No.

JAPAN INTERNATIONAL COOPERATION AGENCY

NATIONAL IRRIGATION ADMINISTRATION
THE REPUBLIC OF THE PHILIPPINES

THE STUDY ON STRENGTHENING OF NIA's MANAGEMENT SYSTEM

FINAL REPORT

VOLUME I : MAIN REPORT

OCTOBER 2001

KRI INTERNATIONAL CORPORATION

NIPPON KOEI CO., LTD.

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PREFACE

In response to the request of the Government of the Republic of the Philippines (GOP), the Government of Japan (GOJ) decided to conduct the 'Study on Strengthening of National Irrigation Administration (NIA) Management System' in the Philippines, and entrusted the study to the Japan International Cooperation Agency (JICA).

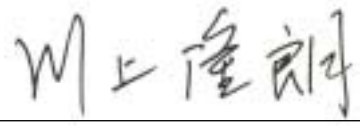
JICA selected and dispatched a Study Team headed by Mr. Toshikazu Tai of KRI International Corporation, consisting of KRI International Corporation and Nippon Koei Co. Ltd., to the Philippines, three times between August, 2000 and October, 2001.

The team held discussions with the officials concerned of the Philippines and conducted field surveys at the study area. Upon returning to Japan, the team conducted further studies and prepared this final report.

I hope that the just concluded study will promote further friendly and closer relationship between our two countries.

Lastly, I would like to express my deepest gratitude and most sincere appreciation to the officials and staff concerned of the GOP for their close cooperation extended to the Study Team.

October, 2001



Takao Kawakami
President
Japan International Cooperation Agency

October 2001

Mr. Takao Kawakami
President
Japan International Cooperation Agency
Tokyo, Japan

Letter of Transmittal

We are pleased to submit our Final Report on the " Study on Strengthening of NIA's Management System' for the Government of the Republic of the Philippines.

The Study was conducted to formulate the restructuring plan needed to strengthen NIA's management systems in order to ensure a more efficient and effective implementation of projects and operation of irrigation systems.

This Report contains the Study Team's findings, analysis and recommendations and presents the proposed Restructuring Plan to strengthen NIA's management systems and an Action Plan to be implemented in a short-term with sets of priority programs. We hope that this Report will be useful in improving NIA's operation.

We wish to express our utmost gratitude and appreciation to the concerned officers and staff of JICA (Japan and Philippines offices), the Embassy of Japan in the Philippines, the National Irrigation Administration, and other concerned offices of the Government of the Republic of the Philippines for the courtesies and cooperation extended to the Team during the course of the Study.

Very truly yours,

Toshikazu Tai
Team Leader

LOCATION MAP
(NIA Central and Field Offices)

REGIONS AND PROVINCES

I. ILOCOS
1. ILOCOS NORTE
3. ILOCOS SUR
5. LA UNION
7. PANGASINAN

CAR (CORDILLERA ADMINISTRATIVE REGION)
2. ABRA
4. MOUNTAIN PROVINCE
6. BENGUET
10. KALINGA APAYAO
12. IFUGAO

II. CAGAYAN VALLEY
8. BATABES
9. CAGAYAN
11. ISABELA
13. NUEVA VISCAYA
14. QUIRINO

III. CENTRAL LUZON
15. NUEVA ECIJA
16. TARLAC
17. ZAMBALES
18. PAMPANGA
19. BULACAN
20. BATAAN

IV. SOUTHERN TAGALOG
21. AURORA
22. QUEZON
23. RIZAL
24. CAVITE
25. LAGUNA
26. BATANGAS
27. MARINDUQUE
28. MINDORO ORIENTAL
29. MINDORO OCCIDENTAL
30. ROMBLON
31. PALAWAN

V. BICOL
32. CAMARINES NORTE
33. CAMARINES SUR
34. CATANDUANES
35. ALBAY
36. SORSOGON
37. MASBATE

VI. WESTERN VISAYAS
38. AKLAN
39. CAPIZ
40. ANTIQUE
41. ILOILO
42. NEGROS OCCIDENTAL
43. NEGROS DEL NORTE

VII. CENTRAL VISAYAS
44. CEBU
45. NEGROS ORIENTAL
46. BOHOL
47. SIQUIJOR

VIII. EASTERN VISAYAS
48. NORTHERN SAMAR
49. WESTERN SAMAR
50. EASTERN SAMAR
51. NORTHERN LEYTE
52. SOUTHERN LEYTE

IX. WESTERN MINDANAO
53. ZAMBOANGA DEL NORTE
54. ZAMBOANGA DEL SUR
55. BASILAN
56. SULU
57. TAWI-TAWI

X. NORTHERN MINDANAO
59. CAMIGUIN
61. MISAMIS ORIENTAL
62. MISAMIS OCCIDENTAL
63. BUKIDNON
71. LANAO DEL SUR

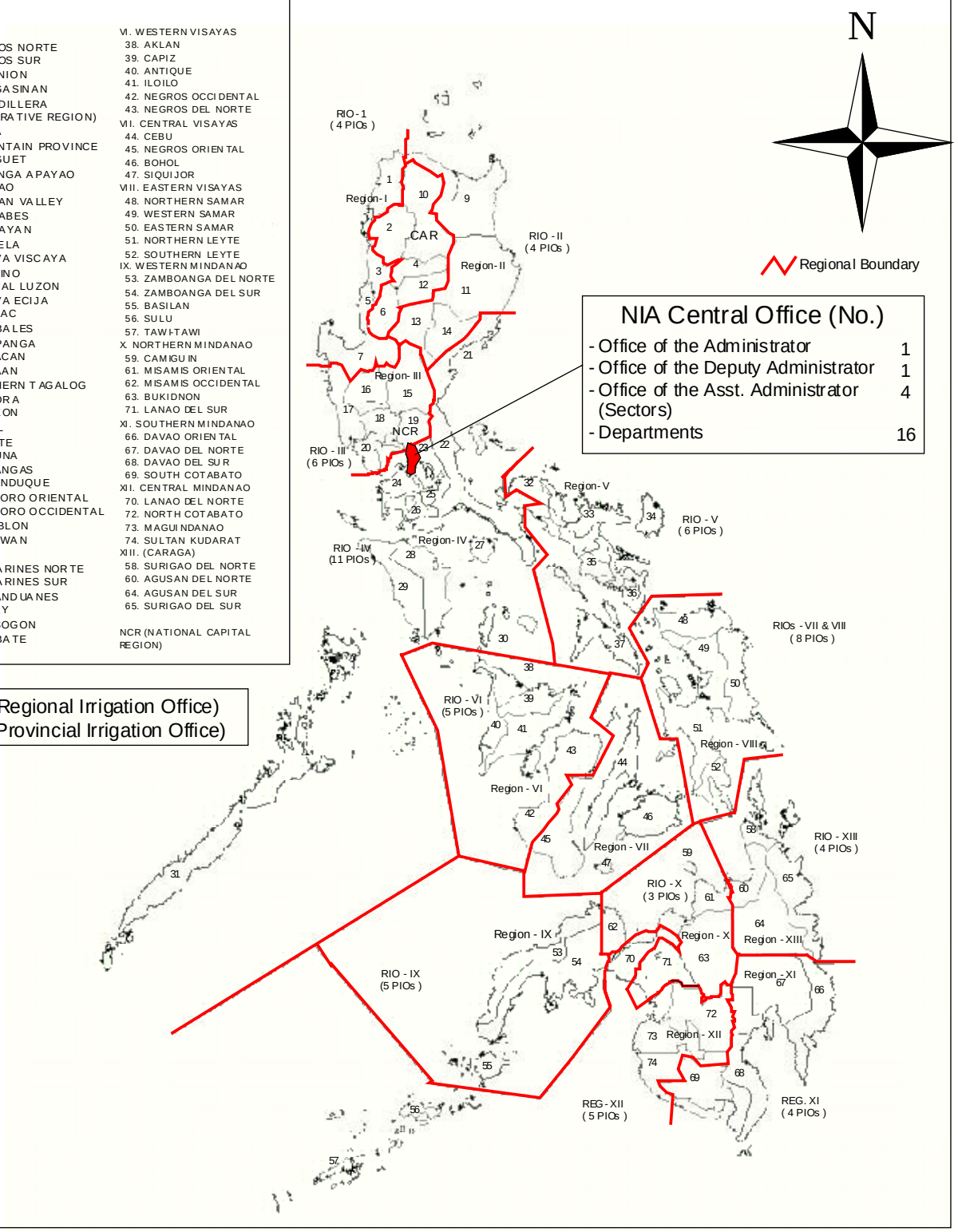
XI. SOUTHERN MINDANAO
66. DAVAO ORIENTAL
67. DAVAO DEL NORTE
68. DAVAO DEL SUR
69. SOUTH COTABATO

XII. CENTRAL MINDANAO
70. LANAO DEL NORTE
72. NORTH COTABATO
73. MAGUINDANAO
74. SULTAN KUDARAT

XIII. (CARAGA)
58. SURIGAO DEL NORTE
60. AGUSAN DEL NORTE
64. AGUSAN DEL SUR
65. SURIGAO DEL SUR

NCR (NATIONAL CAPITAL REGION)

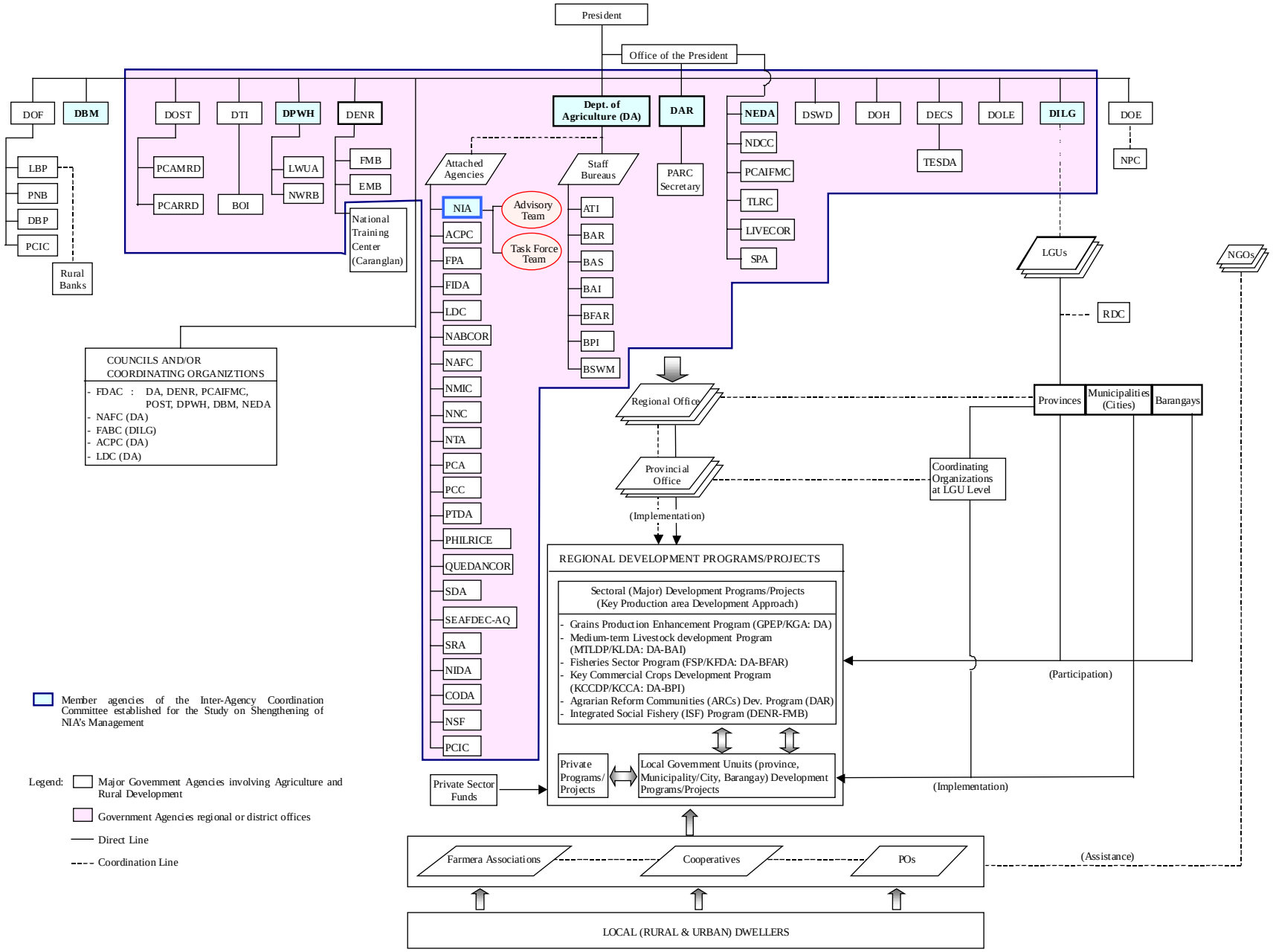
- RIO (Regional Irrigation Office)
- PIO (Provincial Irrigation Office)



NIA Central Office (No.)

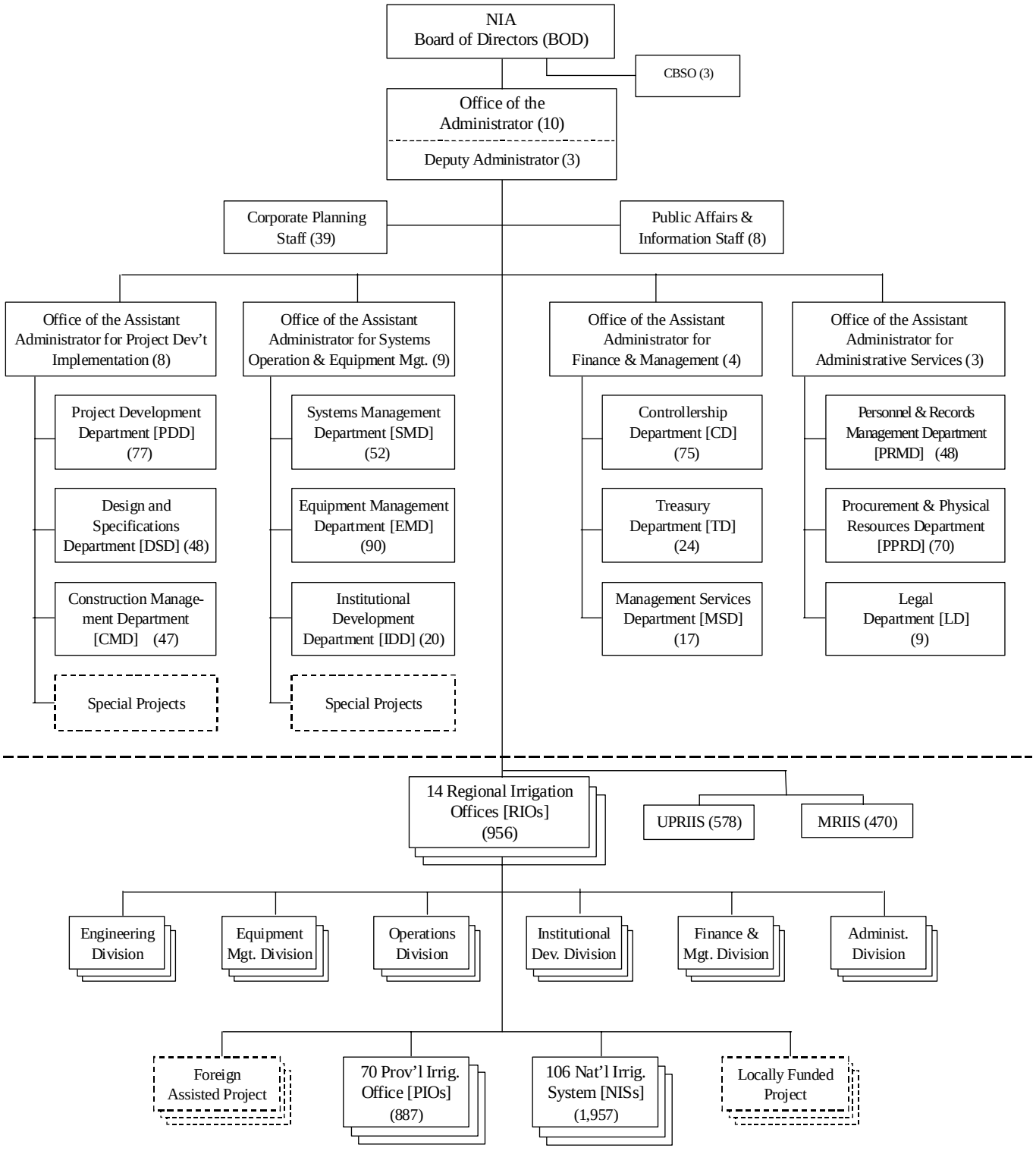
- Office of the Administrator	1
- Office of the Deputy Administrator	1
- Office of the Asst. Administrator (Sectors)	4
- Departments	16

Organization for Agricultural and Irrigation Development in the Philippines



EXISTING ORGANIZATION CHART OF NIA

NATIONAL IRRIGATION ADMINISTRATION



Notes : ( ) No. of Existing Personnel as of January 2001 (Filled Positions Only)
CBSO – Corporate Board Secretary Office

Source : NIA

EXECUTIVE SUMMARY

1. Introduction

1.1 In response to the request of the Government of the Philippines (GOP), the Study on Strengthening NIA's Management System was carried out by the JICA Study Team under the technical assistance program of the Government of Japan (GOJ). The objectives of the Study are (a) to formulate an improvement plan for strengthening management system of NIA, and (b) to carry out technology transfer to the Philippine counterpart personnel. The Study commenced in August 2000 and a final enlightenment seminar was held in the Philippines in October 2001.

1.2 The Final Report summarizes the findings and important directions based on studies made in Phases I and II obtained through the field survey and home works so far conducted since August 2000. The report contains analysis of development plans, policies and programs as they affect the institutional structure of NIA, strengthening and/or improvement plans, and an action plan detailing time-bound programs to improve the management system of NIA.

2. Review of Policies and Plans/Programs, and NIA's Mission

2.1 Total land area of the country is about 29.7 million hectares, of which 3.12 million hectares are potential irrigable area. About 43% of the total irrigable area or 1.34 million hectares are irrigated which includes 679,000 hectares of the National Irrigation Systems (NIS), 486,000 hectares of the Communal Irrigation Systems (CIS) and 174,000 hectares of Private Irrigation Systems (PIS).

2.2 Irrigation development is always targeted for paddy production. NIA's program over the next 10 years (2001-2010) plans to develop 477,000 and 814,000 hectares of new areas and rehabilitation, respectively. Total funding requirement for this program is estimated at PHP 190 billion. Assuming that NIA can deliver these targets, which are likely difficult given the compounding budget deficit, the government will still experience insufficient production to satisfy rice consumption. The JICA Study estimates the annual deficit in rice at an average of 423,000 tons in 2010.

2.3 The Agriculture and Fisheries Modernization Act (AFMA), an act passed by Congress in 1997, is by far a comprehensive law to make the agriculture and fisheries

sectors competitive. The law stipulated clearly policies defining the scope that NIA ought to fulfill its tasks. In terms of workload, the law removed from NIA the responsibility over the construction of CIS. This activity was devolved to the LGUs. With reference to maintenance of NIS, the law also ordered NIA to accelerate the transfer of the maintenance of secondary canals to IAs. On top of this, NIA was mandated to provide technical support to the LGUs in CIS construction including the institutional aspect.

2.4 In view of the recent policy directions, the mission of the NIA is to orchestrate countrywide irrigation development through development and management of major water resources and provision of necessary support. The expected scope of the work of NIA includes: (a) to plan and construct irrigation projects both for new and rehabilitation, (b) to conduct sustainable O&M, (c) to promote and implement IMT, and (d) to support LGU in development of CIP and maintenance of CIS. These objectives reassert NIA as the premier corporate service provider in irrigation and water resources development.

3. Review of the Organizational Structure of NIA

3.1 NIA consists of the Central Office (CO), 13 Regional Irrigation Offices (RIOs), 17 Project Management Offices (PMOs), 106 National Irrigation Systems Offices (NISOs), 2 Integrated Irrigation System Offices (MRIIS & UPRIIS), and 67 Provincial Irrigation Offices (PIOs). The NISO and PIO represent the field office (FO). The CO steers the organization by virtue of the concentration of powers and authorities embodied in MC No.15 Series 1998. Financially, the RIOs and FOs are largely dependent on the CO's decisions. Funds generated by these offices are generally remitted to the CO, which in turn allocates them for operational requirements.

3.2 The specific functions of the CO include project development and implementation, supervision and monitoring over the implementation of NIS, general direction and supervisory functions to the RIO and FOs. There are four (4) sectors for which an Assistant Administrator is assigned. Among them are project development and implementation (PDI), Systems Operation and Equipment Management (SOEM), Finance and Management, and Administrative Services. A separate office directly reporting to the Administrator is the PMO. The PMO is responsible for the construction of foreign funded projects

3.3 The RIOs are the second layers of the organization whose major roles are to oversee the performance of the FOs and supervision over construction and implementation of foreign and locally funded irrigation projects. The regional irrigation manager heads the RIO and directly under his supervision are division heads of the engineering, operations, equipment management, institutional development, administrative and finance. At the field level, the NISO is responsible for the operation and maintenance of the NIS, while the PIO is responsible for the construction of CIS. Upon completion of construction, CIS is being turned over to IAs for operation and maintenance.

3.4 Between the CO and RIO, there is apparent duplication of functions both in project development and implementation, and monitoring and supervision over the FOs. At the field level, duplication is also evident among the engineering and operations divisions of the RIO with their counterparts at the NISO and PIO. This issue of duplication is associated with the lack of understanding about delegation of power and authority. This problem has crippled the entire operations of NIA. Project preparation is at standstill, implementation is slowed down and O&M works are unmet leading to deferred maintenance.

3.5 NIA's total personnel as of December 31, 2000 stood at 12,975, 6,057 or about 46% of which are permanent employees and COB charged and the rest are daily and/or contractual, which can be terminated any time. Among the offices, the RIOs (including the NISO and PIO) has about 70% of the total personnel, 24% by the PMO and 6% by the CO. With greatly reduced activities, especially in the implementation of projects, NIA's personnel are by far bloated. More than 90% of the employees are above 40 years old with an average age of 50 years old. NIA has not been able to recruit competitive and younger staff over the past 20 years due to funding constraint, and government's attrition law. This has affected directly quality of the service of the organization

3.6 NIA attempted to streamline its organization in early 2000. It came up with a streamlining plan, the results of which were never implemented. One of the weaknesses of the plan was its failure to diagnose the real organizational and operational issues affecting the organization. The streamlining plan presented an organizational structure and staffing pattern without addressing the more important issues about decentralization, autonomy, cost-effectiveness, irrigation management transfer, and most importantly the financial viability of NIA. Although the plan aimed

at reduction both in offices and manpower, it was not different in substance vis-a-vis the existing structure.

3.7 The more important issues affecting project development are: (a) unwieldy investment portfolio and (b) inadequate skills of staff. The lists of investment proposals keep on expanding without being evaluated whether or not these proposals are still considered priority. Lack of skills in new technologies such as the use of CAD and project management caused delay. As regards implementation, the foremost issue is the lack of counterpart fund. About 70% of the physical delays in construction are attributed to the lack of counterpart fund. The bureaucratic process in procurement of goods and materials, consultants and contractors further compounds the problem. Delays in procurement are due to concentration and centralization of authority to the DA and CO, and time-consuming, *ad hoc* and non-pragmatic BAC, and IAC systems.

3.8 Many NIS and CIS are poorly maintained resulting in low cropping intensity and low collection of ISF. O&M is being carried out by the NISO with technical support from the SOEM. O&M is being overshadowed by collection effort on ISF since most NISOs practically involved all of their staff in the collection of ISF. This present practice has unduly perpetuated an institutional disadvantage over O&M activities. Maintenance work is reinforced under Type I contract. To the extent that the NISO has the funds to pay the IAs for the services rendered, maintenance of secondary canals is at least assured. The experiences, however, revealed that funds are not available and thus maintenance is oftentimes postponed leading to deterioration of canal conveyance capacity. Rehabilitation becomes the only solution to restore the efficiency of the system.

3.9 The IAs, particularly for NIS are organized for two important reasons: (a) to assist NIA in O&M works and (b) to eventually manage and operate the systems the moment IMT is completed. Close to 5,000 is the number of IAs organized involving 706,000 members. Around 994,596 hectares or about 85% of the total NIS and CIS service areas have IAs. The level of farmer's participation is quite high in the NIS and relatively low in the CIS, with participation rates of 97% and 68%, respectively. The number of IAs organized *per se* does not give the real picture. About 60% of the IAs can be considered functional. There is cause for alarm, especially for the non-functional as it will derail the implementation of the IMT.

3.10 Acceleration of IMT is very much contingent on the absorptive capacity of the IAs. A parallel activity on systems and infrastructure improvement is also essential prior to

turn over. This implies that the hardware and software components should be simultaneously pursued to permit harmonious execution of the program. NIA's ability to satisfy these twin activities, however, suffers from its limited budgetary support, including acute deficiency in human resources to implement the complex and long-term process of institutional development.

3.11 NIA's financial system is deficient in many respects. The accounting system is constrained by lack of proper matching costs and revenues, erroneous accounting and reporting of revenues, inadequate accounting documentation of completed projects, etc. The budgetary system is likewise deficient with respect to control and feedback mechanism. ISF and billing collection is lacking with respect to tariff setting, weak monitoring in billable and planted areas, and unupdated IFRs. Computerized billing was introduced, but only a few of the NISOs are using it.

3.12 NIA has been consistently incurring losses since 1991. Net operating loss was highest in 1998 at PHP571 million, the year AO 17 was implemented. NIA suffered further losses in 2000. The net loss registered was basically a result of decreased revenue collection rather than by increased expenditure level. Income from management fee and equipment rentals decreased by 12.9% and 32.7%, respectively. Overall, revenues from internally generated funds were lowered by 8.5% compared to 1999. The ISF, although showing a higher figure of PHP372 million, is still far below the level of ISF collection of PHP533 million in 1997, the year prior to the implementation of the AO 17 ISF rates.

3.13 Auditing, currently performed by MSD mostly consists of financial and compliance audits whose nature is verification vis-a-vis results of past activities. Among them the internal auditors perform financial compliance and audit on ISF collection, special audit done on a need basis, cash count, physical asset inventory and others usually. While COA has its auditors assigned in every office, the current scope of auditing is still limited. For purposes of control, a comprehensive auditing system covering financial and non-financial transactions is essential.

3.14 NIA's MIS is generally fragmented and poorly represented in the NIA's organization. It is still in the beginning stage of development. A serious effort is required to improve information flow and standardize the reporting system (by computerization). Productivity improvements can be realized only if reporting is streamlined. Problems that require correction are redundant reporting among the offices, unnecessary reports

prepared by RIOs, and absence of centralized database. It is essential for NIA to start identifying primary information and start them for long-term use.

3.15 Mainly due to the financial constraints (COB fund), human resource development has been neglected and the division in charge of training and manpower development failed to fully perform their roles and functions. Besides, there is little occasion of benefit monitoring and evaluation of training course to measure and feed back the effect on personnel and office performance to the ensuring training plans. There have been little career development plan or built-in incentive mechanisms for employees for which scholarships or opportunities are granted by NIA.

4. Managerial Issues and Approach to Strengthening

4.1 The important managerial issues that have far-reaching implications in the restoration of the long-term sustainability of NIA are corporate governance, autonomy and corporate strategy, and financial viability. The issue of corporate governance pertains to the restrictive powers given to the BOD due to lack of influential and responsive members and weak support system to top management. The autonomy of NIA is generally clipped, in relation to DA and within the NIA offices. Within NIA offices, powers are concentrated at CO leaving the RIOs and FOs with little flexibility to perform project development, implementation and financial transactions. NIA has not presented a well-conceived corporate strategy that can ensure its corporate survival to meet challenges of devolution of CIS to LGUs, IMT, and greater private sector participation in construction/rehabilitation and maintenance of irrigation systems. The low financial viability of NIA, which is almost insolvent, has impaired delivery of service and demoralization among its employees.

4.2 Strengthening NIA's management systems was approached with the following steps. The first step was to relate the economic environment of NIA that led to review of major development policies, plans and programs in the agriculture and irrigation sectors and review of the internal organization of NIA. These reviews facilitated the confirmation of NIA's mission. The second step was the formulation of the improvement plans based on the new functional dimensions of NIA, including the basic strategies adopted. The reorganization plan was also formulated along the following principles: (a) streamlining the CO, (b) integration of the RIOs, and (c) integration of the NISOs with PIOs. The third step was the financial evaluation of the reorganization plan, and the final step was the formulation of the Action Plan.

5. Plan for Strengthening NIA's Management System

5.1 The proposed improvement plan for top management will include: (a) expand the membership of the Board and elevate the status of the Administrator as co-chairman, (b) strengthen policy and planning and designate a permanent Technical Secretariat to the Board, (c) establish MIS and create an integrated department to process and control flow of information for prompt decision-making, and (d) expand the scope of internal auditing and create an office directly under the supervision of the Administrator.

5.2 The proposed improvement plan for project development and implementation will include: (a) transfer of function to the field offices, particularly the RIOs, but keep a core of engineers for planning and design to strengthen support to FO, (b) enhance the application of project management tools to improve the quality of project preparation and evaluation, (c) update design standards and manuals, and (d) facilitate procurement process by delegating greater authority to the FOs.

5.3 The proposed improvement plan for O&M will include the strengthening of the O&M function of the NISO, improving the management of equipment and supporting the IAs and LGUs. Among the measures proposed for strengthening the NISO are: (a) activate distinct sections for O&M and assign permanent staff, (b) establish O&M fund, (c) emphasize the monitoring system by continuing the capacity improvement plan introduced by the JICA Study Team, (d) appoint permanent IDOs, (e) improve the technical capacities of the NISO staff, including the IAs. In the improvement of the management of equipment, the measures will include (a) procurement and modernize O&M equipment and (b) enforce the policy on equipment fund.

5.4 The proposed improvement plan in financial management will include: (a) decentralization of accounting functions to the NISOs, (b) improvement of accounting systems particularly for general accounting and financial reporting, property accounting consisting of fixed assets and inventory accounting and construction cost accounting and (c) skills enhancement through the use of computers.

5.5 The proposed improvement plan for internal audit will include: (a) establish a permanent audit office directly under the Administrator with reinforced manpower

and (b) expansion of the scope of internal auditing covering physical assets management and operations and maintenance through activity analysis.

5.6 The proposed improvement plan for NIA's MIS is to establish Information Systems Department for improved IT management. The major objectives are: (a) establishment of an integrated infrastructure, (b) skills enhancement through the use of user-friendly computer software, and (c) continuation of the GIS technology introduced under the JICA Study Team. Preparation of MIS for supporting top management is to be facilitated using the installed infrastructure.

5.7 The proposed improvement plan for administrative services will include (a) restoration of wage and flexible rewards system and (b) introduction of career path development for each employee. The proposed HRD consists of structured career development and training program. For the fund for the HRD, application of unused contingency of the investment projects was proposed.

5.8 The proposed improvement plan for revenue increase will include: (a) upward adjustment of ISF rates to 1975 level, (b) increase billable area and ISF collection efficiency through improved monitoring system applying the GIS and database improvement under the JICA Study Team's capacity improvement plan, (c) increase management fee on the implementation of projects mainly for operations and maintenance, and (d) disposition of other assets and aggressive marketing network through subsidiary business.

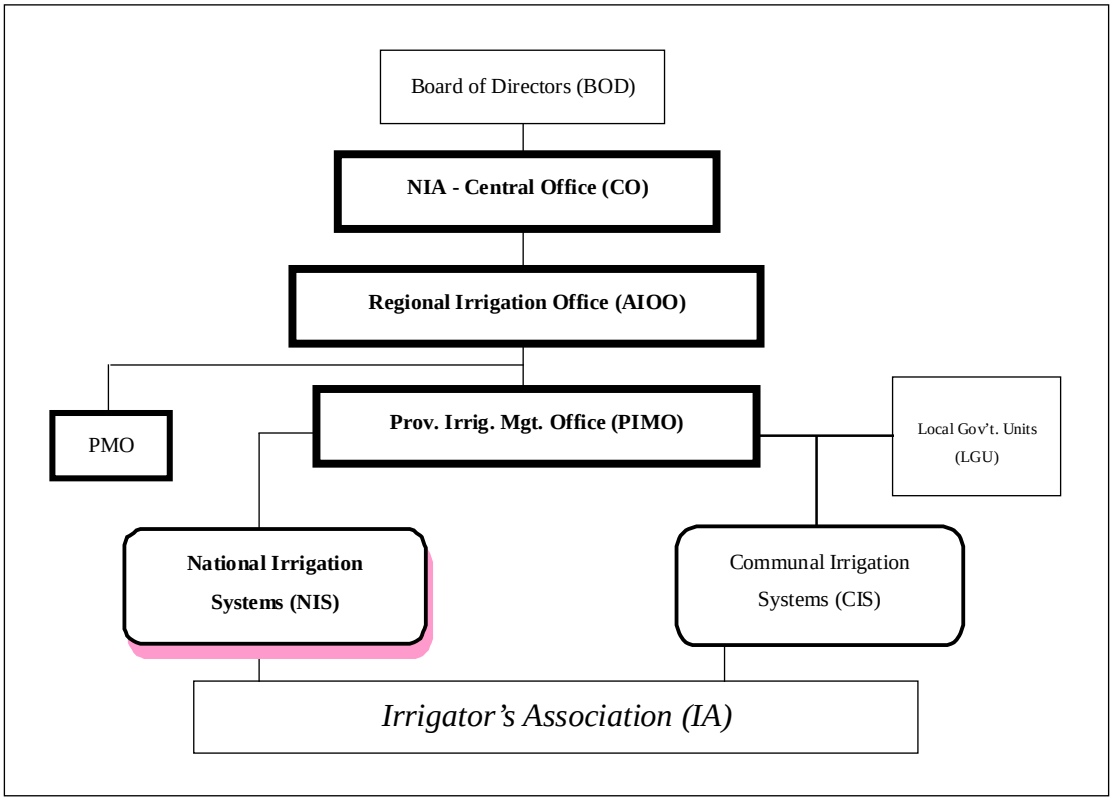
5.9 The proposed retirement plan will apply bigger multiplier coefficients ranging from 1.5, 2.0, and 2.5, respectively (the highest basic monthly salary times years in service) as the incentive for employees to avail of early retirement. It is anticipated that NIA's permanent workforce of 6,057 will be reduced to 4,300 or by about 30%. The number of retirees comprises both permanent and COB charged daily staff. Recruitment of staff is likely to resume in 2005, assuming that employees whose age are above 50 will take advantage of the proposed early retirement program. As such, new recruitment to fulfill the vacant positions is likely to take place in the forthcoming 5 year-period of time.

6. Plan for Reorganization of NIA

6.1 The basic policies adopted in the plan for reorganizing NIA are (a) decentralization of functions to FO and slimming the CO, (b) establishment of support system to top

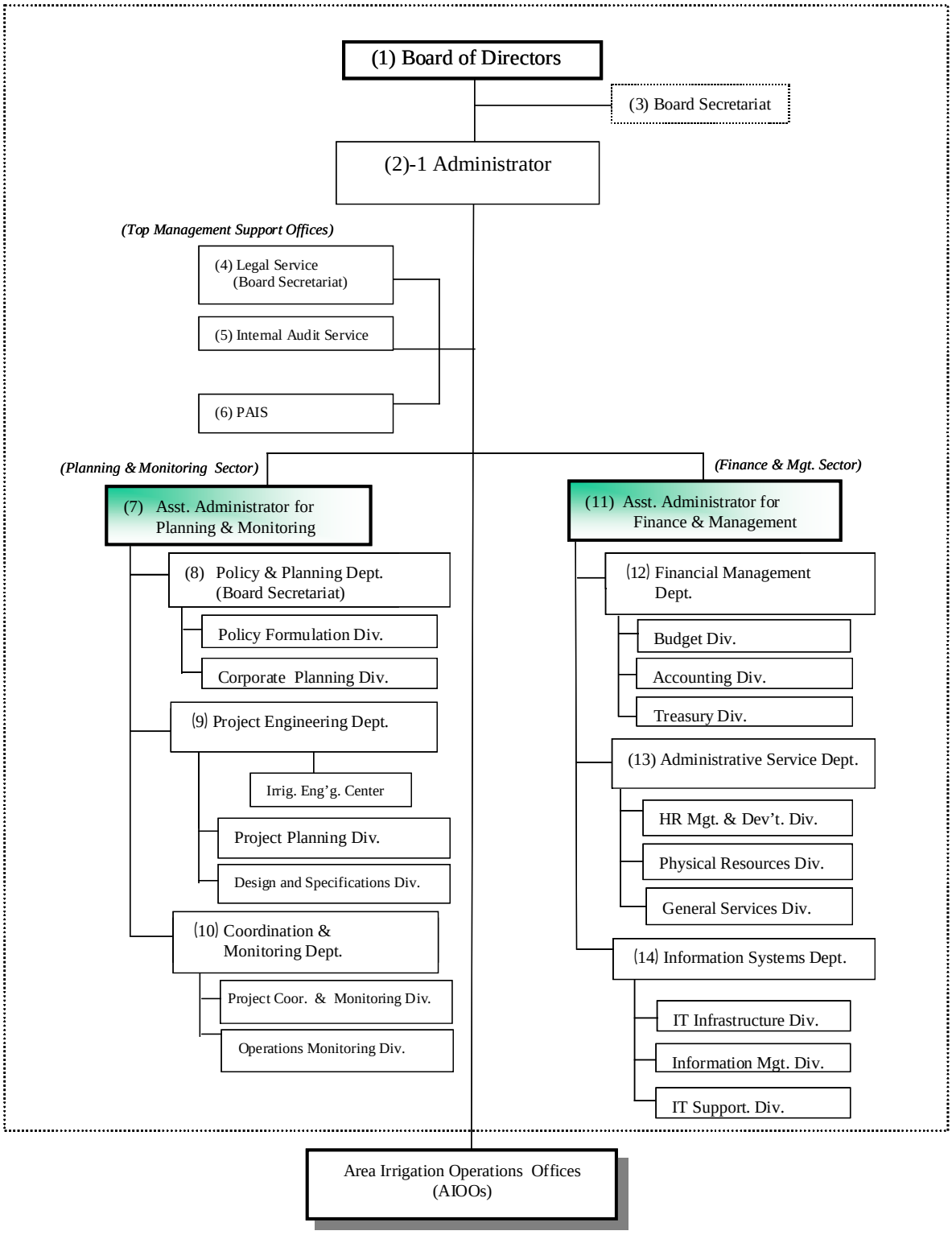
management, (c) integration of RIOs, and (d) integration of NISO with PIO into PIMO. With these policies, NIA's offices will achieve greater efficiency and effectiveness in the implementation of its projects.

6.2 NIA's proposed organizational structure is three-tiered. The CO will concentrate on planning and policy, engineering support and monitoring and evaluation. The Region will focus on project development and implementation and support to the FO. The field, represented by the PIMO will concentrate on operations and maintenance. The proposed organizational set-up will eliminate costly overlaps of activities, and ensure the financial soundness of each office.



Proposed Organizational Structure

6.3 The proposed organizational structure of the CO will comprise two (2) sectors, namely Planning and Monitoring and Finance and Management and top management support offices. An Assistant Administrator will head each sector, while three (3) service offices (legal, internal audit and public affairs and information) are directly under the supervision of the Administrator. The Planning and Monitoring sector, comprising of 3 departments will focus on strategic planning and policy analysis, engineering support, and monitoring and evaluation of NIA' projects and activities. The Finance and Management sector, also composed of 3 departments, will focus on financial transactions, administrative services and information systems.



Proposed Organization for Central Office (CO)

6.4 The bases for integrating the RIOs' are economic and technical as well. The RIOs current cost center status, which deprive them of their opportunity to raise revenue will be converted as semi-autonomous profit center to enhance their financial viability. Second, integration will bring equitable distribution of workload through merger of regions with low irrigation potential and acceleration of IMT. Third, integrated planning and coordination will be facilitated under a unified office, especially for regions with competing offices. The integration will result in 6 RIOs as follows: (a) Northern Luzon, (b) Central Luzon, (c) Southern Luzon, (d) Visayas, (e) Eastern Mindanao, and (f) Western Mindanao.

6.5 The integrated RIOs will be renamed as Area Irrigation Operations Offices (AIOO). The proposed organizational structure of the AIOO is composed of three (3) major divisions. The divisions are to be upgraded to have the equivalent of department in the CO by virtue of greater responsibilities. The engineering, operations support and finance & administrative comprised the new divisions. A small unit directly under the office of the Area Administrator is the planning and monitoring which will serve as instrument of control for the AIOOs. The Engineering Division will be in charge of project development and implementation. The Operations Support Division will concentrate on assisting the PIMOs through training the IDOs and coordinate water distribution. Directly attached to the AIOOs are the PMOs. The PMOs will exist for the duration of project implementation. These are to be organized for implementation of large-scale projects and/or foreign-assisted projects.

6.6 The PIMO is proposed to be NIA's frontline organization at the field level, an office borne out of the merger of the NISO and PIO. The merging of the PIO and NISO is justified by the following reasons. With the devolution in place, there is no more responsibility for the PIOs, established for the construction and rehabilitation of CIS. Second, the transfer of systems below 3,000 hectares under IMT will cause the abolition of small NISOs. Third, integrated coordination at the field level becomes necessary with the LGUs taking over the responsibility for CIS. The District Offices under UPRISS and MRIIS, including the Dam and Reservoir divisions will retain their existing status, however. The integration at the field level will bring the number of offices to 62, comprising of 52 NISOs, 8 District offices and 2 Dam and Reservoir divisions.

6.7 The proposed organization of the PIMO is composed of 3 Sections: operations, engineering & maintenance and administrative & finance. The PIMO will focus on operations and maintenance. The Operations section will render institutional support

to include monitoring and assistance to beneficiaries. Specific functions/ activities under the heading of operations include systems management, water management, IA's build-up and managerial assistance. The Engineering & Maintenance section will focus on the monitoring of conditions of the systems and apply counter measures to prevent further deterioration of infrastructure facilities. This Section will also be in charge of implementation of small scale irrigation projects. The Finance & Administrative section will take care of the day-to-day administrative and financial needs of the PIMO. An important function will be the preparation of financial transactions, that should truly reflect true cost and profit of the office, including the collection of information for internal audit.

6.8 The proposed reorganization will eliminate redundant personnel for efficient performance of the entire NIA. Total personnel (with permanent position) after the restructuring is estimated at 4,300, about 60% of the existing permanent personnel of 6,057. The distribution of proposed personnel at CO, AIOOs and PIMOs is 320, 640, and 3,340, respectively. It should be emphasized that these estimates are indicative, and should be finalized only after thorough consultations and discussions among management and concerned authorities, notably DBM.

6.9 The early retirement plan (ERP) is proposed for redundant personnel as well as eligible retirees. The ERP constitutes the incentive package for giving NIA the fresh mandate to retain and recruit the most qualified people. It is essential to permit NIA to improve its financial viability through introduction of ERP. The number of eligible retirees is about 3,983, 60% of which are willing to retire based on NIA's Corporate Culture Survey conducted by the JICA Study Team. Given this, the number of personnel expected to be covered under the ERP corresponds to the estimated redundant personnel (1,757). Total amount of fund needed to cover the ERP over a period of three (3) years is roughly estimated at PHP 0.9 billion.

6.10 The key to the proposed reorganization is to let the proposed offices exercise financial autonomy in principle. Allowing them to become semi-autonomous profit centers is the incentive for improving their revenues. The CO will now share part of its management fee to the RIOs as the latter will be doing project implementation. The PIMOs will have sole control over ISF collections in principle.

7. Financial Projection and Analysis

7.1 The financial projection of the proposed Plan for Strengthening of NIA's Management System was carried out under the following scenarios:

Scenario 1	Retain AO 17 ISF Rates with Compulsory Retirement only
Scenario 2	Restore 1975 ISF Rates with Compulsory Retirement only
Scenario 3	Restore 1975 ISF Rates without ERP
Scenario 4	Restore 1975 ISF Rates with ERP (1,757 staff)
Scenario 5	Restore 1975 ISF Rate with alternative ERP (1,323 staff)

The results are summarized below.

	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
1. Level of O&M that can be funded from COB (PHP 1,000/ha)	-341	-14	587	1,013	878
2. Ratio of Available Income to O&M Requirement	-34%	-1%	59%	101%	88%
3. Av. Annual Net Income (Deficit)	-1,213	-917	-373	15	-108

7.2 The results of the evaluation imply the following: (a) an upward adjustment of the tariff is urgently needed to give an immediate relief to NIA's financial problem, (b) implementation of a comprehensive early retirement program gives more positive impact on NIA's financial viability than changing AO 17, (c) for attaining financial viability combined improvement plans are to be implemented as indicated in scenarios 4 and 5, and (d) NIA needs regular subsidy from the government to finance a certain portion of the O&M until such time that O&M cost can be fully recovered from the revenue.

8. Formulation of Action Plan

8.1 The Action Plan was prepared through the prioritization of the proposed strengthening plan with target year of 2004. The implementation of the Action Plan will be steered by a top-level committee supported by Task Forces (TF) along the following: (a) TF on the improvement of project implementation, (b) TF on strengthening O&M, (c) TF on strengthening IAs, (d) TF on consolidation of NIA's organization, and (e) TF on the improvement of financial viability.

9. Conclusion and Recommendation

9.1 NIA will improve its financial viability should the proposed strengthening of its management systems is implemented. Significant reduction in costs and increases in revenues are foreseen with the proposed restructuring plan. The major considerations that will reduce costs are (a) streamlining the CO, (b) integration of the RIOs and NISOs with the PIOs, and (c) eliminating redundant personnel. The revenues will improve through increase in ISF revenue firstly, and other revenues including the management fee. It should be emphasized, however, that the implementation of the proposed strengthening of NIA's management systems is by no means easy. It is foreseen to be a painful process of adjustment, but in the long term it is the only solution that will make the organization financially viable, and restore its confidence in irrigation and water resource development.

9.2 The proposed strengthening programs are to be carried out according to the implementation schedule of the Action Plan. However, it is supposed that such reformative programs need much time for their implementation. During the transition period, the fund for their implementation will be provided with the government subsidy, because the NIA is not a position to cover the required cost with its own revenue. To rely on the government subsidy, the NIA should submit more detailed and concrete strengthening programs to DBM and is required to realize them steadily.

9.3 The Action Plan should be implemented immediately. NIA should organize special Task Force Teams directly under the stewardship of the Administrator to prepare among others, operational plans, schedules and coordinative arrangements with related authorities. The Task Force Teams to be established are: (a) Task Force for Consolidation of NIA Organization, (b) Task Force for Strengthening O&M, and (c) Task Force for Improvement of Financial Viability.

THE STUDY
ON
STRENGTHENING OF NIA's MANAGEMENT SYSTEM

FINAL REPORT

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LIST OF ACRONYMS

(A)	AA	Assistant Administrator
	ABRP	Agricultural Bureaucracy Restructuring Plan
	ACPC	Agricultural Credit Policy Council
	A&D	Alienable and Disposable Land
	ADB	Asian Development Bank
	AFMA	Agriculture and Fisheries Modernization Act
	AFMP	Agriculture and Fisheries Modernization Plan
	AGRICOM	Congressional Commission on Agricultural Modernization
	AIOO	Area Irrigation Operations Office (New Organization)
	ALLP	Amendment to the List of Lots Planted
	AMRIS	Angat-Maasim Rivers Irrigation system
	AO	Administrative Order
	ARC	Agrarian Reform Community
	ARDOMA	Association of Regional Directors, Operations Managers and Assistants, Inc.
	ARMM	Autonomous Region for Muslim Mindanao
	ASD	Administrative Service Department (New Organization)
	ASEAN	Association of Southeast Asian Nations
	ATI	Agricultural Training Institute
(B)	BA	Benefited Area
	BAC	Bids and Awards Committee
	BAI	Bureau of Animal Industry
	BAR	Bureau of Agricultural Research
	BAS	Bureau of Agricultural Statistics
	BFAR	Bureau of Fisheries and Aquatic Resources
	BSA	Bill & Statement of Account
	BSPP	Balikatan Sagip Patubig Program
	BOD	Board of Directors
	BPI	Bureau of Plant Industry
	BPRE	Bureau of Post-harvest and Research and Extension
	BSWM	Bureau of Soils and Water Management
(C)	CAR	Cordillera Administration Region
	CARP	Comprehensive Agrarian Reform Program
	CBSO	Corporate Board Secretary Office
	CD	Controllership Department
	CDA	Cooperatives Development Authority

	CDF	Countryside Development Fund
	CE	Collection Efficiency
	CI	Cropping Intensity
	CIA	Council of Irrigators' Associations
	CIS	Communal Irrigation System
	CMD	Construction Management Department
	CMD	Coordination and Monitoring Department (New Organization)
	CO	Central Office (NIA)
	COA	Commission on Audit
	COB	Current (or Corporate) Operating Budget
	CODA	Cotton Development Authority
	CORPLAN	Corporate Planning Staff
	CSC	Civil Service Commission
	CY	Calendar Year
(D)	DA	Department of Agriculture
	DAR	Department of Agrarian Reform
	DBM	Department of Budget and Management
	DECS	Department of Education, Culture and Sports
	DENR	Department Environment and Natural Resources
	DILG	Department of the Interior and Local Government
	DOF	Department of Finance
	DO	District Office
	DOH	Department of Health
	DOLE	Department of Labor and Employment
	DOST	Department of Science and Technology
	DPWH	Department of Public Works and Highways
	DRD	Dam and Reservoir Division
	DSD	Design and Specifications Department
	DSWD	Department of Social Welfare and Development
	DTI	Department of Trade and Industry
(E)	ECC	Environmental Compliance Certificate
	EDCOP	Engineering Development Corporation of the Philippines
	EDP	Electronic Data Processing (Section of MIS Division/ Corplan)
	EIA	Environmental Impact Assessment
	EMB	Environmental Management Bureau
	EMD	Equipment Management Department
	EO	Executive Order
(F)	FIDA	Fiber Industry Development Authority

	FIO	Farmer Irrigation Organizer
	FMD	Financial Management Department (New Organization)
	FO	Field Office
	FPA	Fertilizer and Pesticide Authority
	F/S	Feasibility Study
(G)	GAA	General Appropriations Act
	GATT	General Agreement on Tariffs and Trade
	GDP	Gross Domestic Product
	GIDP	Groundwater Irrigation Development Project
	GIS	Geographic Information System
	GOCC	Government-Owned and Controlled Corporation
	GOJ	Government of Japan
	GOP	Government of the Philippines
	GRDP	Gross Regional Domestic Product
	GSIS	Government Service Insurance System
	GSP	Government Support Price
	GVA	Gross Value Added
(H)	HO	Head Office
(I)	IA	Irrigators' Association
	I/A	Implementing Arrangement
	IACC	Inter-Agency Coordination Committee
	IBRD	International Bank for Reconstruction and Development (WB)
	ICC	Investment Coordination Committee
	IDD	Institutional Development Department
	IDO	Irrigation Development Officer
	IEC	Irrigation Engineering Center
	IEE	Initial Environmental Examination
	IFR	Irrigation Fee Register
	IRA	Internal Revenue Allotment
	IMO	Irrigation Management Office
	IMT	Irrigation Management Transfer
	IOSP	Irrigation Operations Support Project (WB)
	IRR	Internal Rate of Return
	IRRI	International Rice Research Institute
	IS	Irrigation Superintendent
	ISAP	Irrigation Superintendents Association of the Philippines
	ISIP	Irrigation Systems Improvement Project (ADB)

	ISO	Irrigation System Office (same with NISO: National Irrigation System Office)
	ISSP	Information System Strategic Plan
	ITF	Internal Task Force
(J)	JBIC	Japan Bank for International Cooperation (Ex-OECF & EXIM)
	JICA	Japan International Cooperation Agency
	JSM	Joint System Management
(K)	KGA	Key Grain Area
	KPA	Key Production Area
	KRAs	Key Result Areas
(L)	LADP-IC	Lower Agusan Development Project - Irrigation Component
	LBIFC	List of Billed Irrigation Fee Collectible
	LBP	Land Bank of the Philippines
	LDC	Livestock Development Council
	LGC	Local Government Code
	LGU	Local Government Unit
	LIPA	List of Irrigated and Planted Area
	LLP	Low-lift Pump Irrigation
	LLTCF	List of Lots with Total Crop Failure
	LWUA	Local Water Utilities Administration
(M)	MC	Memorandum Circular
	MIS	Management Information System
	M/M	Minutes of Meeting
	MOOE	Maintenance and Other Operating Expenses
	MRIIS/MARIIS	Magat River Integrated Irrigation Systems
	MSD	Management Services Department
	MTADP	Medium-Term Agricultural Development Plan
	MTP	Management Turnover Program
	MTPDP	Medium-Term Philippine Development Plan
(N)	NAAD	Network of Areas for Agricultural and Agro-Industrial Development
	NABCOR	National Agribusiness Corporation
	NAFC	National Agricultural and Fishery Council
	NAMRIA	National Mapping and Resource Information Authority
	NAPHIRE/BPRE	National Post Harvest Institute for Research and Extension
	NAPOCOR	National Power Corporation (or NPC)
	NASPIE	National Association of Provincial Irrigation Engineers
	NCIA	National Confederation of Irrigators' Associations
	NDA	National Dairy Authority

	NEDA	National Economic and Development Authority
	NFA	National Food Authority (placed under the Office of the President in July 1998)
	NGC	National Government Center
	NGO	Non-Government Organization
	NIA	National Irrigation Administration
	NIAADM	NIA Association of Department Managers, Inc.
	NIAEAP	NIA Employees Association of the Philippines
	NIS	National Irrigation System
	NISO (or ISO)	National Irrigation System Office
	NMIC	National Meat Inspection Council
	NNC	National Nutrition Council
	NPAAAD	Network of Protected Areas for Agricultural and Agro-industrial Development
	NPC	National Power Corporation（or NAPOCOR）
	NSCB	National Statistical Coordination Board
	NSF	National Stud Farm
	NSIC	National Seed Industry Council
	NSO	National Statistics Office
	NTA	National Tobacco Administration
	NWRB	National Water Resources Board
	NWMIS	National Watershed Management Information System
(O)	ODA	Official Development Assistance
	OECF	Overseas Economic Cooperation Fund (Japan – Present JBIC)
	O&M or O/M	Operation and Maintenance
	OPEC	Organization of Petroleum Exporting Countries
(P)	PAIS	Public Affairs and Information Staff
	PAP	Participatory Approach Program
	PBAC	Prequalification, Bids and Awards Committee
	PBME	Project Benefit Monitoring and Evaluation
	PCA	Philippine Coconut Authority
	PCC	Philippine Carabao Center
	PCIC	Philippine Crop Insurance Corporation
	PCM	Project Cycle Management
	PD	Presidential Decree
	PDD	Project Development Department
	PDI	Project Development and Implementation
	PED	Project Engineering Department (New Organization)

	PFDA	Philippine Fishery Development Authority
	PHILRICE	Philippine Rice Research Center
	PIM	Participatory Irrigation Management
	PIMO	Provincial Irrigation Management Office (New Organization)
	PIO	Provincial Irrigation Office
	PIS	Pump or Private Irrigation System
	PMO	Project Management Office
	PPD	Policy & Planning Department (New Organization)
	PPRD	Procurement & Physical Resources Department
	PRA	Participatory Rural Appraisal
	PRMD	Personnel and Records Management Department
(Q)	QUEDANCOR	Quedan Corporation
(R)	RA	Republic Act
	RC	Responsibility Center
	RDC	Regional Development Council
	RIO	Regional Irrigation Office
	RIS	River Irrigation System
	ROW	Right of Way
	RRA	Rapid Rural Appraisal
(S)	SA	Service Area
	SAFDZ	Strategic Agriculture and Fisheries Development Zones
	SCNS	Steering Committee on NIA Strengthening
	SEAFDEC	Southeast Asia Fisheries Development Center
	SEC	Securities and Exchange Commission
	SPISP	Southern Philippines Irrigation Sector Project
	SMD	Systems Management Department
	SMNIS	Shared Management of National Irrigation System
	SOEM	Systems Operation and Equipment Management
	SPO	Special Project Office
	SRA	Sugar Regulatory Administration
	SRIP	Small Reservoir Irrigation Project
	SSIP	Small Scale Irrigation Project
	SSL	Salary Standardization Law (RA No.6758)
	STW	Shallow Tubewell Irrigation
	SW	Scope of Works
(T)	TA	Technical Assistance
	TD	Treasury Department
	TESDA	Technical Education and Skills Development Authority

	TF	Task Force
	TGISRP	Tarlac Groundwater Irrigation Systems Reactivation Project
	TLRC	Technology and Livelihood Resource Center
	TOR	Terms of Reference
(U)	UPRIIS	Upper Pampanga River Integrated Irrigation Systems
	USAID	United States Agency for International Development
(W)	WB	World Bank (IBRD)
	WTO	World Trade Organization
	WRDP	Water Resources Development Project (WB)
	WRF	Water Resources Facility
	WRFT	Water Resources Facility Technician

MEASUREMENTS

Length

mm	=	millimeter
cm	=	centimeter
m	=	meter
km	=	kilometer

Area

m^2	=	square meter
ha	=	hectare = 0.01 km^2 = 2.5 ac
km^2	=	square kilometer

Volume

cm^3	=	cubic centimeter
l	=	liter
kl	=	kiloliter
m^3	=	cubic meter
MCM	=	million cubic meter
cavan	=	50kg

Derived Measures

m/s	=	meter per second
m^3 /s	=	cubic meter per second
kWh	=	kilowatt hour
MWh	=	megawatt hour
LPS	=	liters per second

Weight

g	=	gram
kg	=	kilogram
MT	=	metric ton = 1,000 kg

Currency

PHP	=	Philippine Peso
JPY	=	Japanese Yen
US$	=	US Dollar

Time

sec	=	second
min	=	minute
hr	=	hour
d	=	day
y or yr	=	year

Other Measure

%	=	percent
^{o}	=	degree
^{o} C	=	degree(s) Celsius
10^3	=	thousand
10^6	=	million
10^9	=	billion

Energy

W	=	Watt
kW	=	kilowatt

Fiscal Year

January 1 to December 31

Exchange Rates

(as of August 2001)

US$ 1 = PHP51

US$ 1 = JPY122

CHAPTER 1 INTRODUCTION

1.1 Introduction

In response to the official request of the Republic of the Philippines (GOP), the Government of Japan (GOJ) has decided to conduct the Study on Strengthening of NIA's Management System. The Implementing Arrangement was signed on 21st March 2000 between GOP and GOJ.

