plans was difficult from the outset, due primarily to bureaucratic procedures and lack of institutional support in EBY, as well as due to the lack of financial resources to carry out agreed programs. One important example of this problem is the fact that EBY has not had an Environmental Coordinator (equivalent to its Resettlement counterpart) for the past two years, without any effective remedy from the Bank. Overall, the collection of environmental data does not yet respond to a coherent set of goals established within a regional context with participation of government agencies, non-governmental organizations and affected communities. Much of the information generated could be utilized to provide key inputs for management of water quality, fisheries, waste and others. However, EBY has not been able to exert leadership in these areas due to its own weak internal structure. This role is particularly needed with respect to water and biological resources due to the large impact that the project has had on these resources.

228. Water quality monitoring programs seemed adequate and comprehensive, except for specific programs targeted for the population at risk, namely those living in low-lying areas and near stagnant bays or pools in both sides. One of the fundamental shortcomings of the environmental assessment process deal with the lack of hydrogeological studies to analyze the impact of rising water levels on regional lands surrounding the 1,000 square kilometer reservoir, not only the urban areas of Encarnación and Posadas, but also including other cities, among them Carmen del Parana. So far the impact of the reservoir on adjacent lands is not well understood and should be closely monitored by satellite imagery and GIS systems. Although the basic hydrogeological studies were part of Plan A, they still remain to be carried out.

229. The reserves and biodiversity programs are deficient, and their implementation has been particularly difficult. Plans for many of these reserves do not yet exist, and the strategy for Yacyretá Island Reserve, one of the most important, has yet to be finalized. There are ongoing sporadic biodiversity assessments. The reserve system in Argentina is larger than that in Paraguay. However, most of the reserves were legally established before raising the level of the reservoir and lacked a strategy for community involvement or management plans.

230. Fisheries monitoring programs are numerous and starting to provide valuable management information for dam operations to reduce fish kills. Better compilation of data is needed and more intensive sampling campaigns should be undertaken. At the present time, not enough data is available to make statistically significant conclusions about the impact of the dam on fish populations or the effectiveness of the fish elevator.

231. The linkages between environmental impacts and health effects are not well established and specific data for the population at risk is needed to address this issue on both sides of the reservoir. In 1994, sharp increases in diarrhea coincided with filling of the reservoirs to 76 masl. Health officials considered that this phenomenon might be caused by increased monitoring and service coverage, however, there is no data to support this claim. Improved data collection and analysis for target communities is required.

232. Communities outside Posadas and Encarnación, such as Carmen del Paraná conveyed to the Panel their dissatisfaction with EBY's lack of concern about potential impacts of the reservoir on their towns--in particular with respect to water supply and soils. EBY has not included this town in its mitigation plans.

233. Cultural property resources have been assessed to a significant degree on the Argentine side and more studies need to be carried out on the Paraguayan side prior to any future raising of the reservoir level.

PART 3: ADDITIONAL REQUESTS

234. During his second visit to the city of Posadas, Argentina in May 1997, the lead inspector Mr. Alvaro Umaña Quesada received several oral and written Requests for Inspection from local people who were allegedly affected by the design and execution of the project and related activities. He also received Requests from local community leaders and government officials.

235. As stated in the introduction to this Report, the Panel—after seeking guidance from the Executive Directors—decided to ask Management to comment on the allegations made in these Additional Requests and to include its findings on them in this Report.

236. The Additional Requests were submitted by people living in the A 1 and A 3.2 neighborhoods of Posadas, by brickmakers, members of the Association de Oleros Unidos de Misiones (the Association of United Brickmakers of the province of Misiones), by members of the Honorable Concejo Deliberante (Municipal Council) of the City of Posadas, and by members of the Honorable Cámara de Representantes (House of Representatives) of the Province of Misiones. In addition, the mayor of the city of Posadas submitted a detailed study of the effects in urban areas of the project.

237. Management Comments, received by the Panel on August 4, 1997, (Management Comments) provide a description, as well as specific comments on the main issues raised by the Additional Requests (see Attachment 1 to this Report).

238. After a detailed review of the Additional Requests and Management Comments thereon, the Panel has concluded that a number of issues raised should have been dealt with by Management earlier on during project execution. The lack of participation of affected people and local authorities in project related activities and a tendency by Bank supervision missions to ignore or take lightly the concerns of area people may be at the root of these problems.

Review of the Additional Requests

239. (a) The Main allegations in the Requests by people living in the A.1 and A3.2 neighborhoods (see also Annex 1 of Management Comments).

(i) *That the housing provided under the project was being sold to relocatees under unacceptable terms including unfairly **high prices** - determined in an inconsistent manner among different areas of the neighborhoods - **high interest rates** and property titles encumbered by the **mortgages in favor of EBY**.*

Management Comments were candid and straightforward. Originally EBY applied a resettlement policy whereby the relocatees were expected to pay the difference between the value of their previous house and the new one provided by EBY, with the proviso that such payment would not exceed 35% of the value of the new house. Under this proposal the differences in price would be repaid to EBY in 30 years. This difference in price would be paid to EBY in 30 years, at an annual interest rate of 6% and the debt would be secured by a mortgage on the new house.

Under loan 3520-AR, the Borrower and the Bank agreed on a new Resettlement Policy in line with Bank OD 4.30, whereby all families affected by the Yacretá Project should be "given replacement houses in exchange for those affected by the Project, **at no cost to the relocatees**" (emphasis added). Only two exceptions were allowed under this policy: (a) people already relocated at the time the loan was made (1992) who were already paying the differential in value between the old and new houses, and (b) people that requested a more expensive house and agreed to pay for the difference. According to Management, "During project supervision, in particular, after the raising of the reservoir to elevation 76m, the issue of delays in the processing and issuing of property titled was discussed by every Bank supervision mission. EBY's explanations were that delays were due to slow and complicated legal/administrative procedures at the provincial agencies responsible for these matters, and to the shortage of personnel in EBY's legal department."

Since no contact was made with the affected people, the Bank believed that the old resettlement policy was no longer being applied. Only in June 1997, **that is after the additional Requests were submitted to the Panel**, Bank staff learned that "the major obstacle for issuing those titles was the refusal of the affected population to sign the required documentation, because of the debt imposed by EBY."

A dispute between the Bank and EBY over the interpretation of existing legal agreements on resettlement policy ensued. Since the Bank believes that the housing should be provided at no cost and EBY contends that it has the right to change a price for the housing and is not willing to "forgive the totality of the debts" in cases which in its view are not covered by the Bank's resettlement policy. To

the date of this Report, the Panel is not aware of a satisfactory solution to this issue. However, EBY has made an offer to relocate that reduces the price of houses by 90% to low income families and 50% to the others. Also, the interest rate on debt has been reduced to 3% per year and all penalty interest due to date would be forgiven by EBY. In addition, the Province of Misiones and the City of Posadas have agreed to forgive all property tax debts that the relocatees may have up to this date with regard to housing provided by EBY.

The Bank has stated that according to Bank policy, new housing has to be provided at no cost and consequently property titles issued to relocatees should not be encumbered by mortgages. The Panel has been informed that both "EBY and the Bank are currently exchanging views in an effort to resolve this disagreement." However, until this issue is resolved, the Bank is not in compliance with its policies.

(ii) *Lack of adequate communal infrastructure (schools, health and police posts) and water supply in neighborhoods, especially A 3.2 (See also Annex 2 of Management Comments).*

Management Comments provide a good insight on how the resettlement part of the project is being monitored and evaluated by the Bank.

Since the refusal by relocatees to sign purchase agreements is based not only on the price and payments conditions but also on the claims in par. i) above, the Bank states that it is "the Bank's understanding that the charges levied by EBY are not to recover the cost of public services" and that "moreover, the issuance of the property title does not depend on the completion of communal infrastructure (school, health post, police post, kindergarten, etc.), some of which did not even exist in the affected neighborhoods located near the river".

After explaining the cost and equipment on the new housing and the reasons that, in its view, justify the delays in the construction of communal infrastructure, the Bank seems content with the following situations:

"Despite the delays, the majority of relocated children (64%) have been attending classes at nearby schools located less than 2 km away from their homes, while 34% attend classes in more distant neighborhoods located more than 4 km away. The latter group usually takes a public bus at a cost of \$0.40 per day. According to EBY, 18% of the children do not attend classes due to capacity limitations in nearby schools or due to economic difficulties of their families."

For the affected people, without proper school transportation available, this situation implies a lot of difficulties and sacrifices and for nearly one fifth of the school aged children, no school at all. Management expects that the school will be "fully operational for the next academic year".

As for the health post, its construction is also expected to be completed by December 1997 and its operation would be the responsibility of the Ministry of Public Health. No reference is made to a police post in Management Comments.

(iii) *The A 3.2 settlement is located 10 kms from downtown Posadas and this implies extra time and transportation costs to sources of work and food and supplies.*

Management Comments highlights the better sanitary conditions and absence of floods in the resettled area. The absence of better alternatives in the Posadas area for the location of this

neighborhood and the fact that the city has grown during the past decade "to the point where the A 3.2 settlement is connected to the urban transport net". Adding that those living in A 3.2 "can shop in the small family businesses existing in the new settlement, which were relocated with EBY assistance. There were also supermarkets and commercial areas located within a 3 km distance." No information is provided about prices in the area of small businesses or how accessible the supermarkets 3 kms away really are.

Finally, it acknowledges that "because of the new urban transportation needs family expenditures for this item have slightly increased (5% to 7%)" stating that this increment has been documented by the Independent Evaluators of the Resettlement Plan and concluding that "the trade-offs for such an increment are better sanitary and living conditions and the avoidance of floods."

The Requesters believe that the incremental costs in monetary, time and human terms are much higher. The Panel did not have the time or means necessary to ascertain the facts regarding this contention and whether the settlers in this area are in the same or better overall living conditions in the resettled area as required by Bank policy.

240. b) Main allegations by brick makers (oleros). (See Annex 3 of Management Comments)

i) *That many brick makers were not included in the censuses carried out by EBY and have, therefore, been excluded from the resettlement programs.*

According to Management "EBY's census carried out in 1989/1990 was updated in 1993 by the Mines and Geology division of the Provincial Government" and "areas not previously included were incorporated in the revised census." In fact, "all oleros affected by reservoir elevation 76 m, with the exception of one olero who had not accepted any solution proposed by EBY, have been either relocated or been compensated in cash".

During his field visit, the Lead Inspector met with several people who claimed to have been excluded from the resettlement programs and several oleros that claimed to be their witnesses. Ultimately only an independent survey can ascertain the accuracy of their allegations. It is suggested that in the meantime, Bank resettlement specialists visit the area and personally interview these people.

(ii) *That the compensation received by the oleros were too low and accepted by the oleros exclusively because of their desperate economic situation.*

Management Comments note that the compensation paid by EBY ranges from \$6,500 for small units to \$16,500 for larger units producing more than 30,000 bricks per month and that these amounts were "considered adequate to reestablish their lost productive unit and house" (emphasis added).

Management also notes that for the "oleros who selected relocation instead of cash, the average investment made by EBY per relocated family was about \$27,500 (land and house and serviced lot for production). These figures do not include the cost of the technical and social assistance program carried out during the last two years".

Nevertheless, Management believes that there is no justification for the olero's request since they freely opted for a cash compensation.

Although the Panel understands that there may be other factors in the consideration of this request, as a matter of equity, it is difficult to regard as equivalent the compensations received by the different groups of oleros, when the one in kind (housing, lot, etc.) is equivalent on the **average** to almost **double the highest** value of the cash compensation.

(iii) *That the oleros in the areas of Garupa and Candelaria must be relocated under the same conditions of those relocated in the Posadas area.*

According to Management Comments these oleros have opted for cash compensation which has been paid in full as of July 31, 1997, that is about two months after the additional Request was signed.

Since payment of compensation was made recently, the Panel has not been able to ascertain whether such payment meets the concerns of the Requesters. It should be noted, however, that a) the minutes of the meeting between EBY, provincial authorities and the oleros of June 2, 1995 (where the amounts of compensation to oleros were agreed upon) state that oleros receiving cash compensation may opt for land, in which case the value of land will be deducted from their compensation. The Panel was unable to establish whether the land option was offered to the Requesters; and b) that the amount of compensation apparently has not been adjusted for inflation since that date.

(iv) *That the workers of the brick industries lost their jobs but have not been compensated under the project.*

Management Comments state that the Resettlement Plan envisaged the relocation and economic recovery of the small brick industries affected by the project. "However, 99% of the oleros to be affected by further reservoir elevations requested cash compensation instead of relocation assisted by EBY. Once compensation was paid, owners of the olerías were free to exercise their discretion as to whether or not to continue with their manufacturing activity. Many of them opted to continue...[while] others in exercise of their entrepreneurial rights decided not to continue with the olería and shifted to new economic activities", and conclude that: "In conformity with the Bank's resettlement policy, the loss of employment due to the personal choice of the affected owners falls beyond the preview of EBY and the Bank" (sic).

It is a fact that clay deposits of the quality and amount of the deposits lost because of the reservoir elevation have not been found (see Productive Activities under the Claim of the Municipal Council of Posadas, paragraph (ii) below), and therefore it is difficult to accept that the workers lost their jobs because of a simple decision of owners of olerías to change economic activities. There seems to be enough prima facie evidence that the loss of jobs by brick factory workers has been caused mainly - if not directly - by the filling of the reservoir. If this is the case, the workers should be compensated according to Bank policy.

