NIGER BASIN DEVELOPMENT PLANNING PROJECT

(625-0915)

FINAL EVALUATION

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TABLE OF CONTENTS

ANNEXES

FORWARD

The intent of this evaluation report is to provide USAID/Niamey and its sister AID missions in Niger Basin countries with a tool to assist planning and decision-making for basin development. With the acknowledged benefit of hindsight, the evaluation team thus presents its findings and recommendations to the AID missions and to the Niger Basin Authority Executive Secretariat.

The team is aware of the limitations of the report. We realize that our short time in Niger did not allow us to investigate the design and implementation history of the project as thoroughly as we would have liked. For example, NBA financial management and the secretariat's recurrent costs are important factors that the team did not address. Likewise, our discussion of donor collaboration and coordination lacks precision because not all donor representatives were available to us and some of those we met were not entirely informed about their past, current, or future role in support of the Authority. Further, time did not allow us to visit other NBA member states and USAID field missions in the course of the evaluation. This we regret. The NBA, the USAID Mission, and the Corps of Engineers should thus examine our report with this in mind.

The team accepts responsibility for any errors of fact, the unintentional omission of relevant detail, and the conclusions and recommendations that are offered herein. However, we would suggest that three weeks was too little time in which to fully review the implementation history of this project and also comment on the current feasibility of the planned second phase.

The team wishes to underscore the fact that the evaluation effort was conducted with an awareness of AID/Washington's current review of the utility of regional projects and the management time they demand of field personnel. With this in mind, we took an especially hard look at the two bottom line options--continuing or ceasing AID support to the Authority.

The timing of the evaluation to coincide with the Niger Basin Authority Council of Ministers meetings was fortuitous. The team was afforded a look at the Council, its Committee of Experts, and the NBA secretariat in action. This helped offset the problem posed by the team's lack of access to NBA personnel during the first week of our work in Niger.

The evaluation team wishes to thank the NBA, USAID/Niamey, and the Army Corps of Engineers for the cooperation afforded us. To AID Assistant Evaluation Officer Clinton Doggett and Project Officer Michael Gould we express our appreciation for the assistance, support, and courtesies they extended to us.

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1.0 EXECUTIVE SUMMARY

In 1977 in concert with several other donors, USAID agreed to assist the then Niger River Commission (NRC) to begin a number of both short term and more comprehensive studies. The short term studies were intended to facilitate immediate investments in various member states. The comprehensive studies were to result in the identification of a) requirements for additional information, tasks, personnel, and financing to produce an integrated development plan for the entire basin; b) a program of long term investments to implement the plan; c) the institutional needs of the Commission to oversee the planning and execution of the basin development.

The donor group pledged aid for institutional support to the NRC, essentially financing for technical assistance to help execute the studies and set forth the development and investment plans. AID's contribution was complementary to that of other donors and included support for information gathering and surveys on agriculture, topography, mapping and remote sensing, education and training, environmental conditions, health, and social systems. The AID project design was feasible though ambitious.

No implementation progress was made for four years. The abortive start can be blamed on institutional difficulties (management) within the NBA, the hard task of marshaling the support of nine member states with differing financial capabilities and development agendas, the large problem of coordinating and sustaining diverse donor support, and an insufficient amount of time in which to accomplish all that was planned. In particular, an important condition precedent to the disbursement of AID funds which went unfulfilled stalled implementation of the project. This condition required the NRC to have signed agreements with other donors as evidence of the impending start-up of their activities. The NRC thus found itself in a catch-22 situation. As management difficulties in the NBA became severe and member state support for the organization waned, so did donor support. The grandiose plan of 1977 was not realized.

Revitalization of the organization was attempted in 1980. The member states refined the role and responsibilities of the agency, and it was given a new name--the Niger Basin Authority (NBA)--to better reflect the broadening of its mandate. The new NBA was to focus more on planning and coordinating basin development and seeking investment. Its regulatory function was deemphasized. The member states replaced the NBA management and reaffirmed their support, both political and financial, to the organization.

In the wake of this revitalization effort, AID also pledged continued support to the NBA. Essentially dormant for four years, the AID project was rescuscitated in 1981. However, it was amended and scaled down to focus on a geomorphic analysis of the river and the compilation of hydrological and other information necessary to analyze various development alternatives. Conditions precedent were considered to have been met. The U.S. Army Corps of Engineers signed a Participating Agency Services Agreement with AID to provide technical assistance to the NBA. This agreement called for the COE to assemble relevant hydrological and other information from secondary sources, to establish a data storage and retrieval system, to arrange short and long term training for NBA member state employees, and to offer limited institutional development support to the NBA.

Although the Corps of Engineers had barely begun its work, in 1982 AID/Washington approved a follow-on project as set forth in the Phase II proposal. The project just having gotten underway, neither a mid-term nor a final evaluation of Phase I progress had at that time been conducted. Nevertheless, funding of $11.2 million was authorized to update the data storage and retrieval system; to develop a water-sediment routing model of the river and to analyze six alternative development options; to inventory basin environmental conditions; to perform an impact analysis of the environmental effects of the proposed Kandadji Dam; to conduct a $3.3 million socioeconomic study; to provide technical assistance to an NBA planning unit; to furnish short and long-term training, and other institutional support.

Over the past twenty-four months the Corps has provided technical assistance in the form of a resident project manager in Niger and backstopping services in Vicksburg, Mississippi. The quality of these services has been commendable. The performance of the Corps in meeting the technical aspects of the terms of reference contained in the PASA has been good. The data storage and retrieval system is state-of-the-art. The geomorphic analysis--with certain reservations--represents a job well done. However, the Corps did not fully meet its responsibilities regarding training and institutional development.

During the same period, the Niger Basin Authority has gone through another crisis, similar to that of the late seventies. Its senior management has been ineffective, and the agency's limited resources, particularly its personnel and its finances, were not properly utilized. Internal dissension reduced staff effectiveness. The organization lurched from one financial crisis to another. Staff salary payments have regularly been in arrears. The Executive Secretariat saw its relations with member states and donors deteriorate and their support once again decline. Requests for a larger budget and increased personnel levels were refused. The member states' Council of Ministers and the Committee of Experts reviewed NBA performance and judged it adversely. A financial audit was required. From its proximate vantage point, Niger's Ministry of Plan was asked to monitor NBA operations. The Executive Secretary and his Deputy were removed. Morale suffered.

The Niger Basin Authority has made little progress toward putting together an indicative river basin development plan. Nonetheless, and in spite of its problems, it can point to a few solid accomplishments. These include the action plan for 1981-82 and the five year development plan covering 1983-87. In the latter, a program for redressing the agency's problems is set forth. The AID-supported data storage and retrieval system is in place and functioning. A classification and analysis of the geomorphology of the river has been completed. The appointment of a new Executive Secretary and Deputy seems to have resolved, at least temporarily, the leadership crisis. At the same time, job descriptions, operational systems and procedures, and staff regulations are being defined. Personnel grievances are being addressed. Member states agreed during the November 1984 Council of Ministers meeting to pay their 1984 assessments, a decision which had depended on consultations regarding resolution of a number of other problems. In name at least, a planning unit has been created consisting of the Executive Secretary, his Deputy and three Technical Directors. Some donor representatives seem to be cautiously optimistic about these modest accomplishments and the organization's role in the immediate future.

Should U.S. taxpayers continue to support the Niger Basin Authority? Is their another organization better able to plan and coordinate basin development? Should development of the river's resources be both planned and implemented on a bilateral basis? Does it make better sense to target U.S. development assistance toward other, more concrete activities such as helping increase food production?

The Sahelian countries are once again suffering the ravages of drought and famine. Although experts have acknowledged the potential for improving production and productivity in rainfed agricultural areas, experience over the past fifteen years has shown us that nowhere in the Sahel can people and governments rely exclusively on rainfed crop production. Even in relatively developed areas like the peanut basin in Senegal the return on investments in rainfed production has been less than encouraging, subject to the vagaries of climate, uncertain world markets, neophyte institutions, increasing populations, and a fragile ecology.

In spite of the high capital costs required by the development of irrigation and the elusiveness of social soundness of such development, it is fairly clear that only a substantial increase in properly exploited irrigable hectarage over a long period of time can satisfy the need to stabilize and perhaps augment food production. The expansion of irrigation, however, depends on carefully planned long-term economic and social development of the basin, including rational use of the available water, producer involvement in decision making, increased efficiency of water use, and closely monitored agreement on water sharing among the member states.

A number of water storage projects on various reaches of the river are currently in the planning stages. Any of them could have potentially negative effects on the downstream flow and thus on the riverine populations which depend on this vast resource. The technical, socioeconomic, and environmental perspectives demand that any major water resource development in the basin be thoroughly investigated, planned, engineered, implemented, and operated to the maximum benefit of the basin nations and people as a whole with minimal negative effects.

The evaluation team views the development of the basin as a long-term proposition demanding sustained and consistent donor support. We acknowledge the reality and dynamics of political development within the NBA member states as well as the evolutionary nature of political relations between them. With long-term social and economic development in mind, the team concludes that planning, coordinating,and regulating the development of the river basin is properly the role of a multi-state basin-wide agency and that, given the support of its member states, the Niger Basin Authority remains the organization with the best potential to fulfill this important role.

In this context the evaluation team recommends continued USAID support to the NBA in the form of a Phase II project but more limited in scope than was planned. The Phase II project must be redesigned. The team suggests that the first step in this process should be the performance of both an institutional and a management analysis of the NBA to identify agency needs and functions with an emphasis on development planning, financial programming, and donor coordination. Depending on the results of these analyses, the redesign should limit AID second phase support to funding for updating the data storage and

retrieval system; developing the water-sediment routing model; analyzing six development alternatives with the primary focus on agriculture; conducting an environmental inventory; assembling relevant socioeconomic data from secondary sources; and offering short term on-the-job training to selected NBA staffers.

The team believes that USAID and other donors must seek to convince the Council of Ministers, the Committee of Experts, and the NBA secretariat of the critical importance of planning and its role in the development of the river basin. In this context, AID support should be conditioned on the staffing of a bona fide planning unit in the NBA by qualified member country or expatriate personnel. Instead of furnishing five long-term technical assistants as was planned, AID should initially fund only one--a river basin planner. Based upon the results of the management and institutional analyses and to supplement technical assistance that the UNDP has pledged to the planning unit, the redesign should identify other technical assistance needs. Both long and short term expertise will likely be necessary for the following tasks: the identification of social, economic, and environmental data availability and needs for indicative planning purposes; the assembly, computerization, and analysis of such information; the identification of data gaps and additional needs, if any; the improvement of NBA institutional management; and the efficient coordination of donor activities with member state interventions. The redesign should budget for such technical assistance needs as are jointly determined by the NBA and AID with regard for what expertise other donors are both willing and likely to furnish.

In addition to fully staffing the planning unit and making it operational, the NBA should be asked to form a Donor Consultative Committee. This committee should establish working groups to monitor the resolution of NBA institutional problems, to reexamine the current status of donor projects and joint objectives, and to lay the groundwork to convene a formal NBA-donor conference in late 1985.

2.0 BACKGROUND

2.1 THE RIVER AND THE BASIN

The Niger River is the third longest in Africa and tenth longest in the world. It flows 4180 kilometers from its source in Guinea to the Bight of Benin. Its drainage basin covers a surface area of about 2.2 million square kilometers and includes parts of nine countries--Benin, Burkina Faso, Cameroon, Chad, Ivory Coast, Guinea, Mali, Niger, and Nigeria. Between them, these countries contain some 142 million people, or 33 percent of the population of all of sub-Saharan Africa.

For these nations and their peoples, many of whom inhabit the arid reaches of the sahelian zone, the Niger River is an important economic resource. It provides drinking water for people and animals, and fish for human consumption. Following the annual rains, it recharges lakes and aquifiers which sustain much of the rural population. It facilitates crop production through irrigated and recessionary agriculture, is a means of transport and distribution of foodstuffs and freight, and is slightly exploited for hydroelectric power.

2.2 THE RIVER BASIN AND THE NBA

In November 1964 the nations of the river basin signed the Treaty of Niamey which created the Niger River Commission (NRC). This treaty was amended in 1968 1973, 1979, and most recently in November 1980 when the NRC was transformed into the Niger Basin Authority (NBA). The original role of the Commission to oversee and engender cooperation for navigation and transport evolved into that of planning and promoting the harmonious and integrated development of the river and its tributaries. The objective of the change from Commission to Authority was the revitalization of the agency in the wake of institutional failings following the ambitious program put together by the member states and donors in 1976 and 1977.

The intent of the program was to conduct two sorts of studies. First, those which would lead to immediate investments on a short term basis were to begin right away. At the same time, more comprehensive studies focused on the potential long term development (by stated priority) of irrigation, electrical energy, navigation, water supply for human consumption and possible industrial mining, fisheries, and flood warning and control systems. The comprehensive studies were to result in an integrated river basin development plan which would be but one product of joint NBA-donor activities. A second product was to be the identification of immediate development projects. A third product of the program was seen as long term interventions such as dams and navigation improvements requiring sustained donor support.