This Study has been carried out in accordance with the method and procedure proposed in the Inception Report which had been duly consented by the Inter-Agency Coordination Committee (IACC) and the Internal Task Force (ITF), with reference to the provisions of the Implementing Arrangement (I/A) for the Study.

Japan International Cooperation Agency (JICA), the official agency responsible for the implementation of the technical cooperation programs of GOJ, entrusted this study to KRI International Corp. in association with Nippon Koei Co. Ltd. The Study commenced in August 2000. On the part of GOP, the National Irrigation Administration (NIA) acts as a counterpart agency for the JICA Study Team and as a coordinating body in relation with other relevant governmental and non-governmental organizations concerned for the smooth implementation of the Study.

The Final Report presents the results of Phase I and II studies which respectively consist of review of present situation and formulation of NIA's Management System Strengthening Plan, together with the prioritized action plans and programs. This Report incorporates all of the findings, survey and study results obtained through the field and home works so far made from August 2000 to September 2001. The work schedule of the Study is shown in Table 1.1.

1.2 Objectives of the Study

The objectives of the Study are:

1) To formulate an improvement plan for Strengthening of NIA's Management System aiming at more efficient and effective implementation and operation of irrigation projects/systems, and

2) To carry out technology transfer to the Philippine counterpart personnel during the course of the Study.

In accordance with the "Implementing Arrangement" agreed upon and terms of reference (TOR) prepared by JICA, the Study is designed to focus on the formulation of the improvement plan, specifically on the following organization and irrigation systems.

1) National Irrigation Administration (NIA) as a whole for strengthening of its management system, and

2) Existing national irrigation systems (NISs: about 680,000 ha) and projects (NIPs) to be implemented up to the year 2004 (about 370,000 ha) ; and parts of the communal irrigation systems (CISs: about 1,000 ha)

1.3 Study Organization

The Study was carried out by a Study Team appointed by JICA in close collaboration with NIA and with provision of the counterpart personnel attached to the Study Team and other government agencies concerned. Twelve JICA experts have participated in the Study.

To conduct the Study effectively, GOP organized an Inter-agency Coordination Committee (IACC) consisting of the representatives from NIA and other government agencies concerned and an Internal Task Force (ITF) with members from NIA's major Sectors and Departments.

On the other hand, JICA formed an Advisory Committee for the Study to provide advice to the JICA Study Team. The member lists of the Inter-agency Coordination Committee (IACC), Internal Task Force (ITF), Advisory Committee, JICA Philippines Representatives, relevant JICA Experts, and Study Team with their respective Counterparts are given in Tables 1.2, 1.3 and 1.4, respectively.

1.4 Study Performance

The Study started in August 2000 with preparation of the Inception Report and was scheduled to be completed by the end of October 2001 after submission of the Final Report at the end of September 2001 and holding a Seminar in October, as indicated in the figure below.

Study Work Schedule

Phase	**Phase I**									**Phase II**						
Fiscal Year	**1st Fiscal Year 2000**									**2nd Fiscal Year 2001**						
Month	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10
Reporting		IC/R △			P/R △				IT/R △					DF/R △	F/R △	
Survey & Study	Preparatory Work						1st Home Work							2nd Home Work		
					1st Field Survey							2nd Field Survey				3rd Field Survey

The Study is divided into two phases: (a) Phase I for review of present situation and formulation of the capacity improvement plan of NIA's field office and (b) Phase II for formulation of the NIA's management system strengthening plan.

After submission of the Inception Report, the Study Team has prepared successively the Progress Report, Interim Report, Draft Final Report, and Final Report at the end of every major stage of the Study.

During the field survey period, the following surveys (including those on sub-contract basis) or improvement works were carried out:

(1) Capacity Improvement Plan （September 2000 – July 2001）
(2) Irrigation Inventory （September 2000 – March 2001）

(3) GIS Database Establishment (September 2000 – March 2001/ sub-contract)
(4) Beneficiary Farmers' Intention Survey (October – December 2000/ sub-contract)
(5) NIA Corporate Culture Survey (September 2000 – February 2001)

Note: For the detailed results of the above surveys, refer to Appendix (Volume II) of the Final Report.

In the course of the above surveys and activities, the Study Team carried out interviews with top management of NIA and the related government offices such as Department of Agriculture (DA), Department of Public Works and Highways (DPWH), National Economic and Development Authority (NEDA), Department of Budget and Management (DBM), Department of Interior and Local Government (DILG), as well as international institutions like IBRD and ADB.

To encourage the active participation of the parties concerned, participatory approach or PCM method was fully adopted in the Study. In the course of the Study review works, several workshops were held at the different levels of NIA: inviting IACC/ ITF members and middle management staffs at Central Office and involving the selected representative staffs at field offices.

To make participate the relevant officers and staffs in the improvement planning and change their thinking for restructuring, the JICA Study Team organized a series of workshops and consultation meetings to discuss and exchange views on the current issues and improvement/ strengthening plans during the Phase I and II field survey period, as summarized below:

Workshops/Consultations	Holding Date	Participated Institutions/Participants
1. Workshops*		
- 1st Workshop	August 29–31, 2000	IACC Members
- 2nd Workshop	September 26-27, 2000	NIA-ITF Members
- 3rd Workshop	July 7-9, 2000	Representatives from RIO NISO
- 4th Workshop	December 7-8, 2000	NIA-Central Office (Managers & Chiefs of Departments and Divisions [Technical Sector]
- 5th Workshop	December 13, 2000	NIA-Central Office (Manager & Chiefs of Departments and Divisions [Finance and Administrative Sector]
- 6th Workshop	February 26, 2001	NIA-Central Office (Managers & Chiefs)
- 7th Workshop	June 8, 2001	IACC & ITF Members, NIA-CO Managers & Chiefs
- 8th Workshop	June 20, 2001	NIA-CO (Top Management Staffs) & Regional Directors
- 9th Workshop	June 13-17, 2001	Representatives of the Field Offices (RIO & NISO concerned)
2. Consultation Task Force [CTF] and Other Top Management Meetings		
- 1st CTF	December 18, 2000	CTF Members
- 2nd CTF	January 18, 2001	CTF Members
- 3rd CTF	February 1, 2001	ITF-Advisory Team Members
- 4th CTF	July 18, 2001	NIA-ITF Members
- 5th CTF	July 31, 2001	NIA-CO Department Managers
- NIA Board of Directors (BOD)	August 13, 2001	NIA BOD Members and NIA Top Management Staff

Note: * Counterpart personnel of the Study are also invited as observers.

1.5 Transfer of Technology

In accordance with the "Technology Transfer Plan" prepared based on the results of discussion with the Philippine counterparts (agreed in September 2000) the transfer of technology started in close cooperation and joint-work with the counterpart personnel, mostly from the NIA Central Office. This transfer was done mainly through on-the-job training, participatory workshops, seminars and consultative meetings, and these were successively carried out.

CHAPTER 2 REVIEW OF DEVELOPMENT POLICIES, PLANS/PROGAMS AND CONFIRMATION OF NIA'S MISSION

2.1 Review of Irrigation Development Policies

Developmental policies are stated in various documents such as plans and programs, executive issuances, etc. The grand vision of agriculture and fisheries modernization and the threat posed by globalization, particularly started in the Philippines by its accession to the GATT.

In December 1997, the Congress of the Philippines enacted the Agriculture and Fisheries Modernization Act (AFMA) in order to make the agriculture and fisheries sectors more competitive in the global market through improvement in productivity and profitability. In July 1998, the Implementing Rules and Regulations (IRR) of AFMA was issued to clarify each provision of the Act[*].

The objectives of AFMA include the following:

- To modernize the agriculture and fisheries (A&F) sectors by transforming these sectors from a resource-based to a technology-based industry;
- To enhance profits and incomes in the A&F sectors by ensuring equitable access to assets, resources and services, and promoting higher-value crops, value-added processing, agribusiness activities, and agro-industrialization;
- To ensure the accessibility, availability and stable supply of food at all times;
- To encourage horizontal and vertical integration, consolidation and expansion of A&F activities, groups, functions and other services;
- To promote people empowerment by strengthening POs, cooperatives and NGOs and by establishing and improving mechanisms and processes for their participation in government decision-making and implementation;
- To pursue a market-driven approach to enhance the comparative advantage of the A&F sectors in the world market;
- To adopt policies that will promote industry dispersal and rural industrialization; and
- To improve the quality of life of all sectors.

The Act prescribes urgent measures to be taken such as the identification of Strategic Agriculture and Fisheries Development Zones (SAFDZ) and the formulation of an Agriculture and Fisheries Modernization Plan (AFMP). It seeks to address credit, irrigation, information and marketing support services, rural infrastructure, product standardization and consumer safety, human resources development, research and development, extension, rural non-farm employment, and trade and fiscal incentives.

Irrigation development policies consolidated in Chapter 4 of the law are spelled out as follows:

1) Use of Natural Resources: It is the policy of the state to use its natural resources nationally and equitably. The State should prevent the further destruction of watersheds, rehabilitate existing irrigation systems and promote the development of irrigation systems that are effective, affordable, appropriate, and efficient (Sec. 26),

[*] The present status (as of September 2001) of the AFMA is given in the Reference Data VII.5 of Appendix.

2) National Irrigation System (NIS): The NIA should continue to plan, design, develop, rehabilitate and improve the NISs. It should continue to maintain and operate the major irrigation structures including the head-works and main canals. In addition, the NIA is mandated to gradually turn over operation and maintenance of the NIS's secondary canals and on-farm facilities to Irrigators' Associations (Sec.30),

3) Communal Irrigation System (CIS): The DA should, within five years from the effectiveness of this Act, devolve the planning, design, and management of CISs, including the transfer of NIA's assets and resources in relation to the CISs, to the LGUs. The budget for the development, construction, operation and maintenance of the CIS and other types of irrigation systems should be prepared by and coursed through the LGUs. The NIA should continue to provide technical assistance to the LGUs even after complete devolution of the Irrigation Systems to the LGUs, as may be deemed necessary (Sec.31),

4) Minor Irrigation Schemes: The DA should formulate and develop a plan for the promotion of a private sector-led development of minor irrigation systems, such as Shallow Tube Wells, Low-Lift Pumps and other inundation schemes (Sec.32), and

5) Irrigation Service Fee (ISF): The NIA should immediately review the ISF rates and recommend to the DA reasonable rates within six months from the effectivity of this Act (Sec.35).

Above provisions were formulated based on the principles of efficiency of irrigation development, cost effectiveness of government investments, cost recovery of government expenditure, local government autonomy and farmer empowerment. The provisions of AFMA on irrigation were formulated in these contexts.

(1) Irrigation Development Based on Efficiency

Review of accomplishments and status of irrigation development after several years of rapid irrigation development led by the NIA, revealed that efforts have been costly. Irrigation development of the NIA is about 1.34 million hectares, a little less than half of which is contributed by areas under the national irrigation systems or NIS (large-scale irrigation systems). The smaller systems (communal irrigation systems or CIS) are the second largest contributor. A small portion of the total area is irrigated by farmer-owned shallow/deep tube wells generated by the pump irrigation program of NIA.

The predicament of irrigation development over the last several years led to changes in policies that set new directions. The AFMA's basic policies reflected in the country's plans and programs; the 1999-2004 MTPDP and the Philippine National Development Plan for the 21st Century include:

1) Maximizing the efficiency of irrigation systems. Recent irrigation development has been focused on rehabilitation and operations improvement of existing NIS in order to close the gap between the service area and irrigated area.

2) Expansion of irrigation service area. Although, national irrigation projects are being pursued, new area generation may also be realized by maximizing the coverage of existing irrigation systems by constructing facilities in areas that can be served by

available water diverted from the source through the diversion facilities of existing systems.

3) Promotion of small scale, farmer-controlled and cost-effective irrigation systems as well as non-traditional irrigation technologies where appropriate. Such new technologies provide options for the type of irrigation scheme to be applied in a locality. Actually, the criterion for selection of irrigation development scheme (Section 28, AFMA) is another way of saying that large irrigation gravity schemes will only be adopted in areas where minor schemes (STW, LLP, HTW, SWIPs) are not technically feasible.

Government investments should reach a certain threshold of economic internal rate of return (EIRR) and benefit-cost ratio (BCR) during the planning stage in order to ascertain attainment of objectives at the least possible cost. The cost-effectiveness principle was included in the list of criteria for selection of the type of irrigation development scheme. This means that a proposed project should not only reach the required level of EIRR and BCR, but should also compete with other development schemes based on these criteria.

(2) Cost-Recovery

It is the policy of the state to promote economic development under the leadership of the private sector. As such, the private sector is the prime mover of economic development. Under this seeming laissez faire economic policy, the government should set the policies that level the playing field to promote fair and healthy competition. Also, government participates or provides services that the private sector could not afford to generate in order to spur economic activities.

In the agriculture sector, irrigation service is among the services that the private sector could not afford due to the high cost of development and the low prospect for profitability. The importance of agriculture and its productivity to the "food security" policy of government could not be overstated and remains the major reason for government to undertake irrigation development.

In adherence to a private-sector led economic development policy, however, recovery of costs of government services has been placed as a parallel policy. Thus, cost recovery in irrigation is being put into practice in varied methods appropriate to development schemes. In the NIS, this is done through imposition of irrigation service fees (ISF), the main objective of which is to recover operation and maintenance cost. However, there has been a difficulty of pricing the ISF that addresses the issues of social equity and cost recovery. Over a long period, the NIA has contemplated and proposed increasing the irrigation tariff particularly to adequately finance operation and maintenance of NIS. The current predicament of many NIS came out of a haphazard decision to issue AO 17, which is a poverty alleviation strategy via sacrifice of cost recovery. It created a domino effect of decreased collection, negative financial position, worsening maintenance and lower collection efficiency resulting in a serious negative impact on the operation of the NIS, which necessitated the national government to bail out the NIA through subsidy.

(3) Empowerment of the Farmers Through Irrigation Management Transfer (IMT)

Even before the phrase "people empowerment" became a byword in social development, the NIA had already implemented its version in its participatory irrigation development strategy.

Participatory approach has three development stages, all leading towards full takeover of NIS by irrigators' associations. The process has been sluggish after the proponents have departed from NIA. It was beset by lack of support and the threat of losing jobs if takeover of NIS should prosper. The AFMA gave a fresh enthusiasm to participatory approach by making irrigation management transfer to IA mandatory. With the intention of putting production inputs under the control of the producers/farmers, the AFMA mandated the transfer of laterals and appurtenant facilities to IA. However, before the enactment of AFMA, the NIA had already a standing agreement with the World Bank that NIS with less than 3,000 ha service area should be turned over to the IA, which is more than the AFMA's requirement.

The full turn over of management of NIS with areas less than 3,000 hectares raises an issue of ownership. If an IA fully operates and maintains NIS, the NIS should be treated like the CIS where the cost of development is amortized and ownership is transferred to the IA. As yet, there are no standing policies that will define ownership of the NIS facilities. The Stage/Type III contracts executed with IA in six NIS are silent about ownership. Under the existing Stage/Type III agreements, the IA operate and maintain the NIS and collect the ISF.

While IMT is a strategy to empower farmers, it is equally important that the NIA imposes a uniform policy. If the IA served by CIS amortizes the cost, an equivalent cost recovery scheme should be developed for NIS under IMT. Although, the AFMA does not have specific provision for this, the cost recovery policy is comprehensive.

(4) Supporting Local Government Autonomy

The 1991 Local Government Code was enacted to give the LGUs greater autonomy in charting the development of their area jurisdictions. Among others, the Code mandated the devolution of local-funded communal irrigation to the LGUs. However, ten years after the Code was passed, little have been done to effect compliance, which have proven to be more of a disadvantage than an advantage. Since 1992, the DBM stopped releasing funds for communal irrigation development to NIA since the funding has already been incorporated in the internal revenue allotment (IRA) share of the LGUs, which has been increased from 20% to a maximum of 40%. This resulted to stalled implementation of communal irrigation projects since the local governments decide on the utilization of LGU-IRA. Irrigation infrastructure development should compete for fund allocation with other development programs, all of which should be funded from the local development fund, which is 20% of the IRA. The lack of knowledge and skills among LGUs relegated irrigation development in the low priority level.

Despite the seeming failure of devolution, the AFMA reiterated the transfer of local-funded communal irrigation development to the LGUs. The law mandated NIA to transfer related assets and resources and to provide continuous technical assistance. In 1999, then Secretary Angara launched the Balikatan-Sagip-Patubig, a program intended to initiate the transfer of communals to LGUs. The program was implemented by a tripartite body consisting of the LGU, national government and the IA under an arrangement described as follows:

- the LGU implements the program and provides a counterpart fund
- the national government should provide a counterpart fund thru the DA and technical assistance to the LGU thru the NIA
- The IA receives, operates and amortizes the CIS after completion

The Balikatan-Sagip Patubig Program provides a good entry point for devolution of communals to be set in motion. Its scheme of operation is also designed to provide an interface between NIA and LGU, where the LGU is on-the-job training under the NIA.

2.2 Review of Development Plans and Programs

Since irrigation in the Philippines is largely a government investment, its development is guided by national government policies enshrined in the legislations, national plans and programs and administration pronouncements. National development plans and programs set the wholistic goals, objectives and priorities of the government. This section presents these plans, descriptions of contents relative to the direction of irrigation development.

2.2.1 Philippine National Development Plan – Direction for 21st Century

In 1998, the Government of the Philippines (GOP) set forth the Philippine National Development Plan which indicates the direction for the 21st century. In the long-term strategies of this Plan, the GOP advocates that "water resources planning" for the different regions of the country is to be based on the following principles:

1) Water is a limited resource that must be conserved and managed efficiently; and

2) As an economic good, water utilization has to be paid. The competing uses and the capacity and willingness-to-pay must be taken into consideration in pricing water.

   Sectorial strategies for irrigation development under the Plan are as follows:

   a. Expand research and development of cost-effective, appropriate and efficient irrigation and water management technologies in coordination/ cooperation with other relevant research institutions in the country,
   b. Strengthen the participation of Irrigators' Associations in planning, development, operation and maintenance of irrigation systems,
   c. Pursue the development of capital cost recovery schemes for the implementation of irrigation in infrastructure through the imposition of indirect fees and levies on other sectors benefiting from irrigation projects,
   d. Train, build up capacities and promote participation of LGUs in the development of communal irrigation projects, and
   e. Promote a private-sector-led development of small scale or minor irrigation schemes.

The irrigation development program of the country on the long-term is summarized below.

Irrigation Development Program, 2005-2025

Irrigation Management Agency	2005-2010	2011-2016	2016-2020	2021-2025
1. National Irrigation Administration (NIA)	2,000,276	2,091,225	2,226,203	2,344,828
1) Generation of new areas (ha)	*113,595*	*102,272*	*118,625*	*118,625*
2) Projected area for irrigation (ha)	*1,886,681*	*1,988,953*	*2,107,578*	*2,226,203*
2. Bureau of Soils and Water Management (BSWM)	25,000	35,000	20,000	20,000
1) Projected area for irrigation (ha)	*25,000*	*35,000*	*20,000*	*20,000*
Total	2,025,276	2,126,225	2,246,203	2,364,828

Source: The Philippine National Development Plan – Directions for the 21st century

2.2.2 The Medium Term Philippine Development Plans and Agriculture Development Plans

(1) The 1993-98 MTPDP and MTADP and Achievements

The Medium-Term Philippine Development Plan (MTPDP) for 1993-1998 set medium term goals for poverty reduction and improved distribution of incomes and wealth for present and future generations of Filipinos. The primary goal of the Plan was to improve the quality of life of the Filipinos by the end of the plan period in 1998 through:

- Realizing an average GDP growth rate between 5.6 to 7.5%,
- Increasing per capita incomes to at least US$1,000, and
- Reducing the level of poverty incidence to 30%.

The last Medium-Term Agricultural Development Plan (MTADP), 1993-1998, guided by the above MTPDP for 1993-1998, envisaged to sustain self-sufficiency in rice and corn, and to have the comparative advantage in producing such crops. In order to achieve the objectives, the Grain Production Enhancement Program (GPEP) was introduced. GPEP, through the Key Production Area (KPA) approach aimed at an annual growth rate in paddy of 3.8%, which would increase production volume to 12 million tons, and corn production to seven million tons at an annual growth rate of 6.2% by the end of 1998. Thus, paddy yield in irrigated areas within KGAs was expected to increase yields from an average of 3.5 tons per ha to 5.0 tons/ ha by 1998. Irrigated KGAs which cover 750,000 ha in 1998 should increase to 1.2 million ha in 1998.

The economic recovery during the 1993-1998 MTPDP plan period was smooth as the public sector deficit reduced to a manageable level, and GDP growth gradually accelerated and reached 5.9% in 1996. The currency crisis, however, interrupted its upward growth trend in 1998 coinciding with the worst drought in the last 30 years. GDP growth dropped sharply from 5.2% in 1997 to –0.5% in 1998. This was the result of weak industrial sector performance, which contracted by 1.9% and an inconspicuous contraction of the agriculture sector by 6.6% due to the El Nino phenomenon. The resultant economic recession started in 1998 created serious impacts like unemployment, decrease in investment and others.

In the agriculture sector, average annual growth rates in yield for paddy and corn from 1993-1998 were –0.9% and 2.7%, respectively. Throughout the whole plan period, the target yields of 3.5 – 5.0 tons per ha for paddy and 3.5 – 4.5 tons/ ha for corn were not achieved.

Average irrigated and rainfed paddy yields have remained largely unchanged since 1990, at around 3.3 tons/ ha and 2.1 tons/ ha, respectively.

The major factors causing the recent slow pace of growth in agriculture sector are due to vulnerability to natural calamities and insufficient investment by the farmers to production. Consequently, the domestic rice production was not able to meet local demand during the plan period. Irrigated land area increased slightly by about 106,000 ha from 1,244,000 ha in 1993 to 1,339,000 ha at the end of 1999, or 42.8% of the potential irrigable area. This is partly because of the relatively high investment by the government through the implementation of the "Action Plan for the GATT-Uruguay Round Adjustment Measures for the Agriculture Sector".

(2) Medium-Term Philippine Development Plan, 1999-2004

In 1999, the Government launched the Medium-Term Philippine Development Plan (1999-2004) with a greater emphasis on agriculture and rural development as key to "poverty reduction" through generation of viable employment in rural areas and food security. The plan is intended to promote industrialization through agricultural modernization and productivity enhancement in the context of global trade liberalization. The key issues in the Plan are as follows:

1) Price liberalization, deregulating state functions, and greater private sector involvement;

2) Increasing investment in agriculture;

3) Developing rural infrastructure;

4) Promoting human capital development particularly through better quality education and relevant training;

5) Completing agrarian reform; and

6) Institutional reforms particularly in governance.

In improving the productivity and competitiveness of the agriculture sector, the key strategy is set to enhance the delivery of support services such as irrigation, post-harvest facilities, infrastructure, research and extension. This strategy is incorporated in the policy laid by the Agriculture and Fisheries Modernization Act of 1997 (AFMA).

The Medium-term targets on irrigation development and rice production set in the Plan are as follows:

- Irrigated areas will expand from the 43% to 54% of the total irrigable lands through development of additional 345,748 ha of new areas and rehabilitation of 705,964 ha of the existing areas. Under the BSWM's small-scale irrigation infrastructure program, 145,283 ha of new systems will be additionally developed, while the existing systems covering 41,061 ha will be rehabilitated. Investment requirements are estimated at PHP90,910 million for NIA and PHP7,837 million for BSWM, respectively, and

- Rice production is expected to grow at an annual average of 8.3 – 9.2% as a result of higher investment in irrigation, post-harvest facilities and other infrastructure support.

Above target figures was refined by the Agriculture and Fisheries Modernization Plan (AFMP) completed in December 2000. These are discussed in the next section.

(3) The 2001-2004 Agriculture and Fisheries Modernization Plan

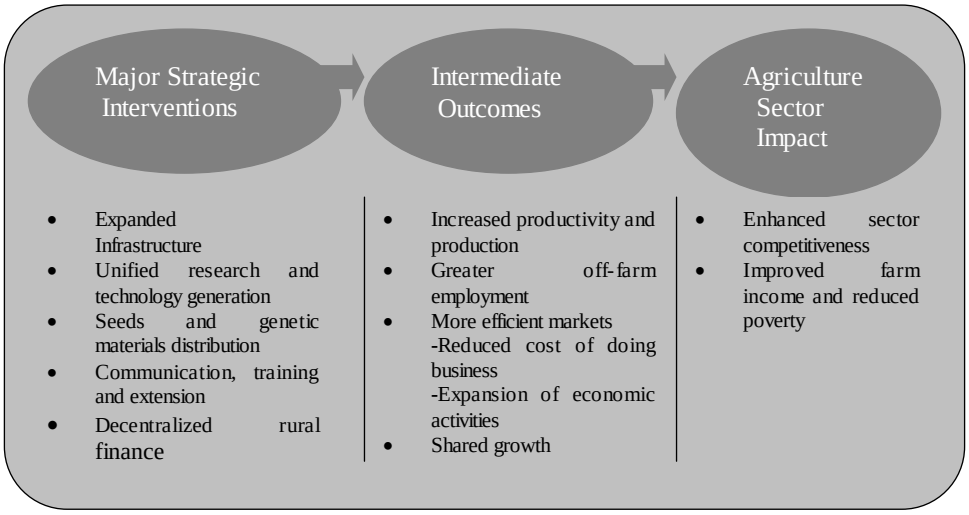
The AFMA mandated the formulation and implementation of the medium and long term Agriculture and Fisheries Modernization Plan (AFMP) that will focus development efforts to the five major concerns of modernization:

1) food security
2) poverty alleviation and social equity
3) income enhancement and profitability especially for farmers and fisherfolk
4) global competitiveness, and
5) sustainability

The 2001-2004 AFMP completed by the DA in December 2000 is the medium term AFMP, the equivalent and replacement of the MTADP. As such, the AFMP is incorporated into the MTPDP and the source of the annual agriculture and fisheries public investment program (PIP).

In order to achieve the modernization of the country's agriculture and fisheries sector, the Department should formulate and implement strategic and priority interventions. These interventions should be packaged and delivered based on the three organizing frameworks, as follows:

1) The AFMP Strategic Framework. This has three major components: major strategic interventions, intermediate outcomes and agriculture sector impact. This framework is shown in the figure below:



2) The Agricultural Makamasa Programs. These currently implemented programs are organized and focused production and marketing support programs for each of the

most important commodities: rice, corn, sugar, coconut, HVCC, abaca, livestock and fisheries to improve income of small farmers and fisherfolks.

3) The Strategic Agriculture and Fisheries Development Zones (SAFDZ). To achieve the best results from the use of scarce resources, the DA should focus its resources and efforts to the SAFDZs. Each SAFDZ is a contiguous agricultural area suitable for productive farming and fishing-particularly for production of the priority agricultural commodities.

The AFMP aims to irrigate a total of 1.7 million hectares by the end of 2004 from a total of 1.34 million hectares in 2000. Irrigation service area should increase by 27% and should bring up the level of irrigation development to 54% over the plan period. This means new irrigation facilities will be established to serve additional 345,748 hectares of currently rainfed areas. In order to maximize the benefits of irrigation in the existing systems, about 705,964 hectares will be rehabilitated. This will cost the government a total of PHP16.5 billion over the plan period. These targets should be achieved in partnership with LGUs and irrigators associations and working through the NIA, BSWM and the Regional Field Units. In order to attain these targets, the DA should implement the following strategic and priority interventions:

1) Harmonize conflicting policies of these various agencies to ensure that agencies involved adhere to broad directions laid down by the agricultural modernization law.
2) Communal irrigation activities should be devolved to the LGUs.
3) Secondary canals of the NIS should be turned over to the IA, which will then see through their running and upkeep.
4) Concentrate on raising the efficiency of irrigation systems, building and turning over small scale systems that farmers themselves can operate, in order to best use limited funds.
5) See to it that the AFMA criteria for the approval and prioritization of irrigation projects are observed.
6) Strengthen its institutional capacity to plan, monitor and deliver irrigation support services.
7) Help poor municipalities rehabilitate their broken-down irrigation systems. The Department should provide grants to match LGU expenditures for the restoration and improvement of the operational efficiencies of broken down communal irrigation systems.
8) Recognize the constraints imposed by water scarcity, by allowing the optimum use of irrigation water for joint or multiple purposes, such as: inland fisheries, electric power generation and domestic supply.
9) In collaboration with the DENR, the DA should ensure the conservation of watersheds, which are increasingly exploited by the rapidly expanding population.

2.3 Review of Activities of International Donors

2.3.1 Overall Review of Foreign Assisted Projects

From the creation of NIA to the present, foreign donors and their interests have strongly influenced and shaped the Philippine irrigation policy and NIA's development through various types of loans, technical assistance and grants. It can be said that the foundation of the NIA was laid with inflows of foreign capital. Particularly, these foreign capital inflows financed the remarkable expansion and construction of irrigation systems from the mid-1970s to the early

1980s. The NIA's history could be roughly divided into three periods since its foundation based on its activity features, as follows:

1)	1960 to mid – 1970s (Growing era)	NIA's formation and growth with massive capital expansion and centralization
	During this period, NIA exploited ample donor assistance and strong domestic support under Marcos to develop into and effective irrigation construction agency.	
2)	Late 1970s-early 1980s (Green Revolution era)	**Management reforms started in part in response to O&M pressures caused by capital expansion**
	During this time, a powerful NIA was able to make significant institutional changes to enhance its financial viability and initiate participatory irrigation management (PIM) program.	
3)	1986 to date (Post-Green Revolution era since the mid-1980)	**Since the Philippine transition to democracy in 1986, NIA's autonomy and power eroded.**
	Populist politics and decentralization have characterized this period. The reforms initiated during 1980s contribute to the problems and act an obstacle to more fundamental changes.	

In1961, the preliminary studies of seven river basins, including the Pampanga basin in Central Luzon and the Cagayan Valley in North Luzon, were conducted by the USAID as the first project with international financing. Today, two systems (UPRIIS & MRIIS) cover approximately 180,000 ha, over 25% of NIA's current NIS service area. As foreign loans increased in the mid-1970s, the relative share of domestic support declined. Since then, foreign borrowing has made up the majority of NIA's budget for capital expenditure. The NIA foreign loans and capital expenditures from 1969 to 1999 are summarized in Table 2.1.

As of mid-1999, there were 22 foreign-assisted projects being implemented by the DA, as shown below. Owing to their capital-intensive nature, the eleven (11) ongoing major irrigation projects accounted for US$420 million or about half of the total ODA to the agriculture sector.

Total ODA Commitments to the DA by Source

(as of June 1999)

Source			Amount (US$1,000)	Share (%)
1.	Loan			
	1)	OECF (JBIC)	186,088	31.4
	2)	WB/IBRD	264.041	44.6
	3)	ADB	113,260	19.1
	4)	Spain	18,181	3.1
	5)	IFAD	11,431	1.9
Subtotal			593,001	100.0
2.	Grant			
	1)	JICA	94,867	47.8
	2)	EU	90,811	45.8
	3)	GTZ	5,450	2.8
	4)	Australia	4,197	2.1
	5)	FAO/UNDP	1,819	0.9
	6)	Netherlands	482	0.25
	7)	FAO	514	0.3
	8)	Spain	234	0.05
Subtotal			198,374	100.0
Total ODA in DA			791,375	-

Source: Study Report on AFMA of 1997 – Priorities, Targets & ODA Challenges, R.T. Baoy, (JICA Philippine Office), Sept. 1999

Among the 23 donors contributing ODA to the Philippines, Japan (JBIC & JICA) is the largest contributor accounting for about 42% of the total ODA. The two multilateral institutions, namely WB-IBRD and ADB, were also large contributors to the total ODA in the country.

In the last decades, the World Bank and ADB loan priorities have changed to irrigation rehabilitation and are changing to more integrated water resources management loans, while the JBIC (former OECF) lending has grown significantly in the 1990s and continued to support the expansion of the NISs.

The profile of the ongoing foreign-assisted projects implemented by the DA and NIA is given in Table 2.2.

2.3.2 ADB Projects

The outlines of the major projects carried out or being carried out by the ADB and related Study are as follows:

(1) Review of Cost Recovery Mechanisms for National Irrigation Systems (ADB T/A)

1) Objectives

To assist the Government in reviewing the application of irrigation service fee to promote full recovery of O&M costs and a part of the capital investment costs for NISs.

2) Duration : From January to August 2000
3) Project Location : Nationwide
4) Cost ($1,000) : About 430 (financed by ADB on grant basis)

5) Scope of the Study
   a. Reviewing and assessing the relevant reports, policies, regulations on ISF, and NIA performance,
   b. Conducting and analysis of NIA's financial viability and assess its corporate plan,
   c. Conducting a socioeconomic field survey on ISF in a typical NIS area,
   d. Examining alternative rate-setting methodologies taking into account the level of participation of beneficiaries in O&M,
   e. Examining the possibility of establishing O&M funds, including CISs,
   f. Recommending the appropriate level of ISF and beneficiary participation for O&M and the future role of IAs,
   g. Recommending and appropriate training program for NIA staff and IAs to improve the collection ratio of ISF, and
   h. Conducting two workshops on ISF at the beginning and end of the Study.

6) Recommendations

While many recommendations were made through the Study, the major ones are as follows:

Thematic Area		Recommendations
1)	Adequacy of NIS O&M	The amount of direct funding for system O&M should be more than double or at least PHP2,300/ha for system sustainability.
2)	Appropriate ISF Rate	Explore alternative methods for irrigation cost recovery, encourage water use efficiency and strengthen NIA's collection efficiency.
3)	The Two-Tiered ISF	Implement the two-tiered ISF as a measure to improve ISF collections, give IAs full financial autonomy, and improve water use efficiency and distribution equity by economic valuation of the water resources.
4)	Socio-economic Weakness of IAs and IA Capacity and Functionality	IA by-law should be modified to allow holding of leadership positions by non-land owners and women. Irrigation Superintendent (IS) should be elected by farmers not appointed by NIA.
5)	Pre-requisites for Full IMT	System rehabilitation and operational improvement are required for successful IMT. NIA should move from water retailing to water wholesaling with two tiered ISF. NIA should restructure its operations and move from heavy emphasis on irrigation construction to farming systems software delivery.
6)	Implementing the framework of IMT	IMT needs a staged approach: The first stage should focus on pilot testing the two-tiered ISF. Second, third and forth stages to extend two-tiered ISF mechanism to all NISs.
7)	Restructuring NIA	NIA should restructure and streamline for better focus on AFMA-related activities and to reduce its personnel expenditures.
8)	NIA's Financial Viability	Improve revenues by restructuring the 40 cavans/ha exemption to a sliding scale; eliminate ISF payment in kind; abolish 10% discount for ISF cash payment, shift from water retailing to water wholesaling.

(2) Irrigation Systems Improvement Project (ISIP-II/ ADB)

1) Objectives

To increase food production, improve road network leading to better access to market, provide control of schistosomiasis and promote environmental protection and monitoring.

2) Duration : 1997-2002
3) Project Location : Regions 8 (Leyte Province)
4) Cost (PHP1,000) : Total Project Cost 1,172,100
(Loan: 482,650, GOP: 689,450)

5) Project Components

The ISIP-II project covers nine existing irrigation systems located in Leyte Province, Eastern Visayas. Service area for rehabilitation is 12,649 ha plus an additional new area of 809 ha. The Project scope includes:

a. Rehabilitation and improvement of irrigation systems involving diversion headworks, canal networks, control structures, drainage and on-farm facilities and service roads,
b. Construction of erosion control structures in the river catchment areas,
c. Provision of essential construction and maintenance equipment and service vehicles,

d. Institutional development, and
e. Project benefit monitoring and evaluation.

2.3.3 IBRD Projects

(1) Irrigation Operations Support Project II (IOSP-II/ World Bank)

1) Objectives

To improve 17 NISs, the Project is designed to : (a) construct 3 sediment extruders and improved water structures and prevent erosion in critical areas, (b) support improve system level O&M services, (c) strengthen existing IAs and provide O&M materials, and (d) improve agricultural support services.

2)	Duration	:	1993-2000
3)	Project Location	:	Regions 2,3,4,6,9,12 and 13
4)	Cost (PHP1,000)	:	Total Project Cost 2,023,900 (Loan: 1,572,200, Foreign: 451,700)

5) Project Components

a. Improvement of 17 NISs, urgent structural repairs in another 14 systems, construction of 3 sediment exclusion structures and erosion prevention measures in critical areas,
b. Continued support of the improved system-level O&M achieved under the IOSP-I,
c. Institutional development through: (a) strengthening of existing IAs, establishment of new IAs, and enhanced financial and management training of the IAs, and (b) strengthening of NIA through support to improve ISF collection, staff training in O&M, appropriate engineering design techniques, administrative and financial aspects of system management, and farmer training techniques, and
d. Strengthening agricultural support services, including research and extension, farmer training, and promotion of IA-based seed production.

(2) Water Resources Development Project (WRDP/ World Bank)

1) Objectives

The Project aims to: (a) implement a broad policy and institutional framework in the water sector, (b) formulate a national water resources management, (c) prepare and implement catchment management, (d) improve upstream watersheds for sustaining irrigation and other projects, and (e) improve performance of existing NIS and emphasize decentralization of stakeholders and greater cost recovery.

2)	Duration	:	1997-2001
3)	Project Location	:	Regions 2,3,4,6,9,12 and 13
4)	Cost (PHP1,000)	:	Total Project Cost 2,418,220 (Loan: 1,670,000, GOP:748,220)

5) Project Components

The activities proposed for irrigation sub-components are basically to follow-on project to the IOSP-II within a much broader framework of overall water resources management. The detailed activities are as follows:

a. System improvement and repair

- The project provides for the improvement of 14 NISs serving about 110,000 ha,
- As regards dam safety, the project improves three storage dams (Magat, Angat and Masiway), on which irrigation schemes depend, and their diversion structures for the water deliveries to the irrigation network, and
- Formulating of an equipment management policy.

b. Institutional strengthening of NIA and IAs

Strengthening of NIA

- The computerized management information system (MIS): The major benefits of MIS development would be computerized ISF billing, better equipment inventory and management, improved accounting system and faster auditing, and improved performance monitoring of NIS,
- Strengthening NIA's accounting system through providing funds for training of internal auditing staff and for consultants mainly to: (a) reconcile all of NIA's previous accounts, (b) prepare a revised accounting manual, and (c) train NIA staff in correctly recording the accounting entries, and
- Formulation of an equipment management policy.

Strengthening of IAs

- IA development includes IA training, training of Institutional Development Officer (IDOs) and Farmer-Irrigators' Organizations (FIOs), consultancy for monitoring and evaluation of the IA development program.

2.3.4 JICA/JBIC Projects

Of the 22 ongoing foreign-assisted projects of the DA/NIA, JICA is supporting six (6) projects: four project-type technical cooperation and two grant-aid projects. On the other hand, the JBIC (former OECF) is the biggest bilateral ODA contributor to the agriculture sector. JBIC has just started its sixth Bohol Irrigation Project (BHIP-II) in addition to the five ongoing major projects indicated in Table 2.2.

(1) Bohol Integrated Agriculture Promotion Project (BIAPP/ JICA)

1) Goal and Objective

The overall goal of the BIAPP is to increase agricultural production and income of farmers in Bohol, while its objective is set to increase agricultural productivity by improving management of farming activities in the Project sub-site : the Capayas Irrigation Project.

2) Duration : November 1996 – November 2001
3) Project Location : Region 7 (Bohol)
4) Cost (PHP1,000) : Total Project Cost 143,456
(GOP: 42,012, TPC: 185,468)

5) Project Components

To accomplish the above objective, the Project sets the following five (5) expected outputs:

a. Conduct of the baseline survey and its monitoring by the Bohol Agricultural Promotion Center (BAPC),
b. Adoption of improved location specific technologies for a rice-based farming system I the Project sub-site,
c. Implementation of an effective management of farming activities in the Project sub-site,
d. Enhancement of the technical capabilities of extension workers and key farmers in Bohol, and
f. Improvement of agricultural promotion system by enhanced collaborative linkages of BAPC with LGUs and organizations concerned.

(2) Bohol Irrigation Project – Stage II (BHIP-II/ JBIC)

1) Objectives

The Project aims to increase agricultural productivity and income of farmers (target beneficiaries : 10,000 farm families) in Bohol, by extending the previous OECF-financed Bohol Irrigation Project (BHIP-I).

2) Duration : 2000 - 2008
3) Project Location : Region 7
(Ubay, San Miguel and Trinidad in Bohol)
4) Cost (PHP1,000) : Loan Amount 1,636,000
(Loan No.PH-P201/23rd YLP)

5) Project Components

a. Construction of 35.5 m high-zoned earthfill dam in Bayongan San Miguel
b. Construction of the irrigation link canal with concrete chute connecting the main canal of Bohol stage I to the reservoir of stage II
   - Bayongan system : main canal (12.7 km), lateral canal (49.7 km)
   - Capayas system : lateral canal (11.8 km), canal network (55.9 km)
c. Land development/ leveling of about 2,514 ha of farmland
d. Support structures : 24.4 km of farm-to-market roads, terminal facilities, access roads

2.4 Irrigation Development in the Philippines

2.4.1 Irrigation Systems in the Philippines

(1) Irrigation Systems

The irrigation systems in the Philippines are classified as follows:

1) National Irrigation Systems (NIS)

The NIS is constructed and maintained by NIA and the beneficiaries are required to pay the irrigation service fee (ISF). Irrigated areas are generally more than 1,000 ha.

2) Communal Irrigation Systems (CIS)

The CIS is small, mostly gravity systems, owned and operated by Irrigators' Associations (IAs). The beneficiaries are required to amortize the investment costs and to operate and maintain the irrigation facilities. Irrigated areas are generally less than 1,000 ha.

3) Private Irrigation Systems (PIS)

The PIS as defined in MC No. 78, s.1990 are constructed, operated and maintained by private individuals or groups with or without technical assistance by NIA or other government agencies.

To date, the total area provided with irrigation facilities by NIA (including NIS, CIS and PIS) is estimated at about 1,338,816 ha, of which 880,357 ha (or 65.8%) are actually planted with crops. This irrigation service area accounts for 42.8% of the total potential irrigable area of 3,126,340 ha.

The following table indicates the provisionally estimated potential irrigable areas and irrigated areas by system in the country.

Irrigation Systems in the Philippines

Irrigable Areas/ Systems	Area (1,000 ha)	%
- Potential Irrigable Areas	3,126	100.0
- Irrigated Areas	1,339	42.8
・ National Irrigation Systems（195 NISs）	679	21.7
・ Communal Irrigation System（6,692 CISs）	486	15.5
・ Private Irrigation systems（PISs）	174	5.6

Source: NIA CORPLAN (1999)

As to the regional breakdown of the irrigation development, refer to Table 2.3.

(2) Historical Expansion of Irrigated Area in the Philippines

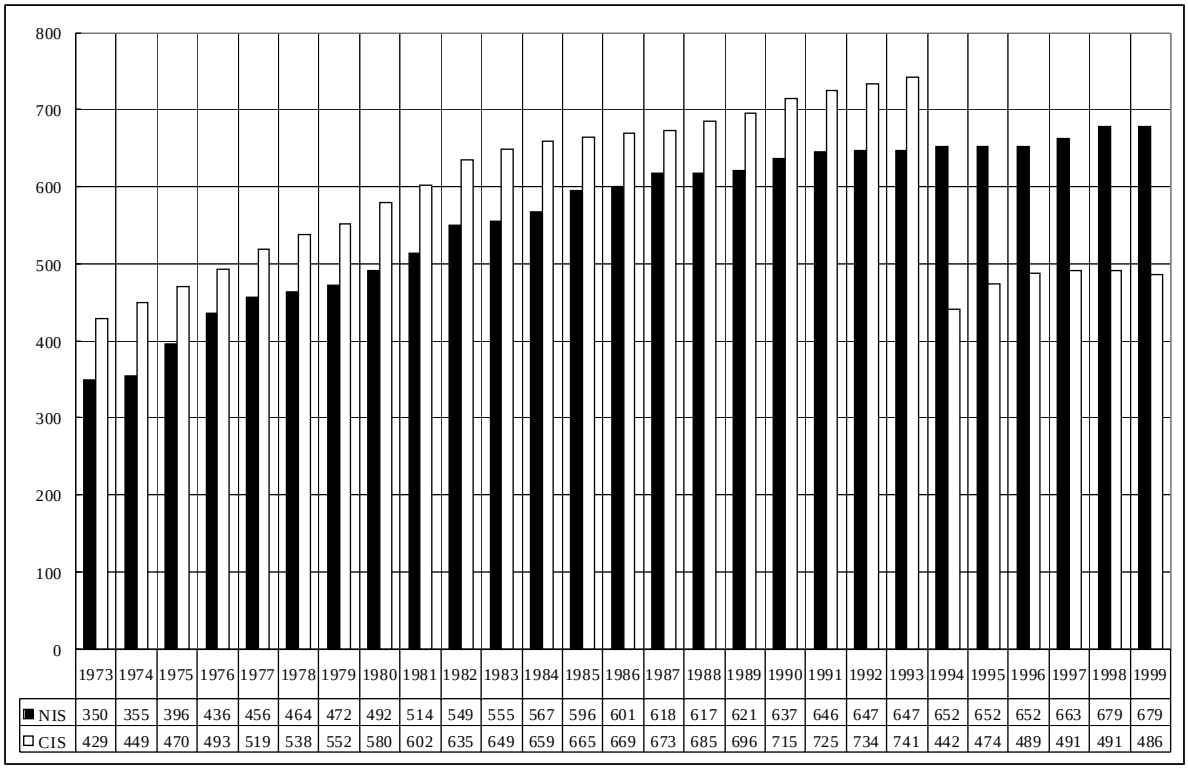
Historical development of irrigation both for NIS and CIS is summarized in Table 2.4. The irrigation development area consisting of both NIS and CIS has increased with the annual average growth rate of 1.56% during 26 years from 1973 to 1999. The peak of irrigation development in the country was recorded during the period from 1976 to 1980, with 142,800 ha of newly generated irrigation areas (about 28,500 ha per year). This was due to the great

foreign capital inflows from donors and strong political support of the Administration. After this period (or with the end of Green Revolution era which lasted up to early 1980s), the pace of new irrigation development became sluggish in a relatively stable supply-demand situation of rice market.

The following graph shows the irrigated areas of the NIS and CIS from 1973 to 1999.

Irrigation Area of NIS and CIS, 1973-1999

(Unit: 1,000 ha)



	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
■ NIS	350	355	396	436	456	464	472	492	514	549	555	567	596	601	618	617	621	637	646	647	647	652	652	652	663	679	679
□ CIS	429	449	470	493	519	538	552	580	602	635	649	659	665	669	673	685	696	715	725	734	741	442	474	489	491	491	486

Source: NIA CORPLAN

As noticed in the above figure, a large reduction in irrigation area occurred on CIS in 1994 compared to the 1993 figure. According to NIA, this sharp drop in irrigation service area is due to adjustments of (or exclusions from) the reported areas for the following reasons:

1) Overlapping of some CISs with certain NIS service areas,
2) Some Private Irrigation Systems (PIS) service areas were integrated into the CIS record,
3) Some CIS service areas damaged by natural calamities were included in its total (e.g. areas damaged by Mt. Pinatubo eruption),
4) Certain areas within CIS and NIS were not converted to paddy areas or not yet developed for irrigation, and
5) Certain irrigation service areas were converted to residential, commercial and industrial uses.