The Panel urges Bank Management to undertake an independent technical review of this matter on the Argentine and Paraguayan sides to determine to what extent brick factory workers have lost their sources of income as a consequence of loss of high quality clay resources.

v) *That the oleros have been unemployed and with no land or means of production and should be compensated for the damage suffered and provided with houses and land.*

Management Comments reiterate that no further compensation is required for those oleros that opted for cash compensation, and state that in addition to that EBY has assisted some of them after they invaded public lands.

In the Panel's view, Management argues from a mere legalistic point of view with an assumption that the oleros freely opted for cash compensation and may have given up all other rights to rehabilitation. From a policy point of view, however, the Panel believes that Management should carry out an independent assessment on whether the requirements of OD 4.30 that "the population displaced by a project receives benefits from it" and that people should be "assisted in their efforts to improve their former living standards, income earning capacity, and production levels, or at least to restore them" are being met with regard to the oleros in Argentina and Paraguay.

Finally, Management has indicated that the relocation/compensation of families who may have settled in the project areas after the 1993 census would be the responsibility of the Governments of Argentina and Paraguay according to a proposed amendment to the Third Owners' Agreement. The Panel has been unable to verify whether these additional obligations have been accepted by the respective governments. Management estimates that the number of additional families is growing by some 1,500 per year, which complicates further any resettlement solution.

241. c) Main allegations by members of the Municipal Council of Posadas (see Annex 4 of Management Comments).

The members of the Municipal Inter-Institutional Council for the Yacyretá project - which includes representatives of Posadas' professional Associations - (doctors, lawyers, architects, engineers, economists, etc.), Provincial Representatives, NGOs, Unions and Municipality officials, among others - submitted a Request containing several complaints mainly in the following areas: environment, productive activities and social activities. The subject matters of these complaints have been dealt with in other parts of this Report and the Panel has been unofficially informed that the Municipality of Posadas and EBY have entered into agreements dealing with several of these complaints. The following summarizes this additional Request and the Management Comments in response.

Environment

(i) *No studies have been carried out regarding behavior of underground water or for the preparation of coastal treatment.*

Management Comments state that coastal treatment studies and project designs are not yet required since major coastal works are not envisaged until the reservoir is operating at 83 masl level. As for the hydrogeological study, it should start after the consultants are appointed in September 1997.

The Panel has reiterated the importance and urgency of the hydrogeological studies.

ii) *Urban creeks are not receiving treatment resulting in the continuous growing of unhealthy vegetable mass.*

Management states that pollution of urban streams is caused by untreated sewage disposal not by reservoir levels.

The Panel has noted that reservoir levels do affect the flowing of the creeks into the river thereby causing the accumulation of untreated sewage in urban areas, primarily through the formation of stagnant bays along the streams.

iii) The improvement and extension of the overall sewage system of the city of Posadas has been delayed because of EBY's failure to complete the main collectors and treatment plant.

According to Management delays in the sewage collection works in Posadas are the responsibility of APOS, the local water and sewage company and not EBY [or the Yacyretá project].

Productive Activities

(i) The fishing activity downstream of the dam has been substantially impacted because of reduced fish migration through the fish transfer facilities at the Yacyretá dam.

Management Comments state that it is true that the dam (as any other large dam of its kind) serves as a barrier to natural fish migration patterns but that "monitoring being carried out under the Yacyretá project indicates that many commercially valuable fish species remain abundant, both above and below the dam."

The Panel has noted that the fish monitoring studies look adequate but could be improved. At the same time, the Panel heard dramatic testimonies of fishermen who claim that they have lost their source of income because there are no commercially valuable fish (i.e. surubi, dorado) left.

(ii) That because of the Yacyretá project, the brick makers production has been reduced. The situation is aggravated by the fact that the new clay deposits given to the relocated oleros do not have enough clay and, if they do, they are of poor quality.

Management Comments state that:

"...based on the recommendations of the Technical Report prepared by the Mines and Geology Division of the Province of Misiones, EBY bought land with clay deposits in Nemesio Parma and relocated oleros affected by elevation 76m. According to the mentioned report, clay deposits had adequate and sufficient clay for ten years' production. For efficiency purposes in clay exploitation and because of the characteristics of the material (not as good as the river clay deposits), the report recommended technological adaptations, technical assistance, and communal exploitation of the clay deposits. In 1994, ninety three productive units were relocated by EBY. The oleros rejected communal exploitation, and decided instead on a division of plots, individually owned and exploited, taking the risk that some of them might not necessarily have clay in their property (see records of the meeting dated 20/07/94). In July 29, 1997, EBY received 6 offers in response to the bidding for provision of the equipment (truck and excavation equipment). EBY is currently assessing the offers in order to adjudicate the contract.

EBY provided technical assistance to recover previous production levels but has encountered an unforeseen difficulty. Contrary to the findings of the Technical Report, **the replacement clay deposits do not have the quantity and quality required for the**

brickmaking production. This was confirmed by an EBY study carried out in 1996, one and a half years after the relocation. To solve this problem, EBY has developed several complementary alternatives including access to river clay deposits still available in the zone already acquired by EBY, technical assistance to those using the available material (non-river clay), productive programs for developing complementary income sources, such as gardening and domestic animals, and organization of a cooperative to help in solving production problems. During a supervision mission in March 1997, EBY and the Bank agreed, additionally, to provide the oleros with equipment (trucks and excavation equipment) for transport and gathering of material from river clay deposits and other clay sources. This agreement is currently under implementation." (Emphasis added)

The Panel has reproduced in its entirety the Management Comments on this claim because they provide a glimpse of the problems that the resettled oleros have faced. Similar problems, but without the technical and material support of EBY, may well have been faced by the oleros who received cash compensation and tried to restore their productive activities.

(iii) *That some oleros have not been resettled and that the compensation received by them was in any event not sufficient and accepted by the oleros purely because of their desperate economic condition.*

Management Comments and the Panel's observation are already set forth above under (ii).

Social Activities

Management Comments provide a good summary of these claims and its specific comments provide a good example of how the Bank has viewed the problems of affected people in the project area. For these reasons, they are reproduced below:

The Request claims: *"Under Argentine law, the fact that realty in the Yacyretá area has been declared subject to expropriation since 1980 means that owners of affected land are restricted in their ability to improve their properties because improvements made after the declaration of expropriability will not be compensated by the expropriating party. Also as a result of this legal situation, areas to be flooded by the Yacyretá reservoir do not receive basic services (water supply, transportation and others) from the municipal or provincial authorities."*

Management Comments:

"Argentina's expropriation law (No. 21499, first published on January 21, 1977) applies in the Yacyretá case and indeed does specify in its Article 11 that "compensation will not be awarded for improvements, except necessary ones, that are made to the property after the property was officially declared to be subject to expropriation" ("no se indemnizarán las mejoras realizadas en el bien con posterioridad al acto que lo declaró afectado a expropiación, salvo las mejoras necesarias"). This in no way means that owners cannot improve their properties; in fact, owners who made **improvements soon after the Yacyretá area was declared subject to expropriation in 1980 have had almost twenty years during which to enjoy such improvements.** It does mean, however, that such owners may find a legal bar to compensation for such improvements when actual expropriation does take place (prior to the actual expropriation of their properties), unless they can demonstrate that the improvements were "necessary" (building an addition to a house to accommodate a growing family is an example of a necessary improvement).

Legal provisions such as those contained in the cited Article 11 have a sound basis in that they are designed to discourage speculation improvements which can result in an unwarranted drain on the resources of the expropriating authorities and can thus harm the interests of the tax-paying citizenry at large. Only when, as in the Yacyretá case, actual expropriation of properties affected by such provisions is unduly postponed (because of, for example, construction delays) does the impact of such provisions become larger. However, it is possible that, in the face of such delays, **Argentine courts may be persuaded to adopt an interpretation of the term "necessary improvements" that takes appropriate account of the effect of time.**

"As for the claim that the local authorities, because of the impact of the expropriation law, do not provide adequate infrastructure in the areas to be flooded by the reservoir, the key point is whether: (a) as a result of the Yacyretá project, services already present were removed from those areas by the authorities and not replaced; or (b) whether it was reasonable to expect, in the absence of the Yacyretá project, that additional services now missing in the areas would have in fact been provided by the authorities. As for point (a), we are not aware of any elimination of previously existing services. As for point (b), our understanding is that at least a portion of the areas in question would probably have remained marginalized since the area is on a flood plain subject to annual inundations. Furthermore, now that the project is underway, a portion of such areas is also subject to illegal invasion by settlers and extending public services to the areas would only encourage even more illegal settlers." (Emphases added)

Again, the Panel believes that closer contact with, and participation of affected people and local authorities would have provided the Bank a better understanding of the problems caused by the project.

List of Urban Projects

242. Finally, the Additional Requests present a list of priority urban projects related to the filling of the reservoir. **Management Comments** state that:

"The reconstruction of affected urban infrastructure is one of the most serious challenges for raising the reservoir to its highest operating level. The list presented in the Council's letter represents a best preliminary estimate of the total works that will be required for elevation 83m. The necessary design, implementation chronograms and budgets for carrying out the construction of urban infrastructure will be part of the tasks of an engineering consulting firm to be hired in September 1997. Minor protection works are envisioned for intermediate operating levels. Any urban area flooded at these intermediate levels will be subject to standard clean up operations (sealing of latrines, and the removal of fences, trees, construction wastes, trash, etc.). Water quality and vector monitoring systems have been in place since prior to reservoir filling. EBY, through a Convenio with the University of Misiones, has prepared a proposal for the implementation of an industrial pollution control system for the uppershed (up to Itaipu) of the Parana River."

The Panel has commented extensively on these issues elsewhere in this Report. (See, for example, Executive Summary, the section on Water Quality, and Part on Assessment of Action Plans).

243. (d) Main allegations in the Request presented by members of the Honorable Chamber of Representatives of the Province of Misiones (see Annex 5 of the Management Comments).

(i) *The Government of Argentina (GOA) and EBY have failed to implement the resettlement and environmental works (defined as complementary works) required by the project, as agreed with the Bank, and the Bank has failed to exercise its leverage to press the Borrower to comply with agreed commitments. The Chamber requests the Bank to use all of its resources to ensure that all pending works are completed as planned.*

Although this issue has been dealt with by Management and the Panel in the past, Management Comments are reproduced below:

"...the Bank urged (on April 13, 1996) the GOA to agree on a plan of action to complete by December 1997 all pending action to complete by December 1997 all pending actions related to elevation 76m, and to establish an escrow account for ensuring financing of these works. On May 1996 the plan of action was agreed. On July 1996 a special account was opened to start implementation of the most urgent works, and in October 1996 the escrow account was established. As of June 30, 1997, 74% of the plan has been executed and is expected to be completed as scheduled.

Because of the macroeconomic crisis faced by Argentina, the GOA decided to reduce by half in 1995 and to eliminate in 1996 its budget contributions to the project, which delayed and almost stopped implementation of environmental and resettlement works required for reservoir elevations 78m and 83m. In addition, because of the failure of the Governments of Argentina and Paraguay to complete these works through a privatization scheme (rejected by both Congresses), the GOA decided to keep operating the reservoir at elevation 76m until further decisions are taken to complete the project. On December 1996, the Bank urged the GOA to agree on a Plan of Action to address the adverse resettlement and environmental impacts resulting from the prolonged operation of the reservoir at elevation 76m. On January 1997, a Plan of Action satisfactory to the Bank was received, and by April 30, 1997, the GOA and EBY satisfied the major institutional, administrative, and financial requirements to permit implementation of this plan. Implementation of this plan, to be completed by December 1999, started in May 1997, and is progressing as planned. An amendment to Bank Loans 3520-AR and 2854-AR to support partial financing of the above plan is under discussion and is expected to be signed in late August 1997."

As far as the Panel can ascertain, the proposed amendments to loans 2584-AR and 3520-AR have yet to be agreed upon and signed. Specific comments on the Action Plans are provided in Part 2 of this Report.

(ii) *The Bank failed by approving a plan to raise the reservoir level by stages, first to elevation 76m and later to elevations 78m and 83m (final design level). Consequently, investments for key resettlement and infrastructure works were postponed, in favor of completing major civil works and electro-mechanical installations for the power house.*

Management Comments state that:

"The GOA's plan to raise the reservoir level to 76m was accepted by the Bank on the basis that: (i) reservoir elevation to 76m would take place in September 1994, after

completing all of the minimum strictly needed resettlement and environmental works; and (ii) reservoir elevation to 78m would take place on September 1995, after completion of all agreed resettlement and environmental works needed for that phase; and then continue to elevation 83m once the remaining resettlement works were done. Construction schedules for major civil works and commissioning of generating units were to continue as planned, along with the implementation of the environmental, resettlement and other complementary works. Revenues from the GOA and from sales of electricity were to assist EBY in meeting its counterpart funds obligations to the project. According to the plan, all works were to be done in sequence, and it is not correct to say that the plan for elevation 76m included a reprogramming and postponement of other resettlement and environmental activities required for elevation 78m and 83m.

In fact, reservoir elevation to 78m did not take place in September 1995, as planned, because of the financial crisis explained. Although the Bank did not foresee, at that time, the adverse impacts because of the prolonged operation at elevation 76m, the Bank took a very strong position with the GOA, immediately after the GOA informed the Bank of its decision to remain at elevation 76m for an unconfirmed period of time. The outcome of the Bank's position is precisely the base program (Plan B) that EBY is implementing today."