Included in the program was the original AID project. USAID and NBA objectives at the outset of the project were remarkably concurrent.

2.3 GOAL AND PURPOSE OF THE PHASE I PROJECT

The goal of the project was to assist the Niger Basin Authority to design and undertake a coordinated program for the development of the land, water, and human resources of the Niger Basin for the benefit of the basin population. The goal remained unchanged when the 1977 project was amended in 1981.

The purpose of the project was twofold: a) to establish the analytical base (Diagnostic Study) and planning framework (Action Program) required for the preparation of an indicative basin development plan and investment program; and b) to commence the process of strengthening the institutional capability of the NBA to carry out an effective program of planning and development for the Niger River Basin. The purpose likewise remained the same when the original project was amended.

2.4 TIMING

The original project authorized in July 1977 was to last for two years. The amendment of September 1981--four years later--extended the project funding through March 1983. This was subsequently extended through December 1985.

2.5 BENEFICIARIES

The project amendment identified the ultimate beneficiaries as "the rural poor who live in the Niger River Basin...estimated to number more than 40,000,000." Neither the international civil servants employed by the river basin agency, nor the contractors to be engaged to execute project activities, nor the schools and students in the training component were named as beneficiaries.

2.6 ANTICIPATED OUTPUTS

The original 1977 project was to result in:

a) a comprehensive diagnostic study which would identify existing and potential basin resources; indicate member states' projects already completed or underway as well as future development plans; and set forth the terms of reference and budgetary needs for preparing an integrated basin development plan and an investment program.

b) institutional progress consisting of member state personnel able to staff the Executive Secretariat and help prepare the development plan and investment program; a physical situation for the NBA--equipment and materials--necessary to carry out the planning and programming, with the exception of the offices needed; the architectural designs for an office complex; member state personnel undergoing long term training; and an expatriate advisory staff assigned and functioning within the organization.

2.7 INPUTS

In the 1977 project, funding of $1,350,000 was provided for: 48 p/m of long term technical assistance (a Water Resources Planner and a Land Use Analyst); short term technical assistance to help execute contract studies in topography,

remote sensing, mapping, social surveys, and environmental research; 4-week study tours in the United States for none NBA staffers conducted by the Bureau of Reclamation; long term U.S. academic training for six NBA people; architectural and engineering services to design and cost an office complex; and limited logistical support.

2.8 THE PROJECT AMENDMENT

The scope of the original project was considerably reduced by the 1981 amendment. The plan for diagnostic study was replaced with the first stage of a river systems analysis and development modeling program. This first stage was to consist essentially of assembling secondary hydrological and other data and creating a storage and retrieval system for it. The $540,000 already budgeted for the diagnostic study component was increased by $500,000 to accomplish this. Other components of the original AID project were unchanged with a single exception--short term training in the operation of the data storage and retrieval system was to be provided to NBA personnel.

The amendment thus set forth Phase I of AID assistance to the NBA. A subsequent phase was to follow, during which the actual analysis and modeling would be done.

3.0 THE PHASE I TECHNICAL PROGRAM

3.1 BACKGROUND

The technical program managed by the Army Corps of Engineers during Phase I consisted primarily of assembling the existing climatological, hydrologic, geomorphic, and land use information on the Niger River Basin to (1) create a data storage and retrieval system (DSRS) to make the information accessible and exploitable, and (2) prepare a geomorphic analysis of the basin. The data and geomorphic analysis were intended to be the first step toward developing a water-sediment routing model to be used to weigh various development alternatives and prepare a basin-wide development plan.

The data bank was to be located in the United States to enable the Corps to exploit the data via various computer models in a subsequent phase of the project.

The collection effort was aimed at assembling secondary data from a number of sources, including member states' water resource agencies, WMO, and ORSTROM.

Information collected included:

--river stage-discharge records and precipitation records
--river cross sections
--sedimentation data
--soil and topographic maps
--aerial photographs
--reservoir area-capacity curves
--descriptive information of existing and proposed projects

The NBA sought to focus the Phase I data collection effort on information related primarily to planning the development of river navigation. This focus was derived from the organization's historical concern with the regulation and development of river transport. With the emphasis on navigation, it was appropriate to contract the COE to manage the technical program. The Corps' expertise is clearly the development and management of navigable waterways and harbors.

3.2. GEOMORPHIC ANALYSIS

The project (as amended) proposed the development in two phases of a river systems analysis model. The first step in the development of a model for a river system is a basic, analytical understanding and documentation of the terrestrial form, surface features, and processes of the river and its basin. Phase I therefore called for a geomorphic analysis of the river basin which included the following factors:

--topography
--climate: temperature, wind, and precipitation
--soils
--vegetation
--land use
--surface water: river typology, beds materials, geologic controls, and deltas and swamps
--existing water resource projects

The analysis was to be supported by maps and overlays showing profiles, gauging stations, zones of aggradation and degradation, channel stability, natural controls, navigability and dredging possibilities. Because a large amount of aerial photography, mapping, studies of various types, and other data on the river basin was known to be available, the analysis was based upon these secondary sources, supported by aerial and field reconnaissance.

The analysis was carried out between August 1983 and November 1984 and the results are documented in a ten-chapter report with ten map appendices. This is the first complete compilation of the geomorphology of the entire basin. As such, it provides a concentrated wealth of high quality information on the physical characteristics and processes of the river and its basin. It also establishes the common physical base for the interdisciplinary study and planning. Most of the various characteristics and processes are covered by the analysis, some well beyond the original terms of reference. Particularly noteworthy are the identification and geomorphic-hydrologic classification of the river into twenty-three reaches, the knowledgeable treatment of sediment transport in the river system, and the informed discussion of commercial navigation on the river. These are the first comprehensive analyses of their kind in the basin.

The geomorphic analysis would probably have benefited from more specific and complete terms of reference, particularly in guidance on investigation of existing land use and water resources projects. Implied but not clear in the terms is consideration of the extensive recessional and irrigated agriculture in the basin. Another factor in the terms of reference--precipitation patterns--could have been interpreted as areal or temporal variability within a season or over a decade. Groundwater could also have been included, especially the interaction of the shallow aquifer of the river bed with deeper formations. Firmer initial guidance may have prevented the shortcomings discussed below.

The geomorphic analysis is weakened by two significant shortcomings.

First, the section on water resources projects and land use called for in the terms of reference is both too general and incomplete. The report mentions a "data gap" on irrigation, but relatively more time should have been devoted to these topics by the contractor, and rather less, if time was a constraint, on the discussion of navigation. The gap could have been closed, or at least narrowed. The terms of reference did call for a consideration of land use and existing projects, and only mapping of navigability. Yet, of the thirty-one pages covering these three topics together, only six pages deal with water resource projects and land use. Information is available on these topics. The analysis could have included estimates on the amount of land in various recessional and irrigation systems, the outtakes for these systems, the effect of stage on existing systems and projects, and existing and potential soil problems (salinity, drainage, etc.). It is understood that the scope and time for the geomorphic analysis was limited. Further, it is acknowledged that the section on navigability was well-researched, but apparently at the expense of other topics. But since agriculture is the priority concern of the member states (as well as of USAID), the effects of river discharge and stage are critical to determining the feasibility and costs of recessional, flood, and pumped systems of agricultural production in the Niger River Basin.

Second, the analysis lacks any discussion of recent changes in precipitation and hydrology within the basin, specifically the present drought episode. Since 1981 precipitation in the upper reaches of the Niger River has been extremely deficient. This has caused historically low flood stages in the river in 1982, 1983, and 1984. Each year the discharge has been the lowest on record and well below statistically-generated 100-year minimum peak values. Of course, it is unrealistic to expect inclusion of 1984 hydrologic data in the Analysis, given contract deadlines. However, 1982-83 was also significant, and the precipitation and resulting stages should at least have been noted, if not discussed. The reconnaissance teams must have been aware of this situation during their 1983 field trips. It is not unrealistic to expect more recent indicative precipitation and discharge data than those shown in the report: mean monthly rainfalls were shown to only 1969 and river discharge to 1979, neither reflecting or even noting the present severe drought episode. Furthermore, changes in the flood hydrograph of the Niger River during the last decade have been significant and have prompted discussions in recent World Bank and French studies. The recent climatic changes in the Sahel is also the subject of several studies (eg. Nicholson, 1981/1982). The geomorphic analysis regretably does not address these major, recent hydrological changes in any detail.

Finally, several small but surprising errors in the preliminary report and maps of the geomorphic analysis indicate a lack of quality control and oversight. For example, the reservoir capacity of the proposed Kandadji Dam is shown in two places to be 13-15 billion m^3, while the pre-feasibility study indicates 0.8-1.3 billion m^3. The maps show the Fouta Djallon highlands as the source of the Niger River, while they are 300 kms to the north. Generally, other than a good lay out of the "kilometrage" on the river, the maps do not appear to be particularly useful. Overlays, as specified in the terms of reference, were not included and may have been more useful.

In spite of these shortcomings, the geomorphic analysis is nonetheless fulfilling several useful purposes for the technical offices of the NBA and those of the member states.

First, the reconnaissance of the basin gave two of the NBA Technical Directors their first opportunity to view and study the entire river system. They were accompanied throughout by experts in river mechanics and sediment transport. Knowledge acquisition by the NBA staff would have been even more effective had staffers participated in preparation of the report as planned in the amended project.

Second, the resulting Geomorphic Analysis Report is a valuable learning tool. A reading by planning and technical specialists provides an understanding of the physical aspects of the river basin; of the important problems of soil types, erosion, desertification, and sedimentation; and of existing commercial navigation on the river. Two of the NBA Technical Directors emphasized that the report gave them, for the first time a complete physical picture of the river system.

Finally, the geomorphic analysis is a necessary initial, fundamental step in establishing the information base for the river basin. Adding agricultural (crops, fishery, and livestock), environmental (wildlife, forestry and disease), and socio-economic information will yield a complete factual base upon which an overall, integrated plan can be discussed and developed.

3.3. THE DATA COLLECTION/RETRIEVAL SYSTEM (DSRS)

Establishment of a comprehensive data base is the fundamental and necessary first step in any effort of river basin planning or project planning and design. Without this base, the large array of analytical methods available today in basin planning and project design are of little or no use, and basin development proceeds largely by trial and costly error.

A large amount of data has been collected and recorded in the Niger Basin by various countries and agencies. However, because this data has been collected and kept by so many organizations for different purposes and without basin-wide objectives, its usefulness and accessibility has heretofore been limited.

The primary intent of the Data Storage/Retrieval System development was to gather all existing pertinent data, put it into a common format useable for basin-wide planning and project design, and enter it into a computer so that it might be efficiently retrieved, analyzed, and interfaced with computer models for basin or project analysis.

A second objective of this effort was to identify weaknesses or errors in existing data, and incomplete or missing data that will be needed for future efforts in basin planning.

A third objective was to train NBA personnel in use and updating of the data storage and retrieval system.

The DSRS contains the following specific types of information:

--daily stage or water levels (172 stations)
--daily discharge or river flowrate (101 stations)
--daily rainfall (569 stations)
--daily rating curves (discharge versus stage relations)
--daily river cross sections
--daily control structure data
--daily reservoir data
--daily suspended sediment data
--daily river bed material data
--river distances for gauge stations

In addition to storage and retrieval capabilities of the above data, the system contains a large number of software packages to manipulate and analyze the data, such as means, maximums, minimums, and frequency analyses of flood and drought flows.

The establishment of the Data Storage/Retrieval System carried out in Phase I was successful by any standards. The system is comparable to the most

modern and efficient used by the U.S. Geological Survey and Corps of Engineers. Similar efforts to computerize hydrologic data in the U.S. were considered a monumental effort and a quantum leap in advancement. The COE contractor had a perfect understanding of the type of data that will be needed, the form it should be in, and what needs to be added to be updated and complete. The DSRS could have been strengthened with a "comments" section for each station to include and update explanations of how data was obtained or extrapolated.

Regarding the quality of the data in the bank, it is to be expected that many anomalies, inaccuracies, and errors will turn up as the data is used and analyzed. To some extent, this is acknowledged and treated in the Phase I study. For example, it was found that very little sediment data is available and many river cross sections are missing. Preliminary efforts were made by the contractor to spot and correct errors in the data. Yet, it would be unrealistic or impossible to go back to the sources in the first phase to attempt to verify data and rectify anomalies. This is definitely a Phase II and continuing activity that will evolve naturally with data analysis and hydraulic modeling.

Nevertheless, the evaluation team felt that the DSRS should have included a brief discussion for each station and set of data regarding how the data was obtained or generated, history or problems with the station, and potential problems or comments. For example, was discharge data generated from an old and perhaps obsolete rating curve, or taken directly from existing records? This type of information would be useful to users encountering data anomalies in the future. In addition--and we emphasize this once again--no mention is made to alert the reader to the fact that most of the hydrological information is pre-1980, although the past three years have been acutely dry, severely affecting the river basin regime.