2.4.2 Capital Expenditures for Irrigation Development

Table 2.5 shows the NIA's overall capital expenditures from 1975 to 2000. According to these data, the peak of the capital expenditures was recorded during the period of 1979-83. The relative share of domestic support through equity declined as foreign loans increased substantially from 1979, and since that time, foreign funding became the major source of NIA's capital budget up to 1990. After 1983, capital expenditures of NIA declined mainly due to the financial crisis, and a change in policy on irrigation development placing emphasis on rehabilitation rather than on construction of new facilities.

Local fund shortages seriously impeded project implementation after mid 1980's, so that NIA has to use its own corporate funds to finance its investment. This practice continued up to 1990 despite some subsidy from the government.

In 1992, the LGC devolved responsibility of the CIS to the LGUs. Consequently, NIA lost approximately PHP0.7 billion from the 1992 budget allotment. After the long low investment periods from mid 1980s to mid 1990s, the capital expenditures fairly increased, particularly the equity and other portions. Under the "Action Plan for the GATT-Uruguay Round Adjustment Measures for the Agriculture Sector", NIA requested some PHP27 billion for irrigation development over the 4-year period from 1995 to 1998. From 1996, total allocated budget reached a level of PHP5 billion and continued to keep that amount up to 2000.

In 2001, NIA proposed budget amounting to PHP8.5 billion but, actually PHP6.0 billion was approved for facilitating irrigation development of the country.

2.5 Review of Corporate Plan (2001 – 2010) and Demand and Supply Projection of Paddy

2.5.1 Review of Corporate Plan (2001 – 2010)

The first NIA Corporate Plan came out in 1980. The successor Corporate Plan 1990-2000 was formulated in 1990. and a few years later, NIA came up with a revised and updated Corporate Plan for the period 1993-2002. The Plan includes NIA regular programs and other agency programs (CARP, small reservoir irrigation projects and locally funded CISs). The Plan needed a total funding of PHP79.7 billion or an annual average funding requirement of PHP7.9 billion to generate 437,620 ha of new area, rehabilitation of 586,680 ha, minor restoration of 62,260 ha and reforestation of 24,000 ha. With these targets, shortage of rice was projected to decrease from 334,000 tons in 1993 to 140,000 in 2002.

The following table presents the annual targets and accomplishments in the generation of new areas and rehabilitation of existing systems from 1993 to 2000.

Projected Physical Targets in the Corporate Plan and Its Accomplishments

(unit: ha)

Targets & Achievements	1993	1994	1995	1996	1997	1998	1999	2000	Total
1 Generation									
- Target (a)	6,630	24,010	20,460	31,970	29,720	26,970	27,290	44,363	211,413
- Achievement (b)	7,722	6,736	9,292	10,140	29,720	27,657	11,553	11,086	113,906
- (b)/(a) (%)	116.4	28.0	45.4	31.7	41,040	102.5	42.3	24.99	53.88
2 Rehabilitation									
- Target (a)	9,700	26,470	26,030	26,910	34,470	81,590	27,700	192,970	425,840
- Achievement (b)	10,776	6,812	11,998	39,426	150,932	133,732	152,397	68,083	574,156
- (b)/(a) (%)	111.1	25.7	46.1	146.5	437.9	163.9	550.2	35.28	134.8

Source: NIA, Corporate Plan 1993-2002 and data from the NIA Corporate Planning Staff Office

About 113,906 ha of new areas were generated and 574,156 ha rehabilitated from 1993 to 2000. These represent 53.88% and 134.83% of the respective targets.

The Corporate Planning Staff Office prepared the 2001-2010 Corporate Plan. Indicative irrigation development plan is prepared as presented in Table 2.6. The plan presents a PHP190 billion-fund requirement for developing 477,000 ha of new areas under irrigation and 814,000 ha of rehabilitation. The targets seem ambitious considering the past performance of this sector and projected physical accomplishments of the proposed projects.

2.5.2 Demand and Supply Projection of Paddy

The JICA Study Team prepared the supply and demand projection of paddy for the period 2000-2010 under the assumptions summarized below. The results of the projections are presented in Table 2.8.

The parameters used in the projection are based on the NIA data, particularly with reference to "Proposal for Self-Sufficiency in Palay Production", August 1999. The following are the assumptions:

1) The annual population growth rate from 2000 to 2010 is assumed to be 2.10% in 2000 to 1.90% in 2010 with a yearly decrease of 0.02%.
2) The yield of paddy in 2000 was 3.69 mt/ ha in irrigated area and 2.23 mt/ ha in rainfed area.
3) Annual increase of paddy yield in the future is assumed at 1.2% in irrigated area and 0.6% in rainfed area. Average yield increase will be about the same as that achieved during the period 1993-1998.
4) The total irrigated service area in 1999 is 1.34 million ha; 679,000 ha of NIS, 486,000 ha of CIS and 174,000 ha of private irrigation systems (see Table 2.7).
5) Future development of irrigated area is as presented in the indicative irrigation development program of the new Corporate Plan for 2001-2010 (see Table 2.6). It is assumed that 80% of this area will be generated from the existing rainfed area.
6) The cropping intensity is 139% on NIS service area, 92% on CIS and 109% on private irrigation systems (see Table 2.7). The cropping intensities are assumed to increase by 2.5% annually.
7) Per capita consumption of rice is estimated at about 90.2 kg/capita in 1998. Further increase of rice consumption is estimated at 0.63% equivalent to annual growth rate of per capita consumption of rice from 1989 to 1998.

8) Portion of rice production used for seeds, feeds and wastes is 9.5% of the total products.
9) The rice milling recovery rate is 66%.

According to the above projection, the country's rice deficit in the future will continually decrease until 423,000 tons in 2010 even if irrigation development is carried out in accordance with the Corporate Plan. While the population growth in the country has a tendency to decrease, rice deficit will continue in the future unless either paddy yield and/or irrigation development is substantially increased or population growth rate is decreased.

2.6 Expected NIA Mission

2.6.1 Environment Surrounding NIA

The Philippine economy is still dominated by agriculture. Agriculture shares about 19% of the GDP and employs majority of the country's labor force. Over the past several years, agriculture growth rate was slow due to several factors, one of which is the unavailability of water for the crops at the right time. Rice, the most important agricultural crop has an average productivity of 2.92 tons/ha, a far cry from the productivity attained by many Asian Countries.

With the Philippine's accession to the GATT/ WTO, the Philippine agriculture is threatened by cheap products from other countries. Although, rice remains to be highly protected, the importation of which being authorized only by the President of the Philippines, production efficiency in other countries will increasingly threaten local rice production especially after 2004 when tariff will have been removed by the government's commitment. The present situation, where local producers are characteristically subsistence farmers, will worsen without due government intervention.

(1) Implication of the AFMA

In the light of the prevailing situation of the Philippine agriculture, the AFMA was enacted by Congress to modernize agriculture and fisheries. The AFMA is as much directives as prescriptions for agricultural modernization. It is also an enabling law through increase of fund allocation for agriculture and fisheries. The annual budget for the first five years of implementation of the law is set to increase by more than 100%. Of its total annual budget, the AFMA allocated 30% to irrigation.

For purposes of making irrigation more efficient, the AFMA set new policy directions for irrigation development with far reaching implications on the functions and activities of the NIA. These are:

1) Devolution of communals to the LGUs. Supporting and reiterating the devolution of communal irrigation development to the local government units (LGU) under the 1991 LGC.
2) Private sector participation in irrigation development. Promotion of private sector's participation in irrigation development through minor irrigation schemes.
3) Irrigation management transfer. Transfer of irrigation systems management to the organization of farmers/irrigators.

These mean that the new policies set new missions for NIA to accomplish consistently requiring re-direction of the NIA's functions. Under AFMA, the entry of new players is viewed as new approach or strategy to accelerate irrigation development and improve the current state of irrigation service delivery.

(2) Implication of Food Security

Food security policy under the AFMA is defined as making food available for every Filipino through all possible sources. This means that food supply may not be totally produced within the country. Therefore, a portion of the requirement may be made available through importation. In contrast, food self-sufficiency policy advocates local production of all food requirement in the country. Despite the government's food security policy broadening food sources to include importation, certain levels of sufficiency in basic staple, particularly rice and white corn, will have to be pursued (Section 2, AFMA). This lays the strong basis for the continued efforts to develop potential areas for irrigation. As shown in Table 2.8 local production of rice for the year 2000 could only supply 5.9 million MT or 85% of the country's requirement. Of the total area devoted to rice production, about 1.79 million ha are still rainfed or dependent on rain for planting while 1.34 million ha are under irrigation service with a very low average cropping intensity of 118% (NIS-139%, CIS-92% and Private Systems-109%). At a 2.3% population growth rate over the next 10 years, the present irrigation development status would leave rice sufficiency at a very decreased level and insecure food availability requiring much bigger amount of importation. To prevent this situation, irrigation service areas will have to be expanded and efficiencies of existing irrigation service areas will have to be improved. Considering a realizable target in irrigation development (new area generation and rehabilitation), the JICA Study Team prepared the rice demand and supply projection starting from base year 2000 to 2010. The results are shown in Table 2.8. As shown, production may increase to a much bigger volume amounting to 8.55 million MT – a comfortable level of local production since this covers about 95% of the total requirement of the population by 2010.

The development of national irrigation systems (NIS) will have to be pursued vigorously over the next ten years. Simultaneously, the government should also promote irrigation development through the private sector led minor irrigation schemes to augment the government's investments.

(3) Status of the NIA as GOCC

The new directions in irrigation development do not diminish justifications for NIA's existence as a GOCC. In fact, its GOCC status is even affirmed, although NIA should be re-oriented from project constructor into service provider. Maintaining the NIA as a GOCC is logical and consistent with the nature of irrigation service under the country's policy that irrigation is not a public good.

The remaining issue on maintaining the GOCC status of the NIA is its ability to finance operation through its own internally generated earnings. Financial viability has a far-reaching implication on efficiency of the agency's conduct of its business. The present performance on collection of ISF is reflection of the quality of service delivered.

Irrigation development through construction of large irrigation systems is a means of rapid expansion of irrigation service areas. The high cost of development, however have been aggravated by huge cost and time overruns of projects implemented in the past. The eminent

competition of other modes of irrigation will put pressure on the NIA to innovate on existing procedures of implementing irrigation projects.

2.6.2 NIA's Mission

In view of the recent policy directions, the NIA should continue to be the major agency for the development and management of water resources for irrigation to support a sustainable agricultural development program of the government. In addition, the NIA should support the endeavors of the LGUs and the private sector as contributors to the total irrigation development in the country. Accordingly, the NIA mission may be stated as:

"Orchestrate the country-wide irrigation development in support of a modernized agriculture through development and management of major water resources for irrigation, and integration and provision of necessary support to the local government units' irrigation development programs, farmers organizations' participation and private sector initiatives."

This mission should be carried out with the following objectives:

(1) To efficiently plan and implement irrigation projects both new and rehabilitation with realizable targets

Irrigation development remains vital to achieving growth in agriculture and more importantly achieving a desirable level of sufficiency in rice. Based on rice supply and demand projections for the next 10 years, about 1.8 million ha of rice planted areas in irrigated condition have to be realized by year 2010. This projected annual increase in irrigation command area will come from:

1) restoration of areas under existing irrigation systems through rehabilitation,
2) private sector-led development of areas through minor irrigation schemes such as the shallow tube wells (STW), hand tube wells (HTW), low lift pumps (LLP) and small inundation (reservoir) schemes, and
3) new construction of NIS-gravity type irrigation systems.

While the DA orchestrates the whole agriculture development efforts, the NIA takes the major role in irrigation development with the responsibility of realizing the largest portion of the total annual irrigation development projection. NIA plans to develop an additional irrigated area of 56,000 ha annually under national irrigation projects (NIPs).

Over the past several years, the national government financed irrigation development program roughly at PHP 6 billion annually. The AFMA provided a total allocation for agriculture and fisheries of PHP 20 billion for the first year of implementation and PHP 17 billion over the next six years (on top of the usual annual budget). Since it further provides that 30% of the total AFMA allocation goes to irrigation development, the next several years should expect about PHP 12 billion for irrigation development. On the other hand, the NIA Indicative Irrigation Development Program from 2001 to 2010 targets to generate a total of 477,000 hectares and rehabilitate 814,000 hectares, all together requiring a total funding of PHP 190 billion or PHP 19.0 billion annually.

(2) To Conduct Sustainable O&M

The main objective of irrigation is to increase crop production with modern farming technologies through comprehensive control of diversion, conveyance, regulation, measurement, distribution and application of appropriate amount of irrigation water at the proper time. In order to achieve this objective, sustainable O&M of NIS is essential and crucial. Furthermore, appropriate and adequate O&M will reduce the necessity and frequency of rehabilitation of irrigation facilities and mitigate NIA's budget constraints.

The service area in NIS is projected to increase from 679,000 ha in 2000 to 930,000 ha by 2010. All of these areas are subject to IMT. The implementation of IMT is expected to alleviate the NIA's financial burden on O&M with only headworks and main canals under its O&M functions. The O&M of NIS under the NIA have to be sustained and strengthened through improvement in the quality of service, periodic maintenance and repair, restoration of areas damaged by calamities, introduction of measures to reduce negative environmental impacts, ensure safety of dams, developing a dynamic and viable NIA-IA partnership in systems management.

In addition, NIA must intensify generation of income from existing and other sources to attain financial viability through efficient and self-sustaining management of NIS.

(3) To promote and implement IMT

Over the next 10 years, the NIA should vigorously undertake transfer of the management of portions of NIS to the IAs or equivalent associations that may be developed in the future. It should accomplish full turn over of the management of the systems as a means of improving delivery of irrigation services. Along this objective, the NIA should promote the program to the irrigation users communicating to them the advantages of IMT. IAs should be organized or strengthened in preparation for the take over of management. After the turn over, the NIA should monitor the performance of the IAs and provide necessary technical support and augmentation as may be required.

Three years after the AFMA was enacted, only about 60,000 ha in NIS have been transferred to the IA through the on-going foreign-assisted projects: WRDP, IOSP II and ISIP II. Thus, NIA is required to intensify efforts to accelerate and complete the IMT.

(4) To Support the LGU in the Development of CIP and Maintenance of CIS

The AFMA set the deadline for the devolution of planning, design and management of CIS to the LGUs. After which, the NIA is also required to continue the provision of technical assistance to the LGUs even after devolution process is completed.

As the agency with technical authority over irrigation development, the NIA may re-direct its functions on CIS development towards supervision and provision of technical assistance to LGU and IA. In this regard, NIA should transform from a single-client to multi-client agency. In addition to the national government, the NIA will have other clients by offering its services to the LGU and IA. Moreover, notwithstanding the Local Government Code, the NIA's hand would still be visible in the development of communal irrigation scale through implementation of foreign-assisted projects.

Considering the limited capability of LGUs to implement CIPs and insufficient funds, NIA must take leadership in drafting capability building programs for LGUs as well as render technical assistance particularly in planning, programming and implementation.

Schemes of NIA-LGU partnership in communal irrigation development should be promoted. This scheme could address fund constraint through sharing of resources and transfer of expertise. The example of the Balikatan-Sagip Patubig Program (BSPP), a tripartite collaboration among DA/NIA-LGU-IA is a recommendable model. Present status of BSPP is summarized in Table 2.9. With the LGU taking the leadership and primary responsibility, the program could be a means for the NIA and LGU interface in communal irrigation development.

CHAPTER 3 REVIEW OF NIA'S ORGANIZATION AND OPERATION & MANAGEMENT

3.1 Overall Organization and Function of NIA

3.1.1 Present Set-up

(1) Governing Body

The NIA Board of Directors (BOD) is the highest policy-making body of the Corporation. It is composed of the heads of offices of the cabinet departments as chairman and members.

The operation of the NIA is governed by the Board of Directors composed of the following:

- Secretary of the Department of Agriculture (DA) : Chairman
- Administrator of the NIA : Vice Chairman
- Secretary of the NEDA : Member
- Secretary of the DPWH : Member
- President of the National Power Corp. (NPC) : Member
- Representative of the Private Sector : Member

Additional member of the Board is being worked out to include the President of the National Confederation of Irrigators' Associations (NCIA).

The powers and duties of the Board are as follows:

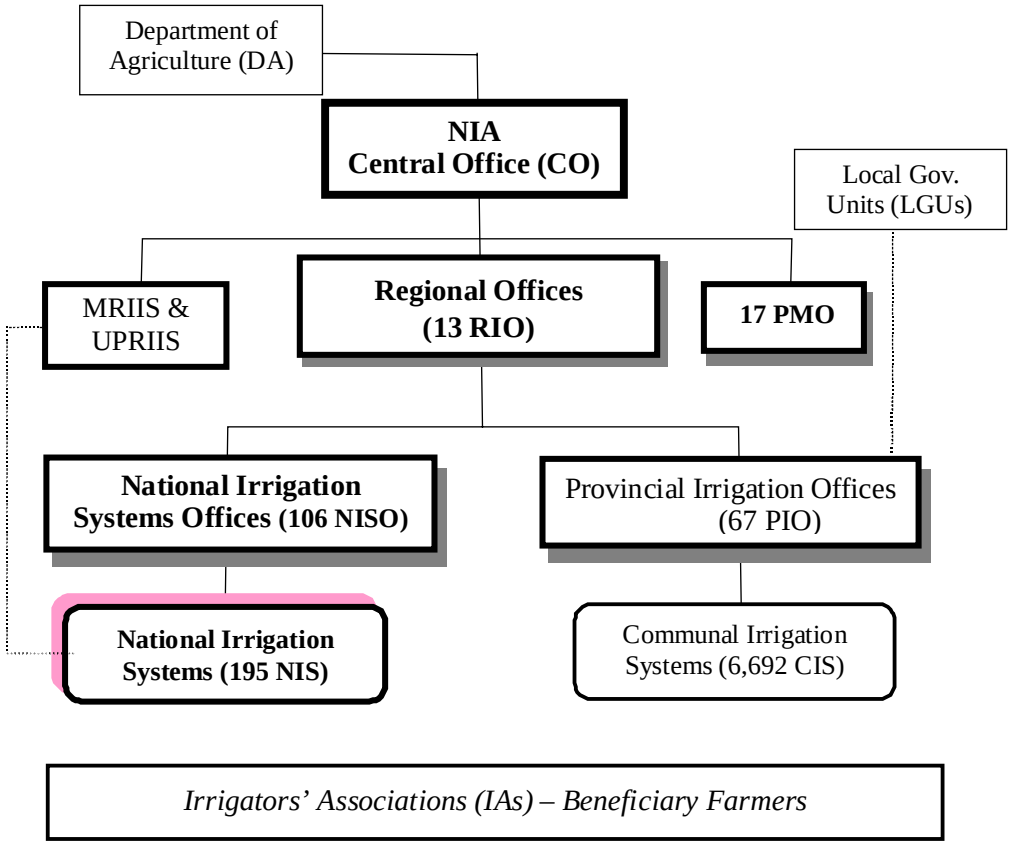
1) To prescribe, amend and repeal, with the approval of the President of the Philippines, rules, and regulations governing the manner in which the general business of NIA may be conducted;

2) With the approval of the President, to appoint and fix the compensation of the Administrator, Assistant Administrator, from a list of names submitted by the Administrator, a secretary and treasurer, and by a majority vote of all members, to suspend and/or remove the said officials for cause, with the approval of the President; and

3) To approve, subject to the final action of the President, the annual and/or supplemental budgets of NIA which may be submitted to the Board of Directors from time to time.

(2) Structure for Irrigation Development

The operation of NIA is carried out through the line of Central – Regional - Provincial and System-level offices throughout the country. Currently, NIA has 13 Regional Irrigation Offices (RIO), 106 National Irrigation System Offices (NISO), 2 Integrated Irrigation System Offices (MRIIS & UPRIIS), and 67 Provincial Irrigation Offices (PIO) for its field operations, as illustrated in the following figure.



Notes: For more detailed organization, refer to the figure at the front page o this Report.
* Each of four District Offices in MRIIS and UPRIIS is counted as one NISO.
Source: JICA Study Team

Organization for the Irrigation Development

1) Central Office (CO)

The NIA is a highly centralized organization. The CO is the seat of the Corporation's top management that provides the general direction through operational policy and plan formulation. It oversees the RIO, PMO, PIO and NISO operation. Powers and authorities are almost a monopoly of the CO as evidenced by Memorandum Circular (MC) No.15 Series 1998- Delegation of Authorities. These are manifested in the magnitude of signing authorities delegated to the RIO and FO whether technical, financial or administrative matters. Financially, the RIO and FO are largely dependent on the CO's decisions. Although a few steps have been started to give these offices financial autonomy, funds generated by these offices are generally remitted to the CO, which in turn allocates funds for operational requirements. Likewise, the CO decides largely on administrative matters. Despite efforts to decentralize, the bulk of irrigation development activities are concentrated in the CO.

Specifically, the functions of the Central Office are:

a. Setting the direction of the corporation,
b. Provide an operational framework,

c. Perform top level management decision-making functions,
d. Provide supervision to all regional offices,
e. Monitor and evaluate the Implementation of Irrigation development projects and management of Irrigation systems, and
f. Undertake project development functions.

As indicated in Figure 3.1, the Central Office (CO) contains the office of the Administrator, the office of the Deputy Administrator and the four (4) offices of the Assistant Administrators who manage the corresponding key sectors in the discharge of irrigation development functions. These are: the Assistant Administrator for Project Development and Implementation (PDI), Assistant Administrator for Systems Operation and Equipment Management (SOEM), Assistant Administrator for Finance and Management and Assistant Administrator for Administrative Services.

Under the Office of the Assistant Administrator for PDI, there are three Departments: Project Development Department (PDD), Design and Specifications Department (DSD) and Construction Management Department (CMD). The function of the PDI is primarily development of irrigation facilities. This includes feasibility studies, design of irrigation systems and construction which are undertaken, managed or monitored by each of the Department. Project planning and programming are generally undertaken by the CO, while project development is minimally shared with the RIO and FO. A pool of engineers, economists and other specialists are maintained at the CO to undertake feasibility studies and detailed designs of large-scale irrigation projects.

The Office of the Assistant Administrator for SOEM provides the overall supervision, management and rehabilitation of national irrigation systems (NIS), development of communal Irrigation systems (CIS), development and sustenance for the Irrigators' Associations (IA). It consists of the following Departments: Systems Management Department (SMD), Equipment Management Department (EMD) and Institutional Development Department (IDD).

The Office of the Assistant Administrator for F&M manages the NIA's general office works related to its organization, finances, cash flow, income generation and utilization of funds and others. It has three Departments under it, namely: Treasury Department (TD), Controllership Department (CD) and Management Services Department (MSD). The Office of the Assistant Administrator for Administrative Services manages the human resources development, legal services requirement and acquisition of physical resources needed by the NIA. It consists of three Departments, namely: Personnel and Records Management Department (PRMD), Procurement and Physical Resources Department (PPRD) and Legal Department (LD).

2) Regional Irrigation Offices (RIO) and Large Integrated Systems

Under the Central Office (CO), NIA has 13 Regional Irrigation Offices (RIO) at the regional level, and two large-scale Irrigation System Offices (MRIIS and UPRIIS) which are placed in the same level as the RIO. The RIO of the NIA is headed by a Regional Irrigation Manager (RIM). Like the regional offices of national government line Departments and Agencies, the RIO was established to bring irrigation development closer to the farmers the NIA serves. The RIO is intended to make irrigation development more responsive to the needs of the agriculture sector. Internally, it functions to loosen management concentration at the Central Office (CO) through dispersion of supervision

on location basis. Thus, the RIO directly supervises the NISO and PIO. Each RIO maintains six (6) divisions, namely Engineering Division, Operations Division, Institutional Development Division, Equipment Management Division, Finance and Management Division and Administrative Division.

The UPRIIS and MRIIS are exceptionally large irrigation systems that the magnitude of its responsibility is huge enough to be placed under the direct supervision of the CO. These systems are headed by Operations Manager (OM). Each of these two systems is equivalent to one RIO in terms of area of operation and number of personnel. However, its function is basically irrigation system operation and management. Aside from their sizes, the two integrated systems have power generation component, which makes the systems distinct from the rest of the NIS and all these merit their regional level status.

An RIO generally supervises and supports the operation of PIO and NISO. In addition, it undertakes feasibility study and detailed design of communal irrigation projects and minor repairs of NIS facilities. It maintains a pool of equipment inherited from completed national projects, primarily for the maintenance of NIS, although the RIO also generate income from rent of these equipment to project management offices.

3) National Irrigation System Offices (NISO) and Provincial Irrigation Offices (PIO)

The NISO is a management office for the operations of National Irrigation System (NIS) headed by an Irrigation Superintendent (IS). The NISO is a front line service office of the NIA in providing irrigation services to the farmers through the NIS. It also keeps the business of NIA by ensuring that irrigation service provided is paid. Thus, the NISO operates on the twin goals of delivering irrigation service and collecting irrigation service fees (ISF). At the LGU/community level, the NISO coordinates with the LGUs, national government agencies and NGOs to promote efficiency and increase in food production. There are 98* National Irrigation System Offices (NISO), each responsible for one or a cluster of National Irrigation Systems (NIS) and headed by an Irrigation Superintendent.

In the future, the NISO is also expected to be a lean organization in proportion to NIA's adoption of the shared management schemes with the IAs (or IMT implementation). There are varying levels of implementation. Type I is contracting of IA services for the maintenance of irrigation canals. Type II is maintenance of canal and collection of ISF. Type III is turn over of the whole or part of the NIS. At this point, each NISO has implemented either Type I or Type II. These schemes will reduce manpower of the NISO.

The PIO is a front line office for communal irrigation development via identification of projects, construction of communal irrigation systems (CIS) and institutionalization of beneficiaries. The PIO is a field level unit of organization in the NIA and is therefore, closest to the felt need for irrigation.

The major functions of PIO are: (a) development of irrigators' associations so as to enable them to manage the system after its completion as owner/ operator, (b) construction of the facilities of the communal irrigation system (CIS), (c) Provision of assistance during the operation of the CIS and (d) collection of the amortization payment for the construction of the CIS. The 67 Provincial Irrigation Offices (PIO) are, each headed by a Provincial Irrigation Engineer.

Although the Local Government Code (LGC) of 1991 provided for the devolution of the communal irrigation systems (CIS) to LGUs concerned, most of them do not have the financial capability nor technical expertise to promote/ implement the irrigation projects. Thus, communal irrigation project identification in coordination with the local people, LGUs and relevant government and non-government entities still remains as one of the primary functions of the PIO. With the enactment of the Local Government Code in 1991, the functions of PIOs to develop and construct the locally-funded communal irrigation projects were devolved to the LGUs concerned. Since then, the PIOs do not implement anymore locally-funded CIPs as the DBM stopped releasing the CIP budget to the NIA, but executing the foreign-funded CIPs.

4) Project Management Offices (PMO)

For efficient implementation of the work, construction of large irrigation projects is entrusted to separate Project Management Offices (PMO), each headed by a Project Manager (PM). It has its own personnel recruitment system, physical resources procurement, and takes care of its daily operations and other functions related to the implementation of the project. The PM reports directly to the Administrator through the Assistant Administrator (AA) for PDI. Presently, there are 17 PMOs nationwide.

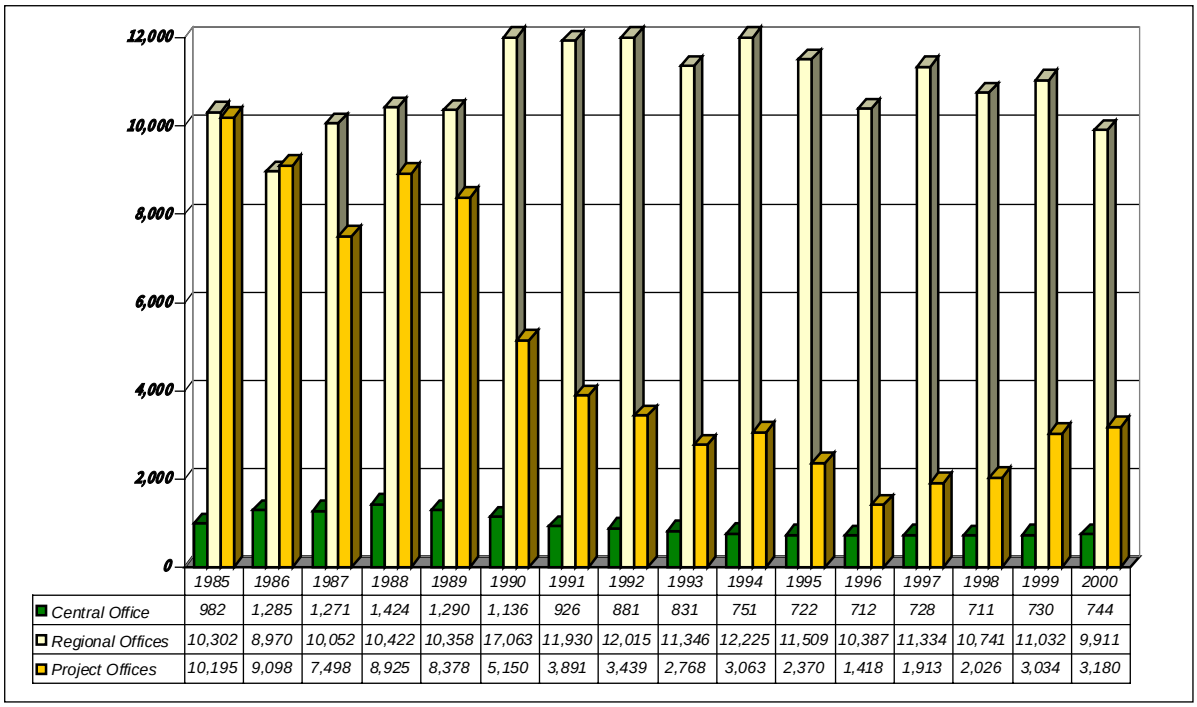
For more detailed function data of both CO and FOs, refer to Reference Data VII-3 (Personnel Data) in Appendix.

(3) NIA's Staffing

1) Distribution by Responsibility Center

The total number of NIA manpower reports to either the NIA regular offices (CO, RIOs, PIOs and NISOs) or PMOs. As shown in the figure below, the size of manpower over the last 15 years (1985 – 2000) dwindled as the number of implemented projects decreased. On the other hand, the NIA regular offices generally maintained the size of its personnel complement. Slight fluctuations during the last 15 years were due to movements in numbers of the project-charged personnel.

The personnel complement by responsibility center from 1985 to 2000 is as shown in the following figure.



	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Central Office	982	1,285	1,271	1,424	1,290	1,136	926	881	831	751	722	712	728	711	730	744
Regional Offices	10,302	8,970	10,052	10,422	10,358	17,063	11,930	12,015	11,346	12,225	11,509	10,387	11,334	10,741	11,032	9,911
Project Offices	10,195	9,098	7,498	8,925	8,378	5,150	3,891	3,439	2,768	3,063	2,370	1,418	1,913	2,026	3,034	3,180

Note： RIO includes staffs of RIO, MRIIS&UPRIIS, NISO and PIO.

Source: Data from the Personnel Division, NIA.

Personnel Complement of NIA by Responsibility Center, 1985-2000

Permanent and temporary (monthly and daily) personnel charged to COB are the actual personnel performing the functions of NIA. These personnel constitute the number of NIA regular personnel.

The bulk of NIA manpower is concentrated in the operation of irrigation systems. The NISOs and the two integrated systems occupy a little less than 60% of the total personnel complement of N IA. This means that the biggest opportunity for the NIA's reduction in size would come from the success of IMT implementation. The 13 regional offices of the NIA constitute about 16% of the total complement and each office has an average number of personnel of 75. The 67 PIOs share about 15% of the total NIA manpower and each office has about 14 personnel. Since the PIOs are primarily project implementation offices, a lot of its personnel are charged to project funds.

2) Distribution by Category of Employment

Personnel distribution of NIA by category of employment is presented in Table 3.1. Details of the five different types of employment is described as follows:

1.	***Regular monthly employees***	Permanent government employees
	- They are paid a monthly salary, receive various benefits and entitlements such as vacation, sick leave, employer assisted contributions to group health insurance, and government service insurance system (GSIS) life and retirement plans. They may not be removed from office without due process.	
2.	***Temporary monthly employees***	Appointed for specific periods of service*
	- They are paid a monthly salary & allowances, but are not entitled to the various benefits and entitlements other than vacation and sick leave.	
3.	***Daily employees***	Usually given appointments for 3 months at a time
	- They have no tenure of service and may be terminated with 1 month's notice. They receive vacation and sick leave but have no retirement benefits*	
4.	***Co-terminus project employees***	Hired for specific NIA-established positions to meet NIA project needs*
	- They have no tenure of service, and receive no benefits.	
5.	***Contractual employees***	Contracted for specific of time – usually from 6 months to 1 year at a time*
	- They have no tenure of service, and receive no benefits. Some individuals have continued working with NIA as contractual employees for many years	

Notes: * Some employees continue to work for several years.
Definition: Regular = refers to position appearing in the approved plantilla of positions in the NIA Proper: Permanent = refers to employees appointed to regular monthly positions.

The total personnel complement of the NIA as of December 31, 2000 is 12,975, of which about 75.5% (9,798 staffs) are assigned in the NIA proper and about 25% (3,177 employees) are working in the 17 PMOs, as shown below.

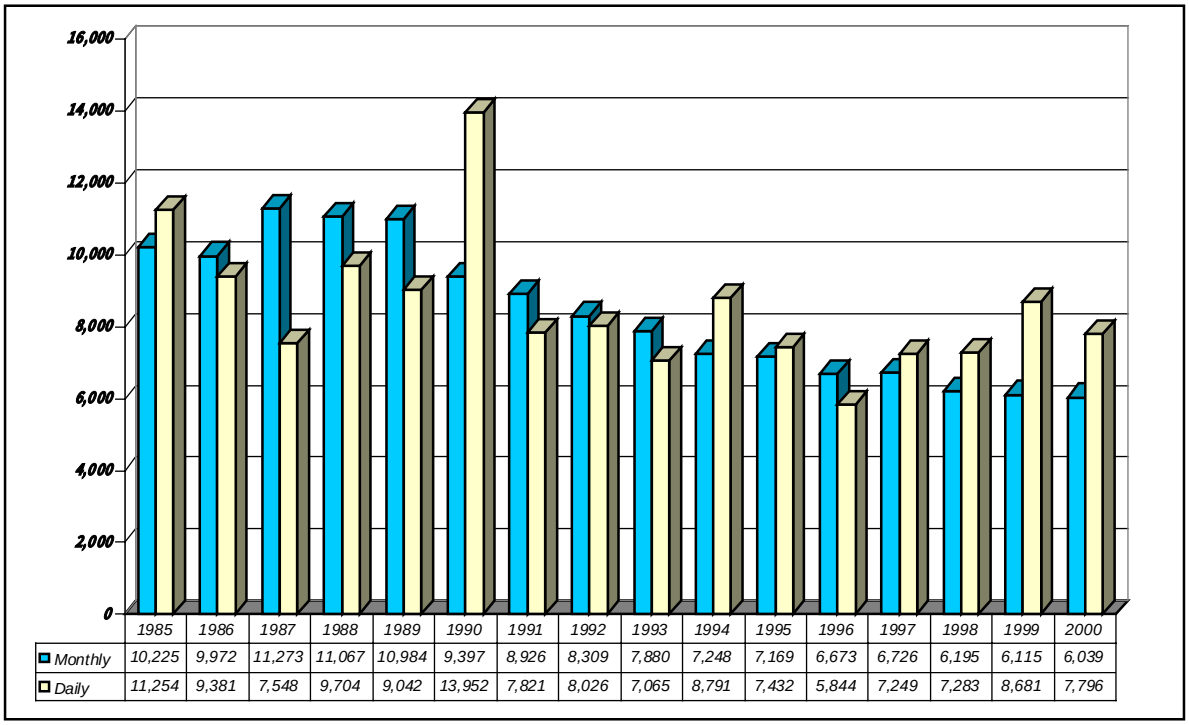
NIA's Total Personnel Complement （As of December 31, 2000）

Responsibility Center	Monthly	Daily***	Total
· NIA Proper (Regular) *	5,278	4,520	9,798
· Projects (Co-terminus) **	726	2,451	3,177
Grand Total	6,004	6,971	12,975

Notes: * Based on Central, Regional, Provincial & Systems Offices; mostly engaged on O&M activities
** Engaged on Project Implementation
*** NIA proper-daily employees consist of COB-charged (779) and project-based (3,741) ones.
Source: Personnel Division, NIA Central Office (as of December 2000).

The NIA proper consists of 5,278 monthly (salaried) and 4,520 daily (daily-waged) personnel. On the other hand, the number of daily-based project staff totals to 2,451 accounting for 77.1% of its total, while that of monthly-based staff is 726 or 22.9%. Among the above total personnel complement (12,975), 6,057 employees who enter the categories of NIA "monthly proper" and "daily COB-charged" are the objective personnel for reorganization (for details, refer to Table 3.1).

The current trend in NIA is to hire temporary/ casual employees on a daily basis for a number of tasks instead of recruiting based on plantilla positions. Presently, about 63% of the total NIA manpower is in this temporary/ casual/ emergency category, but most of them are placed at the positions to do regular work activities. Historical trend of NIA personnel from 1985 to 2000 is presented in Table 3.2 and summarized in the following figure.

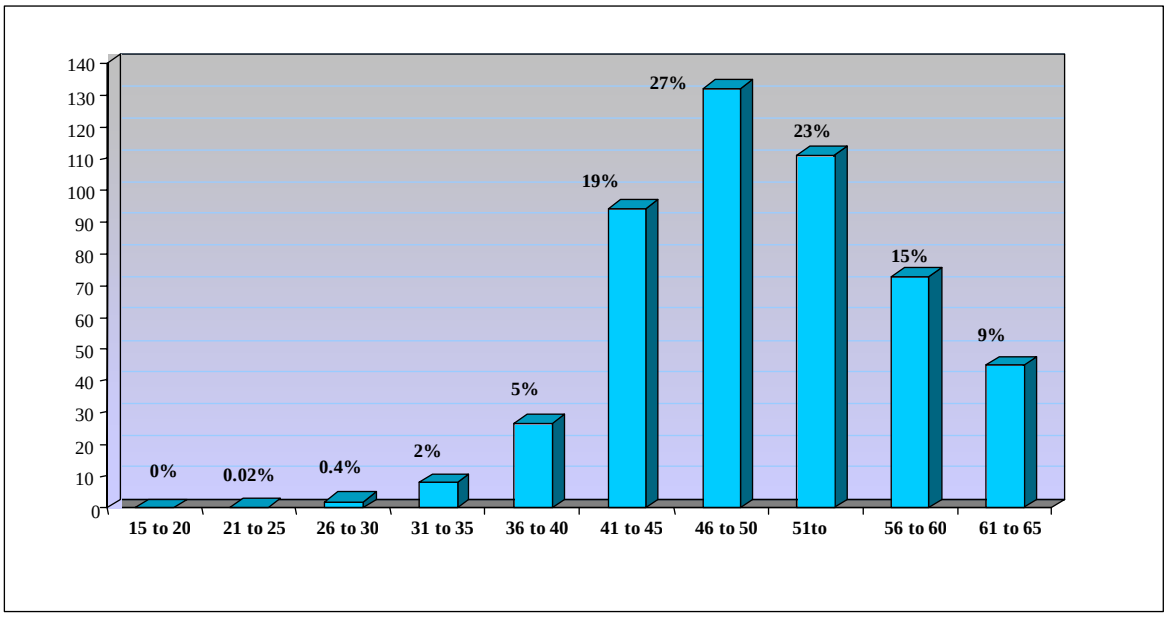


	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Monthly	10,225	9,972	11,273	11,067	10,984	9,397	8,926	8,309	7,880	7,248	7,169	6,673	6,726	6,195	6,115	6,039
Daily	11,254	9,381	7,548	9,704	9,042	13,952	7,821	8,026	7,065	8,791	7,432	5,844	7,249	7,283	8,681	7,796

Source: Personnel Division, NIA

Personnel Complement of NIA, 1985-2000

The total number of personnel decreased from 23,349 in 1990 to 14,796 in 2000, and the number of monthly-paid personnel also decreased by 35% from 9,397 in 1990 to 6,115 in 2000. The following figure indicates the age structure of NIA's permanent personnel.



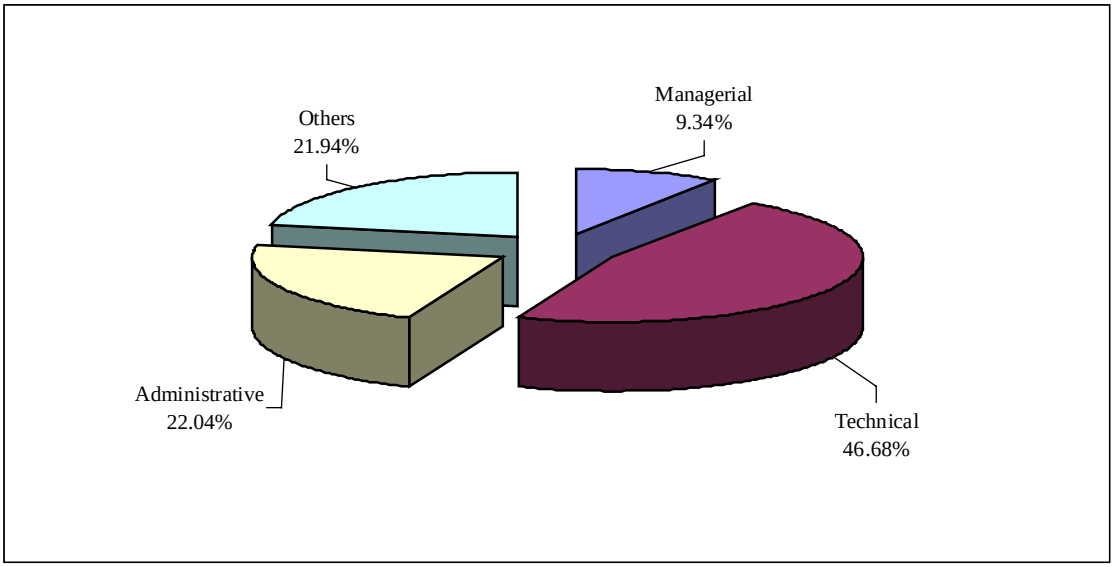
Note: Data as of June 2000

Source: Personnel Division

NIA Employees Age Structure

The average age of NIA personnel is 50.2 years old and such age staffing pattern is mainly due to continued resignation of a number of young employees and hiring freeze for new employment in the last decade. The aging of the personnel is one of the critical issues in strengthening the NIA's management system, and this might be closely associated with motivation and declining technical capacity level of NIA.

Besides, the current staffing pattern of the NIA permanent personnel indicates that technical staff accounts for 46.7 %, while the administrative staff occupies 22.0%, as shown in the following figure.



Note: Others include laboring and trades & crafts.
Source: Data from Personnel Division, NIA.

Distribution of Filled-up Positions by Occupational Group (As of June 30, 2000)

(4) Status of NIA Personnel

1) Working Conditions and Benefits

The Philippine Congress enacted a wage Standardization Plan in 1989 to rectify salary disparities within the government service. The Standardization Plan took effect in July 1989 and was implemented retroactively for NIA in March 1990. Similar to any government corporation, the plantilla for regular and project employees are approved by the DBM. All personnel matters are governed by the rules and regulations of the Civil Service Commission (CSC). These employees are categorized in a standard Philippine Civil Service structure of 30 different pay grade levels, established for government organizations whose primary function is in Infrastructure and Utilities development and service, as presented in Table 3.3.

Officials and employees are eligible for promotion to upgrade one "salary step" higher in the wake of three years service in a position. There are eight salary steps defined in the grade allocation of the employee's position. There are 251 positions of title in NIA ranging from the top of Administrator with salary grade 30 down to Utility Worker B with salary grade one.

The benefits enjoyed by NIA regular employees include the salaries, medical allowances, children allowances, 13th month pay & financial assistance, medicare, state insurance, pag-ibig, GSIS (government services insurance system), other personal services (personal economic relief allowance, additional compensation allowance, loyalty award, terminal leave, overtime and staple food allowance), amelioration assistance, uniform allowance, anniversary bonus and RATA (representation and transportation allowance).

2) Retirement System

For NIA's regular monthly employees, there are three (3) kinds of retirement options as follows:

a. Compulsory Retirement

The law of Retirement Pay stipulates that the day of compulsory retirement from public services is set at the 65th birthday. Under this law, lay-off of regular employees must be compensated. The retirement payment for compulsory retirees is composed of retirement gratuity and terminal leave.

Natural attrition is one of the measures to accomplish restructuring rather painlessly, but this is a lengthy process. To accelerate NIA's restructuring, early retirement may be an option. The present Government retirement incentive is (a) 1 month salary for each year of service, up to 20 years; (b) 1.5 months salary between 21 and 30 years; and (c) 2 months salary/year for over 30 years service.

Table 3.4 shows the compulsory retirement schedule of NIA permanent personnel during the period from 2000 to 2010. Following this scheme, 1,154 employees or 21% of the actual personnel complement will necessarily quit their jobs during this period and the number of regular personnel will decrease to 4,297 in 2010.

b. Optional Retirement

In addition to the above compulsory retirement, an employee of the government who rendered at least 20 years in service is given a choice by law to continue working or to retire from service. This is called "optional retirement" and provided by RA No.1616. Under the law, a retirement package is given to retiring employees consisting of a lump sum cash payment equivalent to one month salary for every year of service, payment of accumulated earned leaves, payment of GSIS government and personal shares, among others.

c. Early Retirement

An early retirement program is a kind of optional retirement program, but this is a strategy adopted by a government agency particularly to reorganize or

streamline its organization. It is usually implemented in a short period and within the time frame of the reorganization process. A retirement program specifies provisions on package of retirement benefits and positions or incumbents affected. However, in usual cases, retirement is an option given to all employees as existing staffing is changed. In early retirement programs, incentive package are usually more attractive than optional retirement to encourage employees to avail.

Presently, the funds to support even compulsory retirement are not sufficient. Besides, it is reported that the inducement needs to be 1.5 times greater than the present Government incentive for early retirement incentives and this might have much impact on early retirement decisions.

Since the NIA is not capable to finance its early retirement plan from its internally generated funds, funds necessarily would come from other sources. Two possible sources are identified at this point; the national government budget and external borrowing. Considering the lasting budget deficits of the government in the last many years, external borrowing may offer a brighter hope for financing to the NIA retirement plan under a program loan package similar to those availed by Sri-Lanka and India from the World Bank (WB) and by Nepal and Pakistan from the ADB. There exist a lot of good reasons to convince the WB or ADB to finance the plan, one of which, is salvaging irrigation development from an unreasonably increasing cost mainly attributed to the maintenance of a huge irrigation bureaucracy.

3.1.2 Review of NIA's Streamlining Plan

(1) Legal Basis and Proposed Organization

There are three issuances that directed the restructuring of the NIA: (a) Executive Order (EO) No.162, (b) EO No.165 and (c) Memorandum Order (MO) No.27. Data on legislations related to NIA management and ISF are summarized in Reference Data VII-4 of Appendix.

As a corporation with specific Charter, the NIA was given authority to review its own organization and prepare a restructuring plan. The NIA Streamlining Plan was prepared by the Streamlining Committee composed of representatives from 12 departments under the four sectors.

Lack of specific objective in the Streamlining Plan is reflected in the configuration of the organization. The Plan maintained the identical structure with almost the same number of departments, divisions, larger number of regional offices (from 13 to 14) and smaller number of field offices (from 165 to 137). The proposed organization chart is presented in Figure 3.2.

At the central and regional offices level, there is no substantial change in the organizational structure, as shown in the table below.

Comparison of Existing and Streamlining Plan

Organizational Units	Number of Units	
	Existing	Proposed Streamlining
1) Central Office (CO)		
- Sectors	4	3
- Departments	12	12
- Divisions	33	33
2) Regional Irrigation Offices (RIO)	13	14
3) National Irrigation System Offices (NISO)	98	88
3) Provincial Irrigation Office (PIO)	67	0
4) Irrigation Management Office (IMO)	0	49
Total	227	199

Note: As of December 2000
Source: MSD

As shown above, the number of existing NISO and PIO are 98 and 67, respectively or a total of 165 field offices. In contrast, the Streamlining Plan proposed 49 IMOs and 88 NISOs or a total of 137 field offices. Therefore, the Plan offers a 17% smaller field office structure.

(2) Manpower Complement under the Streamlining Plan

The following table shows comparison of the existing personnel complement (monthly + daily) of NIA and that proposed under the Streamlining Plan.

Comparison of Existing Regular Personnel Complement and Streamlining Proposal

Responsibility Center	Existing Regular				Streamlining Plan Proposal	Increase/ Decrease (%)
	Permanent	Temporary		Total		
		Monthly	Daily			
- CO	624	0	33	657	679	3.3
- RIO	919	5	9	933	744	-20.3
- NISO	2,834	0	652	3,486	3,587	-2.9
- PIO/IMO	882	0	43	925	693	-25.1
Total	5,259	5	737	6,001	5,703	-5.0

Notes: Existing Regular Personnel Data as of December 2000
For more details, refer to Table 3.5.
Source: Streamlining Plan Revised January 2000.

As shown in the above table, the total number of personnel proposed in the Streamlining Plan is expected to reduce the existing regular personnel complement by 5.0%. This reduction in manpower bears no significance in the quest for improving the financial position of NIA through cost cutting measures.

The NIA's streamlining proposal is, in principle, based on projected number of retirees and their "natural" attrition. To answer the real purpose of the Streamlining Plan, it is a must that the downsizing should be done using every possible measures or their combination of "natural attrition" by compulsory, optional retirement, transfer and/or resignation.

3.1.3 Review of Organization and Function

The following is the present functional delineation among CO, RIO and FO:

Organization Level	Functions
• Central Office (CO)	- Policy
	- Planning
	- Programming
	- Monitoring and evaluation
	- Project development
	- Implementation of special projects through Project Management Offices (PMO)
	- Supervision of projects
	- Support of operation and maintenance of irrigation systems
	- Supervision of integrated systems (MRIIS & UPRIIS)
• Regional Irrigation Office (RIO)	- Project development
	- Implementation of projects
	- Supervision of NISO and PIO
	- Supervision of project implementation
• Field Offices (FO)	
- National Irrigation System Offices (NISO)	- Operation and maintenance of national irrigation systems (NIS)
	- Implementation of rehabilitation projects
- Provincial Irrigation Offices (PIO)	- Implementation and/or construction of communal irrigation projects (CIP)

Review of the functions of Central Office (CO), Regional Irrigation Offices (RIOs) and Field Offices (FOs) clarified the following issues.

(1) Duplication of Functions

1) Central Office (CO) and Regional Irrigation Office (RIO)

Duplication of functions at the NIA is due to the structure itself and the current stagnation of decentralization. Both CO and RIO perform O&M monitoring, project development works (feasibility studies, detailed design, etc.), monitoring of NISO and PIO, etc. Besides, the present circumstances of irrigation development such as decreasing number of projects due to funding constraints, have made the CO-RIO duplication even more costly.

The current trend of decentralization is expected to bring forth positive outcomes in delivery of services, especially when the service provider is closer to the client. This has been gradually realized in the NIA with the development of capability of the RIO in planning, programming, feasibility study and detailed design, etc. At present, the RIOs undertake major roles in project development. However, CO departments continue to undertake the same activities. This resulted to duplication of functions between the PDD and DSD of CO and the Engineering Division of the RIOs.

Such duplication of functions both at the CO and RIO should be rectified to ensure the cost-effective operation of NIA, particularly considering the following new developments in the irrigated agriculture sector:

a. Reduction in the number of projects compared to the peak period in the late 1970s and early 1980s, and
b. Development of the private sector capability to undertake irrigation project

development. Engineering consulting firms are now capable of various aspects of irrigation project development.

2) CO and PMO

The Central Office is also duplicating the functions of the Project Management Offices (PMO). PMOs are provided with technical and administrative staff in order to respond to the needs of timed construction activities. Despite that, the CO undertakes a lot of technical as well as non-technical activities for the PMOs. The CO has been doing the following activities, which are better left to the PMOs:

a. Design or re-design of civil works
b. Procurement of materials and equipment for projects particularly purchases that require approval of the assistant administrator or administrator.
c. Processing of appointments of project personnel done by the Personnel Division of the CO.

Such practices at CO have unnecessarily increased its personnel requirement and resulted in neglect of sustaining functions of the CO units like monitoring and evaluation.

(2) Staff Redundancy

Redundant staffs are those that are not anymore needed in the organization as a result of organizational changes in the course of time. There are three sources of redundant staff: (a) units that duplicate functions of another, (b) units reduced due to introduction of new technology or streamlined procedures, and (c) units abolished due to loss of functions.

Considering the NIA's present circumstances, it is probable that the various organizational units (departments, regions, project offices, operations offices, divisions, PIOs, NISOs, and sections) have redundant staff. Such case as over specialization in the function's scope of each unit also maintains redundant staff. Merger of these units may also weed out unnecessary staff.

Over the years, the NIA activities have diminished due to the declining number of implemented projects. Despite that, units involved in project development and implementation have maintained its regular staff since they are holding positions with security of tenure. Departure from the Corporation, which is voluntary are few. Thus, without new recruits, the NIA retains a number of staff larger than its requirement.