The Findings section of this Report summarizes the Panel's position on this issue.

PART 4: COMPLIANCE WITH BANK PROCEDURES

244. As noted at the beginning of this Report, the Executive Directors decided that the Panel—aside from its review and assessment of existing environmental and resettlement problems of the Yacyretá project and the remedial Action Plans agreed upon between Argentina and Paraguay and the Bank—it was "expected to look at the extent to which the Bank staff had followed Bank procedures with respect to this project."

245. The precise extent and scope of this decision was not subsequently determined by the Board. Paragraph 12 of the Resolution establishing the Panel refers to the "operational policies and procedures". Procedures are included in operational statements and other documents containing Bank policies. Such procedural rules ensure that Bank policies are followed by staff. As stated by Mr. I.F.I. Shihata in his book on the Inspection Panel¹:

"Operational policies and procedures are defined in the Resolution to include the policies and procedures stated in the Bank's documents, known as "Operational Policies," "Bank Procedures," "Operational Directives" and earlier similar documents. The practice of the Bank has seen several series of operational statements as well as ad hoc circulars embodying its policies and procedures...Prior to the Bank's reorganization in 1987, its operational policies were contained mainly in "Operational Manual Statements" known in the Bank as "OMSs" and "Operations Policy Notes" known as "OPNs," which were both issued, under the authority of the President, by the then existing office of the Senior Vice President, Operations, in the form of general instructions, supplemented occasionally by "Operational Circulars" or less formal notes from the Senior Vice President, Operations. Following the 1987 reorganization, OMSs were gradually reflected in new documents called "Operational Directives" or "ODs," some of

¹ See Ibrahim F.I. Shihata, *The World Bank Inspection Panel*, Oxford University Press, 1994 at 42-46.

which included changes from earlier OMSs and some of which were completely new...Some ODs were seen to be too detailed or reflecting at times what should be sought and not necessarily what could be done in each project. The limits of flexibility in the application of the ODs were not always clear either, especially those written before their drafters were aware of the controversy regarding the nature of these documents. Differences on this issue and the desire of the Bank's Management to streamline and simplify the Bank's business practices led, after an informal discussion by the Executive Directors, to the Management's decision in late 1992 to gradually replace the ODs by statements termed "Operational Policies" (OPs) and "Bank Procedures" (BPs), which would be binding on the staff, as well as by "Good Practices" (GPs), which would disseminate knowledge and indicate successful examples without being binding...At the time of writing (June 1994), not all OMSs and OPNs have been converted to ODs and not all ODs have been converted to these instruments. This could lead to controversies before the Panel on whether certain details in a specific OMS, OPN or OD are provided as technical advice to the staff or are mean to be strictly complied with, an issue which will require a careful reading of these documents in the context in which they were issued and in the light of their objective in building the staff's work...."

246. To date not all ODs, OMSs and OPNs—including those applicable to this Request listed below—have been separated out into OPs, BPs and GPs:

- Environmental Policy for Dam and Reservoir Projects (OD 4.00 - Annex B)
- Environmental Assessment (OD 4.01)
- Involuntary Resettlement (OD 4.30)
- Indigenous Peoples (OD 4.20)
- Wildlands (OPN 11.02)
- Supervision (OD 13.05)
- Project Monitoring and Evaluation (OD 10.70)
- Suspension of Disbursements (OD 13.40)
- Cultural Property (OPN 11.03)
- Environmental Aspects of Bank Work (OMS 2.36)

247. In other words, the policy statements in force at the time the different loans for this project were prepared and approved, and therefore, subject to the Panel's review do not distinguish between what is meant to be a policy and what should be regarded as a "procedure" or just a guidance to staff (or "good practice"). Also in the words of the Bank's General Counsel, the "limits of flexibility" in their application is "not always clear either". For example, OD 4.01 on "Environmental Assessment" defines it as "a flexible procedure...which should vary in breadth, depth, and type of analysis depending on the project."

248. In view of the foregoing, the Panel decided to highlight the major areas where staff performance could or should have better followed operational statements rather than prepare an encyclopedic review of all possible violations. The following are the three main areas of concern:

Participation of Affected Groups and Local NGOs.

249. Both OD 4.01 on Environmental Assessment (previously OD 4.00 Annex A) and 4.30 on Involuntary Resettlement provide policy and procedural rules on the participation of affected people and local NGOs in the design and implementation of the different aspects of environmental assessments and resettlement and environmental protection and management plans. The lack of

appropriate local participation is evidenced by not only the submission of the original Request for inspection and subsequent additional Requests but also by the inadequacies of the assessment and plans noted elsewhere in this Report. This is indeed one of the major flaws in the operational handling of the project by Bank staff noted by the Panel.

Supervision

250. While OD 13.05 (Project Supervision) contains general provisions on supervision and monitoring, ODs 4.01 (especially Annex D on Environmental Assessment), 4.20 on Indigenous People and 4.30 on Involuntary Resettlement, contain specific supervision procedures applicable to each of the matters they regulate. Had these general and specific procedures been followed more strictly, perhaps the claims about the bad quality of housing and community infrastructure - verified in certain instances by the Panel - would not have arisen and the issue of pricing of housing on the Argentine side could have been avoided. The inability or unwillingness to exercise available legal remedies is best summarized by quoting a recent supervision report:

"No Legal Covenant Report is attached to this form, because we are negotiating and finalizing with the Borrower and [sic] amendment, which will change most of the covenants and conditionalities under the existing legal documents. It would make no sense to report now non-compliance, when we are reaching an agreement on new covenants and conditionalities under the loan."

Institutional Strengthening.

251. Several provisions in the operational directives dealing with environmental protection, indigenous people and resettlement identify strengthening the capabilities of borrowers and executing entities as a key step in the preparation and implementation of assessments, plans and activities in these areas. Although great efforts were made by the Bank, the fact is that even at the time of writing this Report, there is no independent environmental coordinator in EBY and the position has been vacant for over two years. At the same time the independent evaluation of the environmental management plan scheduled since 1994 has yet to be carried out.

FINDINGS

252. The Yacyretá hydroelectric Project was conceived and designed over twenty five years ago under very different circumstances and standards from those of today, in particular with respect to environment and resettlement. The selection of the site locked the project into a series of inevitable and irreversible impacts, including flooding of over 100,000 hectares and affecting over 50,000 people in two major urban areas. Today, there are considerably stricter environmental and resettlement standards, as well as a much deeper appreciation of the social costs and difficulties to communities posed by involuntary resettlement of large numbers of people. Nevertheless, integrated watershed modeling of the Parana River Basin could have exposed alternative generation sites with potentially lower impacts.

253. The Project has been under construction for over 14 years and has been affected by numerous and persistent delays and uncertainties. One of the basic problems analyzed by the Panel was the imbalance that developed, and persists until today, between the completion of the civil and electro-mechanical works vis-à-vis the "complementary works" which include environment and resettlement plans. While the former are 99.8% complete, less than a third of environmental and resettlement plans have been completed. The Yacyretá project has incurred important environmental

and social liabilities that are causing increasing friction with affected populations which could have been foreseen and avoided.

254. The chain of events that led to the Request and to the Panel review started with the filling of the reservoir to 76 masl in September 1994: it started prior to completion of all agreed actions on environment and resettlement as required by Bank policies. The Bank and the IDB jointly signed the "no-objection" based on the premise that no irreversible damage would take place and that completion of remaining actions was proceeding satisfactorily. However, shortly after the reservoir was filled, an unfortunate turn in macro-economic conditions on the aftermath of the Mexico crisis, caused Argentina to suspend all financial support for the Project, which led to a complete paralysis of complementary works for close to two years.

255. Imbalance in execution between civil/electro-mechanical works on the one hand and resettlement and environmental measures on the other has been one of the fundamental problems of the Yacyretá Project. This imbalance has been exacerbated by the usual Bank practice of financing the former while leaving the latter for counterpart funding. Given that this phenomenon has been observed in other cases the Panel believes that this practice should be reconsidered.

256. Prolonged operation of the reservoir at 76 masl had not been foreseen and resulted in predictable impacts caused by raising of groundwater levels that impacted the population living in low-lying areas above 76 masl who had not been resettled. This situation is aggravated in poor urban neighborhoods of Encarnación and Posadas. Plans to correct this situation, including both actions required prior to filling the reservoir (Plan A) and those required due to prolonged operation at this elevation (Plan B) are an implicit recognition of non-compliance with environment and resettlement covenants. There are a number of additional examples of non-compliance including the lack of complete hydrogeological studies and monitoring of the impact of the reservoir on lands and soils, problems with creation and management of compensatory reserves, lack of outside review of environmental management plans, and the inability to appoint an environmental coordinator for two years.

257. During the appraisal of the Yacyretá II Hydroelectric Project in 1992, now under the new ODs on Environment and Resettlement (4.01 and 4.30), the Bank made considerable efforts to bring the project into compliance with the relevant ODs and introduced important changes in the design, such as declaring unacceptable the original solution proposed for the Ana Cua Branch of the river. These efforts met with institutional resistance and it was difficult to get EBY to make progress on these issues, primarily due to bureaucratic problems and lack of financial resources. In spite of extensive supervision efforts, exemplified by the large number of missions, and the fact that Yacyretá environmental actions have been cited as a "model" by the Bank's Environment Department, the Panel has found that the Bank has not been able to bring the project into compliance with the ODs, and is not likely to do so until after the year 2000. Timely completion of both Plans A and B are the first critical steps in this process, but they do not represent all the actions that are required. For example:

- Due to the absence of sewage treatment in all cities surrounding the reservoir (Encarnación, Carmen del Parana in Paraguay, and Posadas in Argentina) unsanitary conditions prevail in many of the stagnant bays created by the reservoir. These conditions pose health risks to poor people living in low-lying urban areas. Deployment of effective solutions to these problems will require several years. Design and construction of wastewater treatment plants and sewerage systems for Encarnación and Posadas are part of IDB and Bank loans respectively, but they are not expected to be operational until after the year 2000. More specific schedules are not available at this time, but the process should be monitored closely.

258. The Panel's review has been complicated by the fact that critical studies included in Plans A and B—essential to assess the adequacy of these Plans—have either not been carried out or were incomplete during the period of this review. Among them are the hydrogeological study to analyze the impact of the reservoir on adjacent soils, the proposed solutions to the Ana Cua branch and related environmental assessment, the final site and design of the Encarnación wastewater treatment plant. These studies should be completed immediately because they constitute the basis for permanent solution.

259. The Panel reviewed the evolving position of Bank Management with regard to the future of the project. A central factor in such a position has been and will remain the strategy adopted by the borrower for the project. The Panel has identified, irrespective of the changing circumstances of the project, a set of criteria essential to a successful completion of the project in terms of Bank policies and procedures:

- continuing all pending environmental and resettlement actions;
- involving the affected population to a greater extent in planning and execution of complementary works;
- guaranteeing that Bank policies have to be respected regardless of formal ownership and management of the Yacyretá project in the future; and
- continuing Bank supervision of current and future actions.

Bank Management has stated that it will not abandon its commitment to the affected people, and that it has an important role to play in supervision of current and future actions. Those actions cannot occur too soon, and Bank assistance will be vital to sustainable outcomes.

Attachment 1

OFFICE MEMORANDUM

RECEIVED
97 AUG -4 AM 3:23
THE INSPECTION PANEL

DATE: August 1, 1997

TO: Richard E. Bissell, Chairman, Inspection Panel

FROM: Zafer Ecevit, Acting Vice President, LCRVP *ZHE.*

EXTENSION: 84072

SUBJECT: Request for Inspection - Additional Submissions
Argentina/Paraguay: Yacyretá Hydroelectric Project

Per your request of July 3, 1997, attached please find our comments to the complaints received by the Inspection Panel during their May 1997 visit to the city of Posadas. We have reviewed the documentation submitted to us and identified the relevant claims and provided responses accordingly. Claims and responses have been grouped to respond to the representations made by:

- (i) the population living in the A 1 neighborhood (Annex 1);
- (ii) the population living in the A 3.2 neighborhood (Annex 2);
- (iii) the small brick makers of Garupá and Candelaria (Annex 3);
- (iv) the Municipal Council of the city of Posadas (Annex 4); and
- (v) the Honorable Chamber of Representatives of the Province of Misiones (Annex 5).

Enclosures

Cleared with and cc: Messrs./Mmes. Alexander (LCC7C); Hagerstrom (LCC7A); Molnar (LEGLA); Partridge, Quintero, Ledec, Mejia (LCSES)

cc: Mr./Mme. Wolfensohn (EXC); Guerrero (LCC6C)

imoreno
M:\JADRIJEVY\ACYRETA\IP070397.MEM
August 1, 1997 3:23 PM

POPULATION LIVING IN THE A.1 NEIGHBORHOOD

Background:

During the decade of the eighties and prior to the approval of the current Bank loan 3520-AR, EBY applied a resettlement policy whereby the relocatees were expected to pay the difference between the value of their previous house and the value of the new house given by EBY. Such payment would be capped at no more than 35% of the value of the new house. Under that policy, relocated families had to agree on the establishment of a mortgage in favor of EBY and acquire a debt to be paid in 30 years (360 monthly payments), at an annual interest rate of 6%. With this policy, EBY intended to recover part of the investments made in the settlements already built, whose construction standards for the majority of the affected population were far better than those of the affected areas. For those that had more valuable houses than those received, EBY gave such difference in cash.