3.4. TECHNICAL TRAINING

The original Niger River Development Planning Project proposed long-term graduate-level training for six member state nationals in the technical fields of cartography, systems analysis, environmental sciences, hydrometeorology, civil, agricultural and hydraulic engineering, hydrogeology, hydrology, and water resources. Short-term, non-degree training programs were envisioned for Executive Secretariat personnel.

Four participants have actually completed technical graduate programs: two received M.Sc.'s in hydrology, one a M.Sc. in hydraulic engineering, and one a M.Sc. in water resources administration. All had undergraduate engineering degrees from African institutions and were previously employed as engineers. Two other participants started, but dropped out of M.Sc. programs: one in hydrology and the another in water resources administration. Short-term technical training consisted of a participant in a Conference on Fluvial Processes.

As further discussed in Section 4.2., none of these participants were employed by the NBA. Thus, their training contributed nothing to the development of the NBA as an institution. Yet given the need for developing the water resources in the Niger River Basin and the insufficient number of suitably-trained engineers in the member states, this training was both

appropriate and valuable. In fact, one participant is now usefully employed with AGRHYMET and the others with their respective member state Ministries of Water Resources.

The training itself did appear to be heavily weighed toward water resources engineering; four participants were slated for the M.Sc. in engineering. The interdisciplinary nature of river basin development would seem to warrant a wider range of disciplines, such as specialization in irrigated agriculture or transport economics. In one case, had a less technically-onerous planning curriculum been chosen, the participant may not have dropped out.

Short-term technical training was also included in the amended project. The COE was obliged to (1) provide for a minimum of 20% participation of member state engineers in its contract efforts, (2) train one technician for six months in data collection and the development and application of the data storage and retrival system, and (3) train one engineer during the reconnaissance for and preparation of the geomorphic analysis.

This type of training is often difficult to implement since contractors can be expected to balk at time-consuming "apprenticeship" obligations. However, the recent Gambia River Basin Development Study showed that it can be done with worthwhile results. The participants learn analytical methodologies and become more interested in the end product (to whose production they contributed and are so acknowledged). It also enables the contractor to interact throughout the process with his real "client". Unfortunately, only a small portion of this short-term training was undertaken: two of the NBA Technical Directors accompanied the two reconnaissance trips (see Section 3.2.) for a total of six weeks and visited the COE Vicksburg Center. No technicians were included in the actual preparation of the geomorphic analysis nor, more importantly, in the development of the data system. This latter failing will cause problems in continuity with Phase II activities since a computerized data system is being turned over to the NBA which has no staffer able to operate and update it.

3.5 TECHNICAL CAPACITY OF NBA

3.5.1 Personnel

Apart from the autonomous HydroNiger project, the NBA has five technical persons on its staff—the Technical Directors for water resources, agriculture, navigation and transportation, a cartographer, and a draftsman. These people have appropriate technical education in their respective fields. Thus, though they do not have extensive experience in basin planning they have the necessary technical background and training to participate and carry out basin planning if provided with adequate staff, budget, quarters, equipment, and baseline information. Nevertheless, this level of staffing provides only the skeletal resources to carry out river basin planning.

The NBA now has the Data Storage/Retrieval System, but no personnel to maintain and operate it or to gather information and data not obtained in the Phase I activities. To effect a transfer of knowledge and technology, there must be technical personnel posted to the NBA staff who must be trained. The NBA does not now have such personnel.

3.5.2 INFRASTRUCTURE AND EQUIPMENT

The technical offices of the NBA are presently located about 2 kilometers from the Headquarters in two modest $80m^2$ houses on adjoining lots. Each Technical Director and the COE Resident Manager have small $8\text{-}9m^2$ bedrooms as offices. The remaining rooms are occupied by the cartographer, the draftsman, a typist and the computer system. The only unoccupied space is in the kitchens. The Directors offices are embarassingly small and there is no conference room or a map/filing room. The room housing the two IBM microcomputers is too small to provide both a work area and space for peripheral equipment. This room is also poorly lighted and the windows do not shut tightly enough to keep fine dust from penetrating and ultimately damaging the equipment. The documentation center is likewise too small to adequately house the NBA holdings. The offices are relatively adequately furnished, thanks to the efforts or the COE Resident Manager in getting some project funding spent for basic furniture and equipment. But in sum, the technical offices are demoralizing, especially when compared with the OMVS and OMVG technical offices and to the offices of the NBA's own Executive Secretariat. The NBA technical offices are certainly no place to attempt a multi-donor, multi-national, multi-disciplinary planning process.

3.5.3 COE EXPATRIATE TECHNICAL ASSISTANCE TO NBA

The Army Corps of Engineers has provided technical assistance for some two years. A resident project manager has been based in Niamey during this time. He will depart in March 1985. If Phase II proceeds as currently planned, he will be replaced with a team of two engineers-planners.

The assistance provided by the COE has been a major positive factor in the NBA Secretariat. The COE resident project manager had good credentials for the position, including a doctoral degree in surface water hydrology. His day-to-day working relationship with the Executive Secretary, his Deputy, the Technical Directors, and other personnel of the NBA has been very good. The COE Resident Manager ensured that the Technical Directors were included on the air and boat reconnaissances of the river. He guided and supported them in obtaining equipment and commodities from USAID. Given the lack of computer facilities in Niger when the project was designed, the DSRS was originally planned to be set up in the United States. To his credit, the COE Resident Manager secured the computer equipment for the NBA and had the DSRS set up in the NBA technical offices in Niamey. He also participated in budget preparations and acted as the interface between contractors, other donors, COE representatives in Vicksburg, and resident USAID representatives.

Backstopping in Vicksburg has been performed by a part-time project manager and the logistical and technical support provided appears to have been good. The stateside backstop devoted about 50% of his time in Vicksburg to the project.

The team concludes that the strictly technical aspects of the assistance provided by the Corps of Engineers has been high quality. However, criticism can be aimed at the Corps with respect to its role in the institutional development of the NBA. This is discussed in the next section of this report.

4.0 THE PHASE I INSTITUTIONAL DEVELOPMENT COMPONENT

4.1 INTRODUCTION

It was clearly intended that the institutional capabilities of the NBA to accomplish its principal task (preparation of an indicative integrated basin development plan) be developed and enhanced during Phase I of the Project.

The original project paper, authorized July 1977, and the Grant Agreement specifically called for multi-faceted institutional development support to be provided the NBA through a multi-donor assistance effort over the course of the project. It was anticipated that this "startup" project would further the institutional development of the NBA through the provision of long-term technical assistance, short and long-term training, plus commodities/logistics support.

The original PP also identified a number of critical factors confronting the institutional development of the NBA: inadequate budget support from member states, an inappropriate organizational structure, and insufficient administrative and technical staff at the secretariat.

AID and other donors called upon the NBA Council of Ministers (COM) to take the necessary steps to address these factors. Further, AID set two conditions which it requested the Council to fulfill prior to disbursing funds for implementation of the project. These were:

--that agreements between the NBA and other participating donors be executed and in force prior to disbursement of any AID funds; and

--that no donor disbursements be made until the approved 1977 budget for the NBA executive secretariat was on deposit and available for disbursement by the NBA.

Over the next three years a number of institutional lapses and shortcomings, including failure to meet the two AID conditions precedent, led to the Amendment of the original one year AID project. What thwarted the implementation of the original project included:

--over-ambitious design and timing of the original project;

--NBA institutional and administrative incapacity;

--lack of follow-through on commitments made by some members of the donor community

The Project Amendment, signed in August 1981, extended the Project Assistance Completion Date through December 1985, increased funding, and revised and limited the scope of the diagnostic studies. The amendment explicitly stated that the project would continue to implement on-going activities under the institutional support rubric, i.e., long term technical assistance, long and short term participant training, short term training and study tours, and logistical and budgetary support to the NBA.

4.2 INSTITUTIONAL DEVELOPMENT IMPLEMENTATION

4.2.1 ORGANIZATIONAL DEVELOPMENT

It was anticipated that the NBA secretariat would be restructured to become a broad based organization capable of coordinating the technical research and planning activities required for the development of the river basin. In addition to a number of technical divisions it was envisaged that regional development planning, legal, and administrative support would be provided by appropriate divisions.

The actual structure of the NBA Executive Secretariat is far different and consists of three technical directorates; a directorate for administration which includes divisions of finance, accounting, legal, public relations, and maintenance, plus a mapping office and a documentation center.

The planned restructuring did not take place, mainly because of inadequate management and finances which undermined both member state and donor confidence. The result has been insufficient numbers of technical staffers and development planners, inadequate office space, and a lack of operating funds. Most important, no indicative basin development plan has been put together.

With regard to the NBA staff, professional and support personnel numbered 55 at the time of the COM 12th session in November 1984. A proposal presented by the secretariat to the COM during this session called for an increase in staff to 81, including 3 technical professionals and 1 computer programmer. This was rejected on grounds of cost (FCFA 463.253,300 in 1985 versus FCFA 290.357,300 in 1984).

This leaves critical shortages and problems in all three technical divisions including the ability of the NBA to use the computerized data base just developed under the project.

With regard to offices, the NBA secretariat currently works in cramped facilities at four different locations. Some of these offices do not have telephones, thus compounding the problems of communication, coordination and consultation within the secretariat. Construction of a headquarters complex was approved in principle at a past Council of Ministers meeting, but the architectural design subsequently submitted by a French architect has been judged too expensive — $17 million, with staff housing and guest quarters included. Further, the design did not properly conform to architectural style in Niger. Thus, the firm has been instructed to make appropriate modifications. It is nonetheless unlikely that the member states will pledge funds to build a headquarters for the entire staff, whatever the design.

Development planning has been essentially non-existent. However, some of the resolutions adopted by the 12th COM impact on the NBA's organizational development. These are:

—the commencement of operations of the Development Fund of the Authority, authorized by the summit of Heads of State and Government in November 1980. It is intended to obtain financial contributions from member states to fulfill the NBA's implementation mandate. Chad was asked to nominate a candidate for this post, which is budgeted for 1985.

—approval of the restructuring of the NBA secretariat to create a Planning Unit composed of a River Basin Planner, the Executive Director, his Deputy and the heads of the three NBA Technical Departments, although there are currently no funds budgeted for the recruitment of a qualified Planner.

With regard to funding, the Council of Ministers increased the 1985 NBA Budget by approximately one percent. By way of contrast, it is estimated that Niger currently has an inflation rate of some 5 percent.

The present financial situation is rather dismal because of suspected financial irregularities by the former Executive Secretary who has recently been replaced. NBA member states, with the exception of Nigeria, froze payment of their 1984 assessments pending an audit of Authority finances. A recent payment by Nigeria of FCFA 51,666,534 as its 1984 assessment allowed the payment of NBA salaries which had been in arrears for the three months of July, August, and September 1984. There are, at this writing, no funds available for October-December salaries and other current operating expenses estimated at FCFA 51,824,622.

The overall financial situation of NBA as of October 31, 1984 was as follows:

	LIABILITIES (FCFA)	ASSETS
BIAO (Bank Loan)	91,216,662	
BDRN (Bank Loan)	15,255,997	2,213,802
Various Outstanding Debits	47,937,029	
TOTAL	154,409,688	2,213,802

The summary state of NBA assessments as of 11/30/84 was as follows (in FCFA):

State	Previous Arreas	1984 Contribution	Total Due
Benin	-	36,294,662,5	36,294,662,5
Bourkina Fasso	101,244,980	36,294,662,5	137,599,642,5
Cameroun	-	36,294,662,5	26,407,167,5
Cote d'Ivoire	7,135,100	36,294,662,5	43,429,762,5
Guinea	13,782,713	36,294,662,5	50,077,375,5
Mali	57,982,685	36,294,662,5	94,223,347,5
Niger	-	36,294,662,5	36,294,662,5
Nigeria	-	-	-
Tchad	-	-	-
TOTAL	180,145,478	254,062,637,5	424,266,620,5

NBA BUDGET RECAPITULATION

	Approved 1984	Proposed 1985
Salaries/Allowances	177.101.500	300.197.500
Equipment/Material	53.100.000	90.400.000
Travel/Deplacements	10.500.000	20.000.000
Reunions/Conferences	9.500.000	12.500.000
Frais Bancaires/Banking Fees	26.000.000	26.000.000
Divers and Contingency	6.000.000	6.000.000
Provisions settlement of arrears	P.M.	P.M.
Recruitment New Director	8.155.800	8.155.800
TOTAL	290.357.500	463.253.300
Total personnel 1984	55	
Total proposed 1985	81	

Note: Of the 55 staffers at the NBA in 1984, professional people numbered 17 whereas support personnel (secretaries, documentalists and other clerks, drivers, watchmen, cooks, houseboys, gardeners) numbered 38.