The NIA is still operating on an organization structure that is appropriate more than 15 years ago. It is not very appropriate for the present environment, particularly that there is already a "new policy direction", which has substantially affected irrigation development and the operations of the NIA. Among others, the devolution of communal irrigation development to the LGU and the implementation of the IMT are supposed to substantially create redundant staff.

3.1.4 Issues

(1) Aging of Staff and Relative Shortage of Technical Manpower

The policy to freeze hiring of personnel since 1992 created an aging manpower structure of the NIA with age of personnel averaging at 50.2 years old. This could have an adverse effect on the

technical capability of NIA in terms of shortage of technically capable, young and dynamic staff. Moreover, continued resignation of technical staff led to the shrinking proportion in the total number of personnel. Currently, technical and technical support personnel account for 46.68% in contrast to administrative personnel sharing about 22.04%, and the remaining (9.34%) consists of executive, managerial and supervisory and others (21.94%). Then, NIA has a relatively unhealthy personnel distribution in its age structure and professional category, especially as a "technical service provider".

(2) Overall Review of CO - RIO - NISO/PIO Structure

The idea of the in-house review and ADB study to streamline the NIA organization aimed to address the immediate concern of Corporate financial viability. Thus, these studies recommended reduction and rational distribution of personnel, in order to attain corresponding decrease in personal services expenditure, which historically has taken the lion share of the NIA's total expenditure. This is an immediate imperative action that the NIA should take, particularly in its drive to maintain a corporate status. In this regard, it is necessary to review its overall structure in due consideration of the following:

1) Relationship of the CO and RIO/ NISO and PIO

As a first step, it is important to clarify the proper functions of CO and RIO, and NISO and PIO. Accordingly, streamlining could proceed through integration, transfer of functions and/or delegation of authority.

2) Re-directed NIA's Functions

The provisions of AFMA and the 1991 LGC directed reduction in the responsibilities of the NIA on irrigation development and O&M. However, NIA is requested to assist LGUs in their new mandates and transfer the management of NIS to IAs. This requires the NIA to restructure or reorganize the CO and its field offices: NISOs and PIOs.

(3) Redundancy and Replacement of Staff in the Central Office (CO)

Redundancy of staff earlier discussed may be addressed by delineating the functions of the CO, RIO and FO as follows:

Responsibility Centers	Core Functions
- Central Office (CO)	Policy, planning and monitoring
- Regional Irrigation Office (RIO)	Project development and implementation
- Field Office (FO)	Operation and maintenance of NISs

With the clear distinction of functions, redundant staff particularly those created by the duplication of the CO and RIO will be eliminated.

Providing the RIO and FO a substantial financial and administrative autonomy will have a sequential trimming down effect on the finance and administrative personnel complement at CO. Volume of works related to routines like processing of appointments, procurement of equipment, supplies and services and accounting transferred to the RIO and FO will bring to light that many CO employees are redundant. These employees may have to go to the RIOs/ FOs with their job or retire.

(4) The Role of the Regional Irrigation Office (RIO)

The Regional Irrigation Office (RIO) functions as "intermediary" between the CO and field offices (PIO and the NISO). The future role of the RIO may be determined in line with the decentralization of CO functions. The function of supporting and overseeing the operations of the field offices is better handled by the RIO due to proximity. In the same light, project development and implementation will have to be undertaken by RIO. This necessitates significant increase in delegated authorities from CO to the RIO.

The MRIIS and UPRIIS may be placed under the RIO. This would make the offices of Region II and III larger than the rest of the regional offices.

(5) Strengthening of NISO

The NISO needs a drastic organizational change in the future as the Irrigation Management Transfer (IMT) progresses. As the ADB study, WRDP and IOSP II projects have pointed out, the IMT would necessarily downsize the NISO. Re-distribution of personnel complement would also be appropriate. As O&M personnel like WRF Technicians, WRF Tenders and WRF Operators reduce drastically, there will be a need for new positions or unit in the NISO to carry out new functions. Importantly, Institutional Development Officers (IDO) will be needed more to strengthen the capability of IA to manage irrigation facilities.

(6) Status of PIO

Organizationally, the devolution effect on the NIA implies phase out of the PIO, since its functions have already been transferred to the LGU. However, transfer of the CISs or PIO to the LGU mainly depend on the willingness of the respective LGUs to accept. Since the circumstances remain unchanged, it seems to be not practical to expedite this transfer.

In the future, the LGU will be able to effectively take the responsibility over communal irrigation development and activities of the PIO will reduce gradually. Integration of the PIO and the NISO needs to be discussed further in this context.

(7) Policy and Legal Impediments

The most controversial issue related to financial viability of NIA is AO No.17, which was issued as an urgent "interim" measure, and effectivity of the subsequent EO No.197 which directs all government agencies and government-owned or controlled corporation to increase their fees and charges by not less than 20%. As stated in Section 4 of this EO No.197: "All executive issuances or parts thereof which are inconsistent with any of the provisions of this EO are hereby repealed or modified accordingly", NIA is in a position to proceed to improve its present fiscal position in compliance with this EO No.197.

On August 20, 2000, the DA Secretary issued the General Memorandum Order (GMO) No.1 revising the "Rules of the Delegation of Authority" which specified officials to sign and/or approve papers/documents. This Order shows administration authority retained by the Department Secretary over GOCCs. To clarify some vague provisions of GMO No.1, the Secretary issued GMO No. 2 on October 4, 2000 to clarify vague provisions of GMO No.1. Thus, GMO No. 1 and GMO No.2 have the same provisions. The NIA's level of approving authority is presented in Table 3.6.

In general, legal problems in the Philippines seem to derive from lack of clarifications on the repealing, separability and retroactivity clauses and due to delayed issuance of the detailed implementing rules and regulations (IRR). To solve the above pending legal issues, it may be necessary to have a new Executive Order or Administrative Order signed by the President to break through the current critical situations, both financial and institutional ones.

(8) Shortcomings in the NIA's Streamlining Plan

The NIA's Streamlining Plan seems to be biased toward maintenance of a status quo and includes the following major issues to be tackled:

1) In spite of the personnel redundancy (especially at the NIA Central Office), the proposal is to reduce 5,232 authorized field office positions (50%), while eliminating 342 authorized Central Office positions (33.5%). This is meaningless, since the Plan is based on the "authorized" number of personnel which includes that of "unfilled" accounting for nearly 50% of the authorized total (refer to Table 3.5).

2) The Streamlining Plan seems not to address the need for the wider objectives of AFMA to improve irrigation management efficiency through IMT, nor focus on strengthening of the field offices as front service providers.

3) The proposal does not address the need for extensive IA capacity building and post turnover technical support to IAs.

4) The idea to create the PIMO through merging the PIO and NISO within the province could entail a "risk to make an another new layer of bureaucracy" if efficient integration of both offices is not materialized. It is not suggested that the PIO officer will necessarily head the merged office, since the average number of personnel in NISO is nearly triple compared to that of PIO. The most competent officer should be selected as head of PIMO among the merged office staffs.

5) Regarding the support of NIA to the CISs/LGU (through PIOs), the NIA should continue to support them, even though the CISs and their support were legally devolved to LGUs. It will be the responsibility of NIA to assist them to resettle in a "soft-landing" way, in close cooperation with the DILG/ LGUs, DA, DBM and other agencies concerned.

6) In restructuring its system, NIA should retain its functions and personnel to implement the present mandates of "decentralization of operations" and devolve them to the RIO and NISO.

3.2 Project Development and Implementation

3.2.1 External and Internal Deficiencies in Smooth Irrigation Management

(1) Disproportionately large and unwieldy Investment portfolio

NIA holds disproportionately large size of investment portfolio in the light of belt-tightening fiscal expenditures and squeezing fund allotment by the government every year. This is largely due to continuous process of addition of new projects every year, regardless of their relative

importance or sector/regional priority. With ever declining allocations in real terms for preparation and implementation, the available resources are thinly spread over a large number of on-going schemes, thus likely extending their scheduled completion year far beyond.

Meanwhile, non- or little-availability of cash support and late releases from the Central Office to the field and project offices tremendously hampered expeditious procurement processing, while bringing about suspension of deliveries of procured construction materials, equipment, and supplies by contractors and suppliers. This inevitably makes it impossible to carry on works on schedule.

(2) Cumbersome Procurement Procedures and Bureaucratic Red-Tapes

Another issues to be addressed include, among others, (a) cumbersome procurement procedures, (b) bureaucratic Red-tapes in procurement, and (c) the private sector membership in BAC, as discussed in the following.

Some bureaucracy in and around NIA has hampered procurement on an expeditious and transparent manner. For instance, pick-up trucks with less than 1,800 cc or 2,500 cc of displacement for respective of gasoline and diesel is categorized as "luxury cars", thus made it a rule to get approval from the Department of Budget and Management (DBM) prior to the processing within NIA. Standard timeframe for procurement for goods and services through public bidding under local finance is around 25-27 weeks, whereas that in the simplified public bidding system 14 weeks.

Currently, NIA considers having the Department of Agriculture (DA) directly involved in procurement processing while inviting DA official to BAC as a member, that leads likely to institute another time-consuming, cumbersome, and bureaucratic Red tapes in the procedure. Likewise, it would further hamper autonomy of and self-reliant style of management by NIA as an independent public service undertaking. Besides, a little shadow of concern is also cast over the participation of the private sector member in the Committee. This might hamper accountability and credibility of procurement process with a number of vested interests groups directly interconnected or involved.

(3) Unprepared Human Capacity and Staffing for Modernized Irrigation Development

The policy and operational issues that NIA and PDI had to incorporate into their organizational structure and operation included beneficiaries participatory approach to project development and OM, environment protection and conservation, computer-aided-design (CAD) technology, computerized project monitoring system, and standardization of quality of building materials. PDI staff currently in place has lesser capacity to adopt and develop these new dimensions of the modernized irrigation management, with lesser and lesser opportunity of human resource development (HRD) and aggravating effect of the Attrition Law.

3.2.2 Project Management and Technical Capacity of PDI

Now that capital investment in need for NIS is around 50% higher than that for CIS, NIA is now requested to reinforce its technical and institutional efficiency at PDI. Towards this end, the points of discussions will be addressed that include (a) project performance management system within NIA, and (b) standardizing technical capacity by compiling Design Manuals and Standards.

(1) Project Management System-Lack of Project Benefit Monitoring and Evaluation (PBME)

It is observed that a number of project-management and supervision-related reports in NIA are often inconsistent, redundant, *ad hoc* or by-request basis, while loading unnecessary burdens on part of the central and field level offices. Reports on project supervision undertaken under the monitoring and evaluation function of the current Construction Management Department (CMD) are focusing only on financial and physical progress, leaving efforts to analyze reports, identify and evaluate issues, and suggest measures for problem solutions untouched. Neither Management (BOD) members nor even project officers in charge could "evaluate" the success of the project, or identify issues to be solved in due course of implementation and after completion.

With this in view, a holistic system of project management and benefit monitoring/evaluation (PBME) that provides in PDI a standardized framework for defining project success parameters at the project design, administration, monitoring and evaluation stages is now considered necessary.

(2) Computer-Aided Design (CAD) System and "Trainers Training" Programs

Computerized management system is now at the outset of deployment in Design and Specification Department (DSD), with the five sets of computer and computer-aided-design (CAD) software having been installed under the auspices of the JBIC-funded Casecnan Multipurpose Irrigation and Power Project and interconnected with the Department Local Area Network (LAN). In this connection, a "Training Trainers" program for DSD staff will subsequently be carried out while enabling the trained DSD staff to disseminate CAD-related knowledge and skills to the NIA field staff. In the meantime, the Department is also to receive grant aid from JICA that provides two sets hardware and software for CAD system and associated "training for trainers courses" by the two Japanese experts later this year. This will be followed by the replication training programs on CAD by DSD staff trained at the Central Office to the field staff till February 2002.

(3) Design Manuals and Standards

Technical capability and credibility of PDI has been undermined due to a rapid progress in civil engineering and information technology (IT)-based sophisticated design/operation tools and facilities in the irrigation sector, coupled with the Attrition Law that hindered recruitments of rookies with new technology and a paucity of internal funds for human capacity brush-up and development. In this connection, the Manuals and Standards now in place find some deficiencies that impede PDD staff to design projects on stylized and standardized form with the help of recently developed irrigation technologies, thus leading to lesser efficiency of irrigation deliveries and responsive services to irrigators.

The shortfall lies on the fact that the current Manuals and Standards have since their first edition not updated, thus making them somewhat obsolete in contents to meet the technical needs to date. In the light of Irrigation Management Transfer (IMT) under AFMA, PDI is now preparing under the ADB-financed Southern Philippine Irrigation Development Project (SPIDP) *Participatory IMT Implementation Manual* that stressed the need for the beneficiaries' participation at the feasibility study and detailed design stages

3.2.3 Delay in Project Implementation

A number of 32 irrigation development projects have been in progress in NIA, of which 71.9% lag physically behind the schedule, whereas 6.3% and 21.8% remaining on time and in advance, respectively. The underlying reasons inherent to the delay in project implementation count, besides skirmishes between the military and anti-government forces down in the South and occasional weather conditions adverse to on-site works, (a) too many ongoing projects and sequential shortage of Government allotment of development budget to NIA in amount and timing, and (b) a failure to timely procure goods and services in need for the projects. Likewise, non- or little-availability of cash support from the Central Office to field offices brings about suspension of deliveries of materials, equipment, and supplies by contractors and suppliers, thus making it inevitably impossible to carry on the works on schedule.

As for the procurement procedure within NIA, the issue and concern to be addressed include, among others, (a) Bureaucratic Red-tape in government purchase, (b) concentration and centralization of authority to DA and the Central Office, and (c) time-consuming, *ad hoc*-basis, non-pragmatic Bids and Award Committee (BAC), and Inspection and Acceptance Committee (IAC) system.

Bureaucratic Red tape often hampers smoother procurement of small stuff like, for instance, 1,800cc pickup truck for the project, while obliging NIA to get approval from Department of Budget and Management. This added NIA another four months of stand-by to go through the administrative processing in 1999.

The Department of Agriculture (DA) issued last August in 2000 the "*Revised Rules on the Delegation of Authority to Sign and/or Approve Papers/Documents and Contracts*" that cogently lay down the areas of responsibility attached to chiefs of entities within DA family. With this, administering power and authority remained at the Department Secretary. Contract amount ceiling for competitive bidding has still been set at P.50 million at maximum for Administrator to grant contract approvals. Further within NIA, authority of requisition and approval of papers/documents and contracts is, to a large extent, concentrated at the Central Office, notably, at Administrator and Deputy Administrator.

Simplified Public Bidding (SPB) has since January 1999 been adopted by the government for major irrigation projects in a bid to expedite procurement processing in the government. As for NIA, with prior authority from Administrator to procure contracts regardless of amount, SPB allows to procure goods and services in 14 weeks. Nonetheless, DA has since NIA Board's approval of SPB on 27 September 1999 given no administrative guidance for compliance to NIA, as such the Agency still complies with the previous procurement guidelines as reflected in the Presidential Decree No.1594 of 1991.

By request for procurement of civil works contracts or goods and services, one Bids and Awards Committee (BAC) is constituted for every one of the contract lots, while inviting five voting and one non-voting member(s) from the Central Office and field office in concern. Besides, technical secretariat (TS) is constituted in Specification Division of DSD and Procurement Division of PPRD each of the BACs established to render technical, administrative and logistics supports to BAC. With the preparation of various bidding documents, work-scheduling, leaving minutes and documents, and eventually recommendation on awardees, procurement processing is substantially conveyed by TS.

3.3 O&M and IA Support

3.3.1 Assessment of Situation and Issues

Many NIS and CIS are poorly maintained, thus resulting in low cropping intensity and poor ISF collection. The rapid deterioration of the irrigation system's facilities is indicative of poor maintenance. Based on the Study Team's review, about 80% of the NIS are in need of immediate rehabilitation and repairs to restore good service.

The major causes of poor O&M may be attributed, among others to: (a) lack of O&M fund to facilitate timely repair and rehabilitation works, (b) insufficient O&M equipment, especially for dredging and desilting works, and (c) poor capability building for the IAs. The strengthening of the IAs, which are considered as a major partner of NIA in maintenance work, has also been less-emphasized mainly because of funding constraint. The present situation of the IAs is analyzed as follows.

(1) Status of IA

As of December 2000, the total number of IAs organized for both NIS and CIS stood at the about 4,995 as shown in the table below.

Current Status of IA Formation
(As of December 2000)

Particulars		NIS	CIS	Total
1.	Farmer-Beneficiaries & Area			
	1) No. of Farmer-Beneficiaries	465,116	373,468	838,584
	2) Service Area (ha)	678,549	486,066	1,164,615
2.	IA Organized			
	1) No. of IAs Organized	2,011	2,984	4,995
	2) No. of Farmer-Members	451,483	254,253	705,736
	3) Area Covered (ha)	656,855	337,741	994,596
3.	IA Registered			
	1) No. of IAs Registered	1,912	2,944	4,856
	2) No. of Farmer-Members	407,631	247,606	655,237
	3) Area Covered (ha)	605,773	321,836	927,609
4.	O&M Contracting			
	1) No. of IAs with O&M Contracts	1,633	2,907	4,540
	2) No. of Farmer-Members	362,937	242,595	605,532
	3) Area Covered (ha)	534,389	311,936	846,325

Source: IDD-NIA

Almost all of these IAs are registered with the SEC, enabling them to have juridical personality. In terms of area density, around 994,596 ha or about 85% of the total NIS and CIS service area have IAs. The level of farmers participation in the IA is about 85%, quite high in the NIS and relatively low in the CIS, with participation rates of 97% and 68%, respectively. The low level of membership in the CIS is reportedly due to the financial obligation that each member has to pay for a definite period of time as part of the cost-recovery of the capital cost of the system. This is viewed as oppressive because a number of these constructed CIS have been reportedly faulty and thus could not provide the expected quality service. In contrast, IAs, under the NIS are not required to amortize the investment cost of the system except for the regular ISF.

(2) Sustainability and Functionality

In general, several IAs have been organized, but ceased to operate due to the following reasons.

1) Most of IAs do not have the financial and technical resources to carry out market-driven activities. The IAs have been traditionally organized as mere collectors of ISF and partner in maintenance work without any serious effort to develop their capability in post-harvest and marketing operations, so that they can trade with other organizations, notably consumers and agricultural cooperatives.

2) The inequity in the use of irrigation water is pervasive. Members and non-members as well can avail of irrigation water as long as everybody pays the ISF. In this instance, there is no distinct advantage of a member over non-member, and hence there has been a declining trend in the active membership among the IAs.

3) The system of organizing and electing the membership is oftentimes politically motivated thus defeating the purpose of volunteerism, grass root leadership, and fair distribution of perquisites among members.

4) NIA's obligation to pay contract fee (Types I and II) is oftentimes unmet thus depriving the IAs their meager income which could be used to initiate income generating activities that can reinforce the bonding among members.

The results of the 2000 ADB Cost Recovery Study also cited, among others, leadership crisis as major deterrent to the functionality of the IAs. These are due to:

- Usually IA leaders are wealthier than the members and hence do not represent their constituents very well, and
- IA leaders are usually selected from the upstream and hence to be biased on distribution of water in favor of the upstream farmers.

The above facts correspond to those in the annual IA functionality survey conducted by Institutional Development Department (IDD) since 1995 to 1998. However, the 1999 result presents a marked improvement in the functionality of IA. This survey uses the following indicators and corresponding weights: (a) Operation & maintenance: 68%, (b) Organization: 20%, (c) Financial performance: 6%, and (d) Organizational discipline : 6%.

The table below shows the survey results for the last five (5) years from 1995 to 1999.

Results of Annual IA Functionality Survey Conducted by IDD

Level of Functionality	1995	1996	1997	1998	1999
No. of IA Surveyed	562	815	1,319	1,501	1,674
1. Very Functional	17%	9%	12%	12%	37%
2. Moderately Functional	53%	50%	53%	57%	25%
3. Not Functional	30%	41%	35%	30%	38%

Source: NIA-IDD

As the above table indicates, IA performance has been low. This has led IDD to conduct IA "strengthening" which is accomplished by providing training for IA officers on basic leadership development, financial management and cost reconciliation, and systems management. Trainings, especially for IA officers, has become the primary IDD activity.

Reportedly, the fundamental problem resides in the fact that IA formation is used as a proxy for irrigator/ farmer development and participation, and the IA officers and boards of directors have little connection with farmers in their area. Besides, IA officers are used to change yearly, and IAs themselves undergo reorganization.

Some IAs might have little support from their farmer members, so they become reliant on NIA to help them with contract functions. For collections, NIA also has a strong incentive to assist them. This has led to robust dependency between NIA staff and the IAs. There is shared management but little accountability, so IAs may shirk contract obligations. The problem seems to be compounded by the fact that the IAs have limited responsibility and authority. Without a progression to greater responsibilities and exercise of real authority, it may be difficult to make the IAs viable and effective organization.

(3) Effectiveness of CO-RIO-NISO/ PIO Institutional Development Functions and Activities

Following the structure of the NIA, institutional development functions are ideally delineated among three levels: (a) the Central Office (through IDDepartment), (b) the Regional Irrigation Office (through IDDivision) and (c) the Field Offices consisting of the National Irrigation System Offices (NISOs) and Provincial Irrigation Offices (PIOs).

The Central Office (CO) should set the policies, plan and program the activities, and conceptualize and innovate development schemes to improve related systems and procedures. The RIO is a coordination center and the field offices operationalize the programs. Institutional development functions consist of three main activities: (a) organization, (b) training, and (c) follow up visit. At present, the conduct of training constitutes main institutional development works, since there are fewer new irrigation constructions.

Over the years, NIA has developed the capabilities of IDOs and trainers, but many of them have resigned in search for better-paying jobs outside NIA. At present, NIA is left with a few whose utility has to be maximized. To do that, NIA organized core groups at the CO, RIO and FO (NISO and PIO) levels. There is no more distinction among the functions of CO, RIO and FO. Each of these core groups design and undertake training programs through coordination. Such set-up is not efficient in the use of resources, since there is no holistic and coordinated plan to reckon with, particularly in preparing training programs and evaluation of accomplishments.

(4) Adequacy of Institutional Development Staff

As of December 2000, there are 1,370 staff engaged in institutional development. The staff consists of those duly appointed institutional development workers (such as Irrigators Development Chief, Supervising IDO, Senior IDO and IDO) and operation and maintenance staff (such as WRF Technicians and Tenders) re-assigned to undertake institutional development activities. It also includes contractual and daily personnel.

The table below shows the uneven distribution of institutional development staff in irrigation regions all over the country.

Indicators for Adequacy of NIS Institutional Development Staff
(as of December 1999)

Offices	No. of ID Staff	NIS Irrigation Service Area (ha)	Ratio (ha/ID Staff)	Cropping Intensity (%)	Collection Efficiency of ISF (%)
1. Central Office	13	-	-	-	-
2. CAR	13	17,551	1,350	114.6	35.0
3. Region 1	98	55,872	570	107.0	45.5
4. Region 2	183	136,792	748	147.8	43.8
5. Region 3	469	169,335	361	132.7	23.7
6. Region 4	165	52,706	319	123.5	53.5
7. Region 5	36	20,496	569	152.9	19.9
8. Region 6	47	52,216	1,118	143.2	23.7
9. Region 7&8	44	21,243	483	126.3	38.3
10. Region 9	55	15,162	276	142.2	54.8
11. Region 10	54	23,196	430	115.6	30.5
12. Region 11	49	52,486	1,071	172.4	54.7
13. Region 12	113	43,083	381	138.4	40.4
14. Region 13	31	18,412	594	144.0	28.7
Total Average	1,370	678,549	(495)	(137.0)	(36.2)

Source: NIA

The ratio of number of staff and irrigation service area is highest at CAR, Region 6 and Region 11. Regions 1, 2, 5 & 13 have relatively high ratios. Cropping intensity, collection efficiency and rice productivity (to a lesser extent) should bear the effect of institutional development as advocacy for IA development was primarily intended for such. As the table above shows, the number of institutional development staff has no significant bearing on cropping intensity and collection efficiency. This can be interpreted as: a service area to ID staff ratio of 276 to 1,071 does not make a difference in the performance of NIS with respect to cropping intensity or ISF collection. As cited by the ADB Cost Recover Study Report, these indicators of NIS performance are more significantly affected by irrigation water service delivery.

3.3.2 Review of IMT

(1) Institutionalization of the Participatory Irrigation Management (PIM)

The transfer of the management of irrigation systems is inherent in the mandate of NIA as early as in 1974 when the agency is required to delegate in part or in full the management of national irrigation systems (NIS) to duly organized IAs. Over the years, NIA has actually implemented various transfer schemes covering maintenance and collection of ISF as shown in the table below which was popularly called as Participatory Irrigation Management (PIM) Program or Management Transfer Program (MTP).

Management Transfer Program

Before 1987	After 1987-Present
Stage I - Maintenance contract where IAs are paid 660 pesos/month for 3.5 km of canal maintained	Type I - Maintenance contract where IAs are paid 1100 pesos/month for 3.5 km of canal maintained
Stage II - Joint system management contract on ISF collection; and IAs are paid (for their collection effort) based on jointly shared ISF between NIA and IA as follows: below break-even collection efficiency, 40-60% in favor of NIA and above break-even, 60-40% in favor of IA	Type II - Similar to Stage II but ISF sharing is based on: Collection Efficiency — Share of IA in ISF Below 50% — 0 50-60% — 2% 61-70% — 5% 71-90% — 10% 91-100% — 15% back account — 25%
Stage III - Full turnover of system to IA	Type III - Similar to Stage III

Source: Water Resources Development Project, Annex 8 of Staff Appraisal Report, WB

As a response to the implementing rules and guidelines of the AFMA, NIA issued a clearer scope and direction of IMT. Table 3.7 practically shows that the IAs are responsible for the maintenance of facilities of small systems. NIA, on the other hand, will continue maintaining diversion works and main canals of large systems. As regards ISF collection, a wholesale transfer of activity to the IAs is envisaged for both systems. The transfer of small NIS is likened to the CIS scheme where there is an outright transfer of O&M, including structures to the IAs. Although NIA is espousing this, there is no definitive policy as yet on cost-recovery for small systems, including the bigger systems that are partly to be transferred.

(2) Definition of NIS Service Area and Implication of IMT

1) Distribution of NIS

In principle, the service area of the National Irrigation System (NIS) is defined as that of more than 1,000 ha. However, as shown in the following table, there exist 66 NISs whose respective areas are below 1,000 ha, but they only account for 5.8% of the total NIS area.

Distribution of NISs according to Service Area (as of January 2001)

Size Distribution	No. of Systems		Area	
	no.	% (accumulated)	ha	% (accumulated)
1. Below 1,000 ha	66	33.85	39,521	5.82
2. 1,000 to 1,999 ha	41	21.02 (54.87)	59,968	8.84 (14.66)
3. 2,000 to 2,999 ha	35	17.95 *(72.82)*	84,769	12.49 *(27.15)*
4. 3,000 to 4,999 ha	26	13.33	99,161	14.61
5. 5,000 to 9,999 ha	9	4.62	66,540	9.81
6. 10,000 to 19,999 ha	10	5.13	129,263	19.05
7. Above 20,000 ha	8	4.10 *(27.18)*	199,327	29.38 *(72.85)*
Total	195	100.00	678,549	100.00

Source: Irrigation Facilities Inventory survey conducted by JICA Study Team

2) Definition of NIS Service Area

In the context of the current NIA restructuring, there are some proposals to change the definition of NIS service area, as indicated below:

a. Present definition : more than 1,000 ha
b. NIA Streamlining Proposal : more than 2,000 ha
c. Recommendation of the World Bank : more than 3,000 ha

In view of the turnover of NIS to IA under the IMT program, the above definition may be used as a basis for phasing the NIS turnover. The number of NISs by irrigation service area in the said phased turnover scenario is summarized below:

NIS Turnover Phasing Targets for Short Term (2001-2004) and Long Term (2006-2010)

National Irrigation Systems (NISs)	Short Term (Action Plan: 2001-2004)			Long Term (2005-2010)	
	Existing	Proposed in 2005	Balance (+ / -)	Proposed in 2010	Balance (+ / -)
- Over 1,000 ha	195	-	-	-	-
- Over 2,000 ha	-	88	(-107)	-	-
- Over 3,000 ha	-	-	-	53	(-142)

Source: JICA Study Team

This IMT phasing may be adjusted according to the circumstances where every NIS is located, especially in consideration of such other factors as:

a. Political administrative boundaries
b. Socio-cultural differences
c. Physical distances of NIS to the site of PIMO

(3) Progress of IMT

The Participatory Irrigation Management (PIM) Program is seen as the transition mechanism prior to a full scale IMT. Since the start of the program in mid-1980, there has been little progress in the implementation of the PIM Program as shown in the table below. Nationwide, about 20% and 13% of the total service area is under maintenance (Type I) and ISF collection (Type II), respectively. Type III which is a full turn over is less than 1% of the total service area. Mindanao had the highest share of Type I while Luzon had the biggest share in Type II. Although Types I and II combined gave a better picture, the full-scale implementation of IMT will likely extend beyond its perceived timetable.

Status of Participatory Irrigation Management (PIM) Program (as of early 2000)

Area / Type	Type I		Type II		Type III		Type I and II	
	IA	Area (ha)	IA	Area (ha)	IA	Area (ha)	IA	Area (ha)
Luzon	132	44,383	277	71,723	2	630	533	151,344
Visayas	92	30,742	46	9,732	0	0	40	27,615
Mindanao	178	59,542	9	8,372	2	671	141	62,291
Total	402	134,667	332	89,827	4	1,301	714	241,250
Per cent /a	19.35	19.85	15.98	13.24	0.19	0.0	34.38	35.55
Area / Stage	Stage I		Stage II		Stage III		Ditchtender /b	
	IA	Area (ha)	IA	Area (ha)	IA	Area (ha)	Km	Number
Luzon	16	3,530	90	28,608	38	17,445	887.66	222
Visayas	0	-	3	1,693	0	0	614.84	154
Mindanao	0	-	10	5,788	0	0	1,190.84	298
Total	16	3,530	103	36,089	38	17,445	2,693.94	674

Note: Figures on Stage I, II and III are not added to figures under Type I , II, and III to reflect actual accomplishment.
Stage I, II and III were all superseded by Type I,II, and III at beginning of 1987.
/a Computed based on total number of IAs and service area as of 2000.
/b Estimated based on Type I area and using the IMT Transition Study's parameters of 4 ditchtender sections/km of canal and 50 km/ha of service area.

Source: JICA Study Team

Generally, the slow accomplishment can only be explained by the non-readiness of the IAs to assume the delegated responsibility as shown by the low number of IAs which have executed contracts with NIA. The other factor is the inability of NIA to pay the contract fee on time due to funding constraint. In addition, the deliberate attempt of unduly suppressing the promotion of IMT because of the threat to employment security, especially for WRF tender (ditchtender) compounds the problem. It is to be noted that position for ditchtender previously assigned to maintain secondary and lateral canals has been abolished in lieu of Type I contract.

In its effort to accelerate IMT, the World Bank through the IOSP II and WRDP assisted NIA to implement a full-scale turn over program. Under these projects, rehabilitation and improvement of the infrastructure facilities of about 35 irrigation systems covering 193,000 ha were undertaken, including the pilot testing of a full turn over scheme in MRIIS. ADB followed through its ISIP II involving 9 systems of 12,250 hectares. It is the commitment of the government to fully transfer 19 systems (6 from WRDP and 13 from IOSP II) to duly organized IAs by the end of 2004.

3.3.3 Volumetric Pricing Scheme for ISF Collection

The volumetric pricing scheme has been proposed where ISF will be charged for the volume of water used by farmers in NISs in lieu of the current practice of a per unit land area- based billing. NIA as a water wholesaler will charge IAs for the amount of water used by the whole lateral and in turn, IA will send bills to the member-farmers on area-basis. The Asian Development Bank (ADB) undertook the technical assistance (TA) on this issue in 2000 under *Review of Cost Recovery Mechanism for National Irrigation Systems* (TA 3235-PHI).

With the above in view, the World Bank, jointly through the Second Irrigation Operation Support Project (IOSP II) and the Water Resources Development Project (WRDP), is currently

financing the pilot testing of volumetric pricing as basis for the Irrigation Service Fee (ISF) in the selected laterals in MRIIS and Sta. Maria-Mayor RIS both in Region 4, and Roxas-Kuya RISs in Region 10. A gauge-like device to manually measure water discharges flowing into laterals is installed at the headreach of the pilot-testing laterals where irrigation structures and facilities have fully been rehabilitated. The unit cost of ISF based on the volumetric pricing method is derived while applying either of the following two methodologies, vis-à-vis, (a) net profit per unit of water requirement as expressed in cubic meters (cm) and beneficiary's affordability (presumably set at 8% of net profit), and (b) incremental rice production attributable to irrigation water supply and beneficiary's affordability. ISF based on the volumetric pricing in St. Maria-Mayor RISs is PHP0.04/cubic meter covering 253.7 ha for a little less than 5.7 million m^3 (22.4 thousand cubic m/ha) in dry season.

In the meantime, seven sets of water control gauges have been installed in Capayas IS in Bohol under the JICA-financed Bohol Integrated Agricultural Promotion Project (BIAPP), with one (1) and seven (7) at the main canal and laterals in the system, respectively. The gauges, with the primary objective to provide the basic data of water inflow to the laterals for water masters or gate keepers, cost around PHP30,000 per unit, with PHP20,000 and PHP10,000 of the device and additional concrete "House" where the device is installed, respectively. The installation of the devices took place in November and December 1999, while covering 542.5 ha with 21.01 km of length in aggregate. According to the team leader of the JICA-financed Bohol Irrigated Agriculture Promotion Project, little progress have since then been seen in this connection.

3.3.4 Issues and Analysis

(1) Acceleration of IMT is very much contingent on the absorptive capacity of the IAs. A parallel activity on systems and infrastructure improvement is also essential prior to turn over. This implies that the hardware and software components should be simultaneously pursued to permit harmonious execution of the program. NIA's ability to satisfy these twin activities, however, suffers from its limited budgetary support, including acute deficiency in human resources to implement the complex and long-term process of institutional development. NIA is thus to drastically change its posture to facilitate unloading smaller systems to IAs as quick as possible similar to what it used to do under its communal irrigation program.

(2) In the immediate term, NIA has to satisfy its commitment to fully turn over the 19 systems under the WRDP and IOSP II. On the assumption that it can complete the turn over by end 2004, to be subsequently followed by another 16 systems, the agency is now faced with the displacement of personnel of the concerned NISOs. NIA estimated the cost of displacement at around, 70 million pesos involving 172 personnel. Currently, positions for WRF tender have already been abolished where canal and lateral sections have been transferred under Type I contract. Ditch tender personnel covered by Type I contract is estimated at roughly 670.

(3) In the medium to long-term, NIA has to turn over the remaining systems involving around 493,419 ha (678,549 less 185,130, area of 44 systems under WRDP, IOSP II and ISIP II) and the generation of new areas set at around 56,000 ha annually. NIA proposes to undertake a joint system management for one year as a transition mechanism before full turn over. However, the biggest problem would be retirement of the 907 permanent WRF Tender after the IMT transition.

(4) In the long-term, the personnel for O&M, including administrative sections in the NISOs would be reduced to the minimum. This is premised on the assumption that the existing NISOs, especially those operating 3,000 hectares and below and comprising about 45 NISOs are likely to be transferred to IA (Table 3.8). In this instance, the proposal to come up with an integrated PIMO becomes in order.

(5) The development cost of implementing IMT is considered the foremost stumbling block. The development cost at current prices is estimated at about PHP31.36 billion (US$627.20 million).[1] The allocation and timely release of the budget is the best commitment to IMT support. The feasible way to resolve this issue, given the fiscal problem being faced by the government, is through external support of concessionary terms.

3.4 Finance and Accounting

3.4.1 Present Financial Systems of NIA

(1) Accounting System

NIA's accounting system uses the double entry method as mandated by Presidential Decree No. 1445 for all government agencies. As a government corporation, it uses the standard chart of accounts as prescribed in the Government Accounting and Auditing Manual (GAAM). The format of the books of accounts, forms and reports used by NIA are also in consonance with the GAAM requirements.

The modified cash basis of recording income and expenses as approved by Commission on Audit (COA) is being implemented by the agency. Under this method, income is recorded only upon collection, while expenses are recorded in the books regardless whether these expenses are paid or not.

Accounting is decentralized down to the regional and project office levels. Recording of financial transactions involving the field offices are performed at the regional offices where the accounting books are kept and maintained. These offices are required to submit on scheduled dates their Trial Balance and other financial reports to the Central Office for consolidation. Inter-agency transactions are recorded through the inter-agency receivable and payable accounts with the Central Office. These accounts are closed during the consolidation process.

Processing of accounting transactions at the central office before was partly computerized using the ERIC General Ledger Module. The use of the module, however, was totally stopped last May, 2000 due to the "millenium bug" and the non-renewal of the service agreement between NIA and the computer programmer.

[1] Computed taking 80% of the service area of Class B and C systems (see Progress Report) as rough estimate requiring repairs and rehabilitation multiplied by 80,000 pesos/ha (rehabilitation cost under IOSP II inclusive of 5% institutional development cost). (490,000ha x 0.8 x PHP80,000/ha = PHP31,360,000,000)

(2) Accounting Policies and Procedures

General accounting procedures on the processing of receipts and disbursements are defined in the GAAM. Specific accounting procedures however, are formulated by NIA's Controllership Department. These are disseminated through memorandum circulars (MCs) to the regional and field offices for implementation and compliance.

There had been several changes in the manner income and expense transactions are recorded in NIA's accounting books:

- Prior to 1981 the cash basis method of accounting was used. Under this method, income is recorded only upon collection and expenses upon payment.

- In 1983, NIA implemented the modified cash basis of accounting in recording income and expense transactions. Under this method, expenses are accrued although income continued to be recorded on the cash basis.

- In 1984, NIA started providing in the books an allowance for bad debts on its receivables and depreciation for its physical assets.

- In 1986, recording of income on cash basis was modified to allow the immediate recording of collection-in-kind (palay) in the books as income even prior to their sale and conversion to cash.

- In 1994, under Memorandum Circular (MC) No. 41 Series of 1994, recording of collection-in-kind was modified, requiring the recognition of income only upon sale or disposal.

- In January 1996, in compliance with a joint circular issued by the Dept. of Finance (DOF), Dept. of Budget and Management (DBM) and the Commission on Audit (COA), NIA adopted the Modified Disbursement System (MDS). Under this system, NIA was required to report and maintain separate books of accounts for both local and foreign-funded projects.

The summary of ***significant accounting policies*** is presented below:

1) Depreciation

Computed annually on a straight line basis based on the book value of the following group of assets:

Asset Category	Depreciation Rate	Economic Life
Land Improvements	2%	50 years
Buildings and Structures	3%	33 years
Heavy Equipment/Vehicles	10%	10 years
Furniture and Fixtures	10%	10 years

2) Provision for Bad Debts

2% of the year end receivable.

3) Asset Valuation – Fixed Assets

Recorded and stated at historical cost.

4) Trade Receivable Valuation (ISF)

Recorded and stated at the prevailing government support price.

(3) COA's Audit Findings and Adverse Opinion on NIA's Financial Statements

The Commission on Audit (COA) has consistently rendered an adverse opinion on the accuracy and propriety of NIA's financial statements since 1985. This is due to significant discrepancies between book and bank balances, failure to carry out an inventory of physical assets, unreconciled balances between subsidiary and control accounts, inadequate allowance for bad debts losses, and erroneous computation of depreciation charges.

COA's adverse opinion puts in question the reliability of NIA's financial statements. The 1999 audit report mentioned several balance sheet items with significant unreconciled balances, which were the basis for the non-issuance of unqualified opinion:

1) Cash

Three of its sub-account, Cash-Other Banks, Combo Imprest Fund, and Saving accounts shown in the financial statements with a combined total of PHP1,523,491,665 are of doubtful accuracy due to the PHP474,993,838 discrepancy between book balances of the subject accounts maintained by the Central Office and the balances as confirmed by NIA's depository banks. The agency failed to prepare updated bank reconciliation statements as required by the General Accounting and Auditing Manual (GAAM).

2) Accounts Receivable - Trade

The balance of PHP5.744 billion does not reflect the correct net realizable value of the receivables. Analysis made on this account revealed that more than of the amount are outstanding for more than ten (10) years and are no longer collectible. Despite of this, NIA provides only 2% bad debts losses annually based on the year-end balance of the account, which is inadequate considering the age of the receivable.

3) Property Plant and Equipment

This account represents the acquisition costs of NIA's physical assets. The balance of this account at the end of 1999 was PHP30.316 billion. The accuracy of the balance of the Property, Plant and Equipment account could not be ascertained due to NIA's failure to conduct a complete physical inventory of its assets.

The non-reconciliation of the balances of these accounts, however, cannot be fully blamed on NIA for two reasons: (a) lack of documents to support accounts transferred to NIA from its predecessor agencies; and (b) changes in accounting procedures, especially when the accounting function was decentralized to the field offices.

It has been recognized, that certain accounts cannot be reconciled anymore due to the factors mentioned above, and it has been recommended that these accounts be reclassified to a suspense account pending official approval to write-off these accounts from the books.

3.4.2 Deficiencies of the Present Financial Systems

(1) Accounting System

1) Lack of Proper Matching of Costs and Revenues

The modified cash basis of accounting used by NIA, requiring income recognition upon collection while allowing expense recognition upon accrual, does not allow for the proper matching of revenues and costs, earned and incurred for the period. As a corporate entity, the need to adopt the full accrual system of accounting in recognizing income and expense items is indispensable for the accurate analysis of NIA's financial performance.

2) Erroneous Accounting and Reporting of Corporate Revenues

There are several items in NIA's income statement that are erroneously reported as income. These are the (a) CIS amortization, (b) CIS equity contributions, (c) pump amortization, and (d) subsidies. CIS amortizations and equity contributions, and pump amortizations represent return of capital investment advanced by NIA for the construction of communal and pump irrigation systems. Inclusion of these items in the income statement renders the report inaccurate and misleading.

3) Inadequate Accounting Procedure in Documenting Completed Capital Projects

Many of the projects that had been long completed still remain in the In-Process account and have not been reclassified to Property Plant and Equipment. This deficiency understates the annual depreciation charges, with consequent overstatement in the reported income.

4) Erroneous Accounting on the Sale or Disposal of Assets

Related accounting entries for the sale, disposal or retirement of assets do not write-off the cost of the asset from the books due to lack of data supporting the acquisition cost of the asset sold or disposed. This deficiency overstates reported income and overvalues the Property, Plant and Equipment account.

5) Accounting Control

Internal control over movable assets is weak as evidenced by the following:

- Field transfer of equipment from one operating unit to another are poorly documented and monitored.
- Reconciliation of ISF receivables between NISO's irrigation fee registers (IFR) and Regional Offices' subsidiary ledgers were seldom undertaken
- Reconciliation between the master list of farmer-beneficiaries with the irrigation fee register (IFR) has been neglected, making confirmation of ISF receivable difficult if not impossible.

(2) Budgetary System

1) Inefficient Budgetary System

Despite NIA's status as a government-owned and controlled corporation (GOCC) NIA prepares its corporate budget on a 'balance budget' concept, where income must equal expenses. This concept is in consonance with the fund concept of government accounting applied to government line agencies.

This method of budgeting is not beneficial to NIA for two reasons:

- Operating units tend to bloat their income, rather than cut cost, to justify operating expenditures; and

- Operating units tend to bloat their expenses to get a bigger share of the budget.

2) Lack of an Effective Budgetary Control and Feedback Mechanism

There are no effective feedback mechanisms where heads of departments are regularly advised of the status of their operating budget. Lack of this mechanism deprives top management from evaluating compliance to target and prevents them from adopting corrective measures against actual or perceived problems.

(3) ISF Billing and Collection System

1) Tariff Setting and Implementation Strategy

There is no unit in NIA responsible in reviewing the ISF tariff on a regular basis. Also NIA does not have a tariff setting manual to guide NIA and IA staff in formulating ISF rates.

2) Lack of Built-in Control in the Billing Procedure

All input (farm size, planted area, benefited area, exempted area and damaged area) to the billing process comes from the field staff with almost no physical verification by the finance and budgeting unit on the reported data.

3) Lack of Monitoring of the Reported Irrigated, Planted and Benefited Areas

Non-compliance to MC 71 Series of 1991 where the NISOs are required to use the parcellary map and a coding system in monitoring irrigated and benefited areas.

4) Unupdated Irrigation Fee Register

Failure to update this record makes reconciliation of the ISF receivable difficult.

5) Lack of Documentation and Proper Approval on Billing Adjustments

Reduction in farm lot sizes are effected without proper supporting documents and prior approval from the Irrigation Superintendent (IS).

6) Absence of a Customer Service Unit to Handle Customer Complaints

All complaints are generally entertained by the same field staff, who prepared the LIPA, LLTCF, ALLP and exemptions.

7) Absence of a Standard Computerized ISF Billing and Collection Program

NIA has not officially developed its own computerized ISF billing and collection program. Current programs running in some NIS are developed by independent programmers, hence there is no uniformity in the design and application of these programs.

There is a need for NIA to seriously consider the computerization of the billing and collection system as this will reduce manpower costs by a minimum of 50% and eliminate errors in billing computation.

3.4.3 Status of Implementation of Previous Studies' Recommendations

Previous studies proposed several recommendations to improve NIA's accounting system and financial viability. Foremost of these studies were the (a) ADB-funded Institutional Strengthening of NIA in 1990, (b) the World Bank-assisted Water Resources Development Project in 1995 and (c) the most recent ADB-funded technical assistance, "Review of Cost Recovery Mechanism for the National Irrigation System" from February to August last year.

The status of the major recommendations of the 1990 ADB and 1995 WRDP studies relating to accounting system are discussed below:

1) Development and Implementation of a Standard Accounting Manual

Status: In Progress

The Water Resources Development Project (WRDP) has funded this undertaking. The Commission on Audit was engaged by WRDP to develop NIA's standard accounting manual. The engagement officially commenced last May 2000 with a timetable of six months. The terms of reference includes (a) design of the manual, (b) pilot testing, (c) training and (d) implementation. The target date of implementation is the accounting year following the successful pilot-testing of the manual.

COA had just submitted the initial copy of NIA's Financial Accounting System Manual last April 4, 2001 for review and final comments by NIA's controllership department. The manual consists of three parts:

Volume I	- Contains the basic accounting policies and guidelines, general accounting plan and chart of accounts.
Volume II	- Financial accounting system for Corporate Fund (Fund 501)
Volume III	- Financial accounting system for General Funds (Funds 101, 102)

The engagement is originally scheduled for six months, however, at this stage, only the draft copy of the manual has been submitted.

2) Computerization of NIA's (CO) Accounting System

Status: In Progress

NIA has been developing a dos-based program since last year, utilizing its in-house programmers. Design and programming has been completed and is due for parallel testing. The program is expected to be implemented by this year.

3) Computerization of the NIS Billing System

Status: Under Conceptual Stage

NIA's EDP unit plans to develop in-house the NIS ISF billing and collection system after completion of the General Ledger System, which is currently being developed by the EDP unit.

Computerized billing and collection systems, presently running in some NISO's were developed by private programmers. All of these programs are dos-based and stand alone systems, which in the very near future may become obsolete because of the introduction of window-based application programs and local area networking.

4) Implementation of the Standard Accounting System for Communal Systems Designed by Sycip, Gorres, Velayo & Co (SGV) in 1990.

Status: Not Implemented

NIA, in 1992 has hired the services of SGV to design and develop a uniform accounting manual for use by the Irrigators Associations (IA). The engagement was completed and seminars were conducted. However, the plan to implement the program never got off the ground for lack of funding.

The adoption of the accounting system should have improved the financial management of IAs and would have provided NIA proper monitoring of IA's financial performance.

The ADB-funded Review of Cost Recovery Mechanism proposed several measures to sustain NIA;s viability. The ISF-related recommendations were the following:

5) Shift to volumetric pricing and adoption of a two-tiered ISF.

Status: In Progress

NIA is currently pilot-testing volumetric pricing in three different locations. These are in D2B District 4 in MRIIS, Sta. Maria-Mayor RIS, Region 4 and Roxas-Kuya RIS in Region 10. The implementation of a two-tiered ISF depends on the adoption of a volumetric pricing. This is a scenario where NIA would be a wholesaler (selling water to the IAs) and the IAs as retailer (billing the farmer for the cost NIA's irrigation water and IAs O&M).

6) Revision of the ISF rates or Implementation of EO 197.

Status: NIA is moving towards this direction.

The Dept. of Budget and Management (DBM) has favorably endorsed the recommendations of the ADB Consultants especially on the implementation of EO 197 and the two-tiered ISF in its letter to NIA dated Sept. 10, 2000.

The National Confederation of Irrigators Association last March, 2001 has signed a manifesto favorably endorsing to NIA the restoration of the 1975 ISF rates. In response for this manifesto, NIA called a consultation meeting with the NCIA, concerned NGOs and representatives from other government agencies last July 13, 2001 before finalizing and submitting the proposal to the Board of Directors of NIA. The general consensus arrived at in that meeting was for the restoration of the 1975 ISF rates.

3.4.4 NIA's Financial Performance (1991 – 2000)

(1) Results of Financial Performance (Consolidated)

1) Profitability

A review of NIA's financial performance was carried out based on its audited financial statements from 1991 to 2000. To evaluate the profitability of NIA's operation, however, the Income Statement as shown in table below was slightly modified to conform with generally accepted accounting standards in presenting fairly the results of NIA's financial operation.

For this purpose, certain accounts recognized by NIA as income were excluded from the analysis. These are the pump amortizations, CIS amortizations, CIS equity contributions, subsidies and other agency (inter-agency billing).

The Consolidated Income Statement below shows the financial results of NIA' s operation from 1991–2000.

Consolidated Income Statement of NIA (1991 – 2000)

(Unit: PHP million)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
1. Operating Income										
1. Irrigation Fees	342	328	336	373	346	422	511	360	333	372
2. Management Fees	99	65	126	66	110	149	276	193	287	250
3. Equipment Rental	90	72	82	112	163	192	212	199	226	152
4. Interest Income	29	17	27	54	47	37	42	20	30	25
Total	560	482	571	606	666	800	1,041	772	876	799
2. Less: Operating Expenses										
1. Personnel Costs	498	582	536	600	672	823	1,006	1,093	1,057	1,026
2. ISF Related Expenses	40	41	33	35	35	45	54	34	32	33
3. Maintenance Expenses	4	2	2	2	8	4	10	8	6	7
4. Other Operating Costs	118	97	114	143	158	155	153	209	125	152
Total O&M Costs	661	722	684	779	872	1,027	1,222	1,343	1,220	1,218
3. Net Operating Inc. (Losses)	-101	-240	-113	-173	-207	-227	-181	-571	-343	-419
4. Less: Non-Cash Expenses										
Depreciation Charge	46	45	30	289	291	252	303	286	474	488
Bad Debts			0	8	10	6	10	9	22	37
Loss on Sale of Palay	19	35	13	9	1	2	2	0	1	5
Total Other Charges	56	80	43	307	301	260	315	295	497	531
5. Net Inc. (Loss) for the year	-167	-320	-157	-480	-508	-486	-497	-866	-841	-950

Source: NA's Audited Income Statements, 1991-1999 audited, 2000, unaudited (Preliminary)

NIA has been consistently incurring losses since 1991. Net operating loss was highest in 1998 at PHP 571-Million, the year following the AO 17 implementation.

NIA suffered further losses in 2000. The net loss registered in 2000 was basically a result of decreased revenue collection rather than on increased expenditure level (overall operating expenditure was maintained at 1999 level).

Income from management fee and equipment rentals decreased by 12.9% and 32.7%, respectively. Overall, revenues from internally-generated funds were lower by 8.5% compared to 1999.

The ISF, although showing a higher figure of PHP 372-Million, is still far below the level of ISF collection of PHP 533-Million in 1997, the year prior to the implementation of the AO 17 ISF rates. Net operating loss before depreciation in 2000 was 18.9% higher than that of 1999.

Comparative Income Statement 1999 and 2000

(Unit: PHP million)

Item	1999	2000	Increase (Decrease)	
			Amount	Percent (%)
Income				
a. Irrigation Fees	333	372	39	11.7%
b. Management Fees	287	250	-37	-12.9%
c. Equipment Rental	226	152	-74	-32.7%
Total	846	774	-72	-8.5%
Less: Expenses				
a. Personnel Costs	1,057	1,026	-31	-2.9%
b. Other Administrative Expenses	163	192	29	17.8%
Total	1,220	1,218	-1.6	-0.1%
Net Operating Income (Loss)	-374	-444	-70	18.9%

This level of revenues has been affecting NIA's financial position for a long time. Total receipts from 'legitimate' income sources were inadequate to meet operating expenses.