Consistent with the above policy, again prior to the approval of the Bank loan 3520-AR in 1992, EBY built a new settlement known as A-1 or *Barrio Yacyretá* and relocated 1,113 families, and started the construction of a second new settlement known as A 3.2 or *Villa Lanus*. In both cases, the houses were built with higher construction standards than the majority of those located in the lower lands near the Paraná river.

Under loan 3520-AR, the Borrower and the Bank agreed on a new Resettlement Policy, in line with Bank OD 4.30, whereby all families affected by the Yacyretá project should be given new replacement houses in exchange for those affected by the Project, at no cost to the relocatees¹. The following two exceptions were considered under the new Resettlement Policy: (i) retroactive cases (families relocated before 1992), where relocatees were paying the differential value of their houses; and (ii) families that voluntarily might request a more expensive house (higher construction standards) and expressed their willingness to pay for the difference. In the first case, EBY would offer the alternative of moving to a new less costly house (reduced construction standards) and would cancel the obligation to pay the debt. For the second case, families must be given the opportunity to choose the alternative of a free house, and agree with EBY on the payment conditions for the additional cost if they choose to upgrade. For the rest of the affected population and certainly for all those to be relocated under the agreement of loan 3520-AR, EBY should provide housing at no cost to the beneficiary.

Despite the agreement under Bank loan 3520-AR, EBY continued applying its old policy, charging relocatees an average amount equivalent to 35% of the value of the new house, including those affected by reservoir elevation 76m who were covered by the new resettlement policy. The Bank was not informed about the application of this policy.

¹ See pages 50 to 59 of the Yacyreta Resettlement Plan, which together with the Environmental Management Plan constitute an integral part of the Loan Agreement. (See Annex 1 - Attachment 1)

During project supervision, in particular after the raising of the reservoir to elevation 76m, the issue of delays in the processing and issuing of property titles was discussed by every Bank supervision mission. EBY's explanations were that delays were due to slow and complicated legal/administrative procedures at the provincial agencies responsible for these matters, and to the shortage of personnel in EBY's legal department. As a result of the Bank's December 1995 supervision mission, the Bank understood that the old resettlement policy was no longer being applied by EBY. (See Annex 1 Attachment 2).

During the June 1997 Bank supervision mission, the Bank again raised its concern about the delays in the issuing of property titles, and learned that, on the Argentine side, the major obstacle for issuing those titles was the refusal of the affected population to sign the required documentation, because of the debt imposed by EBY. The mission also observed that EBY was indeed not charging any urban affected families for houses on the Paraguayan side. EBY was fully aware of this problem and informed the mission that the issue was being discussed with the local and federal governments, to solve the problem on a global basis. The mission informed EBY that transferring resettlement costs, to those involuntarily displaced by the project, is against the resettlement policy agreed with the Bank, stated on pages 50-59 of the Resettlement Plan contained in the Environmental Management Program (EMP) and referred to in the Loan Agreement for Loan 3520-AR. Consequently, the mission asked EBY to forgive the resettlers' debt to EBY in those cases where there is no option to move to a cost-free house.

EBY has since notified the Bank that, although it is taking measures to ameliorate the impact of such debt on resettlers, it disagrees with the Bank's interpretation of the Resettlement Plan on this point and therefore is not in a position to forgive the totality of the debts in such cases. In particular, EBY maintains that the "free resettlement" policy cited by the Bank and contained in the Resettlement Plan applies only in the case of replacement homes designed and constructed after the November 1992 date of the Loan 3520-AR Loan Agreement, and not to houses which were designed prior to that date and built in replacement of lesser quality structures occupied prior to the resettlement.

The Bank contends that the free resettlement policy of the Resettlement Plan applies not only prospectively, but also retroactively to the housing solutions designed prior to November 1992 (see para. 2 on page 59 of the Resettlement Plan, which text refers to the granting of alternative housing solutions to those who had incurred debt in connection with pre-November 1992 resettlement by EBY). Both EBY and the Bank are currently exchanging views in an effort to resolve this disagreement.

Claim 1. EBY has not complied with the quality standards for housing construction and has given houses of lesser quality (zinc roof, no internal doors, deficient electrical and sanitary installations).

Response: The Bank is satisfied that construction of the replacement houses meets or exceeds the current local urban standards for the Province of Misiones. In a few cases (70

units out of 1,058), for cost-savings, but still with the current standards, EBY reduced the level of interior finishing and used galvanized corrugated zinc sheets for roofing instead of ceramic tiles. Zinc roof is a common and highly acceptable solution in the Province of Misiones, and does not diminish the quality of the house. Electric and sanitary installations were given in good condition to relocated families. The EBY technical team reviewed them twice and families were given clear instructions for their use and maintenance. All installations were tested in the presence of each family and, during the first months after the move, EBY technicians made all repairs at the request of the affected families.

It should be noted that the houses in the A.1 settlement are of much better quality than those in the affected area, many of which were made out of wood and other non-durable materials, had no sanitary services and were periodically flooded. The average value of the previous houses ranged from: (i) \$2,500 to \$ 6,000 for houses owned by occupants (families with no legal rights on land), and (ii) \$15,000 to \$ 45,000 for houses owned by legal tenants and middle income families. The estimated value of the new houses provided by EBY to the population ranges from \$20,000 to \$36,000. The improvement in family patrimony is not only recognized by the relocatees, but also documented by independent evaluators².

Claim 2: According to the appraisal carried out by the Provincial Tribunal of Posadas (PTP), the value of the property in the A.1 settlement is less than that estimated by EBY.

Response: The appraisal carried out by PTP in April 1997 shows that property values in this settlement are about 21% - 25% below those estimated by EBY in 1995. PTP's appraisal is based on reference unit prices of five other nearby neighborhoods with different characteristics and services that are not comparable among themselves nor comparable with the A.1 settlement. The appraisal carried out by PTP is not supported by a technical study that would allow comparisons on the basis on homogeneous set of data. Because of the above, PTP estimations could only be considered as indicative values.

Regardless of the assumptions used by PTP, its appraisal shows a unit value of \$17 per square meter for plots located inside the compound, and \$20 per square meter for properties facing the main avenue (Avenida Lopez y Planes). These estimates are not supported by the real market prices in the area. EBY is currently paying \$21 per square meter in the Chacra 102³. There are also several properties for sale located on the main avenue with values of \$41 and \$46 square meter.

² See Volumes V, VII and X of the Independent Evaluation Report.

³ Documentation on current land acquisition and indemnification process in the A 1 area can be found in EBY Departamento de Tasaciones files.

Additionally, PTP estimated the value of infrastructure with a methodology that assigns values to each plot in proportion to the number of square meters built on it. According to this methodology, the value of the property would be different for 2 plots that have the same size, same location and same services, only because the number of square meters of the house built on each one is different.

Finally, since EBY and PTP appraisals were carried out on different dates, the unit value for houses estimated by PTP may have been affected by lack of maintenance and may not reflect the real value of the house when it was new and given to the affected family by EBY.

Claim 3: EBY must suspend the title regularization process (*boleto de compraventa y comodato*) and proceed to review the conditions and covenants so far adopted by EBY in such documents. Relocates do not accept interest charges, financial obligations or mortgages (*gravamen hipotecario*) that will affect them for 30 years.

Response: We agree that property titles unencumbered by mortgages should be issued in those cases to which exceptions to the free resettlement policy (see third paragraph of page 1 above) do not apply. In addition, all debts arising in contravention of that policy should be annulled and EBY should take steps to reimburse relocatees for debt payments collected in contravention of that policy.

2. Tierra

Entrega de una parcela o Unidad Mínima Viable, para el restablecimiento de actividades económicas periurbanas y rurales basadas en el aprovechamiento de recursos naturales que serán afectados por el proyecto.

Las soluciones para el reasentamiento se diseñarán sobre la base del conocimiento de las características socioeconómicas de los grupos humanos desplazados y sobre el respeto y reconocimiento de sus estrategias culturales de adaptación al medio natural y social circundante.

OPCION DE INDEMNIZACION

Para fines de indemnización, los bienes inmuebles de las familias desplazadas, serán valorados a los costos comerciales de reposición. La libre elección de esta opción, exime a la EBY de cualquier responsabilidad relocalizatoria y de rehabilitación.

PAUTAS GENERALES DE POLITICA

Las soluciones que se propondrán a la comunidad, tendrán el doble objetivo de:

1. Reposición de la pérdida (mitigación del impacto)
2. Contribución a la mejora en el nivel de vida de las comunidades desplazadas.

Las soluciones serán diseñadas con criterios de racionalidad económica y justicia social, evitando vulnerar derechos humanos y sociales, y tendiendo a garantizar especialmente, la mayor asistencia y beneficio posible para la población de menores recursos y mayor vulnerabilidad social.

De esta manera, el reasentamiento no podrá dejar a ninguna familia en condiciones desmejoradas con respecto a las precedentes al desalojo, pero sí propender por la mejora significativa en las condiciones de vida de la población más dependiente del medio natural, de menores recursos económicos y socialmente más indefensa.

COSTO DE LAS SOLUCIONES DE REASENTAMIENTO

La opción de reasentamiento no implicará para ninguna familia, asumir costos o contraer deudas para el pago de la nueva solución.

La EBY repondrá, asumiendo todos los costos, las soluciones habitacionales y productivas necesarias, así como el equipamiento urbano y rural requerido para el restablecimiento de las comunidades barriales y campesinas, y de los sistemas sociales y económicos que resulten alterados como consecuencia del proyecto.

El asesoramiento relativo al saneamiento de títulos actuales, esclarecimiento de situaciones dominiales, y demás trámites jurídicos y administrativos correlativos al desplazamiento y relocalización, correrán por cuenta de la Entidad Binacional, hasta la entrega en propiedad de las nuevas soluciones.

PARTICIPACION DE LA COMUNIDAD

Las diferentes alternativas para el reasentamiento, en sus lineamientos básicos, deberán ser presentadas a las comunidades afectadas, a través de mecanismos de información-consulta, dirigidos a las familias, a las organizaciones comunitarias

SINTESIS DE LAS POLITICAS

AFECTADOS	SOLUCIONES
<p>1. POBLACION URBANA</p> <p>Familias residentes en cascos urbanos y familias residentes en zonas periurbanas (no oleros)</p>	<ol style="list-style-type: none"> 1. Reasentamiento Viviendas urbanas Viviendas urbanas con servicios (en canje) Asistencia social 2. Indemnización (propiedades) Compensación (mejoras)
<p>2. POBLACION PERIURBANA (OLEROS)</p> <p>Familias residentes en unidades artesanales de explotación de arcilla</p>	<ol style="list-style-type: none"> 1. Vivienda y parcela para explotación de arcilla (en yacim. fuera de cota) (en canje) 2. Unidad Mínima Viable para explotación agrícola en zona rural (En canje) Asistencia agropecuaria 3. Vivienda urbana con servicios (En canje) Asistencia social Asistencia en reconversión laboral 4. Indemnización (propiedades) Compensación (mejoras)
<p>Familias residentes en unidades medianas de explotación de arcilla</p>	<ol style="list-style-type: none"> 1. Vivienda y parcela para explotación de arcilla (en yacim. fuera de cota) (en canje) 2. Vivienda y parcela en zona de deposito de material acopiado 3. Indemnización Compensación (mejoras)

(continuación)

<p>3. POBLACION RURAL</p> <p>Familias residentes en zona rural, sin actividad agropecuaria principal</p>	<ol style="list-style-type: none"> 1. Reasentamiento vivienda con servicios en localidades urbanas cercanas (en canje)
---	---

	2. Indemnización Compensación (mejoras)
Familias con actividad agropecuaria de autoconsumo (No propietarios)	1. Reasentamiento Vivienda rural Unidad Mínima Viable para explotación agropec. (7.5 ha) (en canje) Asistencia agropecuaria 2. Compensación (mejoras)
Familias propietarias de predios de explotación agrícola entre 7.5 y 20 ha	1. Reasentamiento Parcela de reposición hasta por un máximo de 20 Ha. (en canje) Asistencia Agropecuaria 2. Indemnización (tierras y mejoras)
Familias con actividad agropecuaria empresarial (Predios menores de 50 ha)	1. Reasentamiento Unidad económica empresarial Hasta un máximo de 20 ha Indemnización por tierra excedente y mejoras 2. Indemnización total

(continuación)

AFECTADOS	SOLUCIONES
4. INDUSTRIAS Y COMERCIOS Familias residentes en cascos urbanos con locales comerciales en la vivienda	1. Vivienda urbana con servicios (en canje) Espacio en zona comercial (en canje) 2. Indemnización (propiedades)
Arrendatarios de locales comerciales en área de afectación	1. espacio para arrendar en zona comercial
Industrias y comercios familiares anexos a la vivienda	1. Vivienda urbana con servicios con espacio para la reposición funcional de la actividad (en canje) 2. Indemnización (propiedades)
Mediana y gran industria	1. Indemnización y asistencia para autorrelocalización en zona industrial.
5. EQUIPAMIENTOS COMUNITARIOS URBANOS Y RURALES	1. reposición funcional en condiciones mejoradas
6. CASOS ESPECIALES	Estudio de caso particular Solución concertada con el afectado.

4.1.3. POBLACION RURAL

Para el reasentamiento rural, en lo posible, se adquirirán tierras cercanas a las localidades y centros de servicio del área rural. Se propenderá el reasentamiento en colonias y se les prestará a las familias reasentadas asistencia para la continuidad y desarrollo de sus actividades agropecuarias.