4.2.2 TECHNICAL ASSISTANCE

The original project was to include diagnostic studies/surveys in the following areas with donor responsibility as shown:

--agriculture (AID, CIDA)

--water resources (CIDA, FAC)

--engineering (CIDA, FAC)

--cartography and mapping (AID, FAC)

--education and training (AID)

--health/environment (CIDA, AID, UNDP)

--legal and institutional (UNDP)

--social survey research (AID)

--integration of study components: preparation of diagnostic study, atlas, and five-year action program reports (UNDP)

To assist the institutional development of NBA, an expatriate advisory staff under long-term contracts was to provide technical and managerial expertise to the secretariat in the following fields, with donor responsibility as shown:

--Senior Advisor/Coordinator (UNDP)

--Water Resources Planner (AID)

--Regional Economist (CIDA)

--Hydrologist (CIDA)

--Civil Engineer (FAC)

--Agronomist (FAC)

--Soils Scientist (AID)

--Forecasting Hydrologist (UNDP)

--Environmental/Health Specialist

For the reasons described above, none of the studies or technical assistance were undertaken or provided as planned. Some of the donors withheld their pledged inputs while others provided theirs in an uncoordinated and/or bilateral manner. AID amended its original project as described earlier and contracted with the U.S. Corp of Engineers to provide the technical assistance for basin-wide data collection, development of a computerized data bank, and a geomorphological study and profile of the Niger River basin.

4.2.2.1 USAID/COE PASA AGREEMENT/RESPONSIBILITIES

Under a PASA agreement between AID and COE the latter provided two (2) long-term engineers and short-term personnel as needed to supervise and implement the agreed upon scope of work (SOW). The PASA agreement also authorized the COE to contract for any T/A services and skills required in completion of its SOW. Two such contracts were let to the U.S. firms of Simons and Li (for the geomorphological analysis) and Resource Management Associates, Inc. (for development of the data base). The latter company subcontracted with another U.S. firm, Louis Berger International to collect hydrological and other relevant data from the NBA member countries. The agreement specifically required the COE team to work "under the direction of USAID/Niamey and in technical collaboration with (the) USAID Project Manager" (PASA, p. 6).

There has been some question as to exactly what the COE mandate is regarding NBA institutional development. Although no direct mention is made of "institutional development," "skills/capabilities enhancement" or such specific language in the PASA, Item E of the statement of purpose (p. 6) specifically references the amended PP (0915) of September 1981 which is very explicit on the subject in several sections. Furthermore, the PASA does state explicitly (p. 5) that "an important objective of this project will be to develop within the NBA the capability to manage and operate a (storage and retrieval) system and to continue to develop and use the water-sediment routing model." (PASA, p. 5)

The technical assistance provided by the COE in fulfillment of its SOW has been described in detail elsewhere in this report. Unfortunately, the institutional capabilities described above have not been relaized under Phase I of the project.

4.2.3 TRAINING

4.2.3.1 GENERAL/BACKGROUND

There is no ambiguity whatsoever in the project paper, the PP amendment, or the PASA regarding training.

The PASA Agreement (p. 3) states that "during this project, the COE will provide training related to the river systems analysis to the staff of the NBA executive secretariat and of member state technical services." Both the PP amendment and the PASA Agreement also state, "COE contract efforts in any of the NBA member states will provide for a minimum of 20% participation of technicians or engineers from member states and/or NBA personnel. These individuals will be high level technicians or engineers."

The original PP called for the long-term training of fourteen participants (6 AID and 8 CIDA) at U.S. and Canadian universities "to meet the immediate staffing requirements of the NBA" and the preparation of a manpower development study which would outline NBA training needs over both the short and long-term. Short-term training programs for the executive secretariat were proposed, including three NBA documentalists who were to be given six months of on-the-job training in Senegal (OMVS Documentation Center), Italy (FAO) and the U.S. (Michigan State's Sahel Documentation Center), while the U.S. Bureau of Reclamation would provide 4-week study tours of U.S. river basin development for one representative from each member state.

In addition to the above, the project amendment (p. 7) called for training of two individuals during Phase I to provide for technology transfer. One person was to be trained in development and application of the data storage and retrieval system: 3 months "hands on" training during data collection in member states plus 3 months with COE and/or its contractors in the U.S. The second person was to be trained in geomorphic analysis of the river system: 2 months with COE/contractors during river basin reconnaissance plus 4 months in the U.S. during development of the geomorphology portion of the first stage report. (Amendment, p.7) The amended PP also states (p.21) that the COE will provide T/A "including the in-service training of participating member country personnel." (Amendment, p.21)

4.3.2.2 TRAINING ACCOMPLISHED

Long term: Four individuals, two from Nigeria and one each from Mali and Benin completed long-term graduate training in the U.S. Two of these participants studied at the university of Arizona/Tucson and earned MS degrees in hydrology and water resources administration, respectively; the two Nigerians studied at UCLA and were awarded MS degrees in hydrology and hydraulics. Two other participants, one each from Mali and Benin, began graduate training in the U.S. but left before completion of their studies.

It must be noted, however, that none of these participants are presently, or have ever been, employed at NBA. They were nominated by NBA with the express, written understanding that they would be employed by the Authority upon completion of their training. However, near the end of their studies they were informed by the then NBA executive secretary that NBA "hiring policy" had changed, that no provision was made in the NBA budget for their employment, and they should return to their home countries.

Short Term: a) Two NBA staff members received 3 months French-language training at the International Language Training Center in Lome in 1982.

b) Seven persons in two groups undertook 1 week study tours of the Mississippi River basin during the summer in 1981 and 1982.

c) One person attended a 2 week course in water resources development at Fort Collins, Colorado, in 1982.

T/A Counterpart Training: Two NBA senior staff technicians -- the Directors of the Water Resources and Navigation Departments -- have been in constant contact and consultation with COE T/A personnel assigned to the project at the NBA secretariat. Both of these NBA staffers participated in some of the aerial reconnaissance research during the geomorphic analysis research.

4.2.4 COMMODITIES/LOGISTICAL SUPPORT

AID and CIDA undertook the provision of standard office supplies as well as technical and logistics equipment to the NBA secretariat during the start-up phase. In addition, AID planned to provide A & E designs for a modest NBA headquarters complex adequate for the accomplishment of its mandate.

A variety of commodities has been supplied to the NBA under the project including vehicles, typewriters, photographic equipment and, most lately, two IBM computers with accessories.

The A & E designs for the construction of an NBA physical plant have not yet been approved or funded.

4.3 INSTITUTIONAL DEVELOPMENT RESOURCES APPLICATION

The resources provided by AID for institutional development under the project have not been consistently used to that end. At commencement of the project, anticipated expenditures and provisions for institutional development were greater than those for the diagnostic studies. However, they were surpassed by approximately twenty percent with the provision of additional funds when the project was amended.

The following table presents, by line item, the planned LOP funding before the amendment, the increase under the amendment, and the new total:

PLANNED/INCREASED LOP FUNDING

	ORIGINAL LOP	INCREASE PER AMENDMENT	NEW TOTAL LOP
DIAGNOSTIC STUDIES	$ 540,000	500,000	1,040,000
INSTITUTIONAL DEVELOPMENT	$ 810,000	0	810,000
TOTAL	$ 1,350,000	500,000	1,850,000

The planned expenditures and actual disbursements for institutional development, however, are quite different. Between January 1977 and July 1982 disbursements for all long-term training under the project (six participants) totaled $202,836. Disbursements between May 1981 and January 1984 for all Short-Term training (approximately twelve participants) totaled $47,372. During the life of the project disbursements to date for commodities, including four vehicles and two IBM computers, total $160,627.

On the other hand the technical assistance/diagnostic studies expenditures were planned at $1,040,000. During 1982 (September October) $441,117 were disbursed. Since the Project Amendmemt added an additional $500,000 to contract diagnostic studies, $209,834 more has been disbursed. To these two amounts disbursed for contract diagnostic studies must be added an additional amount disbursed in local currency (through preparation of a series of Project Implementation Letters (PIL'S) transfering funds from one line item to another) for such purposes as housing and travel ($150,000), aerial reconnaissance ($82,000) computer time and draft acquisition ($43,000) which as of September 1984 totaled $155,949 disbursed.

A tabular comparison of these disbursements is given below

	ANTICIPATED LOP FUNDING	ACTUAL (to 09/84) DISBURSEMENTS	DISCREPANCY
INSTITUTIONAL DEVELOPMENT (TRAINING AND COMMODITIES)	$ 810,000	$ 410,835	$399,135
DIAGNOSTIC/CONTRACT STUDIES	$1,040,000	$ 806,900	$233,100
TOTAL	$1,850,000	$1,217,735	$632,265

It thus appears that disbursements are at this point roughly one-half of LOP projected expenditures for institutional development, while diagnostic/contract studies disbursements are nearly 80% of projected expenditures. However, the situation becomes radically different when one notes that the difference between unexpended and or unearmaked funds is as follows:

a) Contract/diagnostic studies	$290,166
b) Institutional Development (Training $14,657, Commodities -$301)	14,356
c) Local currency expenses	207,210
d) Unearmarked	96,973
TOTAL	$680,705

This analysis shows clearly that disbursements for contract/diagnostic studies of $1,304,276 will exceed projected expenditures by some $264,276 while the maximum expenditure of $425,191 for institutional development will produce a shortfall of $384,809, an amount nearly equal to total disbursements for all training and commodities.

(Note: the discrepancy of $23,560 between the totals of $632,265 and $608,705 is the result of differing Controller project item designations.)

4.4 NBA PROGRESS TOWARD INSTITUTIONAL GOALS

The cumulative development of NBA capabilities to fulfill its stated mandate must be considered marginal at best. It has suffered one managment crisis after another with frequent and disruptive changes in the top leadership of the secretariat.

Currently the NBA level of project related activities is limited. The organization is understaffed, poorly officed, and lacks adequate operating funds. The indebtedness of the organization would be eliminated if arrears in member country contributions could be collected. The possibility of this occuring must be considered doubtful.

4.5 SUPPORT BY MEMBER STATES

It is difficult for the evaluation team to respond authoritatively to this area of concern since it has had no access to NBA member country representatives for consultation except Niger the host country. However, the team's perceptions are given below using other peripheral indicators. Recommendations for obtaining more precise information are made in that section of this report.

4.5.1 FINANCIAL SUPPORT

Most NBA member countries have provided consistent financial support to the organization. For example, prior to 1984 when the latest management crisis erupted, six of the eight member countries regularly assessed were fully paid up. Two of these—Cameroon and Nigeria—contributed slightly in excess of their assessments. Only two countries--Bourkina Faso and Mali—are seriously in arrears. Their deficit of FCFA 101,244,980 and 57,928,685 respectively, represents over 80 % of total indebtedness of FCFA 154,409,000. The annual assessment is relatively modest, fixed at FCFA 36,294,662 for both 1984 and 1985. The Council of Ministers, which froze the 1985 budget at the 1984 level, previously had almost tripled the budget since 1977 to its present level from FCFA 88,584,900 or FCFA 11,071,981 per member in 1977.

This level of financial support, however, is still inadequate for the needs of the Authority. A request by the NBA Secretariat to increase the 1985 budget by FCFA 172,996,000 to allow staff expansion was turned down.

Currently the NBA is without operating funds for salaries and other expenses. However, following completion of an audit of the Agency's funds (underwritten by USAID) and the installation of a new Executive Secretary, it is expected that several member countries will immediately pay in their contributions.

The Secretariat is confident that the present financial crisis will be shortlived. This does not, however address the problem of increasing the NBA staff and providing for other needs of the secretariat.

COUNTRY NAME	ARREARS IN CONTRIBUTIONS	CONTRIBUTIONS DUE 1984	RECEIPTS 1984	BALANCE OUTSTANDING
BENIN	36.294.662,5	36.294.662,5		36.294.662,5
BOURKINA	101.224.980	36.294.662,5		137.539.642,5
CAMEROON	36.294.662,5	36.294.662,5	9.887.495 (1)	25.407.167,5
IVORY COAST	7.135.100	36.294.662,5		43.429.762,5
GUINEE	13.782.713	36.294.662,5		50.077.375,5
MALI	57.928.685	36.294.662,5		94.223.347,5
NIGER		36.294.662,5		36.294.662,5
NIGERIA	9.933.261	36.294.662,5	51.666.534	5.438.610(2)
TCHAD (3)	-	-	-	-

(1) Overpayment by Cameroon in 1983 of 9.997.495 carried over to 1984 contribution
(2) Represents overpayment by Nigeria
(3) Chad has been temporarily excused from its contributions by the Council of Ministers due to conditions in that country

4.5.2 ADMINISTRATIVE/TECHNICAL SUPPORT

Member country cooperation in the administrative and technical areas of NBA activities seems to have posed few serious problems to the organization. The following evidence of positive interstate cooperation/coordination was noted:

—multinational staffing of Secretariat based on a division of professional posts by responsibility

—nomination of candidates from several countries for long-term graduate training in the U.S.;

—basin-wide cooperation in the AID/COE/Contractor geomorphic analysis and data collection efforts;

—basin-wide cooperation in setting up HydroNiger equipment and stations (27 stations functioning currently, 65 by end of 1985) for interstate water level monitoring/forecasting project;

--basin-wide cooperation in formation, training of teams to assure monitoring maintenance of forecasting recording/transmission stations in each country;

--agreement of member countries to assume recurrent costs of interstate forecasting project beginning in 1986; and

--nearly all NBA countries participate in Committee of Expert meetings which oversee NBA technical and administrative developments and subsequently make recommendations to and set agenda for COM sessions.