2) Liquidity

Cashflow statements during the past ten (10) years are presented below:

Ten Year Cashflow Statement (1991-2000)

(Unit: PHP million)

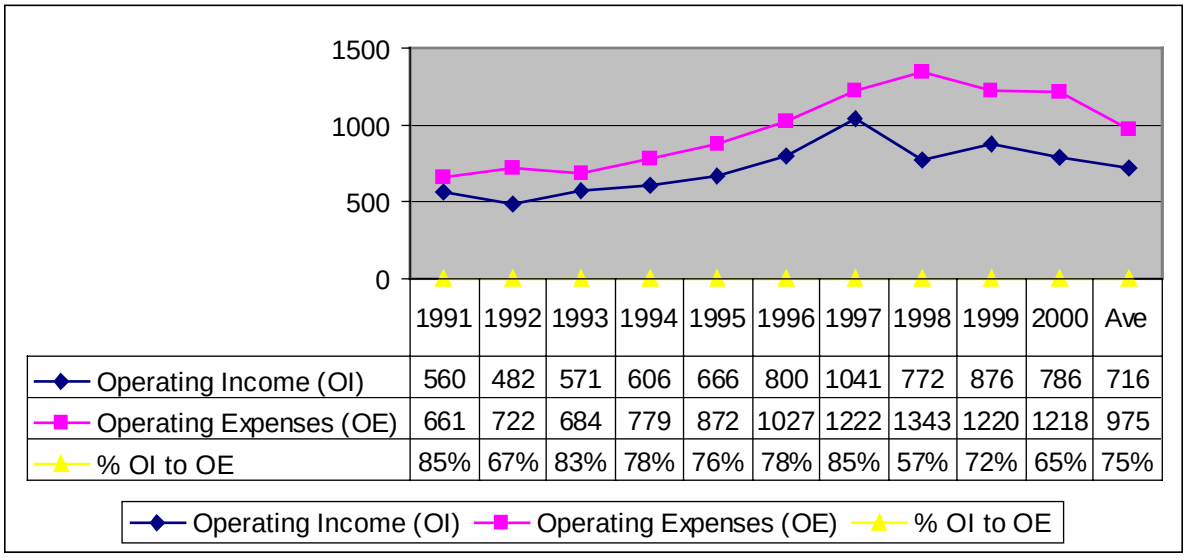
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
1. Receipts Income Sources										
a. Irrigation Fees	342	328	336	373	346	422	511	360	333	372
b. Management Fees	99	65	126	66	110	149	276	193	287	250
c. Equipment Rental	90	72	82	112	163	192	212	199	226	152
d. Interest Income	29	17	27	54	47	37	42	20	30	13
Total Income Sources	**560**	**482**	**571**	**606**	**666**	**800**	**1,041**	**772**	**876**	**786**
2. Less: Expenditures										
a. Personnel Costs	498	582	536	600	672	823	1,006	1,093	1,057	1,026
b. ISF Related Expenses	40	41	33	35	35	45	54	34	32	18
c. Maintenance Expenses	4	2	2	2	8	4	10	8	6	7
d. Other Operating Costs	118	97	114	143	158	155	153	209	125	167
Total Expenditures	661	722	684	779	872	1,027	1,222	1,343	1,220	1,218
3. Net Operating Cash (Deficit)	**-101**	**-240**	**-113**	**-173**	**-207**	**-227**	**-181**	**-571**	**-343**	**-432**
4. Add:Receipts-Other Sources										
a. Pump Amortization	2	2	1	4	1	5	5	25	3	3
b. CIP Amortization/Equity	54	44	51	51	77	95	126	156	153	106
c. Miscellaneous	79	118	67	89	49	109	155	380	192	148
Total Other Sources	135	164	120	144	127	209	286	561	348	257
5. Net Cash (Deficit)	34	-77	6	-29	-80	-18	105	-11	5	-175

Source: NIA audited financial reports, 1990-1999, unaudited, 2000

NIA was able to finance its corporate operation for the past several years despite the deficits only because of the additional funding coming from the CIS amortizations, CIS equity contributions, pump amortizations, and government subsidies.

3) Revenue and Expense Analysis (1991 – 2000)

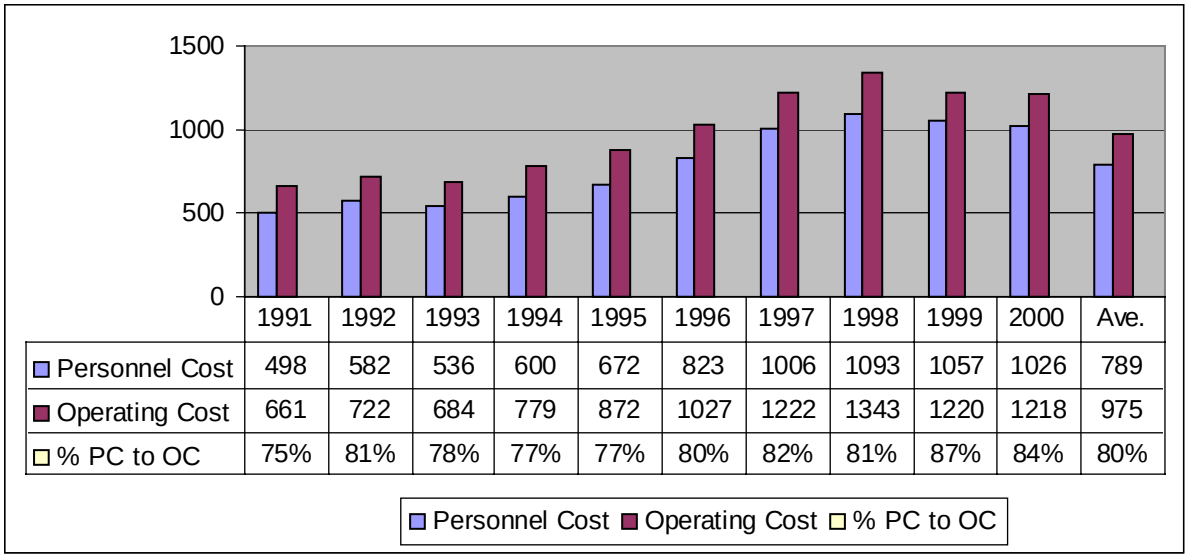
For the ten year period, internally-generated funds were never enough to defray operating expenses. NIA's ability to meet operating expenses was poorer in 2000 with the ratio dropping to 65% from 85% n 1991. On average, operating income covers only 75% of operating costs.



	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Ave
Operating Income (OI)	560	482	571	606	666	800	1041	772	876	786	716
Operating Expenses (OE)	661	722	684	779	872	1027	1222	1343	1220	1218	975
% OI to OE	85%	67%	83%	78%	76%	78%	85%	57%	72%	65%	75%

Ratio of Operating Income to Operating Expenses (1991 – 2000)

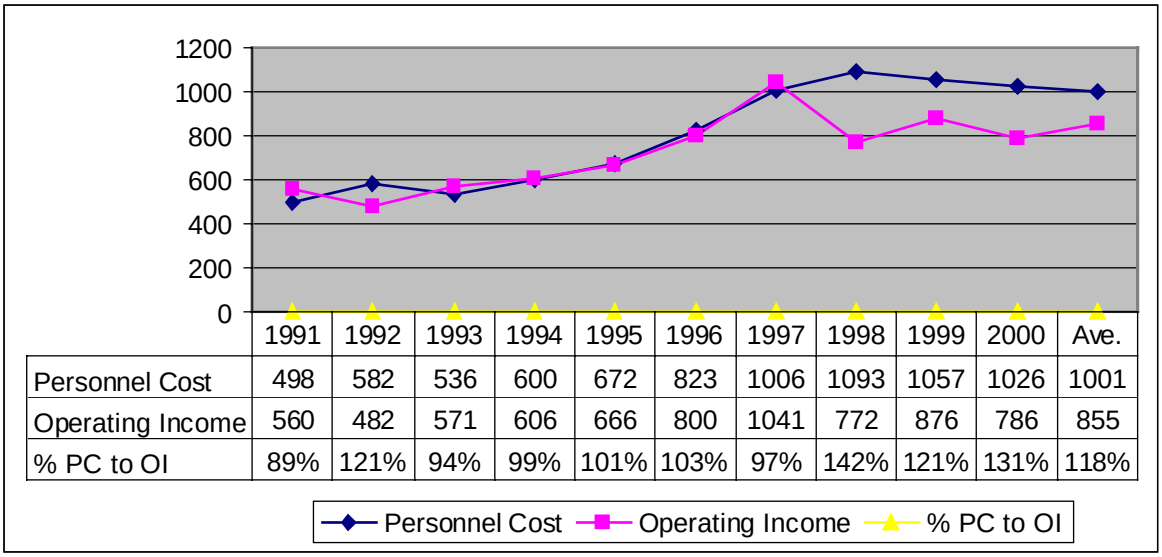
The greater portion NIA's operating costs came from personnel services. The proportion of personnel services to operating costs, steadily increase from 75% in 1991 to 84% in 2000. On average, personnel costs share in the operating costs was 80%.



	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Ave.
Personnel Cost	498	582	536	600	672	823	1006	1093	1057	1026	789
Operating Cost	661	722	684	779	872	1027	1222	1343	1220	1218	975
% PC to OC	75%	81%	78%	77%	77%	80%	82%	81%	87%	84%	80%

Ratio of Personnel Services to Operating Costs (1991 – 2000)

The following chart shows the proportion of personnel costs to operating income with personnel costs exceeding income in 1992, 1995, 1996, 1998, 1999 and 2000. On average, personnel costs exceeded operating income by 18% for the ten year period.



	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Ave.
Personnel Cost	498	582	536	600	672	823	1006	1093	1057	1026	1001
Operating Income	560	482	571	606	666	800	1041	772	876	786	855
% PC to OI	89%	121%	94%	99%	101%	103%	97%	142%	121%	131%	118%

Ratio of Personnel Cost to Operating Income (1991-2000)

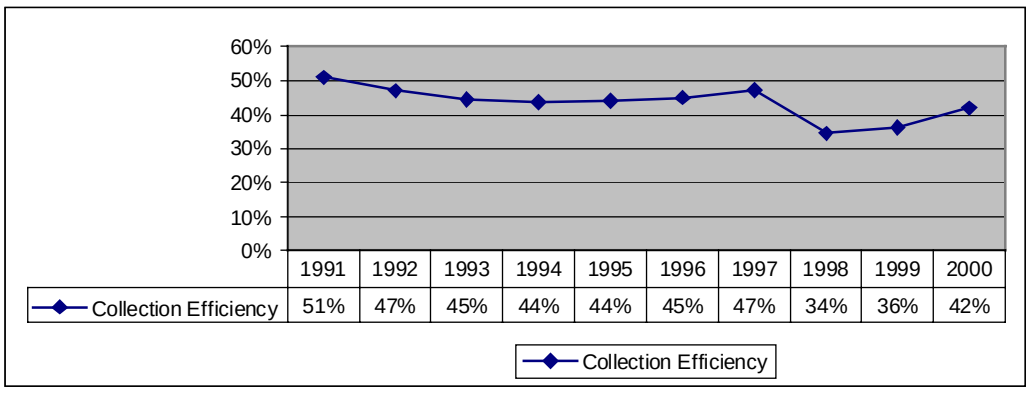
4) ISF Collection Performance

NIA' s effort to increase the level of ISF collection has been discouraging for the past several years. The situation was further aggravated with the announcement of former President Estrada that irrigation service is free in his first State of the Nation Address in 1998 and the eventual issuance of AO 17 in August of the same year.

The result was catastrophic to NIA as it reduced billable ISF by 30% and further emboldened farmers not to pay the ISF.

For the last three years (1998 – 2000), after the implementation of AO 17 ISF rates, collection of current billings on average was only 38%, 9% lower from the average collection efficiency of 46% (1991 – 1997) prior to AO 17 implementation.

The following graph shows the trend in NIA' s collection performance from 1991 – 2000.



	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Collection Efficiency	51%	47%	45%	44%	44%	45%	47%	34%	36%	42%

Collection Efficiency (1991-2000)

The lowest collection efficiency was registered in 1998 when AO 17 was implemented, at 34%, down from 47% in 1997. Collection efficiency slightly improved to 36% in 1999 and 42% in 2000.

The 13%, 11% and 5% decline in collection efficiency for the last three years (1998 to 2000), in relation with the 1997 figure, cost NIA PHP – 469 Million in lost revenues.

On the average, more than half of the yearly ISF billable are not collected and added annually to the ballooning accounts, which at the end of Dec. 31, 2000 stands at PHP 5.563- Billion.

5) Field Offices – Financial Performance (1995 – 1999)

The table below presents the viability status of the field offices from 1995 to 1999. On a consolidated basis, overall performance was negative for the entire study period. The RIOs' and NISOs performance compared with the PIOs have contrasting results. While the RIOs and NISOs were consistently on the negative side, the PIOs on the other hand were consistently on the positive side.

Consolidated Receipts and Expenditures Statement
Field Offices (1995 - 1999)

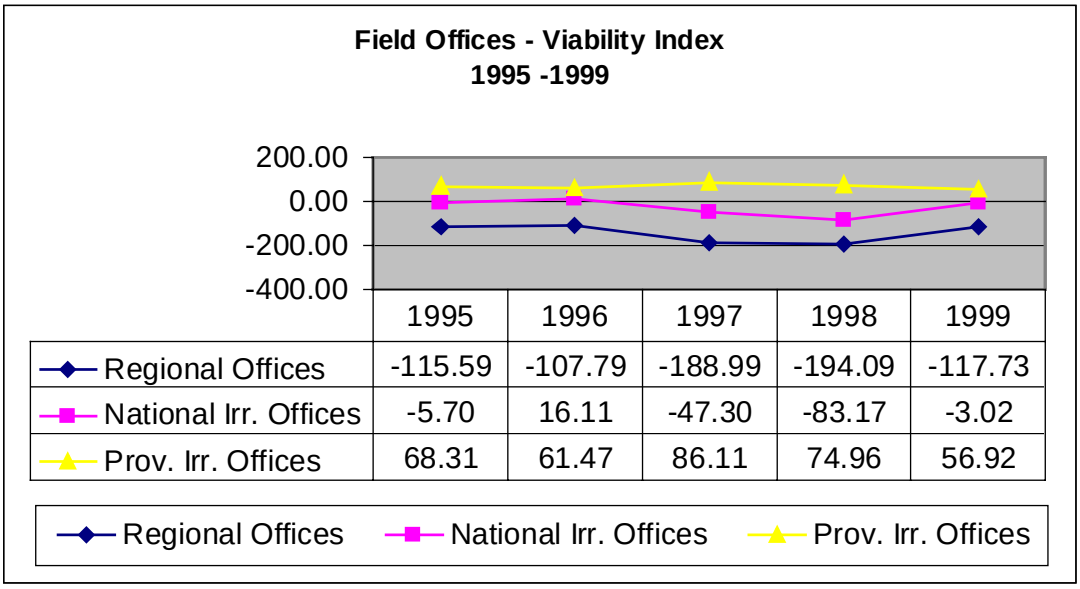
	1995				1996				1997				1998				1999			
	RIOs	ISOs	PIOs	Total	RIOs	ISOs	PIOs	Total	RIOs	ISOs	PIOs	Total	RIOs	ISOs	PIOs	Total	RIOs	ISOs	PIOs	Total
Receipts																				
ISF		341	0	341	0	411	0	412	0	513	1	504	0	369	1	370	0	308	1	309
Equipment Rental	11	74	69	154	14	94	74	181	19	116	82	216	36	104	58	198	20	126	61	208
CIS Amortization	8	1	18	27	32	1	23	56	0	37	26	63	0	1	50	51	51	1	24	75
CIS Equity	24	1	54	79	16	4	68	88	0	8	104	112	0	4	103	108	12	7	103	122
Pump Amortization	28	0	3	30	2		1	4			1	1		0	1	1		0	1	1
Others		13	11	25	50	23	19	91	56	48	18	122	53	23	8	84	42	35	11	87
Total	70	429	155	665	114	533	185	832	75	712	232	1,019	89	501	221	812	125	477	200	802
Less: Expenditures																				
Corporate Funds	186	435	87	708	222	483	123	828	264	682	145	1,091	283	582	145	1,010	243	480	143	866
Subsidy/Inc. O&M						34		34		77	0	77		3	1	4				0
Total	186	435	87	708	222	517	123	862	264	759	145	1,169	283	585	146	1,014	243	480	143	866
Net Receipts (Expndtrs)	-116	-6	68	-53	-108	16	61	-30	-189	-47	86	-150	-194	-83	75	-202	-118	-3	57	-64

Source: Treasury Dept., NIA

In contrast with the NISOs, PIOs remain viable because the latter have more sources of revenues (equipment rental, CIS amortization, and CIS equity contribution) compared with the NISOs (ISF and equipment rental).

Another factor is that PIOs have lesser operational expenses compared to NISOs. The latter spends a larger portion of their income on ISF-related collection expenses and on operation and maintenance of irrigation facilities.

The chart below graphically shows the comparative viability index of the field offices.



Field Offices Viability Index

The financial performance of the Regional Offices for the year 2000 is presented in Table 3.9. The table shows that only the Central Office registered a positive figure. Only Region 13, among the regional offices, was able to somehow break-even.

3.5 Auditing

3.5.1 Audit to be Focused

(1) Principle of Public Auditing

Auditing is generally defined as the accumulation and evaluation of evidence about verifiable information of an economic entity to determine and report on the degree of correspondence between the information and established criteria. To do an audit, there must be some standards or criteria by which the auditor can evaluate the information, and the information to be audited must be in a verifiable form.

Auditing, with special focus on Public Auditing, has a comprehensive nature comprising multiple categories with respective purposes and objects to be audited as follows.

1) Financial Audit

The purpose of "financial audit" is to enhance credibility of financial statements prepared for a certain purpose by ascertaining that the statements have been prepared in accordance with the generally accepted prescribed rules and the figures stated are fairly supported by convincing evidences.

2) Operation and Management Audit

An Operation and Management Audit is a review of any part of an organization's operating and management procedures, methods and their practices for the purpose of evaluating "efficiency", "effectiveness" and "economy". As a result of the audit, some recommendations to improve the weaknesses having been found are also expected to be reported.

3) Compliance Audit

The purpose of a compliance audit is to determine whether the auditee is following specific procedures, rules or regulations set down by some higher authority or controllers. The auditors are either internal auditors within the organization itself or, when an organization wants to determine whether individuals or organizations that are obliged to follow its requirements are actually complying, auditors employed by the entity issuing the requirements.

4) Performance Audit

Performance Audit characterizes the typical feature of Public Auditing, which can be defined as an independent appraisal of an entity to determine the extent to which resources were managed with due regard to economy, efficiency and effectiveness and in conformity with applicable regulations, rules and procedures. The performance auditing is a means for improving management practices in the public sector, and sharpening the accountability process of public managers.

The purpose and perspective of the external auditing in this stage are almost the same as the ones pursued by the total internal control system including internal auditing. However, the significance of the external auditing is not merely for a double checking purpose, but more importantly its considerably stronger power of control than the internal one whose independency is inherently weak.

(2) Study Focus of NIA's Auditing Function

Among the functions mentioned above, and in view of the purpose on "Management Strengthening of NIA", two key areas of auditing; the *"Operation and Management Audit"* and the *"Performance Audit"* are to be highlighted.

1) Operation and Management Audit by Internal Auditor (NIA MSD)

As defined in the previous Section, the Operation and Management Audit inherently contains complex elements to be audited but directly relates to operational and managerial improvement or strengthening of an entity with a role functioning as management consulting rather than what is generally conceived as auditing. However, from its nature of auditing, it needs inseparable aspects consisting of the "Executive Function" for implementation and "Regulative Function" to create standards on which the former should be based. Due to the necessity to continuously deal with dynamic activities of the operation and management often from the standpoint of an in-house consultant, it is more suitably conducted by internal auditors. In NIA, the Management Services Department is charged with this duty.

2) VFM Audit by External Auditor (COA)

The Performance Audit, which is more pragmatically termed in the Philippines as "Value for Money (VFM) Audit", appraises how well the resources are managed with due regard to economy, efficiency and effectiveness in the operational process, and to what extent the operational entity concerned has achieved its public mission assigned. It examines the total performance of the operation and management from multiple aspects including financial and technical viewpoints. From the main purpose of the Performance Audit to support the public accountability, it should be mainly conducted by independent external auditors. The Performance Audit is conducted by the Commission of Audit (COA), the country's Supreme Audit Institution (SAI), and being strengthened as a highlighted area of the public auditing in the Philippines.

Thus, our Study focuses on these two areas of auditing which have strategic importance in the perspective of strengthening NIA's total management capacity.

3.5.2 Prevailing Auditing Systems for NIA

(1) Structure of Auditing

The salient feature to be primarily underlined in the public auditing systems of the Philippines, covering both external as well as internal auditing, is its multiple-layered nature along hierarchic structure of a governmental organization from the headquarters until the field levels. In case of NIA, both internal and external auditors, or personnel to perform auditing function, are situated at every level of the organization from the Central Office up to the Field Offices. Even into the IAs, NIA's institutional development efforts have been trying to implant internal auditing function.

The following table gives an overall picture of the auditing structure for NIA being presently practiced.

Locations	Auditors	Audit Function Performed			
		Financial	Compliance	Operation & Management	Value for Money (VFM)
Central Office	Internal	○	○	○	
	External	○	○		○
Regional Offices	Internal	○	○	○	
	External	○	○		○
Field Offices	Internal	○	○	○	
	External	○	○		○
Irrigators' Associations	Internal	○			

At the Central Office, the Management Services Department undertakes the internal auditing function[2], while at the regional and field levels in most cases, the financial management officers carry out this task concurrently. An Irrigators' Association is also to have an independent internal auditor within the organization.

The external auditor for NIA is the Commission on Audit (COA), the Supreme Audit Institution (SAI) of the Philippine Government. Most salient feature of the Philippine public auditing system is, as stated above, that COA auditors are stationed at every offices of ministries and other governmental institutions. In order to strengthen the independency of the auditors, however, this resident auditor system is being gradually replaced by newly organized Audit Teams to be directly dispatched by COA under the "Audit Team Approach Plan" launched in 1998.

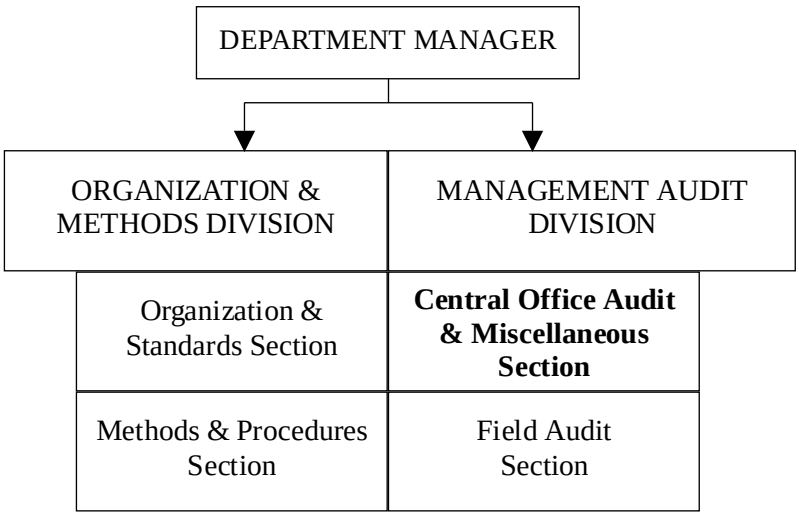
(2) Operation and Management Auditing by the Management Services Department (Internal Auditor)

1) Implementation Structure of Internal Auditing

The Management Services Department is charged with the following missions with the organizational structure presented below.

(Mission of the Management Services Department)

a. Provide top management with advice on the maximum utilization of resources.
b. Develop plans and programs relative to improvement of the administrative organization; undertake regular management surveys; review existing methods, procedures and systems and make recommendations for improvement.
c. Undertake management audits to evaluate adequacy of internal controls and to institute safeguards for the Agency's assets.



Organization Chart of the Management Services Department

[2] Auditing function in a broad sense, as stated above, featured by a dual structure involving a set of "Executive" and "Regulative" sub-functions to conduct its complete execution. In the narrower sense, the "Management Audit Division" under the Management Services Department takes charge of Internal Auditing.

From the viewpoint of the dual structure of auditing, the "Organization & Methods Division" carries out the regulative function while the Management Audit Division functions as the implementer, the internal auditor in a narrow sense.

2) Current Practice of Management Audit Division, MSD

Actual performance of "Internal Audit" conducted by the Management Audit Division, MSD in the fiscal year 2000 is shown in Table 3.10.

The "Internal Audit Performance" in the fiscal year 2000 can be functionally categorized into the following groups.

a. Financial and Compliance Audits for ISF Collection

Visiting the field offices, the internal auditors examine records of ISF collections to verify whether all the records concerned have been properly maintained in compliance with the prescribed procedures being supported by actual cash or in-kind receipts.

As shown in the table, most of the auditing works are devoted to this audit category.

b. Special Audits (Investigation)

This audit has an ad hoc nature to investigate infringement on NIA's property or other irregularity suspected. Less resources are input than the ISF collection, however, the special audit is also one of the major categories to constitute NIA's internal auditing.

c. Other Verification Audits

Cash count, procurement-related tasks, physical assets inventory and other verification audits are also conducted by the Internal Auditors.

Thus the prevailing practices of the Management Audit Division mostly consist of financial and compliance audits whose nature is verification vis-a-vis results of past activities in spite of the division title and assigned functions.

(3) VFM Audit by COA (External Auditor)

The VFM Audit is one of the three types of audit that COA performs together with Compliance and Financial Audits, and being currently reinforced relative to its increasing importance in the public sector. The official decision for "Segregation of VFM or Performance Audit Report from the Annual Audit Report" by the COA Resolution No. 98.004 issued on February 26, 1998 also reflects this remarkable trend in the public auditing.

The VFM audit is annually performed comprehensively by COA resident auditors stationed at every level of NIA offices. As its scope of auditing involves wide range of operational fields including technical aspects, the VFM Audit is conducted involving technical supports provided by Technical Services Units at COA's central and regional offices. The points of audit and

procedures are tailored to fit operational features proper to NIA as the national organization for total irrigation services.

3.6 Management Information System (MIS)

3.6.1 Organization in Charge

Organizationally, there are two sections in NIA that deal with information management. The Information Management Section, under the Management Information Systems Division (MISD) of the Management Services Department (MSD) was formed to serve as a centre for all the information that management required from the central office departments, regional offices and National Irrigation System Offices. In addition, there exists the Electronic Data Processing (EDP) Section of CORPLAN, which also handle computer and information system related activities. The EDP Section was previously under the MISD. However, in 1983, EDP formally became part of the CORPLAN.

The main function of the MISD is to produce quarterly and annual reports consolidated from information collected through memorandum circular, issued (MC No. 47 titled "Submission of Monthly Reports") in 1998, and through series of monthly reports directly from the regional offices. The Information consolidated include (a) current physical and financial status of all the projects that are currently in progress, (b) details of Irrigators' Association development activities for NIS and CIS, (c) project preparation activities (National and Communal), (d) status of NIA's equipment and (e) personnel appointments. These reports are compiled using MS-Excel.

The EDP Section previously provided technical services required for maintaining VAX-11750 mainframe computer that was donated by the JICA in 1983. The operation was centralized in EDP and NIA used this computer for maintaining farmer list, rainfall and discharge database, equipment master list, accounting and payroll. Users came to EDP Section to conduct data encoding and to obtain outputs from the computer. Operation of this computer was terminated in 1995 due to the exorbitant maintenance cost and availability of equally powerful personal computers within NIA. The EDP is currently coordinating implementation of the "Computerized Management Information System" part of the WRDP project, sponsored by World Bank.

The responsibility of the information management unit is fragmented and poorly represented in the NIA's organization.

3.6.2 Information Systems Strategic Plan 2000-2004 (ISSP)

Prior to 1995, NIA had an VAX-11750 mainframe computer for its information processing. The CPU was located in the EDP Section and operation was centralized.

Since 1995, facing difficulty with its information management, NIA could not provide the information required. Being aware of the urgent needs to be equipped with modernized information technology (IT)-based information system, NIA formulated an overall framework for computerizing its management information through the five year Information Systems Plan. ISSP: 1995-1999. The Information Systems Plan was updated again in 1999 (ISSP: 2000-2004) and re-endorsed by NCC. For financing, it was included in a component of the WRDP during the feasibility study in 1997. Through the WRDP project, which is currently

under execution, funding for the NIA's hardware and software, in-house database application systems development, installation, training, and consultancy is being made.

The ISSP has identified nine major information systems (IS) to be developed and implemented, vis-à-vis, (a) project preparation, (b) project implementation, (c) irrigation systems operation, (d) repair and maintenance of irrigation system, (e) institutional development (f) equipment management (g) financial management, (h) human resources management, and (i) property and supply management. The budget proposed for the implementation of the ISSP is summarised in the table below.

2000-2004 Budget for NIA's Information Systems Development (Unit:PHP1,000)

Description	2000	2001	2002	2003	2004
1) Application System Development	2,000	2,000	2,000	2,000	2,000
2) Hardware Purchase	8,310	800	2,975	800	800
3) Software Purchase	3,274	100	1,050	100	100
4) Database Development	900	500	300	300	300
Total	14,484	3,400	6,325	3,200	3,200

Source: NIA's Information System's Plan 2000-2004

NIA is to procure and install around 250 computer units with the associated database applications designed by the EDP staffs. However, to date, only an accounting system has been initiated for development. Development of this system was made under MS-DOS environment, which might cause difficulties when the volume of the work increases.

3.6.3 External Environment

NIA's IT plan is independent of DA's IT plan. However, NIA's IT need to comply with the overall plan and implementation undertaken by Department of Agriculture to ensure technical compatibility. Under the DA's administrative order-6, issued on July 1998, the DA authorized establishment of a National Information Network (NIN) linking departments, agencies, bureaus, research institutions and local government units. A period of one year from the date of approval was provided for installing this network.

The overall scope of the service which DA is planning to provide through the NIN is briefly summarized in the following table as well as the budget for implementing and maintaining NIN for the next four years.

The NIN Mobilization Plan

(Unit: PHP1,000)

Cost Component	2000	2001	2002	2003
1.Information Technology Infrastructure	699,600	598,630	597,200	547,500
2.Systems Development	40,000	20,470	15,400	15,100
3.Maintenance	20,500	41,000	51,500	61,500
4.Consultancy Services	15,200	15,200	11,200	8,200
5.Training	9,700	9,700	9,700	9,700
6.Others	15,000	15,000	15,000	15,000
7.Personnel Services				
GRAND TOTAL	**800,000**	**700,000**	**700,000**	**700,000**

In 1999, NIA obtained a 64 kbps-leased line internet connection and a high performance Unix operating system based server computer (IBM RS/6000 computer), essential network devices (a router & a hub). The leased line arranged using the private carrier (BayanTel) was disconnected in June 2000 due to overdue payments and has not been reconnected until today, even though it is anticipated to be restored in the 4th quarter of 2001.

While the idea of providing high performance server was good, it will not be feasible for NIA to utilize the resource well without the necessary IT expertise and hardware investment. The resources made available through NIN had not been fully utilized by NIA.

3.6.4 Information Management Shortfalls

NIA's Management Information System is still in the beginning stage of development. A serious effort is required to improve information flow as a whole and standardize the reporting system (by computerization). Productivity improvements can be realized only if record keeping/reporting is streamlined and taken to the point of computerization.

1) Intensive on-the-job training on IT for enhancing IT infrastructure and information management is required.

Incorrect decisions are often very expensive in IT sector.

2) A matter of concern is the amount of redundant reports that exists within NIA.

There are too many reports and the reports are generally verbose. There is inconsistency in the information reported and there is difficulty in reconciling these inconsistencies. The difficulty in reconciling difference in various reports arises because of the (a) non-standard formats and procedures and (b) difference in the timing of collection of the information and difficulty in tracing back. Further, the reports are not easily distinguishable from one another due to generic titles.

3) Request for reports to the regional offices is not regulated.

There is a memorandum requesting all the departments of the Central Office to coordinate. However, this memorandum has not been enforced strictly in NIA. Consequently, there are many requests with similar contents to the field offices.

4) The request to the regional offices is not primary information.

Focusing on collecting primary information will reduce the number of reports the field offices need to prepare. The consolidation must be done in the central offices. Only the primary information must be requested from the field offices.

5) No information database accumulated in NIA.

The performance evaluation information is available in computer format only for the last 1 year, although this information has been collected and reported for the past 10 years. It is essential for NIA to start identifying primary information and storing them for long-term use. NIA is only starting to organize database by Department in Central Office.

3.7 Personnel Management and HRD

3.7.1 Personnel Management

(1) Inflexible Structural and Staffing Pattern since 1984

The Civil Service Commission (CSC) Code and the National Budget Circular (NBC) by Department of Budget and Management (DBM) in 1984 had long defined the current structural and staffing patterns of NIA. With this, the number of *Regular Plantilla of Position* charged against the Corporate Operational Budget (COB), recruitment of new staff, the number and composition of staff positions with fixed salary grades at each of the administrative units in NIA, salary scales and adjustments, promotions, transfer and redeployment of staff among offices, and other personnel welfare payments are controlled. In this context, NIA's autonomy as an independent GOCC has been hampered, with very little margin of self-governance in personnel management in NIA.

Up until now, NIA has to request for an approval from DBM regarding any changes in permanent personnel management. While it would relatively be easier for NIA to get an approval on the conversion of vacant positions to other positions unless any increase in number of employees incurred, it is extremely difficult to get approval from DBM to add new positions and/or increase the number of employees in the current organizational structure at the central and field levels.

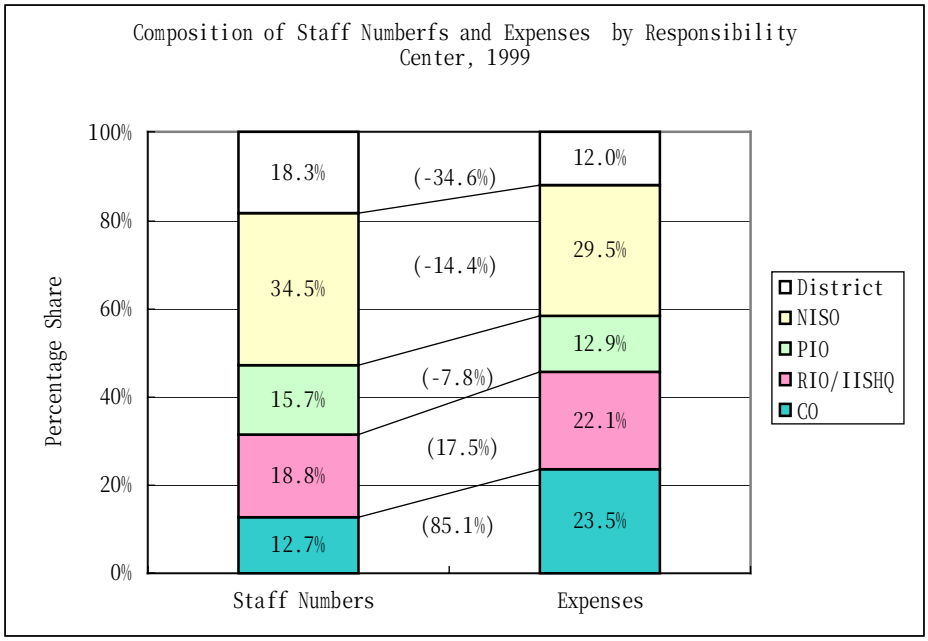
(2) Lopsided Allocation of Managerial Resource towards Central Office

The distribution of NIA managerial resources, notably, human assets and capital resource, in place between Central and Field Offices is depicted in the following.

1) Discrepancy between staff numbers and COB expenses by responsibility center comes in two cohorts with positive and negative groups. Numerical differences between staff numbers and COB expenses at CO, RIM/IIS HQ, PIOs, NISOs, and Districts reach 85.1%, 17.5%, -17.8%, -14.4%, and –34.6%, in that order, while allocating funds disproportionately more to the "administrative function"; and

2) In a bid to redress the balance at an appropriate level between the "administrative or oversighting" Central and other operating offices on the field, it will be urged to redeploy human assets from the administrative/supervising offices to field offices

particularly professional staffs with salary grades 22 (field office chiefs, principal engineers) and below to SG 12 (frontline officers class) and above.



Data Source: NIA, October 2000

3.7.2 Wage and Promotion Policy

(1) Wage Structure and Salary

Index of Occupational Services (IOS) noticeably defines the designation and associated salary grades (SG) applicable to all of the public sector employees, where President of the Philippines stands at the highest of SG 33, whereas Administrator of NIA at 30. Officials and employees are eligible for promotion to upgrade one Salary Steps (SS) higher in the wake of three-year service in a position. There are eight (8) SSs defined in the grade allocation of the employee's position.

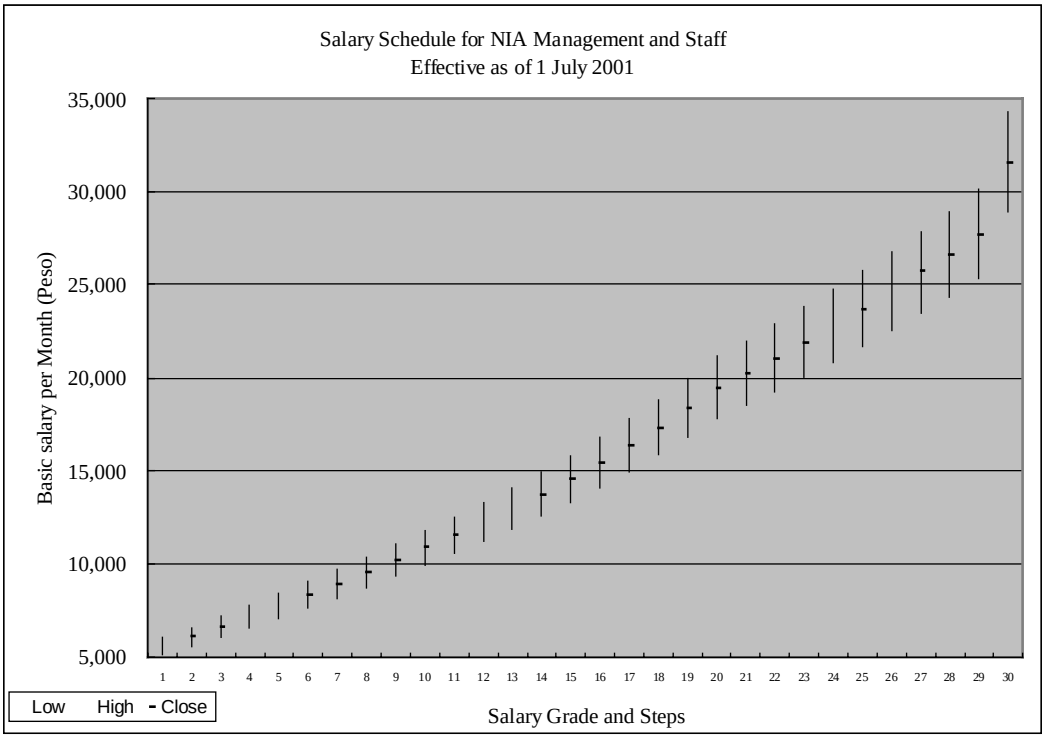
The basic salary structure in NIA is depicted below, from which some of the salient features could be observed as follows.

1) Wage level attached to each of the SG is somewhat equitable, except SG 30, as seen in the lower slope and proportional increase of average basic salary with lower slope (lesser degree of wage increase by SG);

2) Among personal factor (seniority) and job factor (academic background, job qualification), the weight of personal factor diminishes as SG ascends, with the range of Salary Steps (SS) growing wider; and

3) Likewise, the flexibility and maneuverability in staff deployment and higher pecuniary reward to competent staff could be made possible within a salary structure in place, as the range of SS overlaps considerably and grows wider in line with the ever-increasing of SG.

Beside the basic salary rate, government employees are eligible for the receipts of Personal Economic Relief Allowance (PERA), Additional Compensation Allowance (ACA), Children's Allowance whoever applicable, Representation and Transportation Allowance (RATA), bonus and cash-gift, honorarium, the 20% premium over basic pay of contractual personnel, and transition allowance that is the excess of the present salary over the eighth step of the grade allocation



Data Source: NIA Personnel and Record Management Department

(2) Promotion Policy- Notice of Vacancy and Performance Evaluation System

The Civil Service Commission (CSC) revised in January 2001 the Merit Promotion Plan (MPP) in a bid to provide equal opportunity for men and women in the selection of employees for appointment in the civil service. In the exercise of sound discretion, a notification of vacant position marked for filling is issued by the concerned Department and advertised in at least three places in the agency for at least 10 days. A Personnel Selection Board (PSB) comprising a chairperson, Managers of the Department in concern and Personnel and Records Management, and representatives of the rank and files career employees (usually two representatives from the NIA Employees Association) is established to assess the comparative competency and qualification of candidates and eventually recommend for appointment to the appointing authority inclusive of Administrator.

Performance appraisal system based on the Management by Objectives and Resources Evaluation (MORE) has been in place in NIA to continually foster the improvement of individual employee's efficiency and organizational effectiveness. Performance appraisal takes place semi-annually by initiating employee's self-evaluation followed by immediate supervisor's description of the employee's potential for promotion and needs for training and career development. For Department Managers, Assistant Administrator and Career Executive Service (CES) Board take the position of evaluation. Rating falls into five performance

categories, vis-à-vis, (a) outstanding, (b) very satisfactory, (c) satisfactory, (d) unsatisfactory, and (e) poor.

The current MORE-based system does not put each one of the staff in a ranking order through differentiating performances of personnel by quality. Supervisor only compare quantitative and qualitative "activity targets" assigned and "outputs" of ratees, thus leading to the results that make everybody likely to be rated as "*Outstanding* " or "*Very Satisfactory"*. This eventually leads to non-relevancy of "performance evaluation" and "promotion".

(3) Constraints to Horizontal Mobility of Manpower in NIA

Likeliness of redeployment of NIA staff over the country, or staff relocation from the central to field offices, or vice versa, is extremely limited, thus making it difficult to distribute manpower resources as appropriate. This also hampers the Structured Career Development that enables senior staff to job-rotate amongst the offices at the central and field levels, or within the central office, to advance their career and gain experiences. The major reasons for this difficulty are summarized below.

1) Tally of Position that defines position titles, salary grade (SG), and the number of positions (total of 251 positions) is rigidly fixed at each of the responsible centers within NIA, thereby making it possible for officials to be relocated only when the vacancy position with exactly the same position titles and SG as the candidate's is of avail;

2) Each of the central and the field offices functions independently in practice, and even under the Merit Promotion Plan of the MC No.29 as given immediately above, fulfillment of the position most likely takes place by way of promotion of next-in-rank employee within, or otherwise left utterly non-recruited; and

3) Reallocation allowance of one-month equivalent and no other incentives in pecuniary or promotion initiatives are institutionalized in NIA.

3.7.3 Human Resource Development (HRD)

(1) Chronological Issues since last Decade

The average number of participants in the training courses reached around 6,000 per year over the period of 1976 to 1983, and subsequently declined, in tandem with COB expenditures curbed by NIA's financial constraints, to about 2,500 a year during the decade of 1990's. Of the actual expenses last year, 97.5% emanated from project fund, while the balance merely reaching PHP230,000 from COB.

The issue is that the Training and Manpower Development Division (TMDD) and Training Executive Committees (TEC) have failed to fully perform their roles and functions primarily due to a paucity of COB fund to and experienced staff in the Division, and a sense of naïveté in the face of NIA's policy, institutional, and operational environment on the move. Training Needs Analysis as a basis for annual training program had little been conducted, thus making the program contents and budget size lesser and lesser realistic and responsive to the needs and mostly an assembly of the proposals submitted by the line-Departments. The aggregate budget for the proposed training seminar in 2001 is PHP19.3 million as against the actual expenses of a little less than PHP8.9 million in 2000, respectively. Likewise, there is little occasion of

benefit monitoring and evaluation (BME) of training courses undertaken in such a way to measure and feed back the effect on personnel and office performance to the ensuing training plans.

Further, there has been little career development path (upgrading academic diplomas and degrees) or built-in incentive mechanism for employees for which scholarships or opportunities are granted by NIA. This makes it extremely difficult for NIA employees holding lower educational background to upgrade their positions and associated salary grades. As such, upward-transfer and redeployment of NIA staff, for instance, Water Masters (WRFs, SG12-6) with high-school diploma to Institutional Development Officer (IDO, SG21 and 12) with four-year college degree, turns out to be extremely difficult as part of problem-solving measures for retrenching redundancy.

(2) Human Capacity, Training Needs, and Working Environment Perceived by NIA Staff-Corporate Culture Survey in 2000

In due course of the study, the Corporate Culture Survey was undertaken by the Team, with the salient responses with a bearing to the human resource development (HRD), as well as training needs issues in the following (for more detailed information, refer to Appendix Chapter IV).

1) On Employee's Minimum Requirement and Qualification Standards

Majority of the respondents (86%) are affirmative that their co-workers clear the qualification standards of the minimum requirements (education, experience, training, others) attributed to of their position. Nonetheless, more than a half (56%) of the respondents has a negative view on competency of colleagues in technical skills and expertise indispensable for achieving their job assignments.

2) On Understanding of their Work, Roles

All of the respondents (100%) believe they understand their work, roles, and relationships with other personnel and functional units in NIA, and are confident on their own knowledge, skills, and experiences to perform their duties.

3) On Professional/Career Development, and Training Opportunities

Less than one third of the respondents (28%) expressed their affirmative view on the career development system (CDS) in NIA. More than two-thirds of the respondents (68%) are negative to the perception that NIA staff is provided training opportunities as appropriate.

4) On Workload and Working Condition

Most of the respondents (90%) reckon that their workloads are by and large as per that of colleagues. Dissatisfaction with working conditions that constitutes around 40% emanates, according to respondents' comments, from (a) one and a half (1.5) to nine (9) month-delay in salary payment, (b) poor installation and condition of physical facilities, (c) no career development, and (d) low salary grade for technical personnel.

(3) Mandatory Allocation of Funds for Institutional Development Program

NIA issued last December a Memorandum Circular (MC No.29) that set forth mandatory allocation of funds for institutional development in all Programs of Works. Under the prescribed Institutional Development (ID), NIA is to draw fund not less than 5% of the overall Program of Works (POWs) and allocate to ID activities at the field level. While the senior staff in the central and field offices are directed to prepare detailed training programs under the prospective funds, new moves are little seen partly due to assumption of the new Administrator in early June 2001. This may be a part of the structural impediments of NIA to reform effort.

CHAPTER 4 CAPACITY IMPROVEMENT PLAN, IRRIGATION INVENTORY AND GIS DATABASE

4.1 Capacity Improvement Plan for NISO

4.1.1 Introduction

The capacity improvement plan was primarily directed at improving the capacity of the NISO. The capacity improvement can be enhanced through improved O&M practices designed to increase efficiency and effectiveness of the irrigation systems. To get immediate results, two areas of concern were selected, notably water management and ISF collection. These concerns constituted the action plan where trials were conducted in selected offices.

The NISO has been chosen as the case study for the capacity improvement plan because it is the main organizational unit directly responsible for managing the national irrigation systems and it is a self-liquidating organization. A total of 105 NISOs nationwide were evaluated in accordance with four (4) principal indicators, namely: cropping intensity, ISF collection efficiency, income-expense ratio and yield per hectare. The summary of this evaluation is shown in Table 4.1.

Through the evaluation, model and replication offices were selected. A model office was selected from class A offices, while replication offices were chosen from Classes B and C offices. The model office was studied and its successful water management and ISF collection practices were applied to the replication offices. The selected NISOs are specified below.

Name of NISO	Type	Class
1. Nayom-Bayto	Model	A
2. UPRIIS, District III	Replication	B
3. Aganan-Sta. Barbara	Replication	C

The capacity improvement plan began in September 2000 and results of the action plans were documented in February 2001. This was extended in July 2001, where validation surveys were conducted to get the perceptible impacts of the practices introduced in the first phase.

4.1.2 Formulated Capacity Improvement Plan

(1) Water Management

The water management improvement plan tested in Aganan-Sta. Barabara NISO dealt on (a) proper control of water flow at the head gates and turnouts, and (b) enforcement of delivery schedule to permit the implementation of rotational irrigation during critical water supply. The plan was prepared in close coordination with the technical staff of Aganan-Sta. Barbara NISO and selected members of the concerned IAs. A series of workshops were held to familiarize the process of preparing and implementing the activities of the plan. It was emphasized that this activity is best implemented when there is a consensus between and among the staff of the NISO and the IAs members.

(2) ISF Collection

The objective of the ISF revenue improvement plan is to increase billable ISF through (a) improved reporting and billing accuracy and (b) improved staff efficiency and productivity.

The activities carried out in the two pilot NISOs include (a) updating of parcellary maps and master list of farmer-beneficiaries (b) reconciliation of the irrigation fee register (IFR) with the updated master list, and (c) skill enhancement through on-the-job training.

The plan was prepared in close coordination with staff of UPRIIS District III NISO and Aganan-Sta. Barbara NISO. A series of workshops were held to familiarize the process of preparing and implementing the activities of the plan.

4.1.3 Implementation of the Plan

(1) Water Management

The trial was conducted in September 2000 to February 2001 corresponding to the dry season period where water supply then was critical. Subsequently, a validation survey was again conducted in July 2001 to assess the perceptible impact of the capacity improvements earlier introduced in Phase I. The validation survey was part of the extension period of the trial insofar as monitoring the extent of water delivery on land soaking and land preparation in Phase II.

1) Job Aid for Water Allocation and Delivery

Permanent billboards showing water delivery schedule were prepared and posted beside the head gate of laterals A, B and C. Explanation on how to use the billboard and actual contents are described in Table 4.2 and Figure 4.1. The water delivery schedule permitted the beneficiaries to do land preparation and planting with minimum disruption due to timely delivery of water.

2) Establishment of Foot Patrol Teams

Foot patrol teams composed of the chief of the operations section, WRFTs of Areas A, B and C and representatives of the IAs were organized as part of the enforcement team to prevent stealing of water during evening. The foot patrol teams render their services voluntarily and can be considered practical instruments for monitoring violations on water usage among the beneficiaries of the irrigation system.

(2) ISF Collection

The activities were started in September 2000 and results were gathered and evaluated in February 2001. Validation survey and workshop were similarly carried out in both replication offices in July 2001 to gauge the impact of the exercise.

1) Job Aid for ISF Billing and Collection

Prior to the start of the ISF revenue improvement plan, briefings were conducted to the counterpart team to explain how the detailed activities would be undertaken and the expected results from this undertaking.

A flowchart shown in Figure 4.2 was developed to serve as a guide in undertaking the updating and reconciliation of the master list, IFR and parcellary maps.

Tutorial sessions on computer operation (Windows and Excel) were conducted on a one-on-one basis. Actual hands-on exercises were also carried out.

A spreadsheet template (Excel file) was also developed and installed in both replication offices. This template automatically computes the ISF for both wet and dry season. This spreadsheet template replaced the old lotus file in ASBRIS and Dbase 3 files in UPRIIS. The completed template will be used for billing purposes. A completed template for TSA 601.1-5 in IA Sapang Kubo in UPRIIS is shown in Table 4.3.

Tutorial materials in Excel (CDs and printed materials) were also provided to the staff of the replication offices to help them learn spreadsheet computing on a self-study basis.

4.1.4 Results of the Implementation

(1) Increased Irrigated Service Area and Increased Yield

The first trial on gate control and water delivery operations generally showed increase in irrigated service area and yields. The basis of comparison was dry season 2000 (October 1999-February 2000) and dry season 2001 (October 2000-February 2001), the latter period being the coverage of the capacity improvement test. Data were collected from six (6) stratified turnout service areas (TSAs). The descriptions of the results vis-à-vis locations of service areas are summarized below, while the numerical results are given in the table on potential effects of improved water deliveries.

1) Upper portion
   Constant irrigated area and decrease in yield

2) Middle portion
   Increase in irrigated area and increase in yield

3) Lower portion
   Mixed result in irrigated area and increase in yield

Potential Effects of Improved Water Deliveries

Turnout Service Area	Lot Area (ha)	Irrigated Area (ha)		Change	Yield (t/ha)		Change
		Dry 2000	Dry 2001		Dry 2000	Dry 2001	
Upper Portion							
1.ASPL-1	28.37	28.36	28.37	0.02%	4.31	3.65	-15.23%
2. A-6	29.08	28.84	28.88	0.12%	3.71	3.54	-4.50%
Middle Portion							
3. MC-6	31.93	31.02	31.93	2.95%	3.60	3.73	3.73%
4. B-3	20.37	17.37	20.37	17.29%	3.24	3.55	9.57%
Lower Portion							
5. MC-9	28.62	23.79	23.79	0%	3.69	3.77	2.27%
6. MC-14	59.76	35.19	31.98	-9.11%	1.76	2.08	18.41%

Source: JICA Study Team and Aganan-Sta. Barbara NISO

(2) Improved Water Management Operations

The results of the validation survey conducted in July 2001 confirmed marked improvements in water management operations. The findings are summarized as follows:

1) 86% and 73% of the total respondents " during dry season 2001 and wet season 2001 (May 2001-September 2001), respectively responded "yes" with reference to awareness of the permanent bill boards, indicating that farmers are using the bill boards in water delivery schedule.