Agricultores de subsistencia

Para las familias que desarrollan actividades de subsistencia y que no son propietarios de predios, se entregará una Unidad Mínima Viable de 7.5 ha, en canje y con título de propiedad. Asimismo recibirán asistencia agropecuaria durante los 3 primeros años a partir de la reubicación.

Igual solución se dará a los propietarios de menos de 7.5 ha.

Propietarios de parcelas con más de 7.5 ha

Para los propietarios de parcelas de más de 7.5 ha, se entregarán en canje terrenos equivalentes, hasta por un máximo de 20 ha.

Propietarios de 20-50ha

Para estos propietarios se ofrecerán Unidades Económicas Empresariales de 20 ha e indemnización en dinero por las tierras excedentes afectadas.

Población excluida de los planes de reasentamiento

Se excluyen de la opción de reasentamiento los propietarios de terrenos que no habitan en la zona de afectación y los propietarios de Unidades Económicas Empresariales de más de 50 hectáreas. Para ellos está prevista la indemnización y asistencia para la reinstalación de la Unidad productiva en áreas cercanas a fin de mitigar en lo posible, la pérdida de empleo.

Nota

Unidad Mínima Viable: Pequeña parcela rural que permite subvenir las necesidades básicas del grupo familiar.

Según los procedimientos oficialmente aprobados por la EBY para el reasentamiento de la población residente en áreas rurales (Mayo de 1983), se define como "Familias con actividad agropecuaria de autoconsumo", aquellas que desarrollan una actividad principal de carácter rural, de venta menor y/o consumo, complementada o no con otras actividades, y que ocupen efectivamente el predio rural, con o sin vivienda, aportando el beneficiario rural y su familia la mayor parte del trabajo personal necesario".

ESTUDIOS DE CASO

La EBY, con criterio social, estudiará y propondrá soluciones en forma particular para los casos que no se ajusten a lo previsto en las pautas generales de política.

POLITICAS ESPECIALES

1. (El plan de reasentamiento involucrará las familias que habiendo sido censadas en 1979 y/o relevadas en 1989 - 90, han tenido que abandonar sus hogares asentándose fuera de zona de afectación, como consecuencias de las inundaciones, la humedad, y problemas de salud, obligándolos a salir de su antiguo asentamiento y ubicarse en terrenos no inundables, siempre y cuando hayan comunicado a la EBY su cambio de domicilio y se trate de fuerza mayor.

Para estas familias se ofrecerá vivienda urbana con servicios en los nuevos asentamientos construidos por la EBY. Ello compensará en parte, la larga espera, el trauma de la emigración y vivienda transitoria, y crear al menos, algunas condiciones para restablecer los lazos de vecindad. Este caso tiene vigencia para la margen Argentina.

2. Problemas de retroactividad de la deuda para el caso de familias ya reasentadas en el barrio Yacyretá y que han asumido una deuda por la nueva vivienda, se les ofrecerá la alternativa de menores especificaciones sin contraer una deuda adicional.
3. Para los no propietarios de viviendas y tierras de restitución con capacidad de pago que deban ser reasentados en el futuro y que deseen acceder a las viviendas más costosas, como algunas de las ya entregadas en los nuevos asentamientos, deberá ofrecerse la opción de obtenerla en canje por su correspondiente indemnización más una deuda por un valor máximo del 35% del costo del inmueble entregado, con un período de 30 años al 6% de interés.
4. Familias rurales reasentadas en Atinguy.

Para este grupo se propenderá por la regularización inmediata de los títulos de propiedad. Para aquellas familias no propietarias se les ofrecerá la alternativa de renegociar su parcela sin deuda adicional, pero de menor superficie. Las familias que opten por esta alternativa, cederán a la EBY una porción de sus tierras a cambio de los títulos de propiedad inmediatos sin deuda adicional. Las familias que deseen seguir con las condiciones actuales podrán hacerlo

THE WORLD BANK GROUP

ROUTING SLIP		DATE: May 8, 1996	
NAME		ROOM. NO.	
Ms. Maria Clara Mejia			
<input type="checkbox"/>	URGENT	<input type="checkbox"/>	PER YOUR REQUEST
<input type="checkbox"/>	FOR COMMENT	<input type="checkbox"/>	PER OUR CONVERSATION
<input checked="" type="radio"/>	FOR ACTION	<input type="checkbox"/>	NOTE AND FILE
<input type="checkbox"/>	FOR APPROVAL/CLEARANCE	<input checked="" type="radio"/>	FOR INFORMATION
<input type="checkbox"/>	FOR SIGNATURE	<input type="checkbox"/>	PREPARE REPLY
<input type="checkbox"/>	NOTE AND CIRCULATE	<input type="checkbox"/>	NOTE AND RETURN
RE: Yacyreta Project: Resettlement Program - Land Tenure and Titling Aspects			
<p>REMARKS: Maria Clara: Please find attached my full report from the mission to Argentina and Paraguay we carried out at the end of last year. This report supplements the note I sent to you and Bill Partridge on December 11, 1995. We did not photocopy the legal instruments because of their size and length, so you have the originals and only copies. At the same time, I am sending a copy of the text and Annexes 13 and 14 (the summary of the current situation with regard to land titles in the resettlement areas) to Messrs. Faiz, de Franco, Jadrijevic, Klockner, and Partridge for their information. Sorry this took longer to get to you than I would have wished. I hope that rapid action can be taken where necessary to accelerate the delivery of titles, as outlined in the report. If you would like to pursue any of the topics in greater depth, please let me know.</p> <p>Thank you.</p> <p style="text-align: center;"><i>Orv</i> Orv</p>			
FROM Orv Grimes		ROOM NO. Q7-023	EXTENSION 38104

**Yacyreta II Project
Resettlement Program (PARR)
Land Tenure Aspects**

A. *Introduction*

1. This note addresses land tenure issues related to the Resettlement Program (PARR) of the Yacyreta II project. The focus is on delivery of full title to resettled families: what are the procedures that need to be followed, where are the bottlenecks, and what can be done to speed up the process?

2. The note begins with a synopsis of pertinent aspects of land law in Argentina and Paraguay, and continues with definition of the main issues related to the attribution of full title to the properties occupied by resettled families. It concludes with the next steps that are recommended in order to ensure delivery of titles in the shortest possible time.

B. *Land Law in Argentina*

3. The basic elements of land legislation in Argentina are derived from the French Napoleonic Code, put in place in the 19th century and still in use today. As in the French system, there are two types of public land (*dominio publico del estado*; *dominio privado del estado*). Expropriation procedures are the same, particularly the key aspect that the land expropriated can be used for the intended public purpose before the compensation award is decided.

4. *Acquisition of land for public purposes.* There are two ways for public authorities to acquire land for project purposes: by agreement, and by expropriation. In Argentina, the shorthand for these methods is "acuerdo" and "juicio." About half of EBY's acquisitions for Yacyreta have been by acuerdo, and half by juicio. EBY may offer a premium of 10% over market price to encourage the owner to agree amicably to the acquisition. In this acuerdo case, when agreement is reached the property is registered at the Registro Publico in the name of EBY. The *escribano publico* (a Government civil servant acting as intermediary between EBY and the beneficiary in this case) is in charge of delivering title to the beneficiary. EBY pays all costs of land titling, including the expenses of the *escribano*. In the "juicio" cases, a few of the disagreements have been over low prices offered by EBY, but far more have been because of clouded or unclear title to the land. Law No. 21.499 of 1977, the basic expropriation law of Argentina, is included as Annex 1. In both the acuerdo and juicio cases the issuance of the Expropriation Decree (*Declaracion de utilidad publica*) signals the transfer of the property into public hands, EBY in this case, for project use. The process does not have to be long: the expropriation of land at Santa Tecla by EBY took only two months (from March to May 1993). The expropriation decree for Santa Tecla is attached as Annex 2.

5. In order to obtain title, evidence must be shown of payment of all relevant taxes for the past ten years. Without this attestation, the titling process stops.

6. *Application to Yacyreta.* A separate Generic Land Law, approved in 1980, covers the application of the above legislation in the specific case of Yacyreta. This original Generic Land Law for Yacyreta, Law No. 22.313, is included as Annex 3. It was valid for 10 years, until 1990. Another law (No. 23.881, approved in 1990, included as Annex 4), extends the Generic Land Law until 2000, and is consequently still in force.

C. *Land Law in Paraguay*

7. In Paraguay, existing legislation is basically similar to that of Argentina, but the application to Yacyreta reflects two main differences. First, since the pace of decentralization in Paraguay has been slow, local districts are by and large not geared up to process land titles, even though a Servicio de Catastro may exist. This means that many key decisions in the titling process need to be made in Asuncion. Second, there is no basic land law in Paraguay comparable to Law 21.499 in Argentina. This means there is no ley-marco on which to draw for legislation applying specifically to Yacyreta, and that legislation is therefore likely to take much more time than in Argentina. A Generic Land Law for Yacyreta was approved in Paraguay only in September 1994. It is included as Annex 5. It should be noted that unlike Argentina, **this legislation covers up to Level 76 only.** A new law covering up to Level 83 was submitted to the Paraguayan Legislature in November 1995, but has not yet been acted upon.

8. The function of the escribano publico is identical in Paraguay to that in Argentina. The main difference is that the escribano in Paraguay needs to deal more with the capital, especially the Registro Nacional de Catastro Publico, in addition to the local district.

9. In order to obtain title, evidence must be shown of payment of all relevant taxes for the past four years. Without this attestation, the titling process stops.

D. *Tenure and Titling Issues in Yacyreta Resettlement*

10. Whether in Argentina or Paraguay, families to be resettled typically have no written evidence of tenure. When they are resettled, they are given an occupancy certificate called a **contrato de comodato**. The contrato de comodato in use in Argentina is attached as Annex 6, and that used in Paraguay is included as Annex 7.

11. The comodato certificate confers only usufruct, or the right to occupy and use the property. No payment is made to obtain it. The comodato cannot be sold, and cannot be used at a bank as collateral. Sub-letting is prohibited (although it occurs with some frequency at Yacyreta). For these reasons resettled families may be initially pleased with a

comodato, but later on when they learn its limitations, end up placing a low value on it. They want full title.

12. Before the process of conversion from comodato to titulo is described, it will be useful to mention a third land tenure instrument, the **boleto de compra-venta**. This instrument has several features which make it inappropriate for resettlement. Monthly payments are required for 30 years, like a mortgage, a financial burden which should not be placed on families being involuntarily resettled. Also, unlike a mortgage, equity does not build up. The payer of the monthly amount does not own anything until all payments are made, at which time full title is given. Fortunately, the boleto de compra-venta was used only at the first Argentine resettlement site (Area A.1), and EBY has since moved away from it. An example of a boleto de compra-venta is included as Annexes 8 (with housing credit) and 9 (without housing credit). The boleto de compra-venta is used rarely in Paraguay, and not at all in Yacyreta. An example of a model form for the Paraguay boleto de compra-venta is attached as Annex 10.

12. In summary, the land titling process in Yacyreta consists of moving families from a contrato de comodato to a titulo de propiedad. Examples of titles are included as Annex 11 (Argentina) and 12 (Paraguay).

13. EBY's experience with escribanos publicos shows that once the escribanos receive the authorization to proceed, they can deliver titles fairly quickly and efficiently. This authorization to proceed **does not come from EBY**. It comes from local governments or other agencies in the form of approval of Site Plans (Plan de Loteamiento) for the resettlement areas. **Approval of Site Plans is the main bottleneck in the delivery of land titles in Yacyreta.**

14. Annex 13 shows, for each resettlement area in Paraguay and Argentina, the entity responsible for approving Site Plans. The Site Plans are not complicated, and approval should be quick. Yet, as shown in Annex 13, some Site Plans were submitted for approval up to two years ago, and are still pending. Where Site Plans have been approved, as in Atinguy - Phase I, Buena Vista, and San Cosme (Paraguay) and Area A.1 (Argentina), the bottleneck is basically lifted and the process can be completed. Annex 14 summarizes the present status of change from comodato to titulo for each resettlement area. In 7 of the 12 areas, this change has not begun and everyone still has comodatos.

E. *Recommendations*

15. The following next steps are recommended:

- * Because of the weakness of local authorities, EBY with few staff is carrying out tenure and titling activities that the local governments should be performing. EBY should liaise with these authorities to gradually transfer responsibilities to them.

- * A line item for training and other assistance to local land offices should be included in the PARR budget.
- * Contact should be made as soon as possible, and sustained through involvement of traveling mission staff and the Facilitating Office in Asuncion, with the agencies listed in Annex 13 to encourage rapid approval of Site Plans
- * EBY land units in both Argentina and Paraguay should designate a focal point for close monitoring of the land titling process, no matter which unit within EBY is in charge.
- * Approval of Paraguay basic legislation for Yacyreta applying up to Level 83.
- * Close monitoring should also be carried out in the basic PARR tables, especially the table entitled "Soluciones rurales por asentamientos - Margen Paraguaya/Margen Argentina." Land titling status can either be in a separate column, or in the existing box "Infraestructura y servicios."
- * Land tenure and titling aspects are not covered in the PARR monitoring reports, both dated March 1995, prepared by the University of Misiones. A section on such aspects should be included in each monitoring report until all titles are delivered.