4.5.3 POLITICAL SUPPORT

The NBA apparently has the firm support of most member nations in the formulation and development of basin-wide policies and initiatives. This perception is based on the following:

--all nine basin countries have remained members in good standing since formation of the original Niger Basin Commission in 1963;

--all nine NBA member countries have signed and adopted the NBA covenant thus relinquishing some sovereignty to the international authority;

--nearly all NBA countries participate in COM sessions which have NBA oversight responsibilities;

--the Heads of State of member countries meet frequently to consider/endorse COM decisions/recommendations.

4.6 NBA MANAGEMENT OF USAID RESOURCES

There seem to be no apparent anomalies on the part of the authority as far as utilization of the office equipment and other commodities provided by AID under the project. However, there are two glaring short comings in this area, responsibility for the first falls on the NBA and the second on AID.

First, NBA rejection of the four long-term participants after completion of their training contravened explicit project undertakings and represents the loss/waste of some $270.000 or over sixty percent (60%) of all funds disbursed for institutional development.

Second, preparation of the geomorphic study and the established data base are now being transferred to the NBA as the conclusion of Phase I of the project approaches, along with two IBM computers. However, no one at the Secretariat has been trained in data collection/analysis and manipulation. The COE/Contractor maintains that competent professional staff can be trained in use of the data base in one week. However, there is no trained staff available with responbility for use/maintenance of the data base or the two computers.

4.7 INSTITUTIONAL ISSUES FOR FURTHER CONSIDERATION

A number of key questions must be addressed if the NBA is to merit continued AID support. There has not been sufficient time or opportunity for the evaluation

team to pursue all of these issues in depth. However, they are raised here for further research, discussion, and eventual resolution.

4.7.1 NBA GOALS/ACHIEVEMENTS UNDER THE PROJECT

The Authority has not been able to achieve the institutional development anticipated by the original PP. During implementation of the amended project, the secretariat has been "sensitized" to the import and scope of the basic diagnostic studies prepared by COE/contractors. However, without sufficient numbers of professional staff, whether member state or expatriate, its ability to utilize them effectively now or in the future is questionable. Development of such capabilities should be a major focus under a second phase of the project, at least equal to that placed upon diagnostic studies. It should be borne in mind that one of NBA's most fundamental quests--development of an integrated basin development plan--has been underway for over two decades.

4.7.2 NBA PLANNING UNIT

One of the authority's primary functions is planning development activities in various sectors (agriculture, navigation, fisheries, et al). Yet, there is no truly operational planning unit as such in the organization. Various donors have called for the establishment of such a unit under a qualified T/A and/or NBA planner since 1974. The supervisory committee given oversight responsibility for the NBA by the XIth session of the Council of Ministers recommended to the XIIth COM meeting, in a highly critical report, the reorganization of the secretariat with emphasis being placed on a central planning unit. AID, in the Phase II PP/PROAG set establishment of a planning unit as a condition precedent. To meet this requirement, the COM has passed a resolution designating the Executive Secretary, his deputy, and NBA's three technical directors as the staff of the planning unit. It is doubtful, however, whether these people will be able to fulfuill their regular duties and at the same time function as planning unit staff. Further, we wonder whether this staff is qualified to take the lead in multi-sector macro planning. If NBA takes its mandate seriously and if donor input, including AID's, is to be usefully applied, an operational planning unit under qualified personnel must be established and properly staffed.

4.7.3 LEVEL OF MEMBER STATE SUPPORT

This issue is obviously the key to NBA development. As indicated elsewhere, the organization's finances are in a bad state, the present staff is inadequate in numbers of professionals, and NBA working conditions are sub-standard. Are member countries (or donors) prepared to supply the necessary resources to overcome these shortcomings? The current assessment per member country is a modest $80,000. However, the XIIth COM session froze the 1985 budget at that level despite a request for a modest increase from the secretariat and a parallel recommendation from the NBA supervisory committee. Is the COM likely in the foreseeable future to double or triple the current level of support? Are the majority of the member countries willing to increase their level of support to that required for proper NBA operation? Are the majority of member countries able to increase their level of support given their other commitments? Niger, for example, participates in over twenty-four regional and international organizations. Other countries have fewer, but still multiple commitments at the regional and international levels.

4.7.4 DONOR SUPPORT/PARTICIPATION

A number of diagnostic studies must be accomplished in addition to those undertaken by AID/COE. Because of the immensity of critical basin issues, and the huge costs of completing the requisite studies, it was decided in 1976-77 and again in 1981-82 that a coordinated multi-donor approach was required. Donor input to date has been mixed. Promised technical assistance personnel and support for diagnostic studies and long-term training have not been forthcoming. What are current donor intentions? Will sufficient donor support be forthcoming to provide the NBA with the means of accomplishing the Integrated River Basin Development Plan (IBRD)? Is current donor support adequate? What further input is needed for full accomplishment of the IRBP? Is AID support being frustrated and devalued by the absence of promised other donor support?

4.7.5 LEVEL OF AID SUPPORT

Given the fact that the NBA secretariat is practically afunctional and the problematic levels of member country and other donor support, a key factor becomes the level of AID support. This is a critical AID policy mattter and must be considered in the context of (1) AID "going it alone;" (2) redesigning its current and planned inputs so as to obtain maximum effect, particularly as regards institutional development, with and/or without other donor support; and (3) reducing the level of AID support until the requisite elements needed for preparation of the IRBP are assembled.

It is critical that steps be taken quickly to address these issues before investing the considerable resources planned under Phase II. AID is committed to developing the water-sediment routing model and perhaps conducting costly socioeconomic and environmental studies. How valid and useful are these to NBA and the IRBP in the absence of similar studies in agriculture, forestry, soils, hydroenergy and other areas?

4.8 GENERAL CONCLUSIONS

The Niger Basin Authority did not develop as an institution as forseen under and during the period of the AID Phase I project for various reasons as discussed. The U.S. Army Corps provided very limited institutional support to the NBA but did not in fact fulfill its contract terms of reference in this regard. The NBA appears to be marginally viable at present and is probably sustainable for the forseeable future. However, its effectiveness and eventual success in achieving its stated purposes and goals is in question. It does not at present have adequate resources (staff, budget, skills) to carry out its mandate. It is thus unlikely that as presently constituted and under current levels of support it receives, the NBA will be able to achieve an indicative integrated basin-wide development plan.

5.0. OTHER DONORS: CONTRIBUTION TO NBA/COORDINATION WITH AID EFFORTS

5.1. OTHER DONOR CONTRIBUTIONS IN PHASE I

The contribution of other donors to the Niger Basin Authority was difficult to assess as not all the donors keep complete records in Niamey. The FAC office in Paris was also unable to provide information because the people responsible for the program were away on an evaluation mission when a team member stopped over in Paris with a previously fixed appointments.

The information presented here must therefore be acknowledged as incomplete. The accuracy of funding figures available to the team were questioned and have thus been eliminated from this report. Agreements to provide the support discussed below were reached mainly at the donors conference convened by the NBA in 1976, secondarily from subsequent conferences in 1978, 1981, and 1983.

The following presentation summarizes major donor activities:

United Nations Development Program (UNDP)

Development of a hydrological forecasting model to be operated by HydroNiger is somewhat delayed. About one-third of the planned gauging stations along the river are in place. National stations have been completed and the international center in Niamey will be finished next year. This project, to which the U.N. is a co-contributor, should be completed in 1985.

The UNDP was orignally supposed to provide the NBA Planning Unit with five persons, including one senior economist/coordinator, one bilingual secretary, two chauffeurs, and a messenger. Some of these were to be recruited by FAO. These people were not financed and recruited because of a dispute with the former NBA Executive Secretary.

European Development Fund (FED)

The European Development Fund is currently co-financing the HydroNiger project, together with UNDP and OPEC. It is also interested in the proposed Kandadji Dam and a reforestation project.

The Kandadji Dam financing, however, depends on the results of a proposed study of its feasibility as opposed to a series of small dams. Since such a comparative study is not being done at present the Kandadji Dam financing has been tabled by the likely donors.

The FED is interested in supporting a regional reforestation project made up of an experimental 100 hectares of reforested land in each of NBA member countries. Each of the member countries, however, insist on treating the project as a bilateral one. Consequently, the FED finds it difficult to get the project off the ground.

United Nations Food and Agricultural Organization (FAO)

At the initial donors' conference FAO agreed to finance technical assistance to the NBA and a study on the potential development of water resources on the middle and upper courses of the river.

Technical assistance was to include one specialist for the Documentation Center and two experts for the Planning Unit. None of these people were working with the NBA at the time of this evaluation. The FAO representative in Niamey informed us that two technicians--an economist and a rural engineer--have been recruited for the Planning Unit but their credentials have not yet been accepted by the NBA, a fact that was confirmed by the Deputy Executive Secretary.

FAO has contracted with an Italian firm, Carlo Lotti and Associates, to perform the study which is focused on the potential for navigation, hydroenergy, irrigation, fisheries, and water supply in Guinea, Mali, and Niger. A two-volume draft of the study results was completed in July 1984 but is not available for examination. The final version is due out in mid-1985. The evaluation team believes that parts of the study may overlap with the Corps of Engineers Geomorphologic Analysis.

Fond d'Assistance et Cooperation (FAC)

France has not provided any technical personnal under the Phase I of the project but appears to be on time with other inputs. Among these:

--basin cartography has been completed under contract with IGN and was delivered to Hydro-Niger

--a hydrological data (flow and flood) collection system is being built in cooperation with UNDP by ORSTROM

--the study of the Niger River anomalies: a preliminary survey has been completed but the study will still take some time to be completed.

--SOGREAH in Grenoble is working on the development of a mathematical river simulation model to predict floods and recessions. While the work is considerably advanced, the FAC representative in Niamey could not make an estimate as to when the project will be completed.

The Caisse Centrale de Cooperation.

The Caisse Centrale apparently provides no direct support to the NBA but is involved in Office du Niger (Mali) irrigation activities. It plans to finance additional irrigation development along the Niger River, but no details could be obtained in Niamey in this regard.

5.2 COORDINATION OF DONOR SUPPORT

UNDP has undertaken the role of overall coordinator of the project, but how this was supposed to be accomplished was not spelled out. However, donor coordination meetings were organized in 1976, in 1978, and the last one in 1983.

USAID/Niamey staff members dealing with the project are well informed regarding what other donors are doing, through their own efforts in Niamey and through liaison with officers in Paris and in Rome. FAO also maintains

contacts with the NBA through a large administrative and professional staff in Rome. Interviews with other donor representatives--including those in Niamey, with FAC in Paris, and CIDA in Ottawa--indicate that other donor agencies are much less informed. Apart from USAID, donor offices in Niamey do not have sufficient staff or other efficient means for coordinating activities.

5.3 CONCURRENCE OF OTHER DONOR SUPPORT WITH NBA OBJECTIVES

The NBA Convention, as last amended in 1979, is so broad that almost any activity undertaken by the Authority falls within the scope of its objectives. The objectives include the harmonization and coordination of national development policies to assure an equitable determination of the national limits of the Niger River waters; the collection and dissemination of statistics; coordination and monitoring of projects and studies undertaken by member states; establishment of an indicative integrated development program for the basin; conception, study and construction of infrastructure, including dams and flood control works; prevention of soil erosion; the improvement of human and animal health; navigation control and regulation; land and agro-pastoral development; and overseeing the financing of projects and their installations.

Thus almost any donor activity can be justified by the convention's objectives. These activities so far, however, have been concentrated on collection and handling of data and of mapping as a basis for development planning; installation of river flow and precipitation measuring stations and the attendent telecommunication facilities (HydroNiger); feasibility studies for hydro-electric power installation; adminstrative and institutional support, including training and the provision of equipment. Little attention has been given, however, to direct assistance for food production and irrigated agriculture, nor did NBA insist on it. This is the weakest aspect of NBA/donor cooperation.

5.4. NBA EVALUATION/JUDGEMENT OF DONOR SUPPORT

The NBA Executive Secretary and the Deputy Executive Secretary have expressed impatience with the number of studies the donors are willing to fund. They would prefer some financing to be channeled towards direct implementation of infrastructure projects. A similar opinion has been voiced by the NBA Technical Directors. They would also like to see more administrative and equipment support to improve working conditions. On the other hand there seems to be a general satisfaction with the financial and technical assistance support provided to HydroNiger.

5.5 CONCURRENCE OF OTHER DONOR SUPPORT WITH AID PROJECT OBJECTIVES

The NBA project as conceived in 1977 integrated well with USAID and other donor objectives. When the Project Paper was amended in 1981 that concurrence became blurred, in particular as other donors departed in practice from the original conception of the project. At this stage, therefore, the concurrence is rather general insofar as all donor actions aim at the economic and social development of the Basin and the physical infrastructure supporting it.