2) 88% of the total respondents responded "yes" as regards satisfaction of the water delivered in dry season 2001, the period where gate control operation was introduced and strict observance of water delivery schedule, and in wet season 2001, 83% affirmed the same degree of satisfaction.

3) 88% and 84% of the total respondents during dry and wet seasons 2001 responded "yes" as regards sufficiency of volume of water delivered indicating the positive effect of gate control operation and water delivery schedule.

4) 62% of the total respondents during dry season 2001 responded "no" as regards payment of ISF, though more than 80% of the total respondents were satisfied with water delivery and distribution. The low payment of ISF in the dry season occurred because the payment for the dry season is normally postponed, and being paid only in October after the harvest of the wet season crop. Accordingly, production obtained in the dry season, is normally reserved by the farmers to pay for educational expenses of their children in June and payment for farm inputs for the wet season cropping.

5) 83% of the total respondents in wet season 2001 compared to 81% in wet season 2000 revealed that water has reached their farm for land soaking and preparation validating the earlier observation about timely delivery of water.

Summary of Validation Survey Results

Questions	Yes	No	Total
Dry Season			
1. Do you know the permanent bulletin boards showing water delivery schedule beside head gate of laterals A, B and C?	69	11	80
	86%	14%	100%
2. Are you satisfied with water delivery and distribution schedule during dry season 2001 (Oct. 2000-Feb. 2001)?	70	10	80
	88%	13%	100%
3. Was the volume of water delivered in your farm sufficient during dry season 2001?	70	10	80
	88%	13%	100%
4. Did you pay ISF for water supply of the following cropping seasons?			
(a) Dry season 2000	40	39	79
	51%	49%	100%
(b) Dry season 2001	30	49	79
	38%	62%	100%
Wet Season			
1. Do you know the permanent bulletin boards showing water delivery schedule beside head gate of laterals A, B, and C?	88	32	120
	73%	27%	100%
2. Are you satisfied with water delivery and distribution schedule during wet season 2001	100	20	120
	83%	17%	100%
3. Was the volume of water delivered in your farm sufficient during wet season 2001?	102	18	120
	84%	16%	100%
4. Did water reach your farm timely for land soaking and preparation during the following cropping seasons?			
(a) Wet season 2000(May – Sep 2000)	97	23	120
	81%	19%	100%
(b) Wet season 2001(May – Sep 2001)	100	20	120
	83%	17%	100%

Note: Dry season 2001 was the period when capacity improvement plan was introduced.

(3) ISF Revenue Increase

The validation survey conducted in last July at the two replication offices confirmed the following results:

1) Increased ISF Billable Area

In UPRIIS, there was an increase of reported service area of 104 hectares, as shown in Table 4.4, representing 8.1% of the total service area of the pilot IAs. While there was a reported reduction of 60 hectares in the service area of the pilot IAs in Aganan-Sta. Barbara RIS, the reduction in the service area, however, was primarily caused by the conversion of irrigated lands, and not from erroneous reporting of benefited areas. The contrasting result could be attributed to the fact that Aganan-Sta. Barbara RIS has been updating their parcellary maps, master list and IFRs since 1998, while UPRIIS did the last updating in 1990.

2) Improved Accuracy of the Parcellary Maps and Database

The updating of the parcellary maps and master list, and the subsequent reconciliation of the IFR with the master list enhanced integrity of the database.

3) Increased Staff Efficiency and Productivity

Enhanced computer skill of the staff had reduced processing time required in bill preparation and billing computations.

4.1.5 Lessons for Future Plan

(1) Water Management

1) Dissemination of water delivery schedule through the use of permanent billboards located beside water control structures is practical and effective way to rotate the use of water during critical water supply. The rotation permits effective allocation of water, thus increasing the irrigated service areas and yields of palay.

2) Foot patrol teams are effective in monitoring the strict observance of water delivery schedule thus stealing of water is minimized.

These lessons should serve as valuable practices that are worth replicable to other systems. It is thus proposed that they be adopted nationwide. The practices above should, however, be complemented with appropriate institutional strengthening of the NISO staff and physical improvement of the facilities of the system. Specifically, the training to NISO staff and IAs should include the preparation of practical O&M manuals that are readily understood by water users. On-the-job training should emphasize practical O&M work. Among the physical improvements that should be considered are:

1) Rehabilitation of the systems cum installation of water measuring devices.

2) Installation of settling basin to reduce siltation in canals.

(2) ISF Collection

1) The regular updating of the parcellary maps and master list serves as an important monitoring and control mechanism as far as ISF billing is concerned.

2) Regular reconciliation of the IFRs with the master list and cross-checking the same with the reported List of Irrigated and Planted Area (LIPA) prepared by the field personnel would effectively check errors in reporting benefited and exempted areas.

3) Use of computers reduces manual processing time and errors in billing computation thereby devoting more time to analysis and interpretation of financial data.

4.2 Irrigation Inventory and GIS Database

The study on irrigation inventory and GIS database was carried out from September 2000 to August 2001.

In this study, the irrigation inventory of NIA was clarified and supplemental inventory survey was conducted to update the data on the existing irrigation systems for all NISs and a part of CISs. Through the analysis of the existing data and the results of the supplemental inventory survey, irrigation inventory for the NISs, the selected CISs and NIPs was prepared and stored

in the GIS database established in this Study as a computerized database to facilitate effective utilization.

The GIS database was established at two levels that are 1:50,000-scale map level and 1:4,000-scale map level. The 1:50,000-scale map level GIS database can facilitate planning irrigation development projects and monitoring on irrigation systems. The 1:4,000-scale map level (parcellary map level) GIS database can facilitate monitoring on ISF collection and water management activities at National Irrigation System Office (NISO).

The results of the study on irrigation inventory and GIS database are summarized below (Refer to Appendix-Chapter II for details.).

4.2.1 Irrigation Inventory of NIA

(1) Available Irrigation Inventory for NIS

1) Accomplishment Report (Performance Evaluation Report) maintained by SMD

"Accomplishment Report (Performance Evaluation Report)" is prepared by each NISO to evaluate performance of each NISO annually.

The items of this report are as follows:

a. No. of Personnel
b. Irrigation Service Area (ha)
c. Irrigated Area by cropping season (ha)
d. Benefited Area by cropping season (ha)
e. Billed Area by cropping season (ha)
f. Averaged Yield by Cropping Season (cavans/ha)
g. Expenses (Pesos)
h. Income (Pesos)
i. Cropping Intensity (%)
j. ISF Collection Efficiency (%)
k. Viability Index (Total Actual Income / Total Actual Expenses)
l. O&M Cost/ha (Total Actual Expenses / Service Area) (Pesos/ha)

2) Repair/Rehabilitation Status (Physical and Financial Progress) maintained by SMD

"Repair/Rehabilitation Status" is prepared for all NISs by each NISO monthly to monitor physical and financial progress executed by either force account or contract works, keeping track of actual quantity of work accomplished and actual cost of all items/ activities against the approved estimated cost.

Types of work mentioned in this report are as follows:

a. Repair/Rehabilitation of Existing Irrigation System Facilities
b. Repair/Rehabilitation for the Improvement of Drainage & Flood Protection Works
c. Repair/Rehabilitation of Farm to Market Roads
d. Repair/Rehabilitation of Maintenance and Other Operating Expenses (MOOE)
e. Repair/Rehabilitation of Incremental O&M

3) Status of Service & Irrigated Area maintained by CORPLAN

"Status of Service & Irrigated Area" is updated annually by the Corporate Planning Staff Office (CORPLAN) of NIA CO as the inventory for all irrigation systems both for NIS and CIS. This includes the following items:

a. Irrigation Service Area (ha)
b. Irrigated Area by Cropping Season (ha)

(2) Available Irrigation Inventory for CIS

1) The irrigation inventory database for 2,423 CISs (351,769 ha) and 1,466 CIPs (211,809 ha) prepared in the Master Plan Study on the Small-scale Irrigation Development Project (SSIDP/JICA) in 1992.

2) "Provincial Irrigation Profile" prepared for all provinces by NIA in 1989 including all types of irrigation systems and projects, i.e., NIS, NIP, CIS, CIP and private irrigation systems/projects.

3) At present, Corporate Planning Staff Office (CORPLAN) of NIA CO is the responsible office for the maintenance of the inventory for all CISs. This inventory is prepared annually based on monthly reports submitted by each PIO and includes the following items:

a. Irrigation Service Area (ha)
b. Irrigated Area by Cropping Season (ha)
c. Averaged Yield by Cropping Season (cavans/ha)
d. Date of Turned over to IA
e. Total Project Cost (Pesos)
f. Amortization Status (IA Loan)
g. Operation Status (Operational / Non operational)

4.2.2 Supplemental Inventory Survey

(1) Objective of Supplemental Inventory Survey

The supplemental inventory survey aims to update the data on the existing irrigation systems for all NISs and a part of CISs. The data and information obtained from the inventory survey are stored in the GIS database prepared in this Study. The inventory database for all NISs will be utilized for monitoring the activities/services and for planning irrigation development projects. The inventory database for the selected CISs will be a model to prepare the inventory database of all CISs by NIA in the future.

The inventory database of NISs was established in this Study. In addition, data for NIPs to be implemented up to 2004 was collected and stored in the GIS database.

(2) Objective Irrigation Systems

The inventory of the objective irrigation systems was prepared in this Study. They consist of the following:

1) All the existing NISs and NIPs to be implemented up to 2004.

2) Selected CISs with the total irrigation service areas of about 1,000 ha.

The number and irrigation service area of objective NISs and NIPs are as follows:

No. and Irrigation Service Area of Objective NIS and NIP

System / Project		No. of Systems / Projects	Total Irrigation Service Area (ha)
NIS		195	678,549
NIP	Recently Completed and On-Going NIP	17	170,160
	Proposed NIP to be Implemented up to 2004	25	93,651
	Sub-Total (NIP)	42	263,811
Total (NIS & NIP)		237	942,360

Source: CORPLAN, SMD and JICA Study Team

Lists of objective NISs and NIPs are shown in Tables 4.5 and 4.6 respectively.

CISs to be included in the irrigation inventory were finally selected as follows.

Selected CIS included in Irrigation Inventory

Region	Name of CIS	Type of Intake Facilities	Name of PIO	City/ Municipality	Service Area (ha)
Region 3	Malimanga Sinabacan CIS	Check Gate	Zambales PIMO	Candelaria	200
	Cabangan CIS	Diversion Dam Pump-Well	Zambales PIMO	Cabangan	83
	Palayan CIS	Pump-River	Nueva Ecija PIMO	Palayan City	120
Region 6	Alapasco CIS	Impounding Dam	Iloilo PIO	Batad	442
Region 11	Upper Tuganay CIS	Diversion Dam	Davao del Norte PIO	Sto. Tomas	250
Total					1,095

Source: CORPLAN and JICA Study Team

(3) Results of Supplemental Inventory Survey

The inventory survey was conducted by the Study Team in cooperation with NIA with expectation that the answered questionnaires and related materials would be collected by the end of December 2000. However, the survey was finally completed in the middle of February 2001. The answered questionnaires and related materials were collected with the following collection ratio.

Results of Data Collection for Irrigation Inventory

System / Project	Description	Answered Questionnaire	General Layout Map	Performance Evaluation Report
NIS	Target	195	195	195
	Collected	185	195	177
	Collection Ratio	95%	100%	91%
NIP	Target	42	42	-
	Collected	39	39	-
	Collection Ratio	93%	93%	-
CIS	Target	5	-	-
	Collected	5	-	-
	Collection Ratio	100%	-	-

Source: JICA Study Team

Through the analysis of the existing data and the results of the inventory survey, irrigation inventory was prepared for the NISs, the selected CISs and NIPs as a computerized database. The database for the NIS, NIP and CIS was stored in the GIS database established in this Study.

Major items of the irrigation inventory for NIS, NIP and CIS are shown in Table 4.7.

4.2.3 GIS Database Established

(1) Objectives of GIS Database and Objective Irrigation Systems

1) Objectives of GIS Database

NIA requires GIS Database at two levels – (a) at the macro level for overall planning and monitoring on irrigation systems, and (b) at the parcellary map level for efficient operation of National Irrigation System Office (NISO). Both systems were planned and established in this Study.

a. Macro Level GIS Database (1:50,000 GIS Database)

NIA requires a macro level GIS database for organizing new irrigation projects and for assembling vital management information. New irrigation systems are being planned and implemented regularly. Topographic and irrigation related geographical information are necessary for selecting the appropriate locations, for determining the water availability, determining the service area, and for designing the system. In addition, it is also necessary to monitor existing irrigation systems. However, such information is not available in an integrated way presently.

The macro level GIS database (1:50,000-scale map / hereinafter referred to as "System-A") contains the basic information on all the 195 NISs and 42 NIPs to be implemented up to 2004, in addition to 1:50,000 scale resolution topographic and irrigation related information. It is anticipated that this GIS database will provide the much-needed basic data for improved irrigation systems planning, monitoring and evaluation.

b. Parcellary Map Level GIS database (1:4,000 GIS Database)

The parcellary map level GIS database (1:4,000-scale map / hereinafter referred to as "System-B") was also established for about 1,000ha area. The purpose of this system is to demonstrate utilization of computerized parcellary maps for monitoring on ISF collection and water management activities.

NIA recognized the need for parcellary maps and an effort was undertaken to update the parcellary maps through Irrigation Operations Support Project I (IOSP I). Manual procedures were initiated for utilization of the parcellary map for ISF monitoring activity in 1991 (Memorandum Circular No. 71, titled "General Guidelines and Procedure for Utilization of the Parcellary Maps", Dated 1991). However, in spite of these efforts, parcellary maps are sparingly used in ISF monitoring and water management. Especially in the case of large irrigation systems, it is difficult to use the parcellary maps because of the large number of maps to be involved. Further, manual utilization of parcellary maps for monitoring activities has many problems. Parcellary-level GIS database will be very useful to maintain and utilize the parcellary map for monitoring of ISF collection and water management activities.

2) Objective Site for Parcellary Map Level GIS Database

Upper Pampanga River Integrated Irrigation System (UPRIIS)-District III-Zone I-Division C was selected as the objective site for the 1:4,000 GIS database. Division C represents an area of 1,293 ha with 5 Irrigators' Associations (IAs). The selected site has 1 lateral canal and 7 sub-lateral canals. There are 711 farm lots in this area. The whole UPRIIS District III has an area of about 30,000 ha with about 20,000 farmers.

It is expected that NIA will be able to digitize parcellary maps of other areas using the facilities that are currently available in NIA and the expertise provided by the Study Team.

3) Basic Specifications for the two GIS Database Systems

Basic Specifications for the two GIS Database Systems were made to develop a GIS that would add value, integrate smoothly with the NIA's current resources/capability and provide an easy path for future expansion. Based on these guidelines, detailed design of GIS database and development were undertaken. NIA currently owns GIS software developed by Environmental System Research Institute Inc. (ESRI). For this reason, the data and the customization was made using ArcView GIS, which is a product of ESRI. Further, Microsoft's MS-Excel and MS-Access software was used. The system was developed in such a way that modifications can be carried out by NIA's technical staff.

(2) Main Features of 1:50,000 GIS Database

1) Data for 1:50,000 GIS Database

The main source of information for geographic features are General Layout maps of NISs and NIPs and the 1:50,000 topographic map available from National Mapping and Resources Information Authority (NAMRIA).

In addition, tabular data pertaining to irrigation system profiles, staffing, accomplishment, Irrigators' Association (IA), equipment inventory, current operating budget, annual income & expense information corresponding to each NISO was also collected and encoded for incorporation in the GIS database as attribute tabular information.

2) Customization for 1:50,000 GIS Database

The GIS database will be used by the NIA staff. In addition, some staff are not familiar with GIS. For this reason, some of the functionalities available in GIS were customized to make easy system for users. In the GIS database, using the digital map as interface, it is possible to query relevant irrigation features and obtain information that are stored with that feature.

The type of output and the schematic flowchart of the user interface are summarized in Figure 4.3. Initially, a map of whole Philippines (or a region when used at regional level) is displayed and has facility to zoom in and zoom out to various map resolution levels. GIS database was customized in such a way that by clicking on the displayed NIS, information and reports pertinent to that NIS can be retrieved and displayed. Similarly, if a NISO or a RIO or a CO is clicked, then the information of all the NIS, belonging to that office can be retrieved and displayed, either in summarized form or in a detailed form. The sample templates for output and sample maps to be obtained from the 1:50,000 GIS database is summarized in Figure 4.4.

Calculation functions for reservoir volume and water surface area of proposed reservoir will be useful for irrigation system planning purposes. The proposed system has an automated provision to display the reservoir water surface area in 2D and display of the calculated reservoir volume and water surface area.

The GIS database is equipped with an open architecture so further customization and improvement can be undertaken at a later stage.

Users have experience using computers, but have no experience to GIS software. To ensure the smooth operation and sustainable utilization of the established GIS database, an Operation and Maintenance Manual was prepared in addition to its software customization.

(3) Main Features of 1:4,000 GIS Database

1) Data for 1:4,000 GIS Database

For the UPRIIS District III-Zone I-Division C, which was selected as the objective site for 1:4,000 GIS database, topographic maps (1:4,000-scale) prepared in 1971 and parcellary maps prepared in 1991 were available. These maps were used as the basis to digitize the geographic data.

Irrigation system, irrigation division boundaries, Irrigators' Association boundaries, turnout service area boundaries and farm lot features are all polygons and represent the administrative divisions of an irrigation system. Farm lot is the smallest unit owned/leased by a farmer and being cultivated. Zone I, Division C has 5 Irrigators' Associations, 44 turnout service areas and 711 farm lots.

For the monitoring of the ISF related activities, essentially two documents below are required:

a. Parcellary map indicating each farm lot, and
b. Irrigation Fee Register (IFR)

Every farm lot must have one IFR, wherein the details of the farmer, the service area, amount billed, amount collected and amount exempted for each cropping season will be entered and maintained.

2) Customization for 1:4,000 GIS Database

The main concentration for customization is in ISF collection, water management, parcellary map editing and repair/rehabilitation of irrigation system facilities. Using the GIS database, it is planned to monitor every farmer and every farm lot. The type of output and the schematic flowchart of the user interface are summarized briefly in Figure 4.5. The sample templates for output and sample maps to be obtained from the 1:4,000 GIS database is summarized in Figure 4.6.

Through customization, the following functions for ISF collection can be facilitated:

a. Display/print the profile, the current account and the past account transactions (back account) of a farmer/farm lot.
b. Display/print uncollected ISF records and view their corresponding farm lots/farmer interactively.
c. Display/print the historical records of areas irrigated and billed, and ISF payment received for a farmer/farm lot.
d. Map query, map display and report.

Like ISF collection activities, a simple provision to update data, query, display and report is required for water management also. For the GIS database, information such as turnout service area and cropping calendar are required for the planning of the water delivery and distribution schedule. Discharge of head gate and turnout needs to be recorded for monitoring of water delivery and distribution.

The main outputs that are produced from the GIS database for water management are as follows:

a. Cropping Calendar showing the timing for land soaking, land preparation and irrigation shall also be stored in the computer.
b. Programmed Area Map showing the area planned for irrigation for each cropping season.
c. Water Distribution Schedule Map showing the dates on which water will be released to various turnout service areas.
d. Discharge records of water delivery and distribution from each head gate and each turnout respectively.

Users have experience using computers, but have no experience to GIS software. To ensure the smooth operation and sustainable utilization of the established GIS database, an Operation and Maintenance Manual was prepared in addition to its software customization.

4.2.4 Organization for Operation and Maintenance of GIS Database

The GIS database hardware and software infrastructure within NIA were installed to materialize the proposed operation and maintenance plan as follows:

GIS database hardware and software installed

		Hardware	Software
NIA CO	CORPLAN	1	1
	PDD	*A	*B
	SMD	1	1
	Sub-Total (NIA CO)	2	2
RIO Level	UPRIIS Head Office	1	1
NISO	UPRIIS District III	1	1
	Total	4	4

Notes: *A: Existing hardware is available.
*B: Existing software is available.

Upon completion of the Study, the GIS database is transferred to NIA in a CD-ROM along with an operation and maintenance manual. The contents in the CD-ROM can be installed in a computer and activated using ArcView GIS software.

In the proposed organization of NIA, Information Systems Department will hold the overall responsibility for the GIS database. However, in the existing organization, Corporate Planning Staff Office (CORPLAN) will hold the overall responsibility.

Operation and maintenance is necessary to sustain the GIS database. Various geographic and attribute information need to be kept up-to-date in order to utilize the GIS database. The operation and maintenance plan for the GIS database is summarized below.

(1) Operation and Maintenance for 1:50,000 GIS Database

In the current organization, CORPLAN would hold the overall responsibility for 1:50,000 GIS database. PDD in coordination with the Electronic Data Processing (EDP) Section of CORPLAN will install and maintain the ArcView GIS software within NIA. Further, improvement and expansion of the GIS database should be undertaken by PDD, until the creation of Information Systems Department.

PDD is equipped with necessary GIS resources and also has the necessary expertise to maintain the geographic data. PDD will update the geographic feature data whenever new irrigation systems are established or whenever there is change in the existing data. The SMD will undertake updating of the attribute data tables. Responsible departments and frequency of updating to be required for the various information incorporated in the 1:50,000 GIS database is summarized in the table below:

Data Updating for 1:50,000 GIS Database

Description	Data Source	Responsible Dept.	Proposed Frequency of Updating
Geographic Information			
General Layout Maps of Irrigation Systems and Projects	NISO, CMD and PDD	PDD	Annually or as required
Topographic Information	NAMRIA	PDD	Annually or as required
Attribute Information			
System Profile (NIS) Project Profile (NIP)	SMD for NIS CMD for On-going NIP PDD for Proposed NIP	SMD	Annually
Accomplishment Report (Performance Evaluation Report)	SMD	SMD	Annually
Repair / Rehabilitation Status	SMD	SMD	Annually
Irrigators' Association Information	IDD	SMD	Annually or as required
Equipment Inventory	EMD	SMD	Annually or as required
Staffing Information	Personnel Dept.	SMD	Annually
Current Operation Budget (COB)	Finance Dept.	SMD	Annually
Annual Income and Expense	Finance Dept.	SMD	Annually

(2) Operation and Maintenance for 1:4,000 GIS Database

All aspects of the system were fully customized to ensure easy operation by any user, because the GIS database will be operated at the NISO. The computer will be located in a suitable place within UPRIIS District III office, so both the Engineering section and the Billing section can operate.

Using this GIS database, the NISO can follow up which farm lots have been planted and irrigated, which farm lots have been billed, which farm lots have been exempted and where collection has already been made. However, such information can be obtained from GIS database only if it's kept up to date. Responsible departments/sections and frequency of updating to be required for the various information incorporated in the 1:4,000 GIS database is summarized in the table below:

Data Updating for 1:4,000 GIS Database

Description	Data Source	Responsible Dept. / Section	Proposed Frequency of Updating
Geographic Information			
Parcellary Map	Operation Section	PDD	Annually or as required
Facilities Information	Maintenance Section	PDD	Annually or as required
Topographic Information	Operation Section	PDD	Annually or as required
Attribute Information			
Irrigated / Planted Information	LIPA	Operation Section	Every cropping season
Exemption Information	Exemption Report	Billing Section	Every cropping season
ISF Billed Farm Lots Information	ISF Bill	Billing Section	Every cropping season
ISF Collection Information	ISF Receipt	Billing Section	Every cropping season
Water Users Information	IFR	Billing Section	Every cropping season or as required
Water Distribution Schedule	Operation Section	Operation Section	Every cropping season
Discharge Record	Operation Section	Operation Section	Monthly
Repair / Rehabilitation Status	Maintenance Section	Maintenance Section	Annually

For operation and maintenance of the GIS database, the Study Team conducted the training for UPRIIS District III staff. The NIA CO must provide ArcView software maintenance and training/user support for the GIS database on periodic basis. It is recommended that many people be trained in operation and maintenance of the GIS database in each NISO, so that the GIS database can be sustained even if there is a staff movement.

The NISOs do not have the necessary resources and expertise to expand the GIS database to other areas. In addition, it is not economical to develop such resource in the respective NISOs. Therefore, further digitalization of parcellary maps and its integration into the GIS database must be undertaken by the PDD of NIA CO.

4.2.5 Training for Operation and Maintenance of GIS Database

Training for operation and maintenance of the GIS database was conducted to the NIA personnel of Central Office (CO) and UPRIIS.

The primary objective of the training was to introduce the application of GIS for ISF monitoring and planning/monitoring for irrigation systems. The focus of the training was to facilitate and sustain the effective utilization of the GIS database after the completion of the Study. The contents of the training were as follows:

1) Introduction to GIS software (ArcView)
2) Operation of the GIS database
   - Process of setting an environment variable
   - System's graphical user interface
   - System's functionalities
3) Maintenance of the GIS database
   - Maintenance of map data and attribute data
   - Access to the forms for data entry
   - Identification of the form elements and its functions
   - Creation, updating, deletion and view of data

The period and objective participants of the training were as follows:

Period and Objective Participants of GIS Training

	Training Period	Objective Participants
Central Office (CO)	June 25 – July 20, 2001 for four (4) weeks	34 staff from PDD, SMD, CORPLAN, EMD, CMD and IDD
UPRIIS	June 25 – July 13, 2001 for three (3) weeks	26 staff from UPRIIS Head Office and District I, II, III & IV

There were four (4) training sessions in CO and three (3) training sessions in UPRIIS, with each session lasting for a week (8 hours a day).

At the end of each training session, evaluation of the training accomplishment was made by way of questionnaire. Results of evaluation are summarized as follows:

Results of Training Evaluation

Description	CO	UPRIIS
1. I acquired many valuable skills.	100%	100%
2. I acquired much valuable information.	100%	100%
3. The content and scope met my expectations.	100%	100%
4. The exercises were very useful for learning.	100%	100%
5. The amount of material covered in the course was just right.	86%	82%
6. Information covered in the class was new to you.	76%	61%

All of the participants responded that they acquired valuable skills and information, and the contents of the training were useful in both CO and UPRIIS. Overall, the training was well received by the participants and was beneficial to NIA. The training for the Central Office and UPRIIS was completed successfully and certificate was distributed to each participant on July 20, 2001 and July 13, 2001, respectively.

As mentioned in the above section, this kind of GIS training for the NIA personnel should be conducted continuously and periodically to sustain and expand utilization of GIS database all over NIA.

CHAPTER 5 MANAGEMENT ISSUES AND APPROACH TO STRENGHTENING

5.1 Major Managerial Issues

NIA is a semi-autonomous organization directly attached to the Department of Agriculture. In general, it has considerable operational freedom being a corporate entity. NIA is relatively a mature agency having been in irrigation development since 1963. The powers and duties emanate from the Board, whose membership is composed of six top government officials with the secretary of the DA as chairperson and the administrator as vice-chairman. It implements its work through a network of national, 13 regional, 70 provincial and 106 system's offices nationwide, including project offices that are independently implementing foreign-funded projects. It is more than adequately staffed of about 6000 permanent and daily personnel, and this magnitude has now become a contentious issue due to the agency's eroded financial position.

Over the past 10 years, NIA's capability to efficiently deliver irrigation water to farmer-beneficiaries has been somewhat impaired. The poor performance of several NIS, where only 20% of the existing NISOs can be considered good and the lethargic support to the empowerment of IAs are cases in point. Despite external assistance for technical, financial and institutional changes coming from multilateral donors, NIA appears to have been responding slowly to the advent of new developmental policies, notably the devolution of CIS to the LGUs, IMT, and greater private sector participation both in the construction and maintenance of irrigation systems. Twin factors are perceived to have weakened its absorptive capacity, namely: (a) flawed management systems; and (b) structural and organizational deficiencies**.** Attempts to correct these flaws have been superficial mainly because of irreconcilable interests among the stakeholders and limited understanding about the technical and financial implications to the agency. The succeeding section discusses the substantive managerial and organizational issues that have far-reaching implications in the restoration of the long-term sustainability of NIA as the major institutional player in irrigation development.

5.1.1 Corporate Governance

NIA's powers emanate from the Board of Directors (BOD). The vigor of the Board constitutes NIA's key to execute its policies and programs. Major operational decisions are translated out of policies enunciated by the Board. Its membership is thus critical relative to the kind of policies being formulated and supremacy it can exert over its functions. Offhand, the membership of the Board is sectorally represented, although there is a pending proposal under AFMA to expand the members to include representatives from the civil society, and other departments (e.g. DENR, DAR, and DILG). This move is proper and should be strongly supported given the new directions in irrigation development. In addition, the members, given their key and sensitive posts in government should be able to delegate their authority to duly designated representatives to permit the holding of meeting as often as possible to decide on critical policy issues.

The Board, especially in the previous administration has not been exercising its function effectively despite the degree of flexibility vested on NIA. This is evident in the kind of resolutions it has endorsed. The resolutions were pure administrative matters internal to the organization. The Board also failed to meet regularly either due to lack of quorum or simply no important agenda can be taken up for deliberation.

Policies decided upon by the Board are operationally executed by the operations unit, generally the field and project offices. There has been a common perception among the employees that a communication gap exists along this line in view of the rare and occasional holding of management committee (MANCOM), executive committee (EXCOM) and regional/project managers meetings. While this is a matter of leadership style, it is important that they be restored to create awareness and foster closer coordination among the various units.

5.1.2 Autonomy and Clear Corporate Strategy

NIA has generally a considerable freedom inherent in its charter and other laws. For a while, the autonomy has been clipped by the DA through General Memorandum Order (GMO) No. 1. This order was later amended by GMO No. 2 issued in October 2000. There are, however, administrative provisions considered restrictive. The appointment, for instance, of a division chief has to get the approval of the Secretary of the DA, which could in fact be easily delegated to the administrator**.** In this regard, NIA's previous autonomy should still be restored and with minimum interference as far as practicable by DA to perform its activities in accordance with corporate flexibility.

Delegation of authority within the NIA is embodied in Memorandum Circular No. 15 series of 1998. There are two aspects that should be reviewed in MC No. 15 relative to financial autonomy. First, are the monetary ceilings imposed on different financial transactions. Given inflationary adjustments, it is now timely that the ceilings be adjusted (consistent with government accounting and auditing rules) to allow greater flexibility for financial transaction. Second, the approval authority should also be reviewed. MC No. 15 generally restricts the approving authority of the field offices. Approval and disbursement of financial requests are still tied up with the central office, and this is not in keeping with the principle of decentralization. There is in fact a strong argument to allow the field offices, particularly the NISOs to exercise greater financial autonomy. The NISOs are profit responsibility centers, and as such they should be given enough flexibility to spend prudently their income (ISF collection), especially for maintenance. In contrast, the CO is basically a cost center, while the RIOs are a hybrid between cost and profit center. It is not proper from a strict corporate principle, a current reality, to see the NISOs subsidizing the operating budget of the RIOs. The delegation of such authority to the field offices should, however, be accompanied with safety net so as not to abuse such degree of freedom. One way of doing this is to make the transaction as transparent as possible.

The new direction in the irrigation sector, such as devolution of CIS to the LGUs, promotion of IMT and greater participation of the private sector in construction/rehabilitation and maintenance really calls for a short to long-run strategy. NIA has not crafted a well-conceived corporate strategy that can ensure its corporate survival to meet such challenges. In the short to medium term, NIA should consider decentralization over centralization to give more flexibility to the field offices to respond to the needs of the IAs. It should gradually aim for a leaner organization commensurate with its resources. In the long-run, NIA should transform itself as an institution providing technical support to its clients. This is inevitable because a number of its responsibilities will be assumed by new stakeholders.

5.1.3 Financial Viability

NIA does not finance investment projects out of its internal resources or loans. The national government instead funds the investment projects through foreign loans, grants and counterpart funds. However, NIA finances its operating budget principally from ISF collections, a-5% management fee charged to the government for the design, construction, and supervision of irrigation projects, and rentals of construction equipment. Thus, the main issue on financial viability is related to its operating budget.

Over the past 10 years, its financial position has deteriorated very badly as shown in the table below. The operating deficit has expanded tremendously by 340%, from PHP100 million in 1991 to about PHP440 million in 2000. Operating costs have greatly outpaced revenues. Between 1991 and 2000, operating costs increased by 84%, while revenues expanded by 38%. Improving the financial viability can be remedied by taking a painful cost reduction through retrenchment of personnel and increasing the revenues.

National Irrigation Administration
Cash Flow Statement, 1991-2000

(Unit: PHP million)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
1. Receipts from Income Sources										
a. Irrigation Fees	342	328	336	373	346	422	511	360	333	372
b. Management Fees	99	65	126	66	110	149	276	193	287	250
c. Equipment Rental	90	72	82	112	163	192	212	199	226	152
d. Interest Income	29	17	27	54	47	37	42	20	30	
Total Receipts Income Sources	560	482	571	606	666	800	1,041	772	876	774
2. Less: Expenditures										
a. Personnel Costs	498	582	536	600	672	823	1,006	1,093	1,057	1,026
b. ISF Related Expenses	40	41	33	35	35	45	54	34	32	32
c. Maintenance Expenses	4	2	2	2	8	4	10	8	6	7
d. Other Operating Costs	118	97	114	143	158	155	153	209	125	153
Total Expenditures	661	722	684	779	872	1,027	1,222	1,343	1,220	1,218
3. Net Operating Cash (Deficit)	-101	-240	-113	-173	-207	-227	-181	-571	-343	-444
4. Add: Receipts From Other Sources										
a. Pump Amortization	2	2	1	4	1	5	5	25	3	3
b. CIP Amortization/Equity Contribution	54	44	51	51	77	95	126	156	153	106
c. Miscellaneous	79	118	67	89	49	109	155	380	192	160
Total Receipts from Other Sources	135	164	120	144	127	209	286	561	348	269
5. Net Cash (Deficit)	34	-77	6	-29	-80	-18	105	-11	5	-175

Source: JICA Study Team Based on NIA's Audited Financial Reports, 1990-1998, 1999(unaudited)

Low financial viability can not be overemphasized. Without the budget to support O and M for the systems, it is virtually impossible to expect good cropping intensity and consequently improved yields. The overall effect is low ISF collection and thus, salaries primarily funded out of ISF collections can not be released on time. Morale and enthusiasm among employees are badly affected resulting in non- motivation among employees to do maintenance work and other institutional activities, the impact of which is poor delivery of service. This is going to be a vicious cycle, unless the financial viability is resolved soonest.

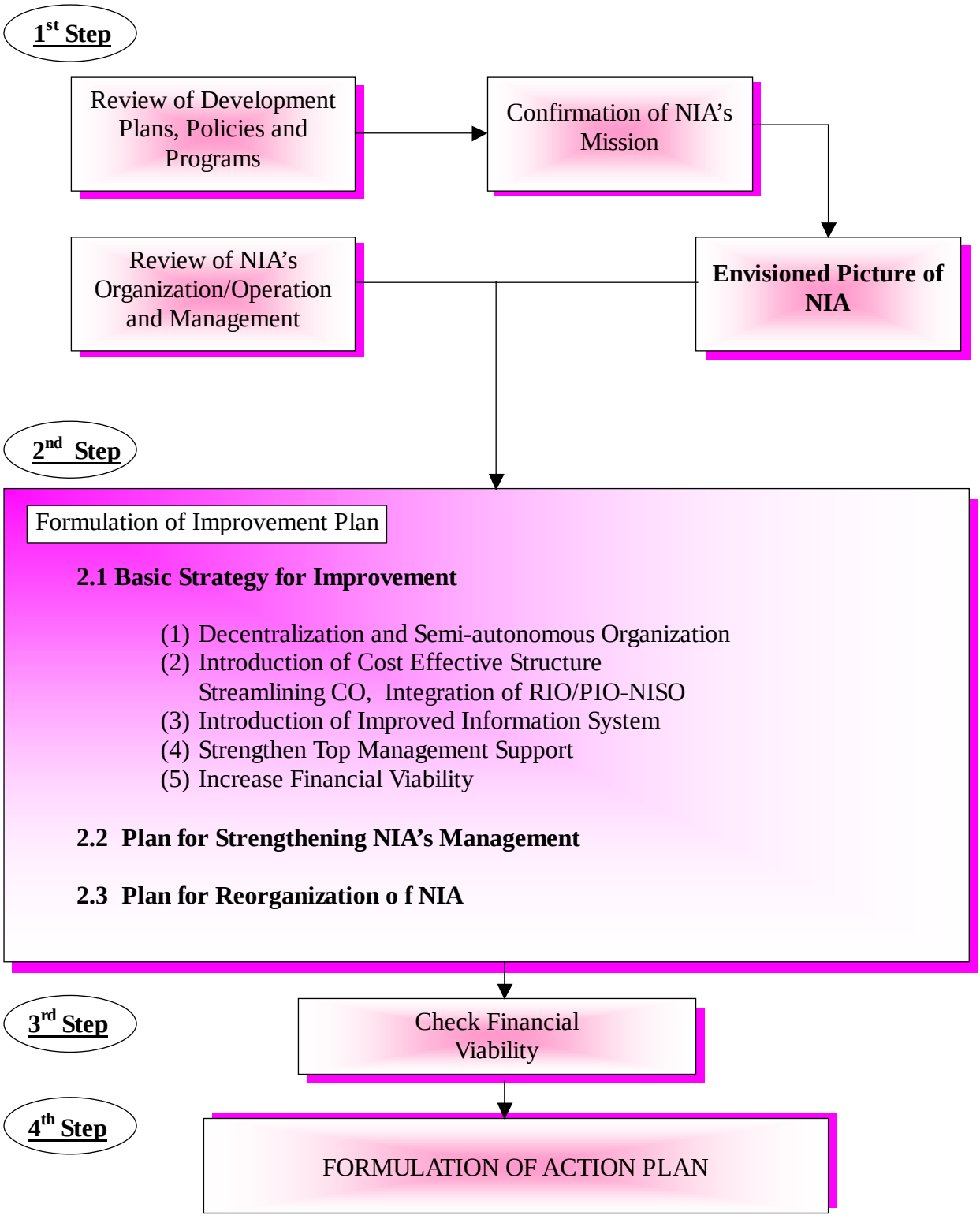
No financial viability can be achieved without touching manpower representing roughly 80% of the operating costs. The cost of personnel has tremendously sacrificed O & M, and its effect is now evident in the poor performance of several systems. There is, however, a social cost to manpower retrenchment and this has to be equally addressed by NIA.

With respect to the revenues, ISF collection offers the greatest potential for earnings. Management fee and equipment rentals are dependent on the projects undertaken. Improving ISF collection efficiency, in response to low collection efficiency, is considered vital in sustaining the operations of NIA. One important aspect of ISF is the pricing attached to it. The improper rates, especially the so-called socialized rates, have been considered the main reason for low ISF revenue. Some systems that have posted above average collection efficiency are still unable to cover their operations due to this problem. The recent decision by the current leadership to restore the old ISF rates (pre-1998 level) is in order. NIA will still have to determine the appropriate pricing, preferably market-based to sustain its operations in the long-term, including the need to increase collection efficiency.

5.2 Approach to Strengthening

The basic approach to Strengthening of NIA's Management System is illustrated in the figure below. The first step was to review the economic environment of NIA to where it is now positioned. A broader appreciation of the environment was made through: (a) review of major development policies, plans and programs in the agriculture and irrigation sectors and (b) review of the internal organization of NIA. These reviews facilitated the confirmation of NIA's mission. With the confirmation of new NIA's mission, the future outlook for NIA was formulated.

The second step was the formulation of the improvement plans based on the new functional dimensions of NIA, among others, as: (a) top management support, (b) project development and implementation, (c) operations and maintenance, (d) finance and accounting, (e) auditing, (f) management information systems, and (g) administrative services. In the formulation of these strengthening plans, the basic strategies considered were:



Approach to Strengthening Plan NIA's Management System

(1) Decentralization and Semi-autonomous Organization

The principles of decentralization and semi-autonomy were adopted mainly for two reasons: (a) to establish focus in the delivery of service; and (b) to permit judicious utilization of resources. With decentralization, the CO will concentrate on planning, policy, evaluation and monitoring functions. The RIOs will have direct responsibility in project development and implementation, while the NISOs will concentrate on O&M activities. Semi-autonomy will permit the RIOs and NISOs to have control over management fee and ISF collections, respectively.

(2) Introduction of Cost Effective Structure

Cost effectiveness is emphasized as a way to improve revenue, firstly by streamlining the CO. Second will be the consolidation of the RIOs and NISOs. The consolidation of the RIOs and NISOs will permit equitable distribution of workload in terms of irrigation projects and systems to be maintained and operated, respectively. The consequential effect will be reduction in manpower, but with better synergy in terms of planning, implementation and operations.

(3) Introduction of Improved Information System

The information system is stressed to aid NIA's management in decision-making. With improved information system, timely, reliable and accurate information will be available for prompt decision-making. This will enable management to prescribe realistic policies and plans. A new department in charge of IT is proposed at the CO.

(4) Strengthen Top Management Support

Support to top management is emphasized to restore the confidence of NIA. The Board will be reorganized and the necessary technical support will be provided. With strong management, NIA can entice the support of agencies and external institutions to support its programs and projects.

(5) Increase Financial Viability

To satisfy NIA 's obligations in terms of ensuring high morale among its employees and sustainable O &M, financial viability is given premium consideration. Revenues will be increased through gradual upward adjustment of ISF rates and higher collection efficiency. Costs will be reduced through the downsizing and elimination of redundant activities.

The reorganization plan of NIA as also included in the proposed improvement plan. The reorganization plan serves as the organizational blueprint and describes the new organizational linkages and functions among the CO, RIOs and NISOs. The main components of the reorganization plan are:

1) Streamlining of the CO

2) Integration of the RIOs

3) Integration of the NISOs with the PIOs

The third step was the financial evaluation of the proposed plan. This was necessary to check the financial viability of the proposed improvement plan.

The final step was the formulation of the Action Plan. The Action Plan is a time-bound plan meant for immediate implementation to realize the goals and objectives set forth in the Strengthening of NIA's Management System. The target year of the Action Plan was set at year 2004.

CHAPTER 6 PLAN FOR STRENGTHENING NIA'S MANAGEMENT

6.1 Plan for Support to Top Management

6.1.1 Reorganizing the Board of Directors

The Board's major functions are to set the goals, policies and long-range plans of NIA. These functions have been superficially performed due to leadership problem and weak organizational support. The leadership problem is often characterized by temporary appointment and hence the syndrome of uncertainty about the agency's plans and programs always exists. The absence of well-conceived plans and policies is also indicative of weak organizational support. To address this concern, it is proposed that the Board be reconstituted and clothe with powers and authority for important policy decisions.

(1) Membership

The membership of the Board is proposed to be expanded from 6 to 8 members. The increase in the membership should, however, be limited to agencies and institutions whose roles directly concern irrigation and water resource development as it affects the welfare of the small farmers. The proposed new members will include DENR and DAR. Although NPC has just lately been privatized, it will remain as a member of the Board in view of its relation with NIA's operations in irrigation development. With regard to the representation of the private sector, it is proposed that the head of the National Confederation of Irrigators Association be appointed. All members are *ex officio* except the private sector representative.

With the new members, inter-sectoral conflicts and interests are expected to be addressed appropriately, and there can no longer be reasons to delay important policy decisions. One of the things that the Board should instill in its culture is independence from politics. Being a corporate entity, it should serve on the basis of merit. This is one way of stressing autonomy.

(2) Chairmanship and Members' Representation

The DA Secretary currently heads the Chairman of the Board by virtue of AO 17, S. 1992. The DA Secretary, however, is oftentimes pre-occupied with several tasks affecting the agriculture sector, and this prevents him from chairing important meetings of the Board. Unless the DA Secretary can delegate his authority to any one of his Undersecretaries, the problem of leadership always exists in the Board. It is proposed that the Administrator be appointed as Co-Chairman of the Board. This will permit flexibility for the Board to decide as often as possible policy decisions even in the absence of the DA Secretary.

With the expanded membership of the Board, the risk of not having a quorum is always certain, especially if the members occupy the highest position in their agency. This should be remedied by allowing the members to designate their alternates, preferably deputies to represent them in the Board's meetings.

6.1.2 Strengthening Policy and Planning

Strengthening the support to top management in policy and planning can not be over-emphasized. The weak support to this important function has stifled top management' sense of security and confidence about its role and functions. The past management has involved

itself in trivial details of the organization. To begin with, expanding the membership of the Board per se will also not help unless there are substantive issues that can be taken up.

To remedy the above concern, it is proposed to strengthen the support function by creating a permanent planning and monitoring office in the CO staffed with competent people. This will serve as the permanent Technical Secretariat to the Board in carrying out their responsibilities. Specific areas of concerns that will be provided by this office will cover policy analysis, long-range planning, investment programming, etc.

The office will be staffed with competent people, as such the required training in planning and investment programming skills would be given. With adequate training, the staff will relieve the Board of the details that could otherwise rob them of efficiency. This office should posses the qualification of organizational zeal and efficiency and precise attention to details to be able to prepare substantive agenda for the consideration of the Board.

6.1.3 Establishing Management Information System

MIS is essential as it provides timely, reliable and valid information for decision-making. Information available in meaningful form and pertinent for making decisions for NIA's top management is fragmented. This is brought about by the absence of a centralized unit that can process and convey the information. The present organization, supposedly a depository source of information is ill equipped for an integrated MIS.

An integrated new department is envisaged to handle the control and processing of information. The proposed department will be provided with essential hardware and institutional support, notably systems' software and people to manage NIA's information systems need. One of the tasks of this department is to integrate the MIS with NIA's operational and long-range plans.

6.1.4 Strengthening Internal Audit

Control, especially from a top management viewpoint is missing because of structural defects. The defects are due to the following: (a) the auditing scope is very limited; (b) the unit (management audit division) is misplaced and relegated as a less important activity; and (c) acute lack of manpower that could undertake the bigger scope of auditing

To strengthen internal auditing, an office directly under the Administrator is proposed as the top management's instrument of control. The proposal envisages a comprehensive scope of auditing to include financial, organization and methods, and operational and management audits. This staff is proposed to be independent with reinforced functions and competent staff. Sharing of internal audit responsibilities between the CO and the RIOs will be carried out through their respective audit staff. In the regions, the planning and monitoring unit will partly cover internal auditing. To reinforce independence, internal auditors will be supplemented with external auditors through the VFM audit.

6.2 Plan for Project Development and Implementation

6.2.1 Devolve the Function to Field Offices with Strengthened Support of CO

Redundancy in project preparation and implementation affects NIA's capability in the generation of investment proposals and acceleration in the construction of major civil works. Project proposals emanate from the field offices and they are being submitted to the CO either for detailed or semi-detailed studies. The buck-passing activity lengthens the process of preparation.

The RIOs and PIOs through their engineering divisions/sections are doing the planning, design and construction of dam, mostly CIS, including other small-scale projects. They are allowed to perform this task as long as they are within the standards and monetary ceiling given to them by the CO. On the other hand, the CO does all investigation, planning and design works of mostly the bigger and complex projects, notably foreign-funded projects.

Delineation of responsibilities in project development and preparation is proposed to be addressed in this manner. Overall project planning and programming of NIS will be the responsibility of the CO. A core of engineer staff will be maintained and a Project Engineering Department will be established for this purpose. The planning, design and implementation of all NIS will be decentralized down to the RIOs and FOs in an effort to facilitate expedite project preparation and execution. Control, however, will be established with the core of engineers at the CO who will review and evaluate the plans and designs prepared by the RIOs and FOs. This function will determine whether plans and designs prepared at the lower levels comply with standards. This is important to ensure adherence to quality and good performance of the FOs.

The support of the CO to project development and preparation is further strengthened through the creation of the Irrigation Engineering Center. The primary roles are to coordinate with academic and research institutions in the acquisition and application of new irrigation technologies, and to hone the skills of the engineering staff of the lower levels in irrigation planning, design and construction. The Center will draw staff support from other departments and will utilize the facilities of the DCIEP, especially the soils and water laboratories in the conduct of soils and hydrologic testing. The Center is also envisaged as the premier training facility for decentralized activities in planning, design and construction.

The devolution of project implementation activities facilitates construction work. Resolution of implementing problems such as ROW is settled at the field level and not at the CO. Resolution of ROW (besides release of counterpart fund) is sometimes the biggest obstacle to project implementation, and the moment the construction is delayed the ultimate consequence is cost over-run.

6.2.2 Enhance the Application of Project Management Tools

The use of project management tools can aid in the conceptualization of sound investment proposals as well as tracking the progress of project implementation. Familiarization and adaptation of these tools by the CO and field offices are strongly recommended as one of the institutional measures to strengthen the preparation, implementation, monitoring and evaluation of projects. Two common management tools that are proposed are the use of the

Logical Framework and the Project Benefit Monitoring and Evaluation System (PBME).[1] The Logical Framework is a must because it is now a requirement not only by the NEDA ICC but also by external donors. The PBME is widely used for monitoring, especially in tracking project benefits and eventually in the conduct of post-evaluation exercises. PBME is essential as it can document valuable lessons in project implementation.

6.2.3 Update and Introduce New Technology in Design Standards

Design standards being used by NIA are rather obsolete and do not cover complex type of structures. The design standards being used are still those in the 1979 (irrigation canals, O&M road, drainage channel and appurtenant structures) and 1987 (canals and diversion dam) manuals. Given the fast pace in technology development, new standards will be introduced to improve the quality of irrigation and other infrastructure facilities constructed. The updating of design standards is suggested and new manuals will be prepared.

To improve the capability of the staff to design and analyze, computerization will be applied. Activities recommended are (a) use of the GIS database prepared in the JICA Study; (b) use of CAD system; (c) use of computer-aided hydrological, hydraulic, structural analyses. These tools will improve the level of designs, and speed up the planning and preparation of project proposals.

Appropriate training will be given to the staff of the field offices, especially those directly involve in project preparation. To make the training useful, the essential hardware and software components must be provided. It is proposed that this training activity be built in as component of future projects so that the necessary funds can be made available.

6.2.4 Facilitating Procurement and Project Implementation

A comprehensive approach to expedite project implementation on a fair, transparent, and accountable basis is indispensable, with some of the remedial actions as given below.

(1) Validation of Delegated Authority in Contracts to NIA and Field Offices

It is stressed that the General Memorandum Orders (GMO) No.2 "*Revised Rules on Delegation of Authority*" of 4 October 2000 that allows NIA an extended degree of autonomy and independency in procurement and other administrative matters is validated and effectuated as soonest. In tandem, revision of the aforementioned GMO No.2 as well as amendment to Memorandum Circular No.15 of 1998 currently in practice in procurement should be called for. This allows the operating units, either NIA itself or Area Operations Offices, to expeditiously proceed with project implementation, while being left free from cumbersome administrative procedure for approvals.

(2) Remedial Measures for Procurement Procedure

1) Simplified Public Bidding (SPB)

NIA should urge DA to issue administrative guidance on SPB for compliance to NIA. IN tandem, revision of the Procurement Guidelines in response to the latest amendments to

[1] Note that the combined elements of the logical framework and PBME are now integrated in the so-called Project Performance Management System (PPMS).

PD 1549 as amended on July 2000 should also expedite. With this, the indicative timeframe for International Competitive Bidding (ICB) will be shortened to around 36-40 from around 48 weeks.

2) Modified Function of BAC-Strengthening Technical Secretariat and Internal Audit

BAC function should be simplified and the number of BACs to be established should be pruned to avoid administrative cumbersomeness and associated time consumption. In place of BAC, the function and authority of Technical secretariat (currently Specification Division and Procurement Division) should be strengthened and legitimatised. In view of Management Auditing for transparency, accountability, and fairness, Internal Audit should also be involved from the outset in the procurement processing. Further, membership of representative from the private sector, although a non-voting membership, should be reviewed in the light of fairness, and possibly be abolished.

3) Legitimatization and Empowerment of Consultant Verification

Last but not least, it should be stressed that, besides supporting function for procurement and others in general, verification function attributed to international and authorized local consultants should be legitimatised and applied to each stage of procurement, vis-à-vis, (a) pre-qualification, (b) evaluation, (c) classification of complying and non-complying bids, (d) post qualification and ranking, and (e) final decision on the winning bid. Consultant's note on verification should be concurred by BAC in a short while and be forwarded to the higher authority for final approvals. Consultants involved are also to function substantially on behalf of the Inspection and Acceptance Committee (IAC).

6.3 Plan for Operations and Maintenance

6.3.1 Strengthening O&M Function of the NISO

The O&M function of the NISO is being overshadowed by collection effort on ISF. While ISF collection is supposed to be the IAs' responsibility under Type II contract, the NISOs prefer to do the work by them. The actual staff and the time rendered in collection are significant. Most NISOs practically involved all of their staff in the collection of ISF from farmers, starting from the irrigation superintendent down to the clerks, security guards and drivers. Notwithstanding that this is a matter of survival for every NISO, the present practice has unduly perpetuated an institutional disadvantage over O&M activities.

Maintenance work is reinforced under Type I contract. To the extent that the NISO has the funds to pay the IAs for the services rendered, maintenance of secondary canals is at least assured. The experiences, however, revealed that funds are not available and thus maintenance is oftentimes postponed leading to deterioration of canal conveyance capacity. Rehabilitation becomes the only solution to restore the efficiency of the system, but since the same resources could have been used for expanding irrigated area the money spent could be considered wasteful and thus misallocation of resources.