O. Grimes
May 1996

POPULATION LIVING IN THE A 3.2 NEIGHBORHOOD

Background: Please refer to the background section in Annex 1.

Claim 1: In at least one particular case, EBY is attempting to collect an interest charge that has not been set forth in the purchase agreement signed between EBY and the beneficiary.

Response: The interest payment is included within the Pesos 61.80 installment payable every month over the 30-year period of the mortgage. These installments are explicitly mentioned in the sale agreement submitted to the Inspection Panel; thus, the relevant amounts have not been hidden from the buyer in question (although itemizing which portion of that Pesos 61.80 payment was attributable to principal and which portion was attributable to interest would have made the text clearer).

Claim 2: EBY is attempting to collect financial charges, despite the fact that the school has not been completed yet, there is no permanent water supply, and the police and health posts do not exist to meet the neighborhood's needs.

Response: It is the Bank's understanding that the charges levied by EBY are not to recover the cost of public services. Moreover, the issuance of the property title does not depend on the completion of communal infrastructure (school, health post, police post, kindergarten, etc.), some of which did not even exist in the affected neighborhoods located near the river.

It is important to note that prior to the relocation of the population, the houses in A 3.2 were equipped with electricity, water and sewerage pipeline systems, at an average investment of about \$29,000 per family. On the other hand, completion of school, kindergarten, health and police posts were delayed due to: (i) bankruptcy and abandonment of the contractor responsible for the works; (ii) vandalism (details given in the Resettlement Monitoring Report No. 2 of March 1995) of the works after the contractor left; and (iii) EBY's shortage of funds that delayed implementation. In June 1997, EBY signed a new contract to finish the communal infrastructure.

Despite the delays, the majority of relocated children (64%) have been attending classes at nearby schools located less than 2 km away from their homes, while 34% attend classes in more distant neighborhoods located more than 4 km away. The latter group usually takes a public bus at a cost of \$0.40 per day. According to EBY, 18% of the children do not attend classes due to capacity limitations in nearby schools or due to economic difficulties of their families.

Attendance at other schools will continue until the new school for the A 3.2 settlement is finished. To complete the works, EBY has hired a new construction firm

which resumed works in June 1997. It is expected that the school will be ready by mid August and the remaining of the infrastructure works by December 1997. It is expected that the school will be fully operational for the next academic year.

Regarding the health post, it should be noted that the permanent facility is presently being constructed and in the mean-time, the post operates in a house provided by EBY to the Ministry of Public Health. These health services are the responsibility of the MPH and follow the standards agreed in the Ministry of Public Health.

With regard to water supply, although the pipeline has been installed, the system will not be operational until APOS (the local water company) completes the expansion of the treatment water plant to assure the required water quantities. It is expected that by December 1997 both the water and the sewerage system will be operational. Meanwhile and since 1994, when the first families settled in the new compound, EBY has been providing water by deep water wells and complemented by trucks to all relocated families. This service will continue until the system is fully operational and has been taken over by APOS.

Claim 3: The housing development is located 10 kms from downtown Posadas. Affected people need to go downtown for food because there is no food market in the neighborhood. This implies extra transportation costs and time that they did not have before the relocation.

Response: The following considerations should be taken into account to understand the above claim: (i) the population settled in the A.3.2 compound came from areas, near the river, which were subject to periodic floods and characterized by highly deteriorated sanitary conditions; (ii) due to the high demographic density in the city of Posadas, it was not possible to relocate the population downtown without displacing thousands of families; (iii) the A 3.2 settlement has good sanitary conditions and its location was known in advance and accepted by the affected population; and (iv) during the present decade, the city has grown to a point where the A 3.2 settlement is connected to the urban transport net. It is understandable that there is no well developed commercial area in the new settlement, precisely because it is new. It is also clear that prices and market opportunities in A 3.2 cannot be compared with those in downtown Posadas. On the other hand, downtown Posadas is not the only option for those living in A 3.2, who can shop in the small family businesses existing in the new settlement, which were relocated with EBY assistance. There are also supermarkets and commercial areas located within a 3 km distance.

It is true that there has been a change in the composition of the relocated families' expenditures. Because of new urban transportation needs, family expenditures for this item have slightly increased (5% to 7%). This increment has been documented by the Independent Evaluators of the Resettlement Plan (see Independent Evaluation Report -

Urban Sector - Volume X). The trade-offs for such an increment are better sanitary and living conditions and the avoidance of periodic floods.

SMALL BRICK MAKERS OF GARUPA AND CANDELARIA

Background

In 1993 EBY and the Secretariat of Mines and Geology of the Province of Misiones signed an agreement aimed at solving the problems suffered by brick makers (oleros) resulting from the filling of the Yacyretá reservoir. To define the total number of affected oleros and therefore those entitled to resettlement, a new field survey was carried out. The survey concluded that 443 oleros were to be affected, including 66 oleros of the Garupa and Candelaria area who were not surveyed by EBY in the 1989-1990 census, and who are now included in EBY's official list of beneficiaries. EBY and the provincial government agreed that 235 oleros (those included in EBY's 1989-1990 census) will be assisted by EBY, and the remaining 208 (settled between 1990 and 1994) will be assisted by the government of the Province of Misiones.

In July 1994 a mechanism for consultation and decision making was created, the so-called *Mesa de Concertación*, which included representatives of all affected brick maker neighborhoods. Relocation alternatives, benefits, overall program and timetable were discussed among participants of the *Mesa de Concertación*, EBY, affected parties and the Provincial Government. All agreements were reached by consensus or majority (for details, see records of the meetings of the *Mesa de Concertación*, dated August, 1994 and June 1995, in Attachment 1). Between 1994 and 1995, 94 oleros were relocated by EBY in the Nemesio Parma area (identified by the Provincial Government as the best source of non-river clay deposits, based on quality and reserves).

In April 1995 a group of brick makers requested cash compensation, instead of relocation. Although cash compensation was not foreseen in the Resettlement Plan and was not part of the policy agreed with the Bank, EBY accepted the request based on the fact that 99% of the oleros to be relocated in the Second Stage did not want any solution other than cash¹ (see Attachment 2). In June 1995, EBY, on the basis of an evaluation of the production levels and characteristics of each productive unit, made a proposal for compensation, ranging between \$6,500 to \$16,000 per relevant unit. The oleros' representatives did not object to EBY's proposals. Based on this agreement, EBY's Administrative Council issued Resolutions Nos. 652/96 and 685/96, spelling out EBY's official policy adopted on this matter as well as the plan, by stages, for implementation of the oleros' relocation/indemnification. By receiving cash compensation, EBY's obligations ceased and no further claims were to be accepted.

¹ Only one olero refused both cash compensation and relocation, Mr. Ruben Fernandez who is the President of the Asociacion de Oleros and who signed the note addressed to the Inspection Panel.

Current Situation

At the present time the situation is as follows:

- (i) 94 oleros were relocated in the Nemesio Parma area and received plots with clay and technical assistance that still is being provided;
- (ii) 12 oleros, by their own decision, were relocated in the rural areas of Santa Tecla and Campo Godoy;
- (iii) 216 received compensation in cash;
- (iv) one of the oleros died, five more left the area, and one, Mr. Ruben Fernandez, did not accept any of EBY's proposals;
- (v) 48 oleros (Santa Rita) received cash compensation. Payments were completed in September 1996; and
- (vi) 66 oleros of Garupá and Candelaria received 100% of the compensation agreed. Last payment were made on July 30, 1997.

Claim 1. The censuses carried out by EBY were not accurate and were not adjusted.

Response: EBY's census, carried out in 1989/1990, was updated in 1993 by the Mines and Geology Division of the Provincial Government. Areas not previously included were incorporated in the revised census. For details, please refer to the first paragraph in the Background Section above.

Claim 2. There are brick makers affected by the reservoir elevation 76m that have not received any solution up to date.

Response: All oleros affected by reservoir elevation 76m, with the exception of one olero who had not accepted any solution proposed by EBY, have been either relocated or been compensated in cash. For details, please refer to the Background Section above.

Claim 3. Payments made by EBY to indemnify/compensate brick makers are not enough. They were accepted due to the necessity (economic situation) and should be reviewed and increased.

Response: Compensation in cash paid by EBY ranges from \$6,500 for small units producing less than 7,500 bricks/ month, to \$16,000 for larger units producing more than 30,000 bricks/month. In all cases, the amount paid is equivalent to the expected family income over a period of five years. This amount, estimated as the productive life of the clay deposits moreover, is considered adequate to reestablish their lost productive unit and house.

It is important to note that for those oleros who selected relocation instead of cash, the average investment made by EBY per relocated family was about \$27,500 (land and house and a serviced plot for production). These figures do not include the cost of

the technical and social assistance program carried out during the last two years. As a result, it is not surprising that those who voluntarily selected cash compensation instead of relocation are now requesting additional money. We believe that there is no justification for such a request.

Claim 4. Oleros in Garupa and Candelaria must be relocated under the same conditions as those relocated in Posadas.

Response: EBY and the oleros of Garupa and Candelaria have agreed on cash compensation, currently being paid by EBY, on the same terms as for the other oleros. For details, please refer to the Background Section above.

Claim 5. Compensation paid by EBY only benefited the owners of the olerias (small brick industries) but not their helpers, who lost their jobs.

Response: The Resettlement Plan anticipated the relocation and economic recovery of the affected olerias, in order to assure continuity of the activity. However, 99% of the oleros to be affected by further reservoir elevations requested cash compensation instead of relocation assisted by EBY. Once the compensation was paid, owners of the olerias were free to exercise their discretion as to whether or not to continue with their manufacturing activity. Many of them opted to continue, for example, in the Arroyo Zaiman area; others in exercise of their entrepreneurial rights decided not to continue with the oleria and shifted to new economic activities. In conformity with the Bank's resettlement policy, the loss of employment due to the personal choice of the affected owner falls beyond the purview of EBY and the Bank.

Claim 6. In the last two years, EBY has left the oleros with no land, means of production and jobs. They claim compensation for the damage during that period, as well as houses and land.

Response: Replacement houses and land, as well as technical assistance to continue with the brick making activity, were given to those who selected relocation assisted by EBY. On top of this, EBY provided clay delivered at the site of production. For those who selected compensation in cash, no further entitlement for housing and land is required.

Claim 7. All oleros that selected cash compensation instead of relocation received the amount agreed upon with oleros representatives in June 1995 (see records of the meeting). Compensation was based on the level of production of each brick maker and equivalent to the expected family income over a period of five years. For those that selected cash compensation, no other entitlement was required. However, after receiving the money, a group of oleros decided to invade empty public lands (tierras fiscales) in the site called "El Povenir" which had been selected by EBY and the Provincial Government to relocate brick makers affected by elevation above 76m. After the occupation, they requested EBY to improve access and demanded services from the local government. Access were improved by EBY and electricity was provided by the municipality.

Response: It is correct that there were families affected by the Yacyretá project who were not initially included in EBY's census of 1989/1990, due to the following factors: (i) many families came to the area after the census was concluded; and (ii) the Garupa and Candelaria area was not surveyed. Consequently, a follow-up census was undertaken in 1993 and adjustments were made to take into account all of the above cases.

EBY has no obligation to assisting any oleros who may have settled illegally in the affected area since 1993. According to the last Provincial Demographic Census, population migration from rural areas has resulted in the establishment of 18 new neighborhoods (around 6,900 inhabitants) in the city of Posadas. Likewise, according to EBY estimates, there are about 1,800 families that recently settled in the project affected area (between 76m and 83m). On average, this represents one new family per day. According to the proposed amendment to the Third Owners' Agreement, the relocation/compensation of these additional families would be the responsibility of the Government of Argentina.



ACTA DE REUNION

El presente documento contiene las conclusiones y acuerdos alcanzados en las reuniones de la Mesa de Análisis y Concertación constituida para el tratamiento de la relocalización de oleros en Posadas, Garupá y Candelaria, por mandato recibido el día 20/07/94 del Sr. Director Ejecutivo de la Entidad Binacional Yacyretá Lic. Jorge Domínguez y del Sr. Ministro de Gobierno de la Provincia de Misiones Dr. René Oudín.

A continuación se exponen los puntos tratados (contenidos en la agenda acordada) y los acuerdos alcanzados en cada uno de ellos. Se destaca que la agenda de discusión incorporó el conjunto de reclamos presentados por la Coordinadora de Comisiones Vecinales de Afectados a Cota 84, la Asociación de Oleros de la Ciudad de Posadas y la Cooperativa de Industria y Comercio de Producción de Ladrillos de Villa Lanús.

1.a. Cantidad de Oleros afectados:

Se verificará la existencia de oleros que no figuren en el listado anexo al Convenio a fin de incorporarlos al mismo, siempre y cuando figuren en el relevamiento efectuado por la DGMyG y/o se compruebe fehacientemente la antigüedad y permanencia en la actividad.