6.0 USAID PROJECT MANAGEMENT

A large part of the current successes of the Phase I project--and Phase II direction and momentum--may be attributed to present AID project management. The knowledge, experience and interest that the two current AID officers have in river basin planning has allowed them to take a very active role in project direction and management as opposed to playing a passive role in project administration. This is reflected in the logical sequence of steps being taken in the planning effort, as opposed to a conglomerate of poorly-linked or unrelated studies carried out in an untimely sequence.

However, there have been a number of shortcomings in the AID management and monitoring of project implementation. The team has been made aware of management problems caused, for example, by multiple responsibilities required of officers or by personnel shortages. Nonetheless, the team believes--without knowledge of specifics--that AID management, and particularly corrective action, has been remiss with regard to the following:

First, the conditions precedent were not fully met as set forth in Phase I, including the amendment. For example, AID conditioned its funding on the NBA having signed agreements with the other donors which had pledged to finance various studies. These other agreements did not materialize. Further, one could ask whether the NBA met the intent of the condition precedent requiring the establishment of a Planning Unit by simply naming the Executive Secretary, his Deputy, and the Technical Directors as its personnel.

Second, AID accepted delays in project implementation amounting to four years before redesigning and amending the original project.

Third, AID did not adequately monitor contractor compliance with the terms of reference set forth in the PASA. The COE and its subcontractors did not fulfill the TOR for institutional development, training, and technology transfer.

Fourth, AID accepted the breach of training purpose by the NBA Executive Secretary who rejected the employment by the NBA of four participants after completion of their training (which absorbed 60% of all funds disbursed for institutional development). Since these participants did not go to work for the NBA, their training was fruitless as far as the project is concerned.

Fifth, AID reallocated institutional development funds for other purposes. AID diverted almost 50% of such funds to contracts and commodities. The evaluation team did not seek to determine whether this constituted a change in project goal and purpose and thus required an amendment.

Sixth, AID did not conduct an interim or midterm evaluation as was planned.

Last, AID/Niamey did not conduct a final evaluation of Phase I before Phase II was designed, submitted, and--surprisingly--approved by AID/Washington.

7.0 APPROPRIATENESS OF THE PHASE II DESIGN

At the request of AID/Niamey, the evaluation team took a look at what has been planned as the follow-on project. The project paper is neither well organized nor well written. It lacks both a proper implementation plan and logical framework. We provide our view of the Phase II activities below.

7.1 THE TECHNICAL COMPONENT

7.1.1 ENHANCEMENT AND UPDATING OF DATA STORAGE AND RETRIEVAL SYSTEM

The Phase I study identified many shortcomings in the existing data base and made recommendations for strengthening it in Phase II. The following are among specific recommendations:

--establishment of mean sea level datums for 87 gauging stations.

--establishment of 30 new stage-discharge stations.

--establishment of river distances for 15 existing stations.

—a survey of cross sections at all gauging stations and at 20 kilometer intervals on the river, including all controls and significant changes in section or slope.

--establishment of rating curves for 67 stations.

—establishment of 55 sediment load gauging stations.

--collection of and analysis of bed load material at all gauging stations

--addition or upgrading of about 85 climatological stations.

--establishment of a water quality monitoring program.

The team concurs with these recommendations. The updating and use of the system should be a full-time priority effort for Phase II implementation. Close collaboration if not an interface with the HydroNiger project appears to be the best way to ensure timely updating and enhancement of the data system. HydroNiger is establishing 65 automatic stream gauging and precipitation stations along the Niger River (which can also be equipped with water temperature and turbidity sensors). These stations report by telemetry, but the project has also established small offices in each of the four countries on the mainstream to check and maintain the gauges. These offices are located within the respective national water resources services agencies and each has a 4WD vehicle, various gauging equipment, and a small operating fund. Working through this HydroNiger network (and contributing to the operating fund) would assure, at minimum, the timely collection of precipitation, stage and discharge, and sediment load data at 65 stations. The Director appeared to welcome close collaboration with the COE efforts. One could foresee a greatly expanded NBA data collection system through AGRHYMET, HydroNiger and the water resource agencies of the member states to provide an up-to-date data base for both the HydroNiger flood prediction model and the COE water-sediment routing model.

7.1.2 THE WATER-SEDIMENT ROUTING MODEL

Development of the proposed water-sediment routing model is the logical sequence to the Phase I project toward the overall goal of basin planning. The model will simulate unsteady flow of both water and sediment. The purpose is to predict long term and short term changes in flow, stage, aggradation and degragation anywhere in the river as a result of any significant intervention. It is state-of-the-art and considered to be the most appropriate for comprehensive basin planning activities.

The water-sediment routing model must be capable of simulating the effects of the introduction of such structural features as irrigation works, hydroelectric power development with associated dams, flood control, water supply and navigation works, in this order of importance. THE COE, NBA, and USAID have so far over-stressed navigation analysis as the most important feature of this model. The model must have an equal ability to analyze agricultural/irrigation development, hydroelectric power development, flood control, water supply and navigation works.

The other river modeling efforts underway compliment but do not duplicate the Phase II effort. HydroNiger is developing a river forecasting model designed to predict downstream water levels from real-time stages and antecedent hydrographs upstream. This model will be used for immediate management of existing projects' smallholder plots, as opposed to planning. In other words, the model will use observed data (stage) early in a season to predict the time and amount of river rise and recession downstream. The FAC is also financing the development of a mathematical model of the river's hydrology. This model appears to be limited to medium-term changes in discharge and stage with particular reference to the interior delta in Mali. SOGREAH, the French contractor for this model, has not been forthcoming with details and collaboration with this effort does not seem promising. Although the COE, HydroNiger, and SOGREAH models all share to varying degrees the same data base, their outputs are substantially different. The COE water-sediment routing model planned for Phase II is by far the most comprehensive and the only one which will enable quantification of the physical effects of various development scenarios in the river system.

7.1.3 ANALYSIS PLANNED WITH THE MODEL.

The Phase II Project design calls for three navigation analyses to be conducted with the water-sediment routing model. This plan is apparently based on COE recommendations. Given the COE's preponderant capability in this aspect of river basin planning, the desire to study navigability is understandable. It is probably also reflected in the lengthy section on navigation in the Geomorphic Analysis which was considerably beyond the scope of the TOR in the Phase I Project Paper and PASA. However, this priority and concentration of effort on navigation analyses does not seem justified.

The purpose of river planning is to optimize the multiple uses of the water (and land) resource through the potential development of agriculture and hydropower as well as navigation. The analyses planned with the model do not

reflect this. The NBA Charter is clear in its emphasis on multi-use planning of the river basin and with regard to navigation specifically mandates only the development and maintenance of navigable stretches.

More importantly, the agricultural situation in the Sahel is particularly desperate. Increasing agricultural production is rightly the first priority of Sahelian governments and USAID. Although river transport is important in the distribution of agricultural supplies and production, it is doubtful that the massive investment which would be necessary to make the Niger navigable in its entirety will in any way result in equivalently large increases in the present agricultural commerce on the river (see Section 7.1 of the Geomorphic Analsyis).

The water-sediment routing model should be utilized to analyse possible improvements only of existing navigable reaches, and not navigability throughout the entire river. The other analyses budgeted in the Phase II would be most useful for agricultural needs, rather than upon the stage requirements for navigation throughout the river. Two possible types of analyses are (1) the effects of outtakes and pumping head requirements for irrigation at different river stages in dry and wet years and (2) the feasibility of artificially augmenting/prolonging high river stages for flooded rice and recessional cultures. This latter, novel approach is being planned by the OMVS for the operation of the Manantali Dam until downstream irrigation developments are realized. Of course, neither of these analyses should exclude navigability of presently-used reaches.

7.2 THE INSTITUTIONAL COMPONENT

7.2 1 ENVIRONMENTAL STUDIES

The environmental studies planned for Phase II encompass collection and inventory of Niger River Basin baseline environmental data which reflect existing conditions, as well as an assessment of existing conditions and the determination of the beneficial and adverse impact of specific proposed engineering features. It has been proposed that the studies be divided into two parts: the first to consist of an inventory and assessment of environmental factors within the Niger River Basin, and the second part to consist of an environmental impact and assessment of a specific project, the Kandadji Dam.

The Geomorphic Analysis completed in Phase I provides a firm, physical base for an environmental study. Chapters III-V of the Analysis give a detailed description of the physiography, geology, soils, most of the vegetation, precipitation, temperature, evapotranspiration, and hydrology in the basin. The terms of reference for the environmental study should clarify where the Geomorphic Analysis leaves off and the environmental study begins in order to avoid any duplication of effort. In fact, the TOR could specify that the environmental study be based on the physical conditions described in detail in the Analysis.

The first part of the study--identification, inventory, and assessment of basin-wide environmental baseline conditions--is a valid and necessary effort which will aid the preparation of an indicative basin development plan. However, the effort should start with the data already collected in the

geomorphic study and assemble only such additional information as already exists. The assessment should consider only existing conditions. Analyses of a only a preliminary nature should be undertaken via computer modeling for hypothetical, proposed interventions.

The specific environmental assessment for the Kandadji Dam is not appropriate. There are several engineering interventions proposed within the basin at this time. For none of these, including Kandadji, has financing been fully pledged or the decision made to proceed with design and construction. The environmental inventory should be able to provide an assessment in preliminary fashion of the potential impact of development proposals that are expected to receive full-fledged member state and donor support. At such time as plans for such projects are well developped and financing reasonably assured (or donor interest is keen), specific impact analyses should be undertaken.

The Corps of Engineers would be an appropriate implementing agent for the environmental inventory. The COE has already managed the geomorphologial study, the collection of hydrological data, the installation of the data storage and retrieval system, and will manage the Phase II technical component. The COE has solid experience managing such work in the United States. However, one COE representatives in Niamey should be directly responsible for the coordination and management of this activity to assure that the terms of reference are fully met.

7.2.2 SOCIOECONOMIC STUDY

The socioeconomic component planned in Phase II consisted of two essential activities--study and planning. Both activities were also seen as support to the institutional development of the NBA. They were estimated to each take 24 months to complete, thus requiring a total of 48 months. Project financing--$4.5 million with inflation and contingency factors--included technical assistance to the NBA in the form of a senior river basin planner/advisor to the Executive Secretary and four researchers/planners.

The study activity was intended to collect and analyze data needed to evaluate the economic and social feasibility of various development alternatives for the river basin. It was to include assistance to the NBA to augment its capacity to identify relevant socioeconomic data needs. The study was seen as a sine qua non for the formulation of the integrated basin development plan. Specific objectives included:

--description and analysis of existing land and water use production systems, in the basin

--identification of the areas with the greatest potential for beneficial impact on the basin population

--recommendation of development interventions most responsive to the various circumstances of the basin people

--an assessment of potential impact that specific development actions might have on the basin popualation

The study was to concentrate first on identifying and assembling relevant

secondary information during an initial six months. Subsequently, eighteen months would be spent in the design and execution of field research in at least four of the member countries. The field work was to focus on the social organization of production, marketing systems, the role of village leadership and institutions in decision-making which affects production, land tenure and use, the characteristics of innovative production units, the role of women in production, available production technologies, accessibility of inputs, the supply and demand of grain and livestock, and so on.

7.2.3 THE PLANNING ACTIVITY

The planning activity was to exploit the information gathered by the socioeconomic study for planning and policymaking purposes. This was to be the responsibility of the same contractor that conducted the socioeconomic study. During the first twelve months, the contractor was supposed to synthesize and analyze the socioeconomic information. Thereafter, a draft development plan was to be prepared, presented to the NBA, and revised as necessary. Specifically, an integrated plan would be put together indentifying various development options, investments required, and their technical, social, economic, and environmental feasibility.

7.2.4 TRAINING

Five areas of training were planned in Phase II as follows:

--for sediment data collection and analysis, training for two NBA engineers would include two months in Vicksburg, two months of systems training in Niamey, and two months in the field helping to identify and assemble information, all with Corps of Engineers personnel;

--training in the development and loading of the mathematical model would comprise four person/years for four other NBA engineers who would each spend one year in the U.S. with COE personnel at Vicksburg assisting with the flow synthesis and model development;

--navigation analysis training was to be on-the-job for two NBA engineers during the final year of modeling and to include three months of field reconnaisance in the river basin;

--training in project management was planned for three individuals (sequentially) over three months in Vicksburg and three in Niamey by working directly with the COE;

--on-the-job training in socioeconomic fields related to river basin development was to be provided to the four NBA staffers serving as counterparts to the four technical assistant researcher/planners; two of the NBA people were to do masters' study in the U.S.

The terms of reference have undergone a number of modifications since Phase II was designed. The socioeconomic and planning activities were split up. Two contractors were envisioned instead of one. The scope of the socioeconomic study has been somewhat reduced. Training plans remain the same. The plan to provide five long-term technical assistants to constitute, along with their counterparts, a planning unit within the NBA is unchanged.

The evaluation team believes that even in their current form, the terms of reference for these activities are too broad. The socioeconomic study seems skewed toward the social at the expense of the economic. There seems to be too great an emphasis on field studies and the generation of primary data. If the NBA is to receive continued USAID support, the socioeconomic study component should be distinct from the planning assistance. The scope of the study should be reduced and its objective aimed at assembling secondary data--from member state and other institutions--deemed necessary for indicative rather than definitive planning. Like the hydrological data, the information should be entered into a micro-computer storage and retrieval system in a format that will accommodate comparative analysis and further additions.