Strengthening the O&M function of the NISOs is essential to preserve the government's capital expenditures in irrigation infrastructure and to assure the reliability and performance of national irrigation systems. The costlier part of O&M is maintenance. It falls into several categories such as routine, preventive, periodic and emergency. The structures covered

include canals, head gates and turn outs (systems facilities), and O&M/access roads. The primordial objective of the strengthening plan is to deliver good service to the farmers.

(1) Establish and activate distinct sections for O&M

The NISO has lost its distinct responsibility in O&M works primarily for two reasons: unclear delineation of functions among its staff and concerned divisions, and over-emphasis in collection. It is proposed that Operations and Repairs/Rehabilitation sections would be activated to take care of O&M works, respectively on a permanent basis. This is to replace the current ad-hoc practice of assigning people in performing O&M tasks.

Both sections will be manned with competent people and assignment will correspond to the expertise needed. Combination of engineers, agriculturist and institutional experts will comprise the manpower of these sections.

(2) Establish an O&M fund for maintenance

Funding is the key to any maintenance problem. Without the necessary funds for labor and civil works, it is virtually impossible to implement the required systems and maintenance work for other infrastructure' facilities. This issue has been documented but no concrete proposals have ever been realized.

The major source of O&M fund is through the ISF revenues. Equipment rentals are unreliable source of revenues. The NISOs can set aside the fund provided they can claim 100% of their ISF collections. Currently, the NISOs share about 15-20% of their ISF revenues with the RIOs to finance the latter's personnel and overhead costs. While this practice is not allowed by policy, it is being tolerated upon as an unwritten rule between the NISOs and RIOs.

The NISOs and IAs should jointly establish the fund. It is to be noted that maintenance of secondary canals is the responsibility of the IAs through Type I contract and ISF collection through Type II contract. Part of the payment being paid by NIA to the IAs under Type I and II contracts can be set aside as equity of the IAs, and the amount collected will be matched by a counterpart fund from the NISO. The burden of establishing the O&M fund thus become a cost sharing between the end-users and NISO. The collections from these sources will be deposited, as a trust fund to be administered by the NISO meantime that full turnover of the systems has not been effected.

Under the IMT program, it is inevitable that major rehabilitation and repair works will be done prior to turnover. The major rehabilitation can sometimes be equivalent to new construction. Although rehabilitation works of NIS and even new construction does not require equity contribution from the IAs, the NIA should opt for a policy to require equity from the IA and the amount will form part of the sinking fund counterparted by the NISO. Provision to revert back the fund to the IAs should be made upon full turn over of the system.

The proposals described above require the following: (a) amendment of the provisions of Type I and II contracts, and (b) upward adjustment in the ISF rates. The amendment of Type I and II contracts is essential to legalize the contribution of the IAs. The ISF rates should be increased to give the NISOs the flexibility to adequately cover the O&M cost of the systems.

However, automatic upward adjustments of ISF rates increase the production cost of paddy, and oftentimes meet the resistance of paddy farmers. To minimize the adverse impact, NIA should consider the management fee and calamity fund as supplemental sources of O&M. The management fee can be increased from 5% to 7% and used the increment for O&M. In addition, damage caused by calamity is to be restored by the calamity fund.

(3) Restore and improve the monitoring system

Aspects of monitoring system requiring urgent attention should include: (a) collection of field data, (b) processing the field data for the preparation of various plans, such as seasonal and monthly management and operational plans, including ISF billings, and (c) implementation of foot patrol. Relative to collection and processing of data, these have been ignored by most NISOs causing arbitrariness in the preparation of water delivery schedule and ISF collection. On the other hand, data collection is not also permissible because measuring devices have either been damaged and/or missing. Ignorance about the information to be collected is also noticeable among the staff.

Replacing damaged water-measuring devices, and updating the basic database should improve the monitoring system, e.g. parcellary maps. At the same time the field personnel assigned under the systems and water units of the operations section should consider collection of these information as mandatory responsibility. Under the proposed scheme, the field personnel will be required to collect normal field data such as water discharge, rainfall, river water level, and other farming related information to be processed to derive the cropping pattern and water delivery schedule. This information should be validated in consultation with the IAs. It is to be recalled that cropping pattern and water delivery schedule prepared jointly with the IAs have better chances of success than those solely prepared by the NISOs.

Data collection and processing of data should be uniformly formatted to allow automated processing. This will involve training the engineers and WRFTs as well as providing the NISOs personal computers to process the data to produce hydrologic graphs, available water estimates, cropping calendar, etc.

The other aspect of monitoring is to strictly enforce the use of updated parcellary maps to accurately determine ISF billings and collections. Most NISOs have deliberately abandoned the use of parcellary maps to camouflage correct reportage of ISF billings and collections. There have been problems in the updating of parcellary maps despite the support provided under IOSP II due to the voluminous maps to be prepared and the time involved in ground validation. While ground validation is a must for the updating, the preparation of maps can be simplified with the GIS software to be introduced by the JICA. It is proposed that the pilot being tried in UPRIIS under the JICA Study be replicated nationwide. The CO should make provisions for the replication of the software including the training of the O&M staff of the NISO. This should form part of the immediate training requirement.

The use of foot patrol teams and simple water delivery schedule should be institutionalized in every NISO to permit efficient water distribution during critical periods of water supply.

(4) Institute proper work load assignments

Under Type I and II contracts, it is proposed that only one (1) NISO staff will be retained in each IA area to be able to continue technical assistance to the IAs. The services of this staff will be terminated until the IAs assumes full responsibility for ISF collection. This arrangement will allow the WRFTs and gate keepers to focus their effort on water delivery and distribution, a responsibility that has now been abandoned.

The practice of assigning O&M staff in the same area for a long period of time has established collusion with water users as regards unfair and improper evaluation of benefited area and production as bases for ISF billing. The continued tolerance of this practice has unduly depressed the ISF revenue of most NISOs. To remedy this situation, periodic rotation among the staff is proposed to enable them to acquire wider experience and practicable skills.

(5) Appoint the IDOs in NISO

The IDOs are appointed and stay at their assignment to the extent that organization of IAs is in progress. The moment this activity is completed, the IDOs are pulled out. Some NISOs have adopted the practice of retaining the IDOs to the extent that there are available funds. Notwithstanding this, the number of these IDOs, relative to their capacities to perform are inadequate. Under this circumstance, it is proposed that for every 750-1000 ha of service area, at least one (1) IDO should be permanently appointed in every NISO.

The IDOs will have to be maintained even until full turnover has been effected under the IMT. The IDOs will continue to perform coaching jobs to the IAs as they prepare for the next stage of development to become market-driven organizations. One of the drawbacks about the on-going IAs' arrangement (Type I and II contracts) with NIA is the role given to the former as mere contractors. This practice has curtailed the entrepreneurial spirit among the IAs. The task to be performed by the IDOs will require knowledge and skills beyond the traditional concept of organizing.

(6) Improve technical capacities of the O&M staff and IAs

As a basic guidance on improved O&M practices, practical manuals will be developed and will be disseminated to end-users. The manuals with simple illustration are forceful instruments that can influence the practices of the farmers. Parallel to this manual preparation, will also be an on-the-job training for both the NISO staff, IAs and farmer leaders on the entire cycle of O&M. This training will take the form of on and off-sites discussion to widen the learning skills of the participants. It is proposed that cross visits of participants to successfully managed systems will be used as laboratories and only reputable training institutions will be designated to handle the activity. The training is proposed to be a continuing activity.

6.3.2 Improve Equipment Management

Equipment in the possession of the NISOs are generally few (mostly service vehicles) and barely serviceable. Heavy equipment were mostly leftovers given to them by the RIOs after being used in the construction of major projects. The economic life span of such equipment has actually been reduced by more than 50% after the NISOs inherited them. The list of equipment maintained by the RIOs shows that 90% of heavy, light and other special

equipment have exceeded their economic life span, and 60% can be considered operable (Table 6.1). The rest ought to be disposed to be able to generate some revenues.

Besides operability, there are other problems associated with equipment management. There is a mismatch of equipment requirement, little is available for maintenance work vis-à-vis construction. This is a perceivable defect in the procurement process, where the CO determines solely the equipment to be procured under a given project. Participation of the FOs in the selection is rarely considered. Inventory and ownership are not in order. Internal audit reveal that while physically there is a record of the equipment, the ownership is nowhere to be found. Maintenance is also neglected for obvious reason, lack of funds. As a result cannibalism of part is being resorted.

(1) Modernize and acquire the minimum requirement

Modernization, given the current state of equipment, is essential to maintain a level of efficiency in repairs and maintenance work. To the extent that acquisition is only possible through new projects it is proposed that this policy be waived or relaxed. Equipment for maintenance should be exempted from the policy and be acquired as needed so long as the concerned offices have the necessary funds for procurement. Without the necessary equipment, deferred maintenance is bound to happen which will lead again to early deterioration of the system. In the matter of procurement, the RIOs should get the responsibility instead of the CO in view of the perceptible defect in prioritization and selection (At the moment the RIOs do not have the funds, but in the future where they will be converted as semi-autonomous profit centers, they will be capable to go into acquisition program). The RIOs should be in a better position to determine their needs. It is to be noted that heavy equipment being procured in the past are biased in favor of huge construction work and seldom can these equipment be used for desilting and dredging main and lateral canals.

The acquisition program for maintenance equipment should only be for emergency purpose so as to maintain only a few units for quick response need. It is not the intent of the proposal to build up a fleet of so many units only to end up as underutilized equipment, a common observation among government institutions. The major requirement for maintenance equipment should still be filled up by the private sector through private contract works.

The following procedural practices are suggested to improve the upkeep of new equipment: (a) specific section in the RIO should be established to oversee proper utilization and maintenance; (b) an inventory system as a way of keeping tract of the condition of equipment; and (c) disposal system for non-operable to generate additional cash.

(2) Equipment pool at RIOs

Not every NISO will be required to maintain a fleet of O&M equipment, especially if the service areas do not warrant the keeping of such equipment. It is thus proposed that pooling of equipment be made with the concerned RIOs having sole responsibility for upkeep and maintenance of the pooled equipment. MC 10, S.99 is the implementing policy for pooling. To enforce MC 10, the concerned RIOs should program the monthly or quarterly utilization of equipment under its custody in relation to the routine or periodic maintenance of the systems and other infrastructure facilities for each NISO. The NISO will be billed accordingly.

(3) Maintenance fund

Funding for preventive maintenance is always a concern because there are no appropriate sums of money allocated. Since rentals constitute the earned income from the use of the equipment, MC 22, S.99 was crafted to constitute the maintenance cum- trust fund. The problem, however, is that the RIOs and FOs cannot remit the required cash (40% of rentals) to fund MC 22 since the rentals are being used as supplement to cover personnel and overhead costs. Given this, it is proposed that the share for maintenance be deducted automatically from the rentals and deposited into a special account. Prior to releasing the equipment, the user will be obliged to deposit the 40% to the special account. A committee should be established to decide on the access to the fund. As such no single person can decide on the use of the fund without prior approval of this committee.

6.3.3 Plan for Supporting IA/LGUs

The support to the IAs should consist of (a) continuing training program; and (b) adequate budget to increase their level of maturity. The training program will be designed to allow maximum participation (officers, members and potential leaders) from the participants. One of the successful approaches is to introduce a combination of classroom discussions cum practical application. The practical application will cover basic subjects on water delivery and distribution putting emphasis on water conservation and optimum use. As regards maintenance, regular cleaning of canals should be emphasized. Since the IAs have different levels of maturity, NISO together with reputable NGOs should design the training program in accordance with various levels of maturity. Priority should be given to mature IAs to get immediate results and use these IAs as model trainors.

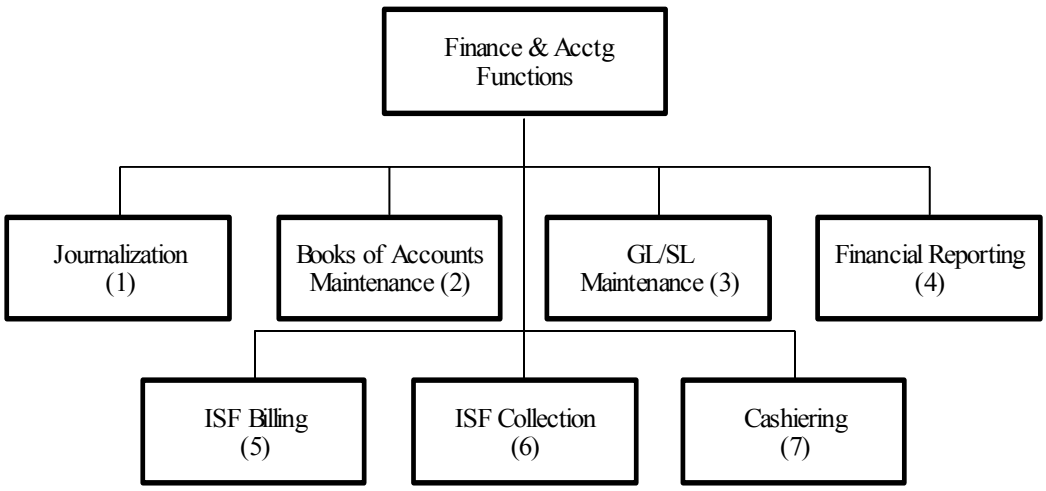
No amount of training program can be implemented without the necessary funds. It is proposed that part of the O&M fund be allotted for this purpose. The IAs are partners in O&M, and this should justify the allocation from the O&M fund.

The support to the LGUs is proposed to be worked out at the provincial levels. The field offices should implement a technical assistance program with the office of the Provincial Governor through its Provincial Engineering Office (PEO), the details of which should be discussed bilaterally due to cost involved. Activities related to IAs organization, design and construction of foreign-funded CIS should be jointly undertaken with the LGUs to give PEO engineers the opportunity of being trained on-the-job.

6.4 Financial Management Improvement Plan

6.4.1 Further Decentralization of Accounting Functions

Figure below shows the basic functional structure of a typical finance and accounting unit of a service-oriented corporation like NIA.



NIA decentralized all these accounting functions to the RIOs and NISOs in the early 1980s. What was left in NIA's Controllership Department was purely related to CO's financial transactions. The RIOs in turn, decentralized function 5, 6 and 7 to the NISOs. Functions 1 to 5 relating to NISOs accounting activities were retained at the regional level.

The reason for the retention of these activities at the regional level was because of organizational set up at the NISO at the time of decentralization. Up to the present, NIA's structure at the NISO level does not provide for an accountant, but only a lowly clerk to handle minimal accounting work.

This set up was contributory to Comptrollership Department's chronic dilemma of unreconciled balances of the major balance sheet accounts.

The reconciliation of accounts will endlessly continue unless the journalization process and maintenance of the books of accounts are kept at the very source where the transaction occurred.

The proposed transfer of these functions to the NISOs will facilitate the reconciliation process and improve the accuracy of the financial reports. This plan aims to strengthen the institutional capacity of the field offices in managing their financial resources.

To carry out the decentralization to the NISOs, however, requires some preparatory activities, among which are to:

1) Restructure NISO's organization to provide for an accountant position at the NIS level;

2) Upgrade accounting position at the NISO level to attract young and qualified candidates, and

3) Conduct financial and accounting training to upgrade the competence of the present accounting staff of both the regional offices and field offices.

6.4.2 Financial System Improvement Plan

NIA's emphasis has been mostly on improvement of services. This has understandably, led NIA to concentrate its development effort on physical progress and improvement of the technical capabilities of its staff. Its financial management including the development of staff has not kept pace with the expansion and growing complexities of its operations; which in turn adversely affected the effective management of financial resources.

The institutional support in financial management covers the (1) improvement of financial systems, and (2) training and development of staff for new skills and technologies.

The proposed improvement plan in financial systems covers the following specific areas, namely:

1) Accounting System
2) ISF Billing and Collection
3) Budgetary Formulation and Control
4) Tariff Setting and Pricing
5) Financial Forecasting and Planning

Among these areas, accounting and ISF billing and collection systems rank high in terms of urgency and priority. Improvements in these areas will have a positive impact on NIA's financial operation.

Improvement of the accounting system, requires improvement of three major sub-systems namely:

1) General accounting and financial reporting;
2) Property accounting consisting of fixed assets and inventory accounting
3) Construction cost accounting

Deficiencies in accounting came from these major sub-systems. Improvements on these sub-systems will potentially reduce reconciliation effort and enhance propriety and integrity of financial data.

Improvement and eventual computerization of the ISF billing and collection system of the NISOs will potentially reduce manpower cost and improve billing efficiency.

The improvement plan would be carried out in two phases as follows:

Phase 1 will involve the following activities:

- Design and Development of Manual
- Pilot Testing
- Implementation and Monitoring

Phase 2 involves the computerization of identified priority systems. Activities include the following:

- Systems Design and Analysis
- Programming
- Pilot Testing
- Implementation and Monitoring

In both Phase 1 and 2, on-the-job and class-room type of training will be conducted in all developed systems.

Phase I and Phase II would be carried out by Consultants who will be working closely with NIA counterparts to be able to attain a higher level of technology transfer.

6.4.3 Manpower Training and Development Plan in Financial Management

This is a continuing activity that extends up to 2009. This capability-building activity aims to improve the skill, competence and confidence of the comptrollership staff in carrying out their day-to-day activities in order to improve their efficiency and productivity. The plan also aims to provide training for NIA's non-accountant managers, for them to appreciate the importance of sound financial management practices.

The manpower development plan consists of a series of activities that will span over a nine-year period (2001 – 2009):

- Training Needs Analysis
- Development of Training Curricula
- Development of Courseware and Instructional Methodology
- Development of Training Materials and Media
- Conduct of Pilot Training Programs
- Implementation of Training Programs

As part of the technology transfer, active participation and involvement by NIA's counterpart personnel is envisioned in the above-mentioned activities

The training programs to be conducted should depend on the staff qualification and position. Among these envisioned training programs are the following:

- Orientation Program
- Professional Specialization Program
- Systems Development Program
- Basic Computer Program
- Supervisory Skills Program
- Remedial and Enrichment Program
- Trainor's Training Program
- Managerial EffectivenessProgram
- Degree-Oriented Programs

It is further envisioned by this development plan that NIA would be able to conduct its own training beyond 2010 without the assistance of the Consultants.

6.5 Auditing for Management Strengthening

As reviewed in the previous Section, the current practice of the Internal Auditing is mostly occupied with post-verification or investigation of transactions and facts that have already occurred in the past. Although some of the functions described in the existing written job assignment for MSD have been substantially transferred to the Corporate Planning Staff, obviously the following management auditing tasks still remain as its core function.

1) Develop plans and programs relative to improvement of the administrative organization; undertake regular management surveys; review existing methods, procedures and systems and make recommendations for improvement.

2) Undertake management audits to evaluate adequacy of internal controls and to institute safeguards for the Agency's assets.

The Commission on Audit (COA) Circular No.77–48 on January 31, 1977 about "Basic Guidelines on Internal Control" which provides the base for the replacement of the COA's pre-audit or managerial audit function by the Internal Auditing stipulates the following elements, among others, to be reviewed and appraised:

1) The proper functioning of management controls over operations and resources.
2) The effective protection and utilization of manpower and assets.

It would be also possible to derive some managerial implication from those post-verification and investigation audits, however, it is definitely more powerful if the Internal Auditing could directly deal with management issues for its strengthening. The responsibility of the Internal Auditing as expected in the above guidelines will not be effectively achieved without departing from the full involvement in post-verification and investigation and shifting to forward orientation to realize Constructive Management Audit.

6.5.1 Management Audit Initiative Conducted

To avoid repetition and to stimulate the initiative of the NIA's Management Audit, a trial audit was jointly attempted by the Management Audit Division of MSD and the JICA Auditing Expert in selected key management areas at the Regional and Field Office levels.

The trial audit was attempted to step into actual action toward management improvement with the following purposes:

1) Strengthen management element in Internal Auditing.
2) Give impetus to self-sustainable practice by joint attempt of initial execution.
3) Involving COA in this attempt, establish the basis for practical cooperation between the Internal Audit (Operation and Management Audit) and External Audit (VFN Audit).

As the objective area, "Operation and Maintenance" and "Physical Assets Management" were selected for conducting the trial management audit. "Operation and Maintenance is functionally one of the core activities of NIA, while "Physical Assets Management" is important since the book value of "Physical Assets" is more than 80% of the NIA's total assets.

(1) Operation & Maintenance

Operation & Maintenance of the Irrigation Systems which represents NIA's core activities are being studied by means of "Activity Analyses". The "Activity Analyses" aims to firstly identify individual activities that constitute implementation of the Operation & Maintenance, and then specify resources required as well as actually consumed to perform each activity concerned.

1) Expectable Outcomes to be Achieved

a. Reveal real and solid image of the O&M practices being actually performed.
b. Reveal whether, how and to what extent the actual performance deviates from the standard.
c. Capture cost implication of the O&M activities.
d. Evaluate accounting systems of regional and field offices for management purpose.
e. Compare between actual cost of O&M and prevailing budget allocated.
f. Prepare basis for setting standard costs.
g. Prepare basis for establishing suitable cost accounting system.
h. Evaluate O&M practices in comparison with prevailing O&M manuals.
i. Formulate standard procedures of future O&M auditing.
j. Establish solid base of collaboration among parties involved in maintaining and improving the quality of O&M.

2) Procedural Steps and Parties Involved

	Procedure	Parties Involved in Analysis					Remarks
		MAD	FMR	FMS	OPR	OPS	
1	Identify typical operational practices of O&M				○	○	The number of practices to be selected will be determined during the technical discussions at the sites.
2	Break the identified practices into detailed activities being performed				○	○	The break-down must be made until undividable smallest units of activities.
3	Identify input-resources required for each activity				○	○	Collect any economic resources necessary without omission to carry out the activity concerned.
4	Count volume of respective inputs to be consumed				○	○	
5	Valuate counted inputs based on accounting records	○	○	○			The valuation may not be mere subjective estimation, but must be derived from the accounting records.
6	Estimate total operating cost per selected O&M practices	○	○	○			

MAD : Management Audit Div. Central Office
FMR : Finance Management Div. Regional Office
FMS : Finance Management (Accounting) Unit. NIS
OPR : Operations Div. Regional Office
OPS : Operations and Maintenance Section. NIS

○ : Main Supplier of Information Concerned

3) Analysis Sheets Used

a. Activity Analysis Sheets of Operation & Maintenance (Table 6.2)

These are the Analysis Sheets prepared to identify what kinds, how much in quantity and value of economic resources are currently consumed to carry out individual activities which constitute Operation and Maintenance Function respectively.

b. Activity Analysis Subsidiary Sheets of Operation & Maintenance (Table 6.2 and 6.3)

These formats are to compare actual input of each necessary resource and normative or standard input that ought to be consumed to attain satisfactory work results. The Sheets are separately prepared for different resources such as "Manpower" or "Heavy Equipment"

It must be noted that the analyses do not attempt to aggregate all the figures filled in to obtain some quantitative conclusion, but they try to extract some managerial implication from the aspects of expectations listed above being supported by concrete figures filled out at the very front of actual operation & maintenance in the field.

(2) Physical Assets Management

1) NIA's Accounting Weaknesses and Physical Assets Management

The Management of Physical Assets consisting of "Fixed Assets" and "Inventory" in accounting terms is among the weakest in NIA accounting, and it leads to several major accounting issues against which COA has been issuing consecutive "Disclaimer of Opinions" on NIA's Financial Statements.

The following table classifies the accounting weaknesses from the viewpoint of managerial requirement for their improvement. In the table, the items classified as "D", "E" and "F" (especially the latter two categories) of Remedial Management Measures Required for Improvement need substantial effort in a systematic manner. Without tackling these areas, however, it is impossible to get rid of those core issues in question which have been preventing NIA's Financial Statements from providing accurate accounting information.

Among others, improvement of the management system for Physical Assets: "Fixed Assets" and "Inventory", is critical in terms of its extensive influence.

Classification of Accounting Issues of NIA from Management Perspective

Issues Prevailing		Managerial Requirement for Improvement						Remark
		A	B	C	D	E	F	
Qualifications to lead COA's Disclaimer of Opinions								
1	Significant Discrepancy between Book and Bank Balances	○	○	○				*Need accounting policy to dispose of the "Suspense Account" afterwards.*
2	Incomplete Execution of Inventory Taking of Physical Assets					○	○	*Need to improve Physical Inventory Systems for Inventories and Fixed Assets to cover the whole process from preparation to reconciliation.*
3	Unreconciled Balances between Subsidiary and Control Accounts	○	○				○	*May need delegation of accounting function from RO to NIS.*
4	Inadequate Allowance for Bad Debts Losses		○		○			*Besides the fixed-rate provision, need separate provision based on "Credit Aging" and individual evaluation.*
5	Erroneous Depreciation of Fixed Assets		○			○	○	
Findings in the Progress Report								
6	Accounting Policy based on Modified Cash Basis		○		○		(○)	*Need to check whether the Expenses Side has already been subject to a full accrual basis.*
7	Inclusion of B/S Items (CIS and Pump Amortization, CIS Equity Contribution) in Corporate Revenue		○					
8	Sales/Disposal without Reduction of Fixed Assets and Depreciation Accounts					○	○	*Derives from incomplete preparation of the "Fixed Assets Sub-ledgers".*
9	Improper transfer from Construction-in-Progress after the Completion		○		○			*Need to check prevailing book-keeping in the project accounting.*

Remedial Management Measures Required for Improvement

A : Temporary Transfer of Discrepancy to "Suspense Account"

B : Simple Decision Making about Accounting Policy without any Procedural or Systems' Changes

C : Reinforcement of Present Procedures

D : Procedural and Systems' Changes (Simple)

E : Preparation of Assets Sub-ledgers

F : Procedural and Systems' Changes (Complex & Comprehensive)

2) Base of Physical Assets Management - Assets Ledger Cards

Among the issues prevailing listed in the table above, the items No. 2, 5, 8 and 9 are exclusively the problems of "Physical Assets Management", and the interim result of the joint trial audit revealed that the basic bottleneck which has been preventing precise accounting treatments is the failure in properly maintaining the Assets Sub-ledgers: "Equipment Ledger Card" and "Supply Ledger Card" (Refer to Table 6.5). Recommendation or enforcement to improve the respective accounting issues is meaningless without solving this problem from the following simple reasons.

"2 Failure to carry out Inventory of Physical Assets"

"Inventory of Physical Assets" must include (a) Verification of physical existence, (b) Revaluation of functionally and physically defective assets through direct observation, and (c) Reconciliation of the book records with the physical existence. The annual physical inventory currently conducted can cover the first requirement, but unavoidably fails to fulfill the latter two requirements due to the lack of book value information of individual assets which is only available in the Asset Sub-ledgers in question.

"5 Erroneous Depreciation of Fixed Assets"

The present book value of the total Fixed Assets which does not represent their real value due to the critical accounting defects under argument automatically leads to Erroneous Depreciation.

"8 Sales/Disposal without Reduction of Fixed Assets and Depreciation Accounts"

It is absolutely impossible to write off assets already sold or disposed without value information of individual assets concerned.

6.5.2 Results of Management Audit

Findings of the Management Audit are summarized below:

(1) Operation & Maintenance

1) Operation and Maintenance Activities would be functionally classified into the following major categories.

- "Information Collection" including physical observation and communications with farmers to be fed back to proper Operations.
- "Water Flow Control and Management" done by facility operators.
- "Maintenance "of facilities and equipment.

However, understaffing prevailing in the Field Operation and Maintenance may be affecting execution of the functions above in a satisfactory manner.

2) Facilities and Equipment as the counterpart resources for Operation and Maintenance are not sufficiently allocated and maintained either to maximize the productivity of the manpower input.

3) Taking these significant facts into consideration, the Vicious Cycle illustrated below may still underlie the NIA's Irrigation System.

4) The trial audit and regular audits conducted by NIA have collected filled-in "Activity Analysis Sheets" from several regional as well as field offices, and the collected results were reviewed and analyzed by the Management Audit Division. The data are expected to provide information base for various purposes, however, they are still primary material that must be further elaborated through continued management audit.

(2) Physical Assets Management

1) The "Physical Assets Issues" that constitute major components of the Prevailing Accounting problems will be basically solved if the "Sub-ledgers" could be properly prepared and maintained.

2) Conditions of the "Physical Assets Ledgers" preparation depend on types of acquisition. The following is the interim evaluation.

Types of Assets Acquisition	Conditions	Remarks
Procured Locally	Fair	Not all the offices successfully keep ledgers due to understaffing and other practical reasons.
Transferred from Other Locations	Poor	Some transfers are not accompanied by documents necessary for preparing the ledgers.
Procured under Projects	Poor	The accounting rule which requires usage of the Assets Cards for the assets control also in the project accounting is not completely practiced, which hinders proper transfer from the "Construction in Progress".

3) The official project accounting procedures request that physical assets acquired in a project be also controlled individually with the Assets Cards in the same manner as required in the general accounting. However, individual book value of those physical assets having been transferred to the general accounting is often unavailable due to the lack of the value information which had to be accurately carried over from the project accounting concerned.

4) The "Memorandum Receipt for Equipment, Semi-expendable and Non-expendable Property (MR)" (General Form No.9) seems to be the most stable source for the Assets Cards preparation, because its issuance and maintenance is being strictly followed in practice for the purpose of attaching accountability for each asset to a particular employee. However, MRs are often filled out descriptively disregarding the pre-printed columns which ought to contain "Quantity" "Date of Acquisition", and "Unit and Total Values" providing common types of information necessary for the Assets Cards preparation. This practice should be rectified for this purpose.

6.5.3 Steps Toward Management Strengthening

(1) Tasks to be Performed

The trial audit jointly performed is an attempt to initiate a strengthened operation and management audit and give impetus to self-sustainable practice that should follow. The initial findings were presented above and continuous effort toward NIA's management strengthening must be practiced.

The tasks to be performed with respective targets would be as follows:

1) Physical Assets Management

(Tasks to be Performed)

a. General Survey on present practices of "Assets Cards Preparation" in the field offices. The survey should include the bookkeeping practices in the stage of Project Accounting.
b. Summarization of the survey result and analysis : Facts including "causes of poor preparation", "perspective for practicable remedies", etc.
c. Drafting practical "Manuals"
   - Asset Cards Preparation
   - Physical Taking for Inventory and Fixed Assets (preparation, counting, result compilation and book reconciliation)
d. Execution of comprehensive Physical Taking of all the physical assets throughout NIA and its Follow-up. This is the starting point for the next step.
e. Complete execution of the Asset Cards preparation: "Equipment Ledger Cards" and "Supplies Ledger Cards"
f. Regular auditing (Internal and External) to monitor field practices afterward

(Targets)

a. Complete "Asset Cards" preparation
b. Establishment of "Procedural Manuals" and their regular implementation
c. Wipeout of "COA's Qualifications" regarding Physical Assets

2) Operation and Maintenance

(Tasks to be Performed)

a. Guidance for preparing "Activity Analysis Sheets" and collection from all the operation units (field offices)
b. Analysis and extraction of meaningful results
c. Step forward to further development of managerial improvement

(Targets)

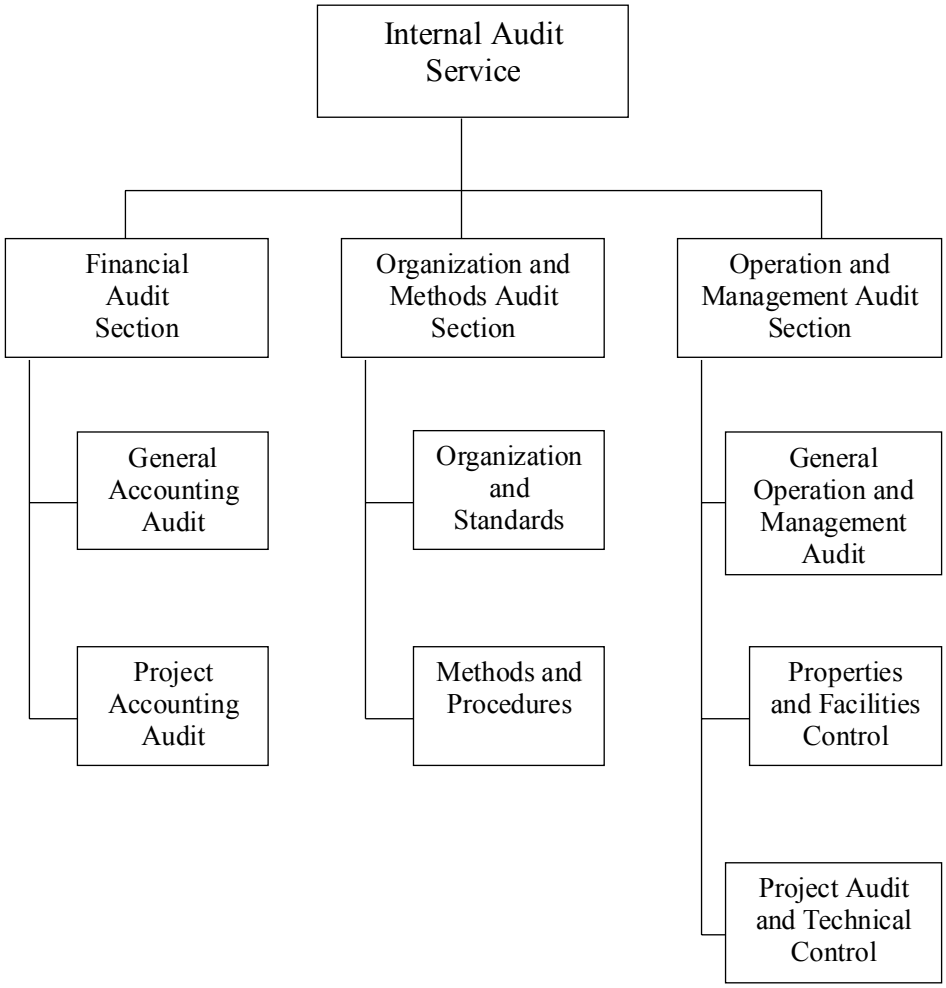
a. Preparation of information base for various kinds of management information
b. Managerial step-forward toward O&M improvement in the pursuit of breaking off the Vicious Circle

(2) Institutional Strengthening

The following institutional strengthening would be necessary for the effective implementation of the Internal Auditing function.

1) Organizational Rearrangement

"Independency" is a fundamental requirement for any audit. The "Internal Auditing Function" presently under a line department, MSD, should be put directly under the top management with reinforced functions and manpower. Proposed organization of the Internal Audit service is as presented below.



Proposed Organizational Structure of Internal Audit Function

The function of the Internal Audit Staff would be as follows;

a. Review and appraise the soundness, adequacy and application of policies, procedures and standards on administration, organization and existing work methods and procedures; make recommendations for their improvement.

b. Conduct the following audit (periodically or as required):
   - Financial Audit
   - Compliance Audit
   - Operation & Management Audit
c. Analyze and Evaluate Audit Findings
d. Provision of audit opinions with advice to the top management based on the result of the analysis and evaluation from the respective auditing viewpoints
e. Prepare audit reports and monitor action taken on audit findings and recommendations

2) Manpower Strengthening of Internal Auditing Function

To carry out effective audits, manpower strengthening of the Internal Audit Staff is imperative. Especially, it should be staffed with accountants, technical and management experts.

3) Functional Rearrangement of Central and Regional Internal Auditors

For efficient execution of Internal Auditing, appropriate division of works between the Central and Regional Internal Auditors is indispensable.

4) Functional Linkage with External Auditing (COA)

Both the Internal and External Auditing should support the NIA's total management improvement in a cooperative manner with shared function and responsibility. Additionally, the internal independency of the Internal Auditors must be supplemented by External Auditing by means of VFM Audit.

(3) Request for COA's VFM Audit

Even after this improvement, however, the function is still internal and subject to the top management of NIA. Their power is thus limited for evaluating the appropriateness of the top policy and the consistency of its implementation. It is the COA's VFM Audit that supplements this limitation by examining whether NIA is fulfilling its public mission or not in the light of "Economy", "Efficiency" and "Effectiveness" externally and report to the general public through the Congress. Therefore, the VFM Audit should be holistic and necessarily include evaluation of NIA's dynamic effort guided by the internal auditors for management improvement and its performance. Specifically, the performance of the "Task to be performed" and "Targets" set forth above in this section for "Operation & Maintenance" and "Physical Assets Management" respectively should be carefully monitored with constructive suggestions and support.

Such objectives will not be satisfactorily achieved by a task with a limited scope which only covers audits of project implementation and performance or audits with merely a segmental focus. It is strongly requested that the VFM audit be holistic and should include evaluation and suggestions on overall policies of NIA and the consistency in their implementation.

6.6 Plan for NIA's Management Information System (MIS)

The governing body of NIA, the Administrator and Board of Directors (BOD) has to be well aware of the actual operations of various activities within NIA. There is a need for accurate and timely information to the BOD so that the top management can take the right decision for strengthening its management system. Ability to collect, analyze, store and disseminate such information has become economical and efficient with the rapid progress of Information Technology (IT).

To strengthen the information system in NIA including MIS, the following institutional set up and the improvement works are planned to be implemented.

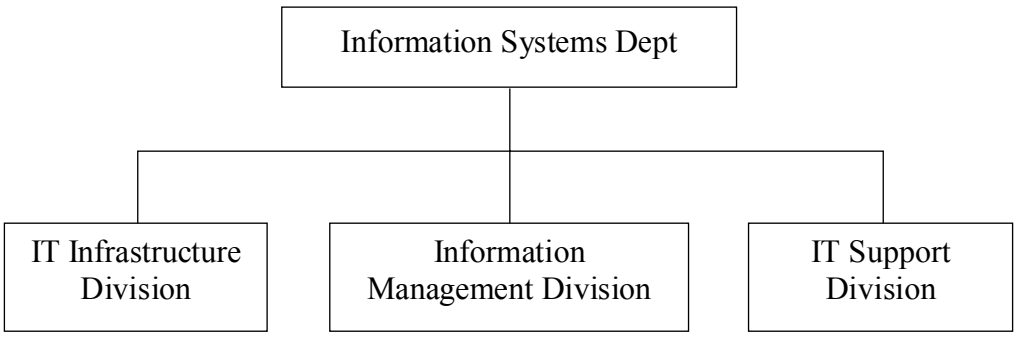
6.6.1 Organizational Restructuring for Improved IT Management

The major objectives of establishing a permanent organization to handle NIA's information systems needs are: (a) to establish an integrated infrastructure that can collect and process information at the quickest possible time for policy and operational decisions; (b) to maintain a group of competent staff to manage the MIS; and (c) to provide the necessary skills enhancement to NIA's staff. These objectives essentially imply the need for putting up the hardware and institutional support to implement an improved IT management.

An important step towards the improved information management is creation of an Information Systems Department. The Information Systems Department is to build and oversight the computerized information management within NIA. The primary functions of this department are:

1) To develop and maintain the necessary IT infrastructure required for digital information creation, communication and dissemination,
2) To coordinate development and implementation of information systems, and
3) To undertake support for proper operation of NIA's Information Systems.

Three divisions are proposed within the Information Systems Department. The "Information Management Division" will be the core division with two subsidiary divisions, namely the "IT Infrastructure division" and the "IT Support division". The organization structure of the Information Systems Department is shown below.



It is proposed that the Information Systems Department, be created as a new organizational unit, instead of attempting to merge the existing EDP or MISD sections, which are currently under the CORPLAN. Therefore, members of this group must not only include computer professionals, but also staffs who have demonstrated initiative in computerization within NIA.

A qualified technocrat experienced in the irrigation administration and information technology is recommended to head this department and should report directly to the top management on which the performance of NIA will depend. In addition, as NIA moves towards improved operation, the need to enhance the information management will become more imperative. Sustained effort on the part of the management is necessary to enable the Information Systems Department to produce results.

The functional scope of the divisions within the Information Systems Department is briefly described below:

1) *IT Infrastructure Division* – This division will develop and maintain the necessary IT infrastructure required within NIA for digital information creation, communication and dissemination. In coordination with the Information Management division, this division will conduct:

    a. To procure computers, peripherals and network infrastructure,
    b. To undertake installation of the hardware, operating systems, standard software, and email and internet/network communication systems, and
    c. To maintain computer and network infrastructure including provision of basic computer help when the users face difficulty with their computer system.

    NIA currently has not implemented networking its computer both within NIA and with external world, which is required to be commenced immediately.

2) *Information Management Division* – This will be the core division within the Information Systems Department. The division will not only take responsibility for coordinating development of information systems, but will also undertake establishing information systems. The functions of this division are;

    a. To establish the scope, and prepare plan for meeting information need of the management,
    b. To provide the computer expertise necessary for undertaking the plan. Staffs from both the Information Management Division and the concerned operations department will be organized or the project team, and
    c. To undertake responsibility for timely completion and successful implementation.

3) *IT Support Division* – this division will primarily concentrate on sustaining an implemented information system by providing the necessary technical support, improving the skills of the staffs in using the NIA's information infrastructure and the developed computer information systems for performing various tasks in NIA. The division will also create self-help presentation documents and multi-media materials to aid NIA staffs at the NISO and regional offices.

6.6.2 MIS for Decision Making at Top-level

Provided that Board of Directors (BOD) is assumed to be the "mission control center" that is collectively responsible for operation outputs and policy outcomes of NIA, the Information Systems Department is to be the provider of the information in a timely way.

The overall objective of establishing MIS is to support and suggest, to the NIA Management inclusive of the corporate Board of Directors and other higher authorities of relevance in decision-making by using all of the management information in the computer system and providing timely analysis, suggestions and recommendations as follows:

1) To analyze, by request of the top management, information and data in such a way to draw policy or operational implications from the facts, devise recommendations with a couple of alternative measures while duly taking working environment of NIA in view, and provide the output to NIA management for timely decision-makings;

2) To prepare policy paper as well as short- and medium-/long-term strategic plans as needs arise, and submit to NIA management, DA, and other higher authority in the government and legislature for their review, managerial decisions and guidance;

Listing the information needs of the top-management is to be made as well as specifying the time frame and the frequency. Using this as mandate, the Information Systems Department will prioritize and organize to make this information available, by undertaking a project in collaboration with necessary departments and offices, so as to ensure that the required information will be obtained.

6.6.3 Proposed Components

It will be the responsibility of Information Systems Department to make information available at the top-management level. Through WRDP and through NIA's own initiative, there are sufficient numbers of computers within NIA. However the benefits from this investment in the computer infrastructure are not materialized. With this in view, the specific short-term works that needs to be carried out are as follows.

(1) To build network infrastructure for inter-departmental communication

NIA needs inter-departmental network communication within its Central Office and Regional Offices. To begin with Peer-to-Peer network is recommended, which can be easily expanded to better network later on. Computers that were purchased in the last 2-3 years through the WRDP project funding are candidates for networking. The computers provided by JICA have the necessary parts to enable networking.

(2) To build internet infrastructure for digital communication with RIO/NISO (2002)

The Central Office, the Regional Offices and the NISOs must be considered as one whole unit and must not be totally dependent on external entities for its communication needs. A simple cost efficient internet communication alternative in addition to the DA provided infrastructure would provide added reliability of communication between Central Office, Regional Offices and NISOs. The cost of Internet connectivity has drastically fallen. Internet service providers are operating in most of the areas of Philippines. Thus it is economically

and technologically feasible to connect all the RIOs and NISOs with the Central Office using internet. To begin with, e-mail communication is recommended. Most of the reports can be immediately sent over the network to the Central Office and can considerably reduce the lead-time in obtaining information. Feedbacks, modification to the reporting formats can be easily sent via the internet to the NISOs. Also, the Central Office can disseminate management decisions and other information through the internet easily.

(3) To re-structure MIS on need basis

Management needs to evaluate its progress towards the goals it has set and information is required for this. As a first step, it is suggested that the information requirements of the management be evaluated. NIA's current MIS, which is in the form of quarterly reports on the physical and financial status of its various projects and offices, can form as the basis for a revised MIS. A top down approach is recommended for the revision and improvement of the current MIS. Information should be obtained directly from the point of origin through the NIA's network infrastructure. The Information Management Division can undertake the task of creating a relatively simple system that will provide the MIS required.

(4) To arrange for implementation of computerized billing system

Computerization of ISF collection and management is one area, from which NIA can immensely benefit. Computerized ISF management will quickly enable auditing of the compliance procedures and knowing the actual outstanding balances. Fortunately, NIA has sufficient resources in the area of ISF computerization.

It is recommended that NIA evaluates the two ISF collection programs, create a unified ISF collection program and making necessary changes, develop a planned schedule for computerizing the entire ISF collection system and implement (including organizing training).

(5) To Sustain GIS

A beginning has been made already with GIS. The training in UPRIIS was successful to the extent that staffs could actually undertake developing the parcellary map for a new IA. Therefore, it would be meaningful to continue the GIS, especially at the parcellary map level. UPRIIS could be made as the first site by undertaking further digitizing of the remaining IA's parcellary map. Two computer staff at the UPRIIS head office would be necessary to undertake this. Initially, the staff would undertake digitization. Intensive training at the central office on the GIS equipment available at the central office is suggested to create the main features of the UPRIIS region. On completion of this, the staff can continue digitizing using the two GIS license provided to UPRIIS office. Later, the staff can aid in the ISF monitoring activities for the UPRIIS region using the GIS as well as providing the information systems support service.

Upon completion of UPRIIS, the other regions can be concentrated.

(6) Other Activities

In addition to the above works, the accounting system and the physical asset management system are to be improved. The current accounting system is already obsolete and it is recommended to discontinue further development or modification. New development for the

accounting system is recommended. Development of accounting system and physical asset management system should also be undertaken as a priority area.

6.7 Improvement Plan of Administrative Services

6.7.1 Improve Personnel Management System

(1) Wage Incentives

As previously noted, the wage and fringe benefit structure has been defined rigidly by law, and hence NIA itself is not responsible to the overall modification and numerical (pay scale) change. Nonetheless, there still is a room within the personnel policy framework in place for realignment of incentive system through wage policy. Some of the suggestive remarks are given in the following:

1) Responsive Reward System to competent but lower SG Staff

Draw more attention to the place higher Salary Steps as well as Salary Grade (presumably fixed by applicant's academic background) when rookies are recruited. This facilitate new employees to take full advantage of the current wage structure that has a largely ranged and heavily overlapped Salary Steps, and to give incentives to competent staff with lower education career and hence lower Salary Grades.

2) Activating Incentive and Flexible Rewards System-Productivity Incentive Benefits (PIB)

Productivity Incentive Benefits (PIB) is granted, upon the approval of the Board of Directors, once a year to all appointive officials and employees regardless of position titles, designations, and the type of employment. While 1999 PIB of PHP 2,000 per head was a flat payment to almost everyone of the entitled officials and employees, PIB as an incentive bonus should encourage staff to differentiate their endeavor in pursuance of NIA's guiding principle of "value for money service provider".

3) From Seniority-based to Job-based (Qualification and Competency) Wage System

While the current wage system is by and large observed equitable, the personal factor (seniority) deems to inherently outweigh the job factor (employee's qualification and competency to achieve job objectives), with the higher SG positions in particular. With this in view, some suggestions that will be noteworthy to realign the wage structure that is responsive to competency and willingness of each of the NIA staff are given in the following.

a. Job factors will be better to be weighed for SG groups that are placed in the higher cohort in the basic salary schedule; and
b. Seniority factor and in particular the level of entry pay will be considered for SG groups that receive relatively lower pay scale due to a narrower range of salary steps and limited path to upgrade SG (note that it takes three years to one-salary step up in SG and 8 salary steps in one SG).

(2) Promotion Policy

In a bid to provide equal opportunity for men and women in the selection of employees for promotion and transfer, the revised Merit Promotion Plan (MPP), or open bidding system for appointment, was directed by the Civil Service Commission (CSC) early this year. In this connection, the guiding principle should be, among others, fairness, impartiality, transparency, and accountability in the screening, assessment, and decision of candidates for appointment. Recommendations are summarized in the light of ensuring exercise of sound discretion as follows:

1) The output of assessment inclusive of numerical and narrative evaluation, that is not disclosed to candidates under the current MMP framework, is better to be reverted to the applicant in concern for possible instruction of performance improvement plan and coaching by supervisor; and

2) Evaluation of his/her own administrative unit and performance of subordinates, that is not included in the specific job description for supervisors, should be incorporated, such that managers or senior staff of NIA inclusive of Management staff should take initiatives and responsibility in personnel management and promotion.

In tandem, it is highly suggested to reengineer the wage structure within the current legal framework to give NIA staff a monetary incentive, while combining the current pay system attached to job posts salary grades with employee's qualification that certifies his/her achievement of and/or uprising expertise, knowledge, and skills, salary step could flexibly be upgraded, thus making it possible for employees to get higher paychecks.

6.7.2 Strengthening Human Resource Development

HRD is a priority in NIA in the face of the continued shortage of new management, technical, and institutional building skills almost in all of the age groups. The proposed Human Resources Management and Development Division under Administrative Department will be in a focal point division that endeavors to enhance capacity of NIA staff through (a) Structured Career Development (academic career and job-rotation) and (b) Structured Training Program.

(1) Policy Implications on HRD

Some of the policy implications drawn from the Corporate Cultural Survey in 2000 are summarized below:

1) Job-reorientation or reinforcement of specific skills and expertise indispensable for NIA functions and assignments anew is in need by providing HRD programs as appropriate in course contents, timing, and location;

2) Programs of job introduction and orientation for new comers, either recruited or relocated, into positions is called for at the earlier opportunity possible. Those for engineering and technical staff are in particular required;

3) Clear-cut in-house degrees/diploma programs/courses for professional and career developments of staff is to be seriously considered; and

4) COB financed training and workshop activities for social science professionals, and non-engineering and non-technical staff inclusive of business administration, finance and accounting, economics, statistics for decision making, information technology (IT)-based, and others should be focused on, since technical training programs are likely to be funded by ongoing projects under the external financing scheme.

(2) Skills and Job Training, Career Path Development, and Expertise in Need

HRD will surely play a major role in a change of fundamentals, vis-à-vis, institutional reorientation and reorganization associated with realignment of staff levels and composition, and delegation of operational responsibilities to area operations offices. With this, HRD will be pursued in two-way program, that is, (a) expansion of skills and knowledge-base through training and workshops as well as on-the-job training, and (b) upgrading education level and widening job-experiences through career development path (CDP) programs. The former will be undertaken internally for NIA staff in the central and field offices, while inviting resource persons from NIA and/or external professionals of relevance. CDP programs that primarily set out pursuing academic diplomas and degrees will be carried out in NIA compound through Package Degree Programs offered by higher education institutes such as the University of the Philippines (UP), Polytechnic University of the Philippines, and /or others alike.

A simplified Training Needs Analysis (TNA) was undertaken with the drawing remarks that the core competency of new NIA lies largely on non-technical as well as technical staff equipped with the sector-relevant new technology inclusive of information technology. With the findings from TNA combined with the current *Plantilla of positions* authorized and fulfilled, the expertise critically in need are identified as among others, hydrologists, geologists, environment management and watershed engineers, agro-economists, information technology specialists, management and financial specialists, monitoring and evaluation specialists, accountants, legal specialists, sociologists, and institution-building specialists.

(3) Funding Requirement

The anticipated budget for Skills and Job Training in a medium-term transition period will be around PHP 40 million (US$ 0.8 million) over the medium term of four years. This facilitates around 150 and some training programs in a year as *"core HRD programs"* for everyone of NIA workforce (3,633) once a year. The anticipated cost of training will, by the past experiences, work out around PHP 2,700 per head.

As regards the career development path programs, budgetary requirement will be PHP 22.4 million (US$ 0.45 million) for four years, while assuming that two (2) courses being open for PHP 200,000 per course per year, and will be held in seven locations covering all of the country with the central and six (6) Area Operation Offices.

In view of the above, the aggregate cost of HRD for four years will primarily be estimated at US$ 1.25 million.

Predominantly the fund for HRD has emanated from the project budgets that remain in investment portfolio if NIA in hand and that come. In the light of programs for HRD in the days to come, alternative fund planning will be devised to intake two sources, vis-à-vis, (a)

unused contingency components of NIA's current investment projects, and (b) prospective loan fund from external multi-and/or bi-lateral financing institution(s).

6.7.3 Plan for Retirement Program/New Recruitment

(1) Retirement Scheme

NIA is now considered under the current JICA study to introduce an early retirement scheme for employees while striving for the policy alteration to apply bigger multiplier coefficients of 1.5, 2.0, and 2.5 to Retirement Gratuity (the highest basic salary of a month times years in civil service) of retiree. With this, NIA will be equipped with an incentive-giver measure that enables the entity to grant larger amount of compensation to employees who applied for the proposed early retirement plan.