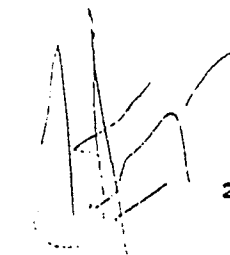
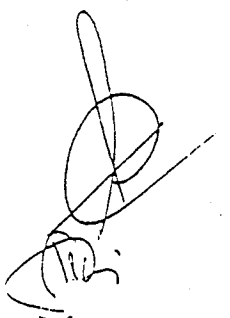
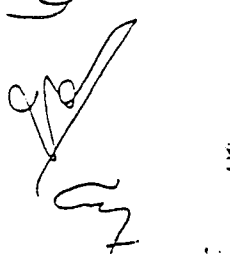
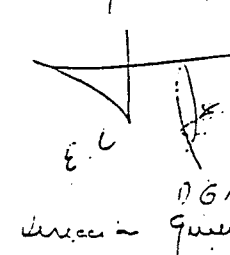
2.b. Características de las parcelas destinadas a la producción:

Se decidió que las parcelas destinadas a la producción serán individuales y los yacimientos no comunitarios, formándose una comisión técnica por cada asentamiento (con participación de oleros) para avanzar en la solución del loteamiento con yacimiento individual. La EBY acepta el criterio exponiendo y aclarando que no asume la responsabilidad por los inconvenientes que pudieran derivar de esta modalidad, la que es asumida formalmente por los beneficiarios, quienes suscribirán individualmente una constancia según modelo adjunto.

La distribución de lotes por asentamiento se decidió realizar por sorteo, asignando 1 Ha. para los que produzcan hasta 21.000; 2 Has. para los que produzcan entre 21.000 y 60.000 y 2,5 Has. para los que produzcan más de 60.000 ladrillos en base a la información de cada caso individual que surgió del relevamiento realizado por la DGMyG.

3.c. Número de Oleros afectados a cota 76:

A cota 76 se ratificó la cantidad de 93 oleros (a verificar según lo acordado en el Punto 1.a.) afectados en esta etapa. Los





 DGMyG
 Dirección General de Muestreo y Geología

misimos se encuentran asentados en las zonas de Laurel y Mártires.

Se decidió la realización de un estudio que deberá estar finalizado el día 20/08/94, tendiente a la determinación de la real afectación de oleros radicados en las riberas del Aº Zaimán (aprox. 171 olerías -a verificar según lo acordado en el Punto 1.a.). Este estudio deberá ser realizado por una comisión técnica integrada por representantes del Gobierno Provincial, de EBY y de Oleros de dicha zona.

Una vez efectuado el estudio referido en el apartado precedente y de acuerdo al resultado del mismo, se procederá a implementar las soluciones que permitan superar la situación planteada por la eventual afectación.

Lo anterior no implica modificación en las responsabilidades asumidas en la cláusula 4 del Anexo II del Convenio Especifico de Cooperación entre Yacyretá y el Gobierno de la Provincia de Misiones.

4.d. Adjudicación de viviendas:

Además de la Unidad Productiva (beneficio que alcanza a todos los oleros) les corresponderá vivienda a quienes cumplan con los siguientes requisitos:

* Para beneficiarios de la Provincia:

- Que vivan actualmente a menos de mil metros de su olería.
- Que tengan más de tres años en el oficio.
- Que no sean propietarios de viviendas.

La Provincia gestionará el financiamiento de estas viviendas dentro del Préstamo AR-3521 del Banco Mundial, y en las condiciones del mismo, ante la imposibilidad de financiarlas con recursos propios.

La Provincia contemplará la viabilidad de alternativas de financiamiento especial para la construcción de viviendas en los lotes con servicios para los que no les corresponda vivienda.

* Para beneficiarios de EBY:

- Estar incluidos en el Censo de 1989/90.
- Vivir en zona de afectación.

Los que sean propietarios del inmueble tendrán derecho a solicitar su indemnización u optar por la relocalización.

Quienes no cumplan con los requisitos anteriores tendrán derecho a un lote con servicios dentro del área urbanizada, exclusivamente para implantar una vivienda o campamento cuya dimensión será de 20m x 20m.

5.e. Plazos para la relocalización:

- Oleros de Mártires y Laurel: antes del 1º de Septiembre de 1994.-
- Oleros del Zaimán incluidos en el total de 277 (a verificar según lo acordado en el Punto 1.a.): antes del 15 de Noviembre de 1994, dando prioridad a aquellos que se verifiquen como afectados en el estudio mencionado en el Punto 3.c.
- Oleros restantes: se continuará hasta relocalizar a la totalidad antes de su afectación.

6.f. Opción de dinero en calidad de indemnización:

Reconversión laboral: para los que quieran abandonar la actividad, solamente se considerarán los casos que opten por una solución rural.

Tanto la EBY como la Provincia no acceden a la petición de una indemnización ya que el programa se orienta al mantenimiento de la actividad productiva y el acceso a la propiedad por parte de los beneficiarios.

7.g. Compromiso escrito entre la EBY, el Gobierno Provincial y los Oleros:

La presente acta se elevará al señor Gobernador y al señor Director Ejecutivo de la Entidad a los efectos correspondientes.

8.h. No al llenado del Embalse:

En virtud de todos los puntos acordados, los oleros deciden retirar esta petición siempre y cuando se cumplan los compromisos firmados en esta acta.

9.i. Que toda la ejecución del proyecto sea realizada por la Dirección General de Minas y Geología:

El organismo designado por el Gobierno para la coordinación de los diferentes entes provinciales que intervienen en la ejecución del proyecto es la Dirección General de Minas y Geología.



10.j. Monto del Resarcimiento:

Se acuerda modificar el monto establecido en el punto 4 del Anexo II del Convenio Específico de Cooperación entre la Entidad Binacional Yacyretá y el Gobierno de la Provincia de Misiones, el que queda fijado en la suma de \$ 2.600, la que se abonará de la siguiente forma:

\$. 1.000.- Inmediatamente después del traslado
\$ 800.- A los 30 días después del primer pago
\$ 800.- A los 30 días después del segundo pago

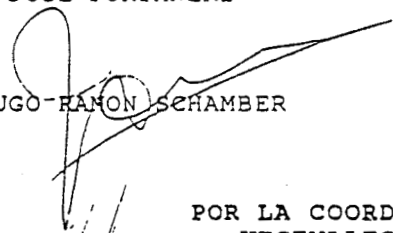
Además se entregará a cada olero un corte de madera para la construcción de su vivienda transitoria de 4m x 5m y las chapas de zinc para el techo. Las entregas se realizarán a un ritmo de 25 unidades por semana

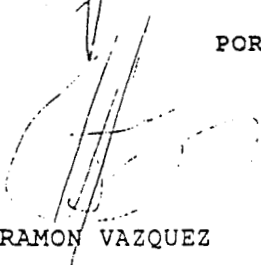
Se constituye la Mesa de Trabajo Permanente que tendrá como misión recibir y analizar las inquietudes que surjan durante la ejecución de estos acuerdos. La Mesa fijará día y hora de las reuniones.

Se firma la presente de conformidad en la ciudad de Posadas a los 02 días del mes de Agosto de 1994.

POR EL GOBIERNO DE LA
PROVINCIA DE MISIONES

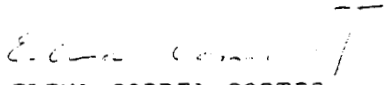

JOSE PORTANERI


HUGO RAMON SCHAMBER


RAMON VAZQUEZ

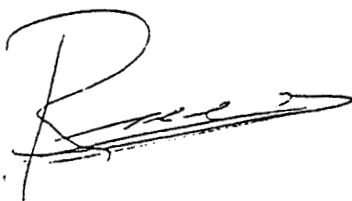
POR LA ENTIDAD BINACIONAL
YACYRETA


CESAR EDIL MENEM


ELENA CORREA CORTES

POR LA COORDINADORA DE COMISIONES
VECINALES DE AFECTADOS POR
LA COTA 84


AMADOR CASTELLANOS



POR LOS OLEROS

Rosalino Gonzalez
ROSALINO GONZALEZ

Zulmira Pedrozo
ZULMIRA PEDROZO

Juan Carlos Vera
JUAN CARLOS VERA

Eleuterio Acosta
ELEUTERIO ACOSTA

Victor Pacheco
VICTOR PACHECO

Antonio Gonzalez
ANTONIO GONZALEZ

Romulo Sanchez
ROMULO SANCHEZ

Bernardo Ferreira
BERNARDO FERREIRA

Juan Acosta
JUAN ACOSTA

Ruben Fernandez
RUBEN FERNANDEZ

Juan Carlos Serrano
JUAN CARLOS SERRANO

Desiderio Gonzalez
DESIDERIO GONZALEZ

Maria Vera Mareco
MARIA VERA MARECO

PEDRO DA SILVA

Ramon Martinez
RAMON MARTINEZ

Ramon Olivera
RAMON OLIVERA

Manuel Rosa
MANUEL ROSA

Armando Rosa
ARMANDO ROSA

Modesto Vazquez
MODESTO VAZQUEZ

Paulino da Rosa
PAULINO DA ROSA

Emma Laudelino
EMMA LAUDELINO

Ireneo Medina
IRENEO MEDINA

Ramon Villareal
RAMON VILLAREAL

Jose Kirickzik
JOSE KIRICKZIK

Ricardo Isidro Salgado
RICARDO ISIDRO SALGADO

Jose Petruk
JOSE PETRUK

Maximiliano Miranda
MAXIMILIANO MIRANDA

Teodoro Jorge da Silva
TEODORO JORGE DA SILVA

[Signature]

POR LA HONORABLE CAMARA DE REPRESENTANTES
DE LA PROVINCIA DE MISIONES

LILIANA IRRAZABAL
DIPUTADA PROVINCIAL

LUIS A. REY
DIPUTADO PROVINCIAL

POR EL HONORABLE CONCEJO DELIBERANTE
DE LA CIUDAD DE POSADAS

LUIS ARNOLDO JACOBO
DEFENSOR DEL PUEBLO

NELSON LUKOWSKI
CONCEJAL

PABLO MARTINEZ PIRES
CONCEJAL

En la ciudad de Posadas, Provincia de Misiones, a los 2 días del mes de junio de 1995, siendo las 15,30 hs. se da inicio a una nueva reunión de la Mesa de Análisis y Concertación con la presencia por parte de la E.B.Y. del Ing. Roberto Salem, de los Lic. Hugo Amable, Laura de Perini y Miguel Ramos y el Agrim. Héctor Ringa, el Lic. José Portaneri en representación del Gobierno Provincial, y del Defensor del Pueblo Luis Jacobo en representación de la Municipalidad de Posadas y de los delegados de los oleros de los asentamientos del A° Zaimán.

El Ing. Salem pone a consideración los valores que se ofrecen como compensación por indemnización, aclarando que se toma como producción mínima conforme al censo efectuado por la D.G. de M. y Geología 7.500 ladrillos/mes.

Los rangos de producción son los siguientes:

Hasta 7.500	\$ 6.500.-
Hasta 15.000	\$ 8.000.-
Hasta 21.000	\$ 9.600.-
Hasta 30.000	\$ 12.800.-
Más de 30.000	\$ 16.000.-

Forma de pago: 30, 60 y 90 días

Para los que acepten la indemnización y quieran la tierra, se les descontará el valor de la misma según la tasación que efectúe el Tribunal de Tasaciones de la Provincia.

Queda pendiente la opción de relocalización para establecer un nuevo cronograma una vez obtenida la respuesta a esta nueva propuesta.

Se pasa a cuarto intermedio para que los representantes de los oleros analicen la propuesta.

Se reanuda la reunión y el Sr. Zurko efectúa las siguientes propuestas para los 223 titulares según padrón.

1) Pregunta si la indemnización anula o no el beneficio de la vivienda.

El Ing. Salem responde que los beneficiarios de la E.B.Y. que les corresponda la vivienda no pierden su derecho.

El Lic. Portaneri aclara que no puede responder en este momento por la Provincia.

2) Propone que la forma de pago sea Contado, 30 y 60 días con los saldos documentados mediante pagaré o cheque.

El Ing. Salem responde que acepta las condiciones de pago, pero que los saldos no pueden documentarse de esa forma y que se hará por acta de avenimiento individual.

3) Propone que los que acepten la indemnización y quieran la tierra como parte de pago, que el saldo se abone de la misma forma que en el punto anterior.

Se acepta.

4) Para los que quieran continuar con el programa de relocalización oportunamente acordado según Acta de Acuerdo de fecha 20.07.94, que se establezca la fecha en la que va a continuarse con el mismo.

El Ing. Salem responde que una vez que se tenga en claro la cantidad de gente que opte por la nueva propuesta, se establecerá un nuevo cronograma de relocalización.

5) Para los que están autorrelocalizados en El Porvenir y que opten por el programa de relocalización que se les entregue el corte de vivienda y el pago del resarcimiento según acta de acuerdo, ítem 10j.

El Ing. Salem responde que está de acuerdo.

6) Se continúa con el pago del Apoyo Alimentario hasta que se efectiviza la solución.

Rosa Candia M. Morán Buzio

Ramos y Portaneri

Respecto al pedido de los oleros autorelocalizados en "El Porvenir", se preve efectuar un análisis de la situación de los mismos, quedando en claro, con el acuerdo de todos los presentes, que no se incluyen en ninguna de las soluciones que se plantean en esta Mesa las personas asentadas que no cuentan con censo E.B.Y. o Provincia.

Se solicitará un presupuesto para la instalación de la luz eléctrica, expresando el Sr. Zurko que los mismos oleros se ofrecían para efectuar la colocación de los postes.

A pedido del Sr. Miranda, se pasa a un cuarto intermedio de 15 minutos, siendo las 16,45 horas.