Local researchers and institutes (e.g., the Institut de recherche en sciences humaines at Niamey and the Institut des sciences humaines at Bamako) should be provided operational support, perhaps budgetary, to identify and assemble information in the respective member states.

Since the UNDP is committed to providing at least two expatriate technical counselors to the Planning Unit the NBA, it is unlikely that the AID project need furnish five long-term technical assistants to this unit. However, given the U.S. capability in river basin planning and development, it may be appropriate to provide a senior basin planner to the unit on a long-term basis. Requirements for other long-term technical assistance--for example, in the design and execution of environment, social, and economic surveys-- should be determined during the redesign effort and as a function of the management and institutional analyses and other donor support. Such experts would be attached to the Planning Unit. Requirements for short-term assistance to supplement the expertise of the planning unit personnel should be also identified during the redesign.

The planned level of training appears to be less that what is needed by the NBA in either the short or long term. Moreover, training should include disciplines other than just engineering. Macro planning, macro economics, development or economic anthroplogy, agronomy, public health planning, management, and others can also serve the needs of the organization.

The team believes that the level and type of training to be offered by the project should be rethought in line with the results of the recommended analyses and with a review of terms of reference in general. Finally, we believe that the terms of reference must clearly set forth exactly what the NBA and AID expect from their contractors.

8.0 CONCLUSIONS AND RECOMMENDATIONS

8.1 CONCLUSIONS REGARDING PHASE I

The Niger Basin Authority suffered from a number of problems--financial, managerial, institutional, logistical, and other--during Phase I of the project. Accomplishments toward the overall goal of setting forth an indicative basin development plan are meager. Nevertheless, in spite of many implementation problems and the difficulties that the NBA and USAID have encountered, important work has been accomplished. With the newly appointed Executive Secretary and his Deputy now on the job, the NBA may be on the verge of solving its management problems. However, due to the nature of the organization and the fiscal crises in several of the member states, the team is doubtful whether its serious financial and personnel problems will soon be resolved.

The evaluation team believes that the Corps of Engineers provided good technical assistance to perform the geomorphic analysis and set up the data storage and retrieval system. The Corps has put together a tool that can serve the planning process for which it is intended. However, the Corps did not adequately help develop the NBA as an institution. Although this was an important element of the project as originally designed, little technical assistance was provided directly to the NBA for institutional development. The long term training did not serve to accomplish the project purpose because the participants did not go to work with the NBA upon their return from the United States. Meager short term counterpart training was provided for two persons during aerial surveying and NBA personeel did get some exposure during development by the COE and its contractors of their geomorphic study and data base. However, no NBA staffer has been properly trained in the preparation or use of either of these tools, as was planned in the Project Paper. No NBA personnel can fully utilize the computer resources now at the disposal of the agency.

Without being completely informed of the policy dictates at the time governing USAID or of all the specific constraints which affected project implementation, the team believes that AID's project management and monitoring can justifiably be criticized.

We highlight below the specific conclusions we have reached:

1. Institutional development in terms of the purpose set for this project has not yet been achieved. New NBA staff skills have not been developed and existing staff skills have only been marginally enhanced or upgraded through on-the-job training. In the largest sense institutional development has been honored only in the breach and not in fact. Nearly half the resources originally allocated for this were been diverted to other uses.

2. NBA has made little progress towards the Indicative River Basin Development Plan other than the completion of the Geomorphic Analysis and the Data Storage/Retrieval System by the Corps of Engineers and its subcontractors during Phase I; the Two Year Development Plan written in May 1981; and the Five Year Plan put together in 1983.

3. The NBA did not actively participate in the Phase I activities. Although it did not have adequate technical personnel to fully do so, the technical persons that were available were not adequately utilized. The Technical Director for Agriculture did not go on the geomorphological reconnaissance trips. No NBA personnel was involved in the data collection process by Louis Berger.

4. The design of the technical components of the Phase I amended project was essentially sound. The projected achievements were appropriate and necessary fundamental steps toward designing an indicative development plan for the Niger River Basin. However, the technical annex should have been more inclusive and specific about the information required for studies and modeling.

5. The Army Corps of Engineers provided good technical assistance personnel to the project. The COE Resident Manager has done a commendable job under difficult conditions. However, for reasons mostly beyond his control, his efforts fall short with regard to the planned institutional development.

6. The geomorphic analysis is of good overall quality and will be useful to AID, the NBA and other donors both as a learning tool and as a base for the physical modeling and environmental study of the basin.

7. The geomorphic analysis has two significant weaknesses, namely, an incomplete survey and discussion of existing projects and land use (specified in the TOR), and the lack of discussion of the current severe climatological and hydrological conditions.

8. The geomorphic analysis placed too much emphasis on navigation. The section on navigation although well-researched apparently absorbed a substantial portion of the contractor's time and went well beyond the TOR and requirements of the project.

9. The establishment of the Data Storage/Retrieval System carried out in Phase I was successful by any standards and is comparable to the most modern and efficient used by the U.S. Geological Survey. The contractor had a a perfect understanding of the type of data that was needed, the form it should be in, and what needs to be added. The DSRS could have been strengthened with a "comments" section for each station to include and update explanations of how data was obtained or extrapolated. The Corps of Engineers resident project manager should be commended for his decision to install the DSRS in Niger rather than the United States and for procuring the computer equipment for this purpose.

10. Updating and improvement of the data bank will be necessary in order for it to achieve and retain its full value. This will require training a full time specialist at the NBA and should be a high priority task.

11. The NBA has no personnel to properly operate, maintain, update, or support the Data Storage/Retrieval System. One of the failings of the institutional development component is that nobody has been trained to do this. Likewise, immediate and efficacious utilization of the two IBM computers recently transferred to the Authority will not be possible because no NBA staffer has been adequately trained in their operation.

12. The long-term training did not benefit either the NBA or the project. None of the four participants who received U.S. degrees work for or with the NBA. Given the generally insufficient numbers of member state engineers skilled in water resources development, the long term training was valuable and both the respective participants and states will derive derive long term benefits from it. However, with regard to achievement of the project purpose and the immediate objective for which the training was programmed, it must be considered ineffective.

13. The long-term training funded under the original project was too directed at graduate engineering degrees. Training in other disciplines such as river basin planning, management, economics, or anthropology would have been just as useful to the institutional development of the NBA.

14. The short-term training was only very partially implemented by the COE and its contractors. This training planned for the NBA in Phase I of the amended project could have been highly effective. It was insufficient in quantity, type, and degree when viewed against what was planned.

15. The commodities provided by the project to the NBA have facilitated ongoing NBA activities. Again, the resident COE project manager is to be commended for initiating the procurement of office equipment and materials that assisted the operations of the NBA and thus contributed somewhat to its development as an institution.

16. AID project management has been inadequate. A delay of several years in implementation occured before the project was amended. AID/W approved a follow-up phase even though no interim or final evaluations had been conducted. AID/Niamey did not properly monitor the Corps of Engineers which did not fulfill their terms of reference regarding the institutional development and geomorphic analysis. Initial project monitoring, dialogue, and support by AID was not adequate and led to operational difficulties for the COE, disregard for critical project elements, and misunderstanding of technical activities. AID project management later improved, in part due to the technical background and interest of AID officers. AID-COE dialogue and understanding nonetheless appears somewhat ad hoc and needs to be further improved.

17. The technical offices of the NBA are physically inadequate for the current low-level of activity and will be inadequate for the Phase II activities. In a larger sense, these offices do not provide a conducive environment for the high-level coordination and planning functions of the NBA technical staff and advisors.

18. The NBA does not presently have the personnel, finances, offices, equipment, information, or analytical models necessary to compile a river basin development plan. Technically, the Agricultural and Transport Directions are wanting. A considerable reapportionment or increase of institutional NBA and donor resources to the technical offices and to the Planning Unit will be necessary before real planning can begin.

19. Donor project coordination has been poor following an excellent initial collaborative effort. As Phase I of the AID project draws to a close, project complementarity is blurred and individual donor efforts are almost exclusive bilateral.

8.2 RECOMMENDATIONS FOR PHASE II

1. AID should continue to support the Niger Basin Authority through a Phase II project but the scope of activities planned should be reduced. The project goal and purpose should be revised to reflect AID's desire to provide assistance to the NBA to plan and coordinate river basin development (goal) through the assembly and analysis of pertinent information (purpose). AID's assistance, though reduced in scope, will demonstrate to member states and to other donors its continued support to the NBA and the AID belief that this agency, despite its problems, remains the most appropriate organization able to achieve the common goal.

2. AID should consider conditioning continued assistance on the staffing and operation of a planning/donor coordination unit within the NBA. Although the Council of Ministers has approved the NBA plan to staff the planning unit with the Executive Secretary, his Deputy, and the Technical Directors, the evaluation team does not believe this will render the unit properly operational. The planning unit must be staffed by planners. If the member states cannot agree upon the importance of this unit within the NBA, provide required personnel and financing, and seek donor assistance to fund technical and other expertise the menmber states cannot furnish, the team believes that the agency's task will go unachieved. It will neither accomplish an indicative basin-wide development plan nor muster donor support and financing for specific development interventions.

3. The NBA should be primarily a planning and coordinating agency. It is thus incumbent upon AID to clearly state its position that the NBA should be a planning and coordinating agency, and not responsible for the management or implementation of specific development activities which will more likely be implemented on a bilateral basis. However, disagreement on the overall role of the agency should not preclude AID support for the planning and coordinating function.

4. AID should redesign the authorized project proposal for Phase II. The redesign should incorporate or reflect the following:

5. An institutional analysis and a management analysis of the NBA should be conducted as part of the redesign effort. These would help clarify the role of the agency, define its functions, prioritize its tasks, estimate its life, suggest its evolution over time, and identify its requirements for personnel, physical plant (space) and equipment, and operating costs. These analyses would likewise identify the member state and donor support necessary to sustain the organization. Acceptance of the recommendations below will depend in part on the results of these analyses. The team suggests that these analyses be conducted by two individuals. We further suggest that these individuals visit the headquarters of the OMVS and the OMVG in Dakar to assess the utility of their respective organizational structures and management functions for the NBA. It is suggested that the NBA Executive Director and his Deputy accompany the analysts on this visit, particularly to investigate the role and structure of the planning units of these two agencies.

6. The data storage and retrieval unit should be upgraded. The information assembled in Phase I was essential but focused on the development of river navigation. Information not obtained during Phase I but which will be required for basin planning--and particularly for weighing development alternatives for agriculture, hydropower, water supply, and flood control structures--includes:

--water requirements for irrigation at various reaches of the basin

--ability of basin soils to support agricultural development

--hydropower potential and existing and future demands

--existing and future municipal and industrial water supply needs

--evaporation rates

--groundwater potential

--seismic information

--needs and availability of alternatives to water transport such as road, rail, and air

--types of crops which can be grown on basin soils

--livestock production and potential for development

--fisheries production and potential

--river water quality data

--soil and water salinity data

--global inventory of basin water available for development

--an inventory of irrigation projects

7. The water-sediment routing modeling and analysis of development alternatives should be performed essentially as planned. Development of the proposed water-sediment routing model is the logical sequence of the Phase I project in the overall goal of basin planning. The model will simulate unsteady flow of both water and sediment to predict long and short term changes in flow, stage, aggradation, and degragation anywhere in the river as result of any significant intervention. It is state-of-the-art and considered to be most appropriate for comprehensive basin planning activities. In view of USAID's regional objective of increased food production and productivity, the modeling and analysis of developmental alternatives should focus primarily on agriculture.

8. The enviromental study should be reduced in scope to what was foreseen in the original Phase I project--that is, a comprehensive overview and inventory of existing environmental conditions using secondary sources. Much environmental information has already been assembled for the geomorphic analysis. This should be exploited and additional data available from secondary sources, if any, should be assembled to facilitate the focused analysis of the potential environmental impact of proposed development interventions. Preliminary analyses of current irrigation projects and an estimate of their present and future impact on the water resources of the basin can be conducted in part using the inventory. Likewise, preliminary analyses of specific project interventions. Exhaustive analysis can be undertaken if the preliminary effort concludes it is necessary. The latter would become part of the design process for specific project proposals.

9. The socieconomic study should be reduced in scope and focused on assembling relevant data from secondary sources needed to propose an indicative Niger River Basin integrated development plan. The study should be reoriented to lend equal weight to assembling economic and social data. No case or village studies should be carried out. No primary data should be generated by the Phase II project. However, gaps in existing information should be identified. Any additional data assembly or analysis essential to proposing an indicative basin development plan should be funded and executed supplementary to the project through the Program Development and Support (PM & R) modality, or through the support of other donors. The exhaustive analysis of the social or economic feasibility of specific project proposals should be undertaken as an aspect of the project design process and funded by the potential donor.

10. The planning activity/planning unit should be provided long-term technical assistance in river basin planning by AID. The UNDP has also proposed to furnish technical assistance to the planning unit. Given the critical need for this unit to properly design and coordinate studies, exploit their results, and draw up an indicative development plan, donor support must be provided to make the planning effort functional. Although the NBA has recently constituted and staffed an in-house planning unit as described above, the evaluation team believes that without planning assistance the agency will not be able to do the required development plan and recruit donor financing for interventions.

11. AID should consider the provision of other long-term and short-term technical assistance to the planning unit. Decisions in this regard should be made during the process of redesign. They should be subject to the recommendations of the institutional and management analyses, a relook at the purpose and TOR of proposed activities, and consultations with the NBA and the UNDP or other donors. In particular, such short or long term assistance might include expertise in water resources development, social survey design and analysis, economic modeling for river basin development, environmental assessment and impact analysis, agronomy, transport economics and planning, livestock development, hydropower development, and public health planning.

12. The terms of reference for follow-up project activities, including studies and modeling, should clearly describe and define the information sought. To ensure that the terms of reference are technically correct as well as adequate in purpose, scope, and substance, outside expertise should be sought to reexamine them.. If it is necessary to contract such expertise, PM & R funds should be requested.

13. Execution of the terms of reference should be closely monitored to ensure that AID is getting exactly the product and information it wants, and that which is required for planning. AID project management must oblige its contractors to fulfill the TOR, or amend them. Good monitoring will help prevent the TOR being incompletely or improperly satisfied, as was the case to some extent in Phase I. Also, AID management must ensure that its both its participants and contractors fulfill training obligations or, if this is impossible due to a lack of participants, formally amend the agreement/contract. Further, AID must ensure that the recipient agency utilize returned participants if such is required to achieve project purpose. To this end, AID might consider the inclusion of a condition precedent or covenant in the project agreement.

14. If support to the NBA is continued, AID must commit the time and technical personnel to ensure proper management of this demanding, multi-disciplinary, multi-national project. A project committee should be formed with a specific agenda set for dialogue and action on project issues. The $11.7 Phase II at this point consists of four substantial, technically complex undertakings involving two primary technical contractors, several equally-technical subcontractors, and a sensitive multi-national regional organization. A redesigned project will require a seasoned Direct-Hire Project Officer with a strong technical background in engineering, water resources, or agriculture. The Project Officer will also probably need the assistance of a local-hire or PSC project assistant.

15. Prospective trainees with engineering backgrounds need not exclusively be placed in graduate engineering programs. Less technically-oriented graduate programs in management, public finance, development anthroplogy, agricultural economics, agronomy, and environmental studies are often as appropriate and effective. Obliging contractors to conduct participant training is sometimes difficult, but is usually an effective type of hands-on, apprenticeship experience.

16. Each expatriate technical specialist provided to the NBA should have an NBA counterpart so that proper technology transfer is assured. This implies, however, that current NBA facilities must be expanded to accommodate more people. (In Phase II, stronger emphasis should be placed on transfer of knowledge and improving ability to carry out technical/planning studies.)

17. AID should request the NBA to prepare an annual report describing the accomplishments of the NBA in general and of each specific project, and to distribute the report to all project donors and their field representations in the region. Disbursements subsequent to the initial year might be conditioned on an annual report.

18. AID and other donors should consider helping the NBA acquire additional office space. This report has mentioned the inadequate physical conditions under which NBA personnel work. If the Planning Unit is to be rendered fully operational, the computer facilities and documentation center properly housed, and member state/technical assistance staff provided adequate working areas, it is clear that more space is needed. The team recommends that AID consider contributing to the cost of leasing rather than constructing additional space. This decision should be based on both the results of the institutional and management analyses, and the willingness of member states to furnish the agency with needed space.

19. A formal donor coordinating meeting should be convoked in late 1985 following initial meetings between technical working groups to lay the groundwork and formulate an agenda with feasible propositions. Such a meeting would provide the foundation for a reaffirmation of common objectives and a renewal of NBA-donor cooperation.

ANNEX A: LIST OF PERSONS CONSULTED

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Consieller, FED/Niamey

ANNEX B: LIST OF DOCUMENTS CONSULTED

Authorite du Bassin du Niger, Rapport de la Reunion Consultative sur le Programme Minimum de Developpement d'Ouvrages Hydro-Electriques dans le Bassin du Niger, 24-25 October 1983

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b) Data Storage and Retrieval System, Users Instructions for Niger Basin Authority.

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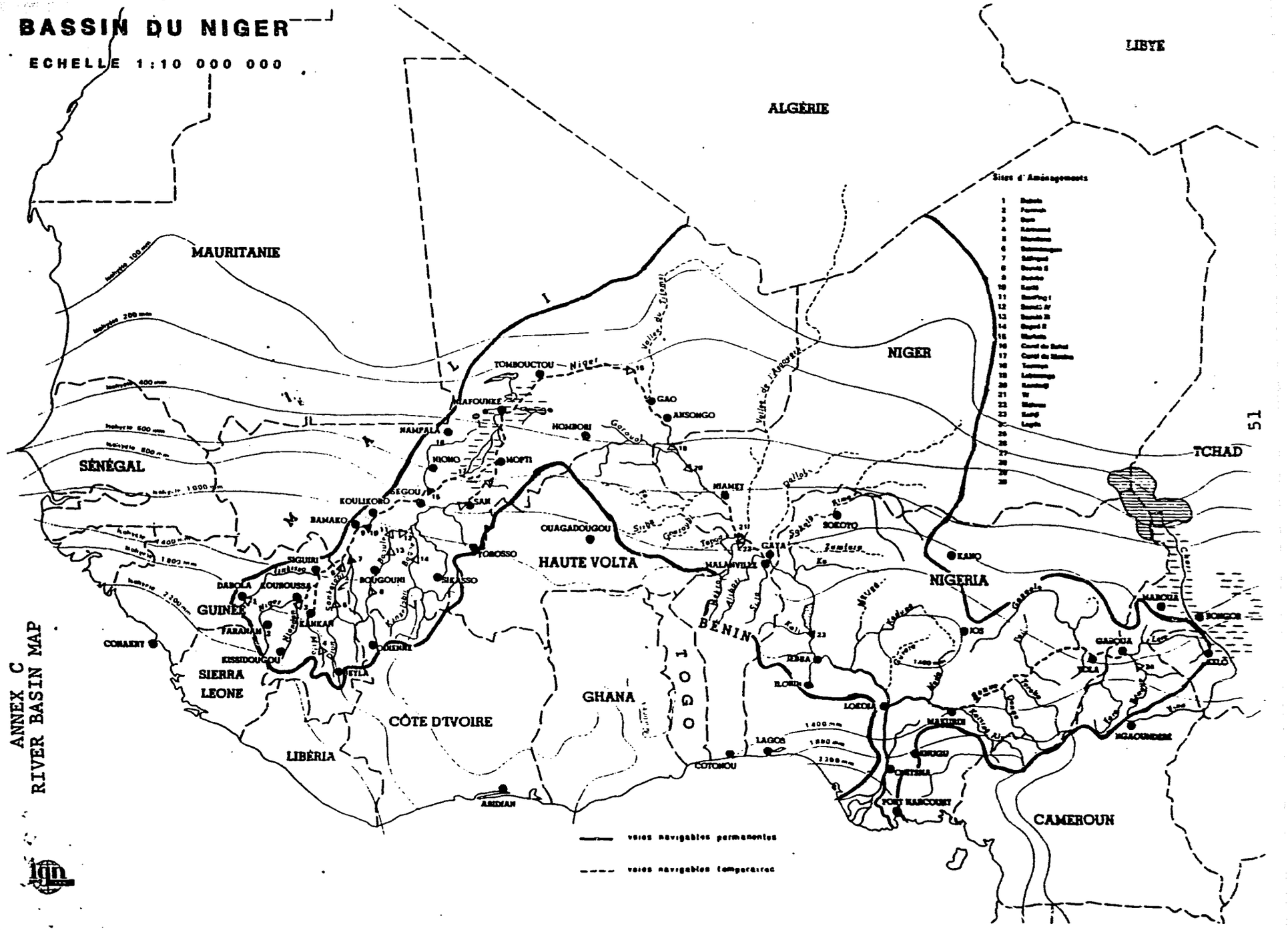
BASSIN DU NIGER
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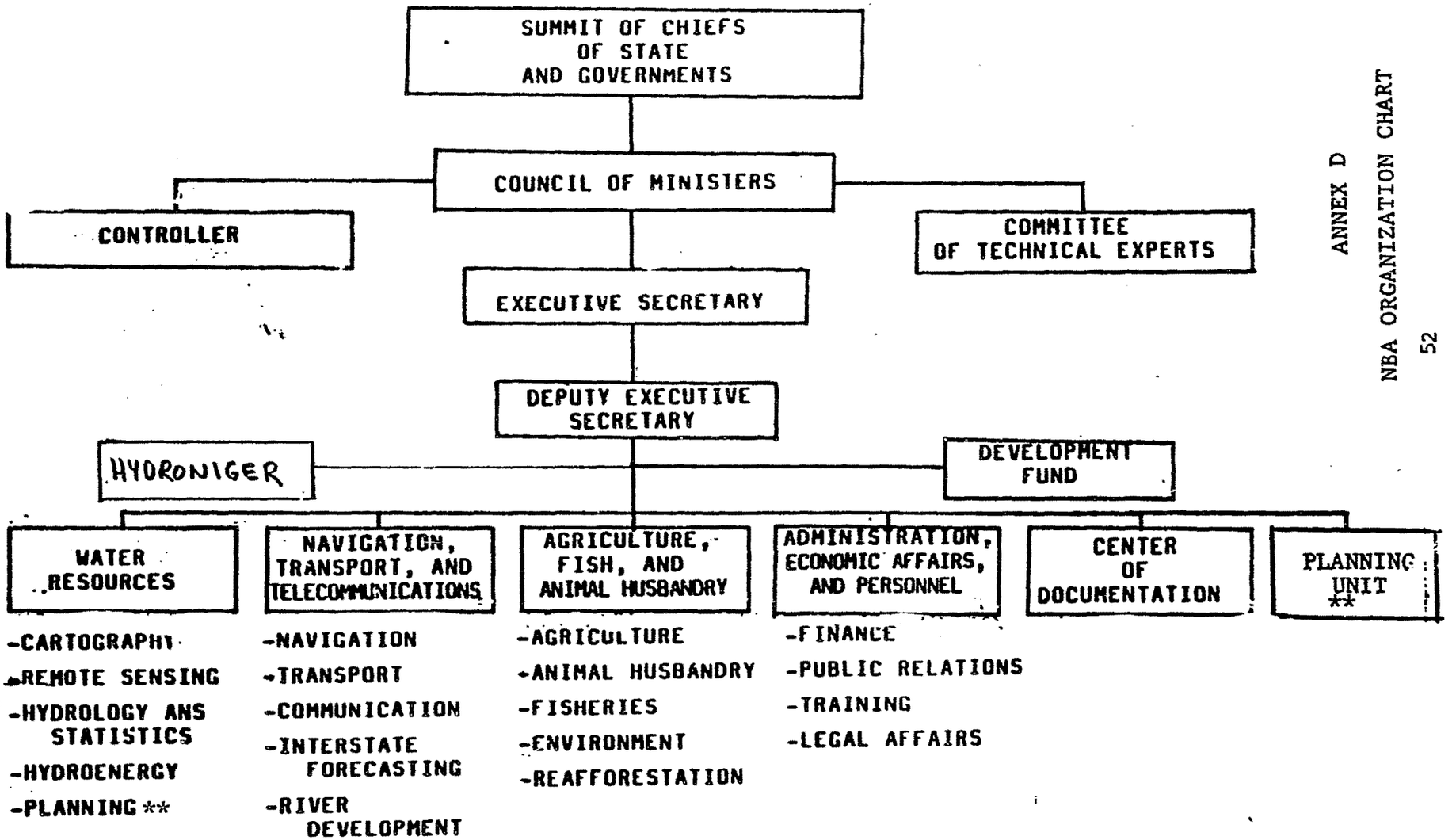
ANNEX C
RIVER BASIN MAP
MAURITANIE
ALGÉRIE
LIBYE
NIGER
TCHAD
SÉNÉGAL
GUINEE
SIERRA LEONE
LIBÉRIA
CÔTE D'IVOIRE
GHANA
HAUTE VOLTA
TOGO
BENIN
NIGERIA
CAMEROUN
TOMBOUCTOU
GAO
MOPTI
SEGOU
BAMAKO
KOULIKORO
SAN
OUAGADOUGOU
TOUSSO
SIKASSO
KANO
SOKOTO
GATA
MALANVILLE
ILORIN
IBADAN
LAGOS
COTONOU
ABIDJAN
PORT HARCOURT
Sites d'Aménagements
voies navigables permanentes
voies navigables temporaires

ANNEX D

NBA ORGANIZATION CHART



** NOTE: THE PLANNING FUNCTION, FORMERLY IN THE DIRECTORATE OF WATER RESOURCES, HAS BECOME A SEPARATE DIRECTORATE