Reiniciada la reunión el Señor Kovalewski efectúa una moción de orden general, solicitando que la E.B.Y. de cumplimiento en forma integral al Acta de Compromiso acordada oportunamente, y que dado el atraso en que se ha incurrido, se implemente:

a) Un resarcimiento igualitario para todos los afectados de 500 \$/mes en concepto de ayuda alimentaria, y hasta tanto se produzca alguna de las siguientes opciones, no excluyentes:

- 1) Relocalización
- 2) Indemnización

Solicita que se dé a conocer la propuesta indemnizatoria a la mayor brevedad.

Luego de la intervención de varios representantes oleros, como asimismo de los representantes del Gobierno Provincial y de la Municipalidad de Posadas, se conviene en que el Ing. Salem traerá una respuesta para la próxima reunión en que esté presente, la que se conviene en realizar aproximadamente dentro de 15 días, pero que a los efectos de mantener la mecánica de reuniones y el análisis de los problemas en forma mas detallada, la Mesa de Concertación volverá a reunirse el próximo jueves 4 de mayo a las 9 hs.

No habiendo otros temas que tratar, se da por finalizada la reunión, siendo las 18 y 30 hs..

Pal
PA
Ramiro Villanueva
RESTA
comodoro MACRO AVINCO
PA
PA
X Zurko
Hilberto Smith
guy
el V. de la
PA

MUNICIPAL COUNCIL OF THE CITY OF POSADAS

The Municipal Inter-institutional Council for the Yacyretá project presented several complaints grouped in three different areas: environment, productive activities, and social activities. Below are the claims and responses grouped accordingly:

Environment

Claim 1. No studies nor final projects have been prepared for coastal treatment, and the urban creeks did not receive treatment. This resulted in a continuous growing of unhealthy vegetable mass.

Response: Coastal treatment studies and designs are being planned for reservoir operation at higher elevations. At the actual elevation of 76m, there has been a minimum of disruption of coastal areas. Nevertheless, the areas that were flooded were cleaned of construction wastes, latrines were closed and sanitized, and outstanding trees were removed in some areas; in addition minor erosion protection works will be executed as needed during reservoir operation at elevation 76m. Major coastal protection works are not envisioned except for reservoir operation at 83m. For lower reservoir operation, water levels in the flood plain will continue to behave in the same manner as in natural conditions for flows above those that can be controlled by the operating level. Lateral bays are of minimum size at elevation 76m. Pollution of urban streams is caused by untreated sewage disposal, not by reservoir levels.

Claim 2. There are no studies to determine and monitor the behavior of underground waters and freatic levels.

Response: Groundwater behavior will be studied under a hydrogeological study to be carried out by an international firm. Appointment of the consultant is expected by September 1997, and the works should start shortly after. The results of this study will help to establish the specific requirements for reservoir operation at higher levels.

Claim 3. The projects and works to cover the overall sewerage system of the city of Posadas have been stopped because the main collectors and treatment plant (under the responsibility of EBY) have not materialized yet. No works have been executed to alleviate the existing environmental impact.

Response: The sewage collection works for Posadas as a whole have not been affected by delays in the construction of the main collectors and treatment plant by EBY. The lack of progress to date has been caused by APOS's inability to handle the construction and operation of the new system. World Bank financing of the water and sewage collection systems in Posadas is conditioned on improvements in APOS's institutional capacity and appointment of a private operator for the operation and maintenance of the system and construction of new facilities. The bids for the construction of the main collectors and

treatment plant were received by EBY, and the construction contract is expected to be awarded in September 1997.

Productive Activities

Claim 4. The fishing activity downstream of the dam has practically disappeared because of the reduced fish migration through the fish transfer facilities at the Yacyretá dam.

Response: It is true that the Yacyretá Dam (and any other large dam of its kind) serves as a barrier to natural fish migration patterns, with limited fish passage upriver through the fish elevators and downriver through the turbines and spillways. Nonetheless, the monitoring being carried out under the Yacyretá Project indicates that many commercially valuable fish species remain abundant, both above and below the dam. Within one kilometer upriver and down river of the dam, fishing is prohibited for safety reasons and to improve sustainability, since the concentration of migratory species below the dam makes them unnaturally easy to catch. Illegal fishing within this prohibited zone remains a problem (mostly in Paraguayan waters), although it has apparently declined due to recent enforcement efforts. Outside of this prohibited zone, fishing activity remains high, both up- and downriver of the dam.

Claim 5. Because of the Yacyretá project, the brick makers production has been reduced. The situation is aggravated by the fact that the new clay deposits given to the relocated oleros do not have enough clay and, if they do, they are of poor quality.

Response: Based on the recommendations of the Technical Report prepared by the Mines and Geology Division of the Province of Misiones, EBY bought land with clay deposits in Nemesio Parma and relocated oleros affected by elevation 76m. According to the mentioned report, clay deposits had adequate and sufficient clay for ten years' production. For efficiency purposes in clay exploitation and because of the characteristics of the material (not as good as the river clay deposits), the report recommended technological adaptations, technical assistance, and communal exploitation of the clay deposits. In 1994, ninety three productive units were relocated by EBY. The oleros rejected communal exploitation, and decided instead on a division of plots, individually own and exploited, taking the risk that some of them might not necessarily have clay in their property (see records of the meeting dated 20/07/94). In July 29, 1997, EBY received 6 offers in response to the bidding for provision of the equipment (truck and excavation equipment). EBY is currently assessing the offers in order to adjudicate the contract.

EBY provided technical assistance to recover previous production levels but has encountered an unforeseen difficulty. Contrary to the findings of the Technical Report, the replacement clay deposits do not have the quantity and quality required for the brickmaking production. This was confirmed by an EBY study carried out in 1996, one and a half years after the relocation. To solve this problem, EBY has developed several complementary alternatives including access to river clay deposits still available in the zone already acquired by EBY, technical assistance to those using the available material

(non-river clay), productive programs for developing complementary income sources, such as gardening and domestic animals, and organization of a cooperative to help in solving production problems. During a supervision mission in March 1997, EBY and the Bank agreed, additionally, to provide the oleros with equipment (trucks and excavation equipment) for transport and gathering of material from river clay deposits and other clay sources. This agreement is currently under implementation.

Claim 6. There are 200 brick makers still waiting for a solution from EBY to their problems.

Response: All the oleros except one have been either relocated or given cash compensation, including those located in Garupa and Candelaria.

Claim 7. Some of the brick makers had to accept miserable compensation from EBY and relocate themselves to the Porvenir area.

Response: All oleros that selected cash compensation instead of relocation received the amount agreed upon with oleros representatives in June 1995 (see records of the meeting). Compensations were based on the level of production of each brick maker and equivalent to the expected family income over a period of five years. For those that selected cash compensation, no other entitlement was required. However, after receiving the money, a group of oleros decided to invade empty public lands (tierras fiscales) in the site called "El Porvenir" which had been selected by EBY and the Provincial Government to relocate the brick makers affected by elevation above 76m. After the occupation, they requested EBY to improve access and demanded services from the local government. The access were improved by EBY and electrify was provided by the municipality.

Social Activities

Claim 8. Under Argentine law, the fact that realty in the Yacyretá area has been declared subject to expropriation since 1980 means that owners of affected land are restricted in their ability to improve their properties because improvements made after the declaration of expropriability will not be compensated by the expropriating party. Also as a result of this legal situation, areas to be flooded by the Yacyretá reservoir do not receive basic services (water supply, transportation and others) from the municipal or provincial authorities.

Response: Argentina's expropriation law (No. 21499, first published on January 21, 1977) applies in the Yacyretá case and indeed does specify in its Article 11 that "compensation will not be awarded for improvements, except necessary ones, that are made to the property after the property was officially declared to be subject to expropriation" ("no se indemnizarán las mejoras realizadas en el bien con posterioridad al acto que lo declaró afectado a expropiación, salvo las mejoras necesarias"). This in no way means that owners cannot improve their properties; in fact, owners who made improvements soon after the Yacyretá area was declared subject to expropriation in 1980

have had almost twenty years during which to enjoy such improvements. It does mean, however, that such owners may find a legal bar to compensation for such improvements when actual expropriation does take place (prior to the actual expropriation of their properties), unless they can demonstrate that the improvements were "necessary" (building an addition to a house to accommodate a growing family is an example of a necessary improvement).

Legal provisions such as those contained in the cited Article 11 have a sound basis in that they are designed to discourage speculative improvements which can result in an unwarranted drain on the resources of the expropriating authorities and can thus harm the interests of the tax-paying citizenry at large. Only when, as in the Yacyretá case, actual expropriation of properties affected by such provisions is unduly postponed (because of, for example, construction delays) does the impact of such provisions become larger. However, it is possible that, in the face of such delays, Argentine courts may be persuaded to adopt an interpretation of the term "necessary improvements" that takes appropriate account of the effect of time.

As for the claim that the local authorities, because of the impact of the expropriation law, do not provide adequate infrastructure in areas to be flooded by the reservoir, the key point is whether: (a) as a result of the Yacyretá project, services already present were removed from those areas by the authorities and not replaced; or (b) whether it was reasonable to expect, in the absence of the Yacyretá project, that additional services now missing in the areas would have in fact been provided by the authorities. As for point (a), we are not aware of any elimination of previously existing services. As for point (b), our understanding is that at least a portion of the areas in question would probably have remained marginalized since the area is on a flood plain subject to annual inundations. Furthermore, now that the project is underway, a portion of such areas is also subject to illegal invasion by settlers and extending public services to the areas would only encourage even more illegal settlers.

Comment on the List of Projects

The reconstruction of affected urban infrastructure is one of the most serious challenges for raising the reservoir to its highest operating level. The list presented in the Council's letter represents a best preliminary estimate of the total works that will be required for elevation 83m. The necessary design, implementation chronograms and budgets for carrying out the construction of urban infrastructure will be part of the tasks of an engineering consulting firm to be hired in September 1997. Minor protection works are envisioned for intermediate operating levels. Any urban area flooded at these intermediate levels will be subject to standard clean up operations (sealing of latrines, and the removal of fences, trees, construction wastes, trash, etc.). Water quality and vector monitoring systems have been in place since prior to reservoir filling. EBY, through a Convenio with the University of Misiones, has prepared a proposal for the implementation of an industrial pollution control system for the uppershed (up to Itaipu) of the Parana River.

HONORABLE CHAMBER OF REPRESENTATIVES OF THE PROVINCE OF MISIONES

Claim 1: The Government of Argentina (GOA) and EBY have failed to implement the resettlement and environmental works (defined as complementary works) required by the project, as agreed with the Bank, and the Bank has failed to exercise its leverage to press the Borrower to comply with agreed commitments. The Chamber request the Bank to use all of its resources to ensure that all pending works are completed as planned.

Response: As previously reported to the Board, the Bank urged (on April 13, 1996) the GOA to agree on a plan of action to complete by December 1997 all pending actions related to elevation 76m, and to establish an escrow account for ensuring financing of these works. On May 1996 the plan of action was agreed. On July 1996 a special account was opened to start implementation of the most urgent works, and in October 1996 the escrow account was established. As of June 30, 1997, 74 % of the plan has been executed and is expected to be completed as scheduled.

Because of the macroeconomic crisis faced by Argentina, the GOA decided to reduce by half in 1995 and to eliminate in 1996 its budget contributions to the project, which delayed and almost stopped implementation of environmental and resettlement works required for reservoir elevations 78m and 83m. In addition, because of the failure of the Governments of Argentina and Paraguay to complete these works through a privatization scheme (rejected by both Congresses), the GOA decided to keep operating the reservoir at elevation 76m until further decisions are taken to complete the project. On December 1996, the Bank urged the GOA to agree on a Plan of Action to address the adverse resettlement and environmental impacts resulting from the prolonged operation of the reservoir at elevation 76m. On January 1997, a Plan of Action satisfactory to the Bank was received, and by April 30, 1997, the GOA and EBY satisfied the major institutional, administrative, and financial requirements to permit implementation of this plan. Implementation of this plan, to be completed by December 1999, started in May 1997, and is progressing as planned. An amendment to Bank Loans 3520-AR and 2854-AR to support partial financing of the above plan is under discussion and is expected to be signed in late August 1997.

Claim 2: The Bank failed by approving a plan to raise the reservoir level by stages, first to elevation 76m and later to elevations 78m and 83m (final design level). Consequently, investments for key resettlement and infrastructure works were postponed, in favor of completing major civil works and electro-mechanical installations for the power house.

Response: The GOA's plan to raise the reservoir level to 76m was accepted by the Bank on the basis that: (i) reservoir elevation to 76m would take place in September 1994, after completing all of the minimum strictly needed resettlement and environmental works; and (ii) reservoir elevation to 78m would take place on September 1995, after completion of all agreed resettlement and environmental works needed for that phase; and then continue to elevation 83m once the remaining resettlement works were done. Construction

schedules for major civil works and commissioning of generating units were to continue as planned, along with the implementation of the environmental, resettlement and other complementary works. Revenues from the GOA and from sales of electricity were to assist EBY in meeting its counterpart funds obligations to the project. According to the plan, all works were to be done in sequence, and it is not correct to say that the plan for elevation 76m included a reprogramming and postponement of other resettlement and environmental activities required for elevation 78m and 83m.

In fact, reservoir elevation to 78m did not take place in September 1995, as planned, because of the financial crisis explained . Although the Bank did not foresee, at that time, the adverse impacts because of the prolonged operation at elevation 76m, the Bank took a very strong position with the GOA, immediately after the GOA informed the Bank of its decision to remain at elevation 76m for an unconfirmed period of time. The outcome of the Bank's position is precisely the base program (Plan B) that EBY is implementing today.