(2) Underlying Factors for Retrenching Manpower Redundancy

Manpower redundancy in NIA emanates from the evolutionary change in policy and institutional fundamentals that consecutively took place last decade. The underlying factors of excessive human resources in NIA at the central and field offices will be summarized in the following:

Administrative Units	Underlying Factors
Central Office	Transfer of operational responsibility and delegation of associated authority to field offices Streamlining of functions and associated eradication of human power Expansion of Contract-Out and out-sourcing in the framework of private sector participation Rising age structure of staff and upraised personnel expenses in COB budget
Field Offices	IMT and partial devolution of operational responsibility and authority to IAs (NISs) and LGUs (CISs) Streamlining of functions and associated eradication of human power Expansion of Contract-Out and out-sourcing in the framework of private sector participation Rising age structure of staff and upraised personnel expenses in COB budget

With the foregoing in view, it is anticipated that, under the current JICA study, the NIA's workforce currently in place will be reduced from 6,057 to 4,300. To be noted that this number of retirees comprises both compulsory and voluntary separation. In the meantime, new recruitment of staff is likely to resume in 2005, while assuming that the staff over the age of 50 is likely to apply for the early retirement program with the privileged separation package. As such, little compulsory retirement, or new recruitment to fulfill its vacancy, is likely to take place in the forthcoming 5 year-period of time.

CHAPTER 7 PLAN FOR REORGANIZATION OF NIA

7.1 Direction for Reorganization

7.1.1 Basic Concepts and Strategies

In reviewing and assessing NIA's Streamlining Proposal, the JICA Study Team conducted a series of discussions and consultations with the members of IACC and ITF to be able to get their views and opinions. From these consultations, the JICA Study Team formulated the following basic concepts and strategies for the reorganization of NIA.

1) Basic Concepts

1.	Lean but strong	- To maintain the minimum number of people needed, strong enough to carry out mandated functions
2.	Sustainability	- The size of the organization must be viably supported from internal cash generation
3.	Efficiency	- The streamlining envisions to achieve this through the following
		• Merging of units with related functions
		• Abolish units that unnecessarily compete or duplicate with private sector. Tasks could be done at cheaper cost.
		• Adequate training to be provided to all units
		• Improved systems and procedures will be introduced with computerization where feasible
4.	Implementability	- The organizational structure will cope with increased work load in the event that implementation of new projects will accelerate as envisioned

2) Strategies for Reorganization

1.	Integration of offices will be effected for efficiency, improved productivity, and maximum utilization of resources	
	-	CO Sectors (AS and F&M), Departments, Divisions and Sections
	-	RIO and other RIO
	-	PIO and NISO into PIMO
2.	Decentralization of functions from Central Office (CO) to Field Office (FO) will be effected	
3.	Relocation of existing personnel within CO, CO-RIO, RIO to another RIO, CO-FO, RIO-FO through a relocation plan with attractive benefits	
4.	Reduction of personnel through an attractive retirement package	
5.	Establishment of a manpower development program to train staff on new methods and procedures	

Source: JICA Study Team

7.1.2 Scenarios for Reorganizing the NIA's Management System

The NIA Streamlining Proposal advocates a status quo in the present structure. It does not offer an alternative organization to solve the pressing redundancy problems of the Corporation. Prior to formulation of the proposed reorganization plan for NIA, the following three (3) scenarios are prepared for determining an expected long-term structure of NIA.

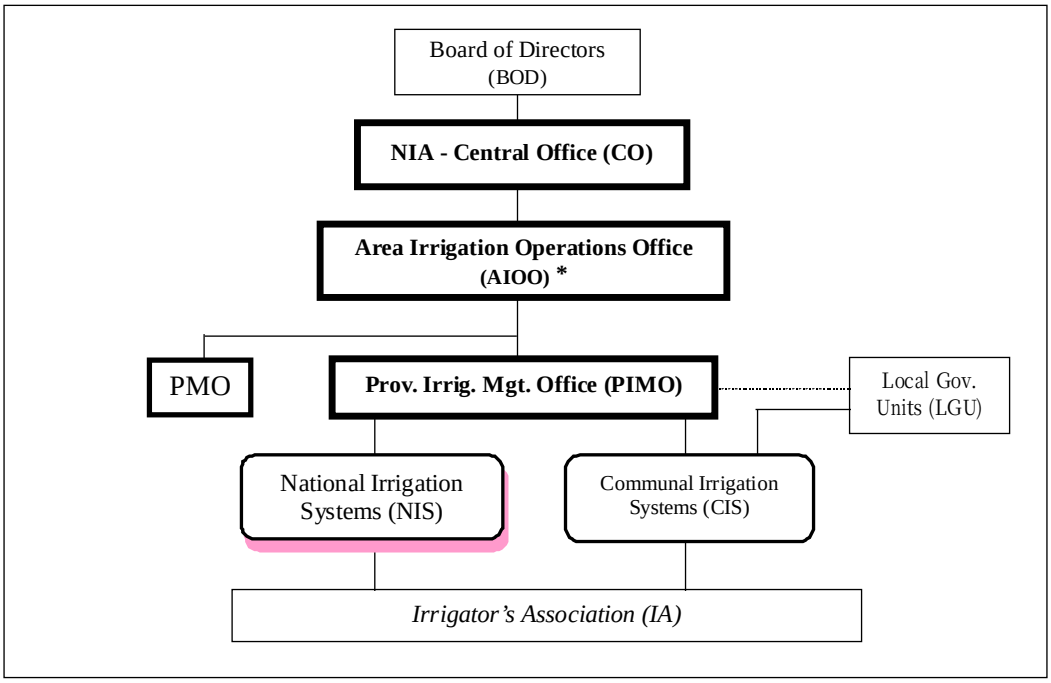
- Scenario-1 : Integrated RIOs with Reduced Scale of Central Office (3 in Luzon, 1 in Visayas and 2 Mindanao)
- Scenario-2 : Island-Based Corporation with Smaller Central Office
- Scenario-3 : Central Office – NISO Directly Linked and Strengthened (No RIOs)

The basic direction and typical features of the respective three improvement scenarios are compared as summarized in Table 7.1.

Comparison on the alternative scenarios was made based on the four criteria of selection, such as extent of downsizing, effect of cost reduction, acceptability to stakeholders and implementability. Through the comparison, the Scenario-1 was selected as the most appropriate one and the proposed reorganization of NIA was formulated within this framework.

7.2 Proposed Organizational Structure of NIA

The proposed organization structure is as shown below:



Note: * The regrouped RIOs will be named as "Area Irrigation Operations Office (AIOO)" in the proposed organizational structure.

Source: JICA Study Team

Proposed Organizational Structure

The proposed organizational structure of NIA will be much smaller than the existing structure both in number of offices and size of manpower. With the transfer of major functions to regrouped regional offices or AIOO, the CO will substantially become smaller. The RIOs will be consolidated from the current 13 regional centers to six: three in Luzon, one in Visayas and two in Mindanao, while the field offices like NISOs and PIOs will be merged in PIMO at provincial level (in principle). As to the PMOs, they will be placed under the regrouped regional offices (AIOO).

7.3 Organizational Structure of the Central Office (CO)

7.3.1 Main Functions of the CO

Most of the CO functions related to project development and implementation (former PDI and SOEM) are to be transferred to the regional level. With the greater financial and administrative autonomy of the field offices (AIOO&PIMO) under the reorganization scheme, corresponding activities are to be greatly diminished. Main functions of the CO after the reorganization are, therefore, limited to the following:

1) Support to Top Management

    a. Legal service
    b. Internal audit
    c. Public relations

2) Planning, Engineering Support and Monitoring

    a. Policy formulation and corporate planning
    b. Project planning, design review and contract management
    c. Monitoring and evaluation

3) Finance and Administration

    a. Budgeting and consolidation of financial management
    b. Personnel management and HRD
    c. IT and MIS development

The proposed reorganization of NIA functions by responsibility centers is summarized in Table 7.2.

7.3.2 Organizational Set-up of the CO

The proposed organizational chart of the CO is shown in Figure 7.1. As shown in this figure, the organizational structure of NIA-Central Office will consist of two sectors: (a) Planning and Monitoring and (b) Finance and Management, and three Service Offices. The Planning and Monitoring Sector will be the technical support and policy and planning center of NIA, while the Finance and Management Sector will assume consolidated financial activities, and personnel and administrative matters.

(1) Planning and Monitoring Sector

All of the former technical units of the CO will be consolidated under the Office of the Asst. Administrator for Planning & Monitoring and the sector will contain 3 departments:

1) Policy and Planning Department (PPD)

The Policy and Planning Department will be formed with the core staffs from the Corplan and planning oriented staffs in PDD and SMD. This Department will be responsible for determination of the Corporation objectives, formulation of irrigation policy and development plan and preparation of the NIA corporate plan.

2) Project Engineering Department (PED)

The Project Engineering Department will be constituted by the staffs specialized in project development and design, mostly those from the PDI Sector like PDD and DSD. This Department will review, evaluate and provide supervisory services for project planning, design and specifications prepared mainly by the AIOO.

3) Coordination & Monitoring Department (CMD)

The Coordination and Monitoring Department will be formed with the staffs specialized in project implementation and systems operations, mostly those from the PDI and SOEM Sectors. This Department will take charge of overall monitoring of the project implementation and O&M including IA formation and IMT progress.

(2) Finance and Management Sector

The non-technical units will be consolidated under the Office of the Asst. Administrator for Finance & Management and this sector will consist of three Departments:

1) Financial Management Department (FMD)

This Department will be formed by downsizing the existing Finance & Management Sector after decentralizing its activities to Area Irrigation Operations Offices (AIOO) and PIMO. Main functions of this Department include: maintenance of financial accounts, management of the financial resources, and formulation and monitoring of the annual current operating budget of NIA.

2) Administrative Service Department (ASD)

Like the Financial Management Department, this Department will be formed out of the reduced Administrative Services Sector after reducing its activities due to expanded administrative autonomy given to the Area Irrigation Operations Offices (AIOO) and PIMO.

3) Information Systems Department (ISD)

This Department will be newly established with the staff of EDP-MISD and new recruits. This Department will undertake construction of the IT infrastructure and management information systems of NIA.

(3) Service Offices for Top Management Support

Three service offices shall directly report to the Administrator. These are:

1) Legal Service

This office will be functionally the same as the existing Legal Department.

2) Internal Audit Service

This office will be formed out of the strengthened Management Audit Division of MSD. One possible option is to re-focus MSD into Internal Audit function.

3) Public Affairs and Information Staff (PAIS)

This office will be functionally same as the existing PAIS with more supportive function to the top management.

The CO will consist of offices formed out of the mergers of the various sectors, departments and divisions, and additional new recruits. Table 7.3 indicates the major functions of each unit of the CO.

7.4 Organizational Structure of RIO

7.4.1 Consolidating the RIOs

The consolidation of the RIOs will be made due to the following economic and technical reasons:

(1) To Improve Financial Capacity

As indicated in the financial performance of the RIOs in 2000 (Table 7.4), only one region XIII produced a positive cash flow, while all other RIOs were negative. Through mergers, the personnel and overhead costs is to be reduced substantially. Reduction in the personnel is expected from inter-regional mergers and fusion of redundant units within the regional offices. The reduction of personnel will be complemented by upgraded compensation package to make the RIOs competitive with other similar agencies and institutions. Through the cost reduction, the RIOs will improve their financial performance for a better delivery of service.

(2) To Correspond Irrigation Resource Potentials

The present number of RIOs (about 15 including MRIIS and UPRIIS) is generally allocated per administrative and political region in the country. With the exception of some GOCCs, the line departments and other agencies of the government follow the same political boundaries, primarily to promote equitable development of the regions. As a matter of policy, however, GOCCs need not align their regional offices with the current political boundaries but are encouraged instead to streamline in accordance with their available resources.

NIA's irrigation development program covering the period 2001-2010 is indicative of the irrigation potential among the regions in terms of the on-going and proposed projects listed in the plan (see Table 7.5). Five out of the 14 Regions have total area of about 6,000 ha. The

concentration of projects is in Regions I and III where total area for each region is above 100,000 ha. This implies that there are regions whose irrigation potential is not as rich as the other regions. Under this circumstance, the existence of the present number of RIOs may no longer be warranted.

(3) To Cope with Potential Impact of IMT and Devolution

The IMT will greatly reduce the administrative supervision of the RIOs over the NISOs. The same is true for the PIOs which are likely to disappear because of the devolution of communal irrigation projects to the LGUs. Should the plan to turn over small systems, especially those systems with 3,000 ha and below be accelerated, the number of NISOs that will be left is estimated at 62 offices. The distribution of these offices is widely scattered among the regions, and some regions will end up with 2 or 3 NISOs to supervise whose impact is reduction in the existing workload (Table 7.6). This situation creates regional imbalances in workload. To address this problem, the merging of regional offices based on geographic accessibility is deemed the best alternative.

(4) To Integrate Planning and Coordination

Integrative planning and coordination based on a common geographic boundary seems to be missing with the present set-up, particularly in regions II and III. In these regions, UPRIIS and MRIIS operations offices co-exist with regional offices whose structure and manpower complement are exactly the same with the regional offices. Although UPRIIS and MRIIS are co-equal with their regional counterparts, they are not involved in the overall planning and water resource development of the regions concerned.[1] UPRIIS and MRIIS operations offices directly report to the CO and their concern is limited to supervision of the district offices and the dam and reservoir divisions. Abolishing these offices and placing their responsibility under a unified regional structure will give the concerned regions flexibility and ease to plan water supply and allocation especially for systems that draw water from multiple sources geographically inter-linked.

Water allocation is critical during dry season and if excess water from reservoirs can be planned to supplement deficit systems, every farmer will have the equal opportunity to plant rice. This is the essence of integrative planning which can only be facilitated through a unified structure.

UPRIIS and MRIIS are offices with restrictive responsibility, essentially water allocation among the districts. In the organizational hierarchy, they are both cost centers. Removing them should not pose any constraint provided the district offices are strong and competent to perform the usual O&M activities.

[1] A case study about the merits of merging UPRIIS and Region III was conducted by JICA Study Team (refer to Chapter VI in Appendix). The organizational structure of this merged office was adopted as the model for the consolidated RIOs which was presented to NIA- CO and RIO officials in workshops held on June 8 and 20, 2001.

7.4.2 Proposed Organization of Area Irrigation Operations Office (AIOO)

(1) Area Irrigation Operations Offices (AIOO)

The consolidated offices will be termed as AIOOs. The proposed area groupings will consist of six (6) offices geographically delineated below.

1) Northern Luzon AIOO : Regions I, II, CAR and MRIIS
2) Central Luzon AIOO : Region III and UPRIIS
3) Southern Luzon AIOO : Region IV and V
4) Visayas AIOO : Regions VI, VII and VIII
5) Eastern Mindanao AIOO : Regions X, XI and XIII
6) Western Mindanao AIOO : Regions IX and XII

The AIOOs are envisaged to do project preparation and execution. The existing PMO is also to be placed under AIOO and the AIOOs will have direct supervision and control over the project development and implementation. Table 7.7 presents a summary of the functions of the AIOO.

The new role given to the AIOOs is essential in the context of decentralization that will justify their continued existence. There are basic principles that should be met to activate these offices:

1) The AIOO should be adequately provided with budget. The NIA-CO is required to give the AIOO greater authority, so that they can generate revenues, and operate as semi-autonomous profit centers. Since project implementation is now a major responsibility, they ought to get a share of the management fee as their main source of revenue.

2) Greater autonomy is proposed for these offices, but tempered with accountability. This means that control in the use of funds will be given prime consideration. Within the offices, appropriate systems and oversight committees composed of government and non-government representatives will be created to ensure transparency in the bidding and approval of contracts.

3) The reorganized staff should be adequately compensated to ensure morale. It is proposed that the new staffing will be upgraded to be competitive with the staffing structure of similar corporations.

(2) Organizational Structure

The proposed organizational structure of the AIOO is given in Figure 7.2. The proposed structure is composed of three (3) major divisions. The divisions are to be upgraded to have the equivalent of department in the CO by virtue of greater responsibilities. The reduction in the number of divisions should not be construed as diminution of responsibilities but rather part of unifying the functions and responsibilities aimed at producing synergistic effect. Under the proposed structure corresponding adjustments relative to line and staff authority, manpower and compensations were made.

The engineering, operations and administrative & finance divisions comprised the new duties and functions. Equipment management was placed under engineering; institutional development division was fused with operations, while finance and management was put under administrative. A small unit directly under the office of the Area Administrator is the planning and monitoring which will serve as instrument of control for the AIOOs.

1) Engineering Division

The Engineering Division undertakes the project preparation and execution, essentially activities related to development of infrastructures and implementation of civil works under technical support from PPD of CO.

The importance of good planning and adhering to the plan can not be overemphasized. This is the very essence of decentralizing project preparation and implementation so that the requirements can be calibrated appropriately and avoid costly delays. While the preparation of plans and designs will be the responsibility of the Division, the review of such an activity will be done by the Engineering Department of CO. This is to ensure control and compliance to design standards, specially for complex projects.

Specific functions or sections under engineering are:

a. Project identification
b. Planning and investigation
c. Feasibility study
d. Design and specifications
e. Construction Management
f. Equipment management

The Engineering Division will be staffed with competent engineers and economists and will be managed by a Division Manager with a salary grade equivalent to a Department Manager. A Principal Engineer will head each section.

2) Operations Support Division

The importance of Operations Support Division is essential especially in the institutional aspects of systems and water management. This Division will be given the premier role of supporting PIMO in water management and IA support. The Division will combine the functions of the former operations of SMD and IDD. Institutional development will be given a new dimension in view of the importance of the IAs in the maintenance of the systems under the IMT. Specific activities under the operations are to support PIMO in the following activities:

a. Systems management
b. Water management
c. IAs technical and managerial assistance
d. IAs build-up and monitoring

The operations will be managed by a Division Manager, with the rank of a Department Manager and each Section, will be headed by a Principal Engineer and/or institutional

development personnel who are extensively involved in community/water-users organizing and managerial support.

3) Finance and Administrative Division

The integration of the Finance and Administrative Division (FAD) will not reduce or eliminate activities currently performed by both units. In fact, additional volume of transactions are anticipated with the integration of the regions and decentralization of other functions from the CO. The FAD will consist of the following sections:

a. General accounting (book keeping and financial reporting at the AIOO level)
b. Property accounting (inventory, fixed asset and construction accounting)
c. Cashiering (cash collection and cash disbursement)
d. Budget formulation and monitoring
e. Personnel records and management
f. General support services

The FAD will be headed by a manager with a salary grade equivalent of that of a Department Manager. To maintain a high degree of professionalism, the head of FAD must either be a full-pledged accountant or a holder of a master degree in finance. Two sections will be created under the FAD. Each section will be headed by a management chief. One section, which will be headed by a professional accountant, handles the finance and accounting functions, while the other section handles the personnel, records and general services.

To further strengthen the audit function at the regional level, the financial audit function can be delegated to the FAD by the CO's Internal Audit Service until such time that the AIOOs will be able to create and pay for the salaries of its internal audit staff. For the meantime, CO's IAS assistance of AIOOs should be continued by dispatching regular audit team to the Area Offices. Training of AIOO staffs should be carried out through class-room type of seminar and actual participation in audit engagement.

4) Planning and Monitoring Unit

The Planning and Monitoring Unit will be the instrument of area control. It is to be noted that this is not a division and hence it performs only staff function. This unit will draw up annual and quarterly plans consistent with long-range plans and programs. It would monitor work progress and expenditures, gather and analyze data and present these to the management for policy and operational decision-making. The unit will also be responsible for backstopping the 3 divisions on strategic and policy planning. An IT expert will also be assigned on this unit to arrange management information in collaboration with ISD of CO.

The Deputy Area Administrator will directly supervise the unit. Its staff will consist of senior engineers, economists and accountants.

7.4.3 Organization for Project Management Offices (PMO)

The Project Management Offices (PMOs), which were directly attached to the NIA-Central Office, will be placed under the supervision of the respective AIOOs.

The PMOs, as in the present case, will exist for the duration of project implementation. These are to be organized for implementation of large-scale projects and/or foreign-assisted projects. These offices shall be structured as shown in Figure 7.3. As depicted in this figure, the structure puts emphasis on contract management. Their major works will cover survey, design, civil works, institutional development of farmers/ irrigators, etc. The major divisions of a PMO shall include: Programming, Monitoring and Evaluation, Contract Management, Force Account Works and Finance and Administration. Proposed functions of these Divisions are also stated in Figure 7.3.

7.5 Organizational Structure of PIMO

7.5.1 Integration of NISO and PIO

The Provincial Irrigation Management Office (PIMO) is proposed to be NIA's frontline organization at the field level, an office borne out of the merger of the NISO and PIO. The concept of the PIMO has actually been encouraged by NIA, and one of the few field offices, which internally adopted the idea, is PIMO Pampanga.[2] The merging of the PIO and NISO is justified by the following reasons:

1) With the devolution in place, there is no more major responsibility for the PIOs primarily established for the construction and rehabilitation of communal irrigation projects. The provincial LGUs can absorb the PIOs similar to the former Bureau of Agricultural Extension (BAEX). However, NIA can opt for integrating the PIO with NISO if it wants to keep the former office.

2) With the full-scale implementation of the IMT, small NISOs (e.g. systems whose service area of 3,000 ha and below) are likely to be abolished since the O&M responsibility will be completely transferred to the IAs.

3) A new organization overseeing the maintenance of national irrigation systems becomes imperative at the provincial level to overcome the new thrust on irrigation management. This thrust is minimum government intervention and more reliance on private (or IA) initiatives. This requires serious and tedious institutional support that the existing provincial offices have not been crafted for. The PIMO is envisaged for such challenge.

The integration of the NISO and PIO will bring the number of offices to 62, comprising of 52 NISOs, 8 District offices and 2 Dam and Reservoir divisions[3]. Compared with the existing offices (98 NISOs, 8 District Offices, and 67 PIOs), the indicative number of PIMOs is 65% less than the combined NISO, District and PIOs.

The 62 PIMOs are the NISOs and Districts whose irrigation service area are over 3,000 ha. It is assumed that NISOs with service area of 3,000 ha and below are likely to be abolished at full IMT. It should also be mentioned that there are provinces whose irrigation potential is limited and hence the PIMOs need not be established in every province.

[2] PIMO Pampanga is the merged Porac-Gumain NISO and Pampanga PIO. A case study about the merits of the merging was conducted by the JICA Study Team (refer to Chapter VI of the Appendix).

[3] The District offices will retain their current structure similar to the PIMO and was conducted by the JICA Study Team.

7.5.2 Proposed Organization for PIMO

(1) Organizational Structure

The proposed organizational structure is given in Figure 7.4. The structure is patterned after the proposed organizational framework described in Section 7.5.1 where there is a distinct responsibility of the proposed PIMOs. It is proposed that the PIMO will focus on operations and maintenance. This focus of the responsibility is explained below:

1) It has become very costly for NIA to undertake major rehabilitation given the termination of direct subsidies from the national government. The only way it can prevent rapid deterioration of the facilities is to institute a strong policy for maintenance.

2) Allowing the PIMO to focus on O&M will give them the opportunity to consolidate their efforts on technical and managerial assistance to the IAs essential to full implementation of IMT.

3) Prompt and efficient service is synonymous to the institution of appropriate O&M practices. Appropriate service given to the IAs can minimize the problem of delinquent farmers. This should ensure the financial viability of the PIMO.

The proposed organization of the PIMO is composed of 3 Sections: Operations, Engineering & Maintenance and Finance & Administrative. Table 7.7 presents a summary of the functions of the PIMO. It is also envisaged that the PIMO will operate as a semi-autonomous profit center relying on ISF collections as its main revenue. Transactions rendered between the PIMO and the AIOO should reflect the appropriate cost and each center should be billed accordingly.

(2) Operations Section

The Operations Section is mainly associated with institutional support to include monitoring and coaching beneficiaries of the irrigation systems and competent staff will manage this Section. Specific functions/ activities under the heading of operations include:

a. Systems management
b. Water management
c. IAs build-up
d. IAs managerial assistance
e. Community/LGU assistance

Systems and water management is important in the maintenance of available water supply. If the systems are not properly maintained, the consequence is poor water management. Water measuring instruments can help the realization of sound systems' and water management that can produce reliable information for the preparation of operations plan.

IAs build-up and managerial assistance are important in ensuring the over-all maturity of the IAs. This activity has not been overemphasized with the thrust on IMT. IMT can only be realized should the IAs become technically and managerially competent.

Community and LGU assistance is essential to get a broad-based support from the community. The problem of delinquent farmers with respect to payment of ISF can be minimized if the support of the community and the LGU is harnessed.

While the support of the LGUs is being harnessed, this Section is duty bound to render technical assistance to the LGUs in project identification. Detailed project preparation should be referred to the concerned AIOO for actual assistance.

To render such assistance, it is required to forge an agreement between NIA and LGUs concerned in relation to the technology transfer. It is best that first class municipal LGUs with high irrigation potentials be prioritized as the immediate beneficiaries.

(3) Engineering and Maintenance Section

Engineering and maintenance will enforce a strict policy of preventive, routine and/or emergency maintenance. It will focus on monitoring the performance of systems and apply necessary measures to prevent further deterioration. The AIOO will support this Section in heavy engineering works because PIMO does not have facility for heavy equipment. It is important that this Section should have a quick response monitoring system that will alert the AIOO for major repair, especially during calamities. In the meantime, that the LGUs have not yet developed their capabilities in construction of CIS, this section is duly bound to implement the locally funded and small-scale projects (below 1,000 ha). Specific functions/ activities under this Section include:

a. Dam and major/minor lateral canals
b. Dredging and desilting
c. Gates and other infrastructure

Competent staff will manage the Section.

(4) Finance and Administrative Section

The Section will be responsible in discharging the day-to-day financial and administrative activities of the PIMO. With the planned decentralization of the accounting functions from the regional office, the accounting unit of the PIMO will be assuming more responsibilities. The activities after the decentralization will be the following:

a. Bookkeeping
b. Financial reporting
c. ISF billing and collection
d. Cashiering
e. Personnel
f. General services

7.6 Staff Composition

The numbers of the required staff and their composition were preliminarily estimated for the viability analysis. However, detailed analysis of manpower requirement is to be conducted in due consideration of the expected function and quality of available manpower.

7.6.1 Central Office (CO)

The estimated staff requirement of the CO new structure is about 320 broken down as follows:

Office	Number of Staff Requirement
Support Services to the Administrator	38
Office of the Asst. Administrator for Planning and Monitoring	152
Office of the Asst. Adm. for Finance and Management	130
Total	320

The total number is only about 51% of the total regular staff (625 permanent and temporary COB-charged personnel) as of December 2000. This reduction may be realized through an early retirement program and relocation.

Table 7.8 presents the details of staff requirement for the CO. Although the proposed units seem to be downgraded (e.g., Administrative Services Sector to Administrative Service Department), the proposed positions and corresponding salary grades are much higher than the existing.

7.6.2 Area Irrigation Operations Offices (AIOO)

The indicative staffing pattern and financial requirement are given in Table 7.9. The Area Administrator assisted by the Deputy Area Administrator will head the AIOO. Manpower complement was based on the expected output represented by existing service area and the on-going and proposed irrigation projects over a 10-year period. This facilitated the standardization of staff composition based on the following sizes:

Size of Area Irrigation Operations Offices (AIOO)	No. of Personnel
- 50,000 – 150,000 ha	120
- Above 150,000 ha	100

The personnel complement represents only the permanent and regular staff. The AIOO has the flexibility to hire people depending on the volume of projects it has. However, this category is co-terminus with the project.

The total required manpower in AIOO is estimated at 640. Since the existing personnel complement totals to 1,152 in the RIOs (including UPRIIS and MRIIS), this proposed number of staff corresponds to 56% of the existing.

7.6.3 Provincial Irrigation Management Offices (PIMO)

The indicative staffing pattern and financial requirement are given in Table 7.10. The Provincial Director will head the PIMO (refer to Figure 7.4). An important position created for the PIMO is the regular appointment of IDOs. Manpower complement was based on the

service area of the systems. The manpower complement of three (3) representative PIMOs are given below.

Size of the Provincial Irrigation Management Office (PIMO)	No. of Personnel
- 3,000 – 5,000 ha	36
- 5,001 – 20,000 ha	65
- Above 20,000 ha	76

The indicative staffing of UPRIIS Dam and Reservoir Division is indicated in Table 7.11. The total required manpower in PIMO is estimated at 3,340. Since the existing personnel complement amounts to 4,280 in the NISOs and PIOs (including UPRIIS and MRIIS Dam and Reservoir Divisions), this figure (3,340) corresponds to 78% of the existing.

7.7 Early Retirement Plan (ERP)

The indicative number of required NIA personnel after reorganization is 4,300 in total, accounting for 71% of NIA's actual personnel complement. This necessarily calls for targeting severance of the present personnel complement of the Corporation.

An early retirement program (ERP) would be attractive to prospective retirees if there are incentives. To improve NIA's financial viability, it is suggested that the early retirement scheme be adopted, referring to the latest major ERP implemented or being promoted in the Philippines. Several government agencies have adopted their own ERP. The samples of the ERPs adopted by the selected government institutions are presented in Table 7.12.

(1) Objective Employees for Early Retirement Plan

The early retirement plan (ERP) shall be offered to the following categories of employees:

1) Temporary employees (daily and monthly) charged to the current operating budget (COB)of the NIA

2) Permanent employees appointed under the NIA regular plantilla who joined the government service before July 1, 1977. This group includes, (a) employees eligible to avail compulsory retirement within the immediate next four years as provided under various laws and (b) employees eligible to avail optional retirement (with benefit package) under Republic Act 8291 – GSIS Law of 1997.

Retirement of temporary employees is mandatory. On the other hand, permanent employees shall be given an option to avail or not. Limiting the target retirees to this group is intended to address the aging personnel profile of the NIA.

(2) Proposed Incentives

Permanent employees who will avail of the ERP shall be entitled to a retirement gratuity computed as follows:

Years of Service (YOS)	Retirement Gratuity
1) 1-20	YOS x 1.5 x highest salary
2) 21-30	YOS x 2.0 x highest salary
3) 31 +	YOS x 2.5 x highest salary

In addition to the retirement gratuity, all other benefits of employees qualified to retire under RA 1616, RA 8291 and RA 660 shall be granted as provided.

Temporary employees will be paid the total terminal leave accumulated through the years of government service and gratuity equivalent to one month salary per year of service.

(3) Estimated Number of Retirees and Fund Requirement

As categorized above, 834 temporary (monthly and daily) employees will be retired. Based on available data, the JICA Study Team estimated the number of permanent employees (who entered government service before July 1, 1977) qualified for the proposed ERP to be 3,983 – total for CO and FO. Based on the result of the NCCS questionnaire survey, about 60% of the respondents (or 2,390 staff) are willing to avail of ERP.

Since the number of existing personnel is 6,057, the reorganization will bring arithmetically 1,757 redundant personnel. To retire these redundant staff under an early retirement program (ERP), the total estimated fund requirement amounts to about PHP878 million.

The present analysis is still preliminary and it is suggested to formulate more detailed implementation program based on the results of thorough investigations, especially those of the interview survey to the eligible candidates and/or applicants.

(4) Indicative Implementation Schedule

Despite the urgent need for reduction in personnel strength of the Corporation, social and humanitarian considerations as well as arrangements for funding would require that this be implemented over a span of three years at a maximum. Temporary personnel may be separated from service during the first year of implementation. The succeeding two years shall be allocated for the severance of permanent employees, as shown in the table below.

Phasing of the Early Retirement Plan Implementation (Indicative Original)

Target Year	No. of Retirees (Employ. Category)	Fund Requirement (PHP Million)
1) 1st Year (2004)	834 (Temporary/Daily)	300.4
2) 2nd Year (2005)	461 (Permanent)	288.6
3) 3rd Year (2006)	462 (Permanent)	288.6
Total	1,757*	877.6

Note: * Total Retirees (1,757) = 834 + 923

(5) Implication on Recruitment

If the ERP attracts more permanent employees to avail such that total retirees will exceed the number of redundant staff, then recruitment of new staff becomes necessary. This would be an

opportunity for the NIA recruit new staff. Besides, in view of the current age structure of NIA staff (average age of 50 years old), recruitment of young competent employees each year is needed to replace the retirees.

(6) Alternative to Indicatively Proposed ERP

The cost of implementing the proposed ERP requires PHP 878 million, which may become a major impediment. For this reason another alternative may be looked into.

This alternative does not consider an early retirement plan, instead, the NIA would depend on natural attrition. This means that about 489 permanent employees (who are eligible for compulsory retirement from 2001 to 2006) and 834 temporary employees (who may be retired without benefits except payment of terminal leaves) will be deducted from the existing regular personnel complement by year 2006. Under this alternative, payment of retirement benefits are based on the retirement package as provided by various compulsory retirement laws for permanent employees. Retirement benefit for temporary employees include payment of terminal leave credits only.

Under this alternative, the number of expected retirees will be 1,323, accounting for only 22% of the existing total (6,057). Hence, a total of 434 redundant staff will still remain with the NIA after 2006.

CHAPTER 8 IMPROVEMENT PLAN FOR FINANCIAL VIABILITY AND PROJECTION

8.1 Improving Corporate Viability

NIA's viability has been seriously threatened in recent years due to decreasing revenue and increasing operating costs. The decreasing number of irrigation projects, the devolution of communal irrigation systems to the LGUs, the implementation of socialized ISF (AO 17) in mid-1998, and the dwindling government subsidy have collectively contributed to NIA's worsening financial condition. These factors significantly reduced income from management fees, equipment rentals, and irrigation service fees (ISF). It also reduced additional cash inflows from CIS amortizations and equity contributions.

The thrust should be towards complete financial autonomy. To achieve that it must strive to fully recover the cost of operation from its clientele through the ISF. NIA's viability lies primarily on its ability (a) in maintaining an adequate level of ISF that will sustain an acceptable level of O&M and (b) controlling operating costs.

However, in the consideration of characteristics of the agriculture and irrigation incomes from other source such as management fees and engineering fees on SSIP/CIP are also to be considered. Besides, irrigation facilities are used to be damaged by natural disaster, against which calamity fund is secured from the government, separately from ordinary budget: These costs are difficult to be recovered only through contributions from beneficiaries.

8.1.1 Revenue Improvement Plan

(1) ISF Revenue

Improving viability through the ISF requires both short-term and long-term plans:

Short-Term Plan

1) Adjust the ISF Rate to Fully Recover O&M Cost

As an initial step, the restoration of the 1975 ISF rate would be a strategic move, as this rate has been long accepted by the farmers. Subsequently, the ISF should then be reviewed annually to determine if it is still adequate to cover fully the O&M cost is to be recovered by ISF in principle. Restoration of the 1975 ISF rate seems appropriate* and urgent to be implemented.

Formulation of the tariff on a regional basis should be given serious consideration, as this will allow a more realistic and accurate approach in determining the appropriate tariff for a specific location. The current practice of imposing a uniform ISF rate nationwide is inappropriate and inequitable, as it does not consider variation in the level of expenditure and revenue base of the NISOs..

* Based on the analysis of ADB, restoration to 1975 rate was justified and continued through Farmers Intention Survey conducted in this study.

2) Increase the ISF Revenue Base

The implementation of capacity improvement plan to increase the billable area similar to that tested in UPRIIS District III and Aganan-Sta. Barbara irrigation system (ASBRIS) must be pursued in all NIS. Please refer to Chapter I of Appendix (Volume II) for a more detailed description of the capacity improvement program.

3) Increase the ISF Collection Efficiency

No matter how high the ISF rate or how large the billable area if the collection efficiency is low, viability could still seriously affected. An increase in the ISF rate or billable area should be coupled with corresponding increase in collection efficiency.

Increasing collection efficiency, however, requires a series of continuing activities that must be effectively carried out:

a. Sustained rehabilitation of existing irrigation facilities

b. Sustained information dissemination campaign to educate farmers on the importance of irrigation water;

c. Sustained consultation with IA leaders and farmer-beneficiaries to discuss and resolve critical issues on ISF;

d. Strengthening of IAs' capabilities for greater involvement in the collection of ISF

e. Sustained legal actions against non-paying members

f. Imposition of stiffer penalties for illegal diversion of irrigation water

The target efficiency would be, at least 70% on current accounts; 12 % on back accounts by the end of 2010.

Long-term Plan

4) Adopt the Volumetric Irrigation Service Fee Pricing Mechanism

Adoption of the volumetric pricing requires the need for a two-tiered ISF pricing mechanism, wherein NIA charges volumetrically at the main laterals and IAs' set their own ISF rates.

Volumetric pricing encourages water conservation, promotes equitable distribution of water and serves as an effective mechanism in enforcing sanctions to non-paying members.

Prior to the adoption of the volumetric pricing, however, it is suggested that proper evaluation must be made to determine its technical feasibility and a cost-benefit analysis be made to determine its financial merits.

(2) Management Fees and Engineering Supervision Fees

NIA should initiate a legislative proposal to increase management to augment the maintenance of national irrigation systems. Engineering supervision fees should be charged on the SSIP and CIP to be conducted by PIMO. This could be an additional income to NIA.

(3) Other Possible Source of Revenues

Some possible long-term sources of revenues where NIA could possibly explore in the future are the following:

1) Leasing of equipment to the LGUs/IAs, assuming that NIA's equipment are modernized;

2) Leasing of property and assets;

3) Credit lending to the irrigators association (IA) where the interest will accrue to NIA; and

4) Amendment to the cost-sharing scheme with Napocor-NIA will be billing Napocor on a per cubic meter basis.

The quantification of the possible benefits from these options, however, is not made in this study due to many assumptions required.

8.1.2 Cost Reduction/Cost Savings Measures

Viability can be further achieved through cost cutting or cost reduction measures. Aside from trimming down the manpower complement, there are certain policies where NIA can potentially save or cut costs.

Amending the following policies could help alleviate the current cashflow problems of the NISOs:

1) Forty-Cavan Exemption

This particular policy is disadvantageous to NIA for three reasons: (a) it deprives NIA substantial ISF revenue; (b) it is inequitable for those farmers whose harvest is a little over the 40-cavan mark, and (c) it is a fertile ground for abuse and collusion between NIA's field personnel and farmers. Estimated annual foregone revenue was PHP80.8 million (ADB Cost Recovery Study, 2000).

Amending this policy requiring farmers harvesting less than forty cavans per hectare to pay, say, 50% of the ISF rate, will save NIA approximately PHP40 million annually.

2) 10% Discount on Cash Payment

Considering the present cash liquidity of NIA, the suspension or lowering of the 10% discount will help alleviate the cash-flow problems of the field offices. NIA incurred losses, for the period 1994 -1999, on average, PHP16 million on rebates for cash payments.

3) Payment-in-Kind

Under this mode of collection, NIA spends incidental costs related to the handling, drying, storage and hauling of palay. Additional losses come from shrinkage, pilferage and spoilage.

Further losses are incurred in the final sale of palay to NFA, due to the poor quality of palay. Estimated average annual losses (1992 – 1999) was PHP25.3 million (ADB Cost Recovery Study, 2000)

8.2 Financial Viability of Central Office and Field Offices

NIA's operation, as a whole, is financed by management fee, equipment rental, ISF and CIS amortization. Each cost center, however, has its own unique source of income as shown below:

Cost Centers and Source of Funds

Cost Center	Sources of Income
1. Central Office	Management Fee
2. Regional Office	Equipment Rental
3. NISO	Irrigation Service Fee (ISF)
4. PIO	CIS Amortization

(1) Central Office (CO)

Its main source of income comes from management fees. The viability of the Central Office can be improved through higher absorptive capacity and reducing the current manpower complement.

(2) Regional Irrigation Operations Offices (AIOOs)

Its main source of revenue comes from equipment rental. However, due to the decline of projects, RIOs operation are currently being subsidized by the NISOs under its umbrella, through sharing of the ISF. Integration alone, without IMT, will not make the RIOs viable. To support its operation the following options can be considered:

1) Sharing of management fee with the CO on projects undertaken within its region; and
2) Sharing of the ISF with the PIMOs. In so far as sharing of ISF is concerned, there is a need to revise the existing tariff structure to include part of overhead costs of the head office on the total cost to be imputed in the tariff.

(3) Provincial Irrigation Management Offices (PIMOs)

For the PIMO (integrated NISO and PIO) viability could be attained by:

1) Upward adjustment of the ISF to a level sufficient to recover O&M cost; and
2) Higher collection efficiency at a level sufficient to cover operating costs.

8.3 Financial Projection of NIA 2001 - 2010

This indicative financial projection is aimed to determine the following:

1) Adequacy of the current ISF (AO 17) or the 1975 ISF to finance NIA's operation, taking into consideration an Early Retirement Plan (ERP);

2) Level of O&M that can be sustained by the ISF after the implementation of the ERP; and

3) Level of collection efficiency required to finance the desired level of irrigation service.

The four major assumptions for this projection are: (a) implementation of an early retirement plan except Scenario 3, (b) increase in management fee except Scenario 1 and 2 and (c) O&M cost to be funded from corporate revenue, in principle, and (d) increase in collection efficiency, except Scenario 1 and 2, as a result of the implementation of various action plan.

8.3.1 Alternative Scenarios

The projection considers five scenarios:

1) Scenario 1 – AO 17 ISF rate with limited retirement plan (compulsory only)

ISF collection efficiency remains constant at 45% from 2001 – 2010.

2) Scenario 2 – 1975 ISF rate with limited retirement plan (compulsory only)

ISF collection efficiency remains constant at 45% from 2001 – 2010.

3) Scenario 3 – 1975 ISF rate without an Early Retirement Plan

ISF collection efficiency progressively increases from 45% in 2001 to 70% by 2010

4) Scenario 4 – 1975 ISF rate with Early Retirement Plan

Reduction of 1,757 personnel (923 permanent; 834 daily-paid).

5) Scenario 5 - 1975 ISF rate with Alternative Early Retirement Plan

Same as Scenario 4 except for personnel reduction of 1,323 personnel (489 personnel; 834 daily-paid)

The projected income statement follows NIA's format in reporting revenue, which recognizes CIS equity and CIS amortization as income. The projections for the five scenarios are shown in Tables 8.1 to 8.5.

The assumptions are listed below:

1) Escalation factor : 5% per year applied on personnel costs

2) Service Area: annual increase of 30,000 hectares

3) Irrigation Intensity: WS - 77%; Dry Season – 65%

4) Cropping Intensity: WS – 65%; Dry Season – 61%

5) Distribution by Type of System: Diversion: 70%, Reservoir: 30%

6) Distribution by size of landholdings

a.	Not more than 2 ha	70%
b.	Over 2 ha but not more than 5	24%
c.	Over 5 ha	6%

7) Billing Efficiency: 95% (2001 – 2004); 100% (2005 – 2010)

8) Collection Efficiency:

a. Scenario 1 and 2:
   - Current accounts: 45% constant for the entire projection period.
   - Back accounts: 3% constant for the entire projection period.

b. Scenarios 3, 4 and 5
   - Current accounts: 2.5% increase annually (2001-2004); 3% annually (2005 – 2010)
   - Back accounts : 1% increase annually

9) Management Fee :

Scenario 1 – 2	:	Present rate of 5%
Scenario 3 – 5	:	Increase to 7% from 2003 - 2010

10) Equipment Rental: Assumed constant throughout the projection period.

11) CIS Amortization: Calculated based on Treasury Dept. amortization schedule

12) Personnel Reduction Through ERP

		Scenario 4	Scenario 5
a.	Daily employees	834	834
b.	Permanent employees	923	489
c.	Net Reduction	1,757	1,323

13) Average annual compensation per employee

Permanent: PHP178,000.00 Daily Paid: PHP88,000.00

14) Operation and Maintenance – Systems Level

At current spending level of PHP1,000.00 per hectare; assumed to be funded from NIA's corporate revenues.

8.3.2 Results of Analysis

The figures presented in the following table are averages from 2005 – 2010, the years following the implementation of the action plan (2001 – 2004).

Comparative Results

Particulars	Scenarios				
	1	2	3	4	5
1. Amount of O&M that can be funded from COB	-341	-14	587	1,013	878
2. Ratio of Available Income to O&M Requirement	-34%	-1%	59%	101%	88%
3. Net Income (Deficit)	-1,213	-917	-373	15	-108

Scenario 1

Under Scenario 1, reduction of personnel through compulsory retirement would have a very minimal effect on operating cost. In this scenario, the present level of ISF could not even pay a portion of the O&M cost as shown in Table 8.1. On average annual deficit is estimated at PHP1,213 million.

Scenario 2

Scenario 2 does not show substantial improvement on Scenario 1 as shown in Table 8.2. Although the annual deficits are lower than of Scenario 1, the restoration of the 1975 ISF rates alone will not improve the cash position of NIA, even if this is coupled with a compulsory retirement scheme. Still, this Scenario could not shoulder even a portion of the O&M cost. Average annual net loss is projected at PHP917 million.

Scenario 3

Under Scenario 3, restoring the 1975 ISF rates coupled with an increase in collection efficiency and management fee, but without reduction in personnel, would lead to much lesser deficits as shown in Table 8.3. Although projected net loss is PHP373 million, in this scenario, NIA would be able to finance 59% of the O&M cost of PHP1,000 per hectare.

Scenario 4

Under Scenario 4, the restoration of the 1975 ISF rate, complemented by a comprehensive retirement program and increases in collection efficiency and management fees would improve the cash flow position of NIA. In this scenario, NIA's revenue is just enough to meet operating cost.

Scenario 5

Scenario 5 is a sensitivity test to Scenario 4. Should the retirement plan considers alternative early retirement plan, annual revenues would not be enough to meet operating costs. On average, annual net deficit would be PHP108 million.

From the following analysis, it can be concluded that:

For attaining the financial viability, the following combined improvements are to be implemented:

1) Upward adjustment of ISF (ISF rate and collection efficiency);

2) Increase management fee;

3) Implementation of a comprehensive personnel reduction program; and

Even in case of alternative retirement plan, financial viability will still be below the level covering the required O&M cost.

Regular subsidy from the government is required to finance a certain portion of the O&M cost until such time that O&M cost is fully recovered from the ISF.

CHAPTER 9 FORMULATION OF ACTION PLAN (TARGET YEAR OF 2004)

9.1 Formulation of Action Plan

The prioritization of the strengthening programs was discussed in a series of workshops and Consultation Task Force (CTF) meetings and the NIA and JICA Study Team agreed to prepare the proposed programs as the "Action Plan" to be implemented during the period of 2001-2004..

The Action Plan package consists of the following five (5) components:

(1) Improvement of Project Implementation

(2) Strengthening of Operation and Maintenance (O&M)

(3) Strengthening of Irrigators' Associations (IAs)

(4) Consolidation of NIA's Organization

(5) Improvement of Financial Viability

9.2 Proposed Strengthening Programs and Its Components

There are wide ranges of requirements for improvement of the NIA's efficiency and effectiveness in its operations and services or strengthening of the NIA's management system. Among others, the following five major programs were proposed to be implemented through discussions with the NIA top management personnel and representatives at several Consultation Task Force meetings and workshops.

The detailed components and activities of the respective programs are indicated in the following table:

Programs in Action Plan and Its Major Components

1. Improvement of Project Implementation
1.1 Transfer of CO Functions to AIOO/ PIMO
1.1.1 Project Development and Implementation under Field Offices
1.2 Application of Project Monitoring Tools
1.3 Updating of Manual/ Design Standard and Computerization
1.4 Facilitation of Procurement and Project Implementation
1.4.1 Validation of Delegated Authority to NIA
1.4.2 Remedial Measures for Procurement Procedure

2. Strengthening of O&M
2.1 Strengthening O&M Functions of NISO
2.1.1 Establishment of O&M Section and Appoint IDOs in NISO
2.1.2 Establishment of O&M Fund
2.2 Improvement of Equipment Management System for O&M
2.2.1 Preparation of Equipment Inventory
2.2.2 Procurement of Adequate Equipment for O&M
2.2.3 Facilitation of the Unserviceable Equipment Disposal
2.3 Enforcement of Capacity Improvement Plan
2.3.1 Implementation of Strict Water Management
2.3.2 Enforcement of Legal Sanction/ Incentives

3. Strengthening of IA
3.1 Preparation and Implementation of a Turnover (IMT) Program of NIS or Laterals to IA/CIA
3.1.1 Implementation of IA Strengthening Program for IMT
3.1.2 Conduct of Trainings for IA (especially on data recording/ control and managerial & financial issues)
3.2 Monitoring and Assessment of IA Activities
3.2.1 Establishment of a System for Effective Assessment of IAs
3.2.2 Preparation of the MOA between NIA and NCIA/ IA to Clarify the Respective Duties and Functions

4. Consolidation of NIA's Organization

4.1 Strengthening of the NIA's Management

4.1.1 Restructuring of the Corporate Board of Directors (BOD)

(1) New membership (ex. DAR, DENR, NCIA) should be members of BOD

(2) Chairmanship and representation

4.1.2 Strengthening Policy and Planning Function

4.1.3 Establishment of the Management Information System (MIS)

4.1.4 Strengthening of Internal Auditing

4.2 Restructuring of NIA's Organization

4.2.1 Sliming CO through Decentralization (CO to RIO) and Merging Departments and Divisions

(1) Establish two (2) Sectors: Planning & Monitoring and Finance & Management

(2) Establish three (3) Service Offices under the Administrator

4.2.2 Integrating RIOs to create AIOO

(1) Establish six (6) AIOO

(2) Place PMO under the control of AIOO

4.2.3 Integration of NISO/ PIO into PIMO

(1) Establish sixty two (62) PIMO

4.2.4 Preparation and Implementation of Effective Retirement Program

(1) Prepare the retirement program

(2) Arrange the required fund

4.2.5 Transfer or Re-assignment of Redundant Personnel/ New Recruitment

5. Improvement of Financial Viability

5.1 Income Increase from ISF

5.1.1 Increase of the ISF Rate

(1) Restoration to 1975 Rate (1st Step)

(2) Increase the ISF rate to market base (2nd step)

5.1.2 Increase of ISF Collection Efficiency (up to 70% in 2010)

5.2 Increase of Management Fee (5% to 7%)

5.3 Income Increase from Other Sources

5.3.1 Acceleration of Disposal of Non-performing Asset

(1) Maximize disposal of unserviceable equipment

(2) Accelerate disposal of non-performing land and assets

5.4 Cost Reduction and Saving

5.3.1 Elimination of Functional Duplication & Staff Redundancy

5.3.2 Acceleration of Retirement Program

9.3 Implementing Organization

For overall supervision of the programs implementation, it is recommended to establish a "Steering Committee on NIA Strengthening (SCNS)" under the control of the Corporate Board of Directors (CBOD) re-organized with its new members. This SCNS will be responsible for providing basic policies and guidelines, and general coordination among the agencies and authorities concerned.

For effective and sound implementation of the programs, the NIA is required to organize the "Task Force (TFs)" following the model of the existing "Internal Task Force" with the same memberships as those of the Advisory Team and Task Force Team. This Task Force (TF) will be responsible for formulating definite strengthening plan and promoting/ coordinating all matters relating to the overall implementation of the Strengthening Plan. Five TFs are to be organized for each of the strengthening programs.

Consultants will be assigned to TF as specialists to ensure the effective implementation of the programs. To ensure the coordinated operations and activities of the SCNS and TF, a Secretariat will be formed with the selected representative members who are to be specifically assigned to realize the action plan.

The proposed coordination and implementation structure is presented in Figure 9.1.

9.4 Implementation Schedule

The NIA's strengthening plan period up to the target (or long-term) year 2009 is divided into two phases as follows:

1) Phase I : up to 2004 (Short-term or Action Plan period)

2) Phase II : from 2005 to 2009 (Long-term period)

The strengthening programs will be executed in the above two phases as per the prioritized package and order, and following the implementation schedule (or staged procedures) as indicated in Figure 9.2.

As shown in this figure, several months are needed for the preparation of the implementation programs. After implementation of the strengthening programs, it is required to monitor and evaluate periodically their progress and performance. The implementation duration of the respective programs varies depending on the specific nature of each program.

Among others, it is a "must" to institutionalize the implementing structure and legal frame before starting the strengthening programs. Besides, it is a matter of great importance to allocate the rolling fund so as to assure the sustainability of the programs and their results.

The proposed NIA strengthening plan will be implemented over a span of 4 years to lessen the impact of organizational change. The first two years of the Action Plan will be preparatory or

transition stage for the pivotal strengthening of NIA envisioned in 2004 and also provide a period of preparation for the RIO, NISO and PIO on their integration and expanded functions.

By the end of 2004, a substantial strengthening of NIA would already be achieved in order to address/ improve its financial viability, but with some exceptions for early retirement and IMT. The early retirement scheme needs certain preparations, so it will be done from 2004 to 2006 (within 3 years), while IMT will be realized with the long-term frame (up to 2009).

The transition period is not only designed to lessen the impact of change especially drastic restructuring/ slimming of the CO, but also to smoothen the transfer of functions to RIO (or AIOO). During the four-year Action Plan period, the CO units will be realigned through mergers and abolition of redundant and unnecessary offices and maximization of manpower utilization.

CHAPTER 10 CONCLUSION AND RECOMMENDATIONS

10.1 Conclusions

(1) The improvement and reorganization plan was proposed to strengthen NIA's management system and NIA's financial viability was examined through Viability Analysis.

For ensuring NIA's financial autonomy, the following need to be implemented:

1) To increase ISF revenue,

2) To gain revenue from other sources particularly through increase of management fee, and

3) To reduce cost substantially by facilitating IMT, and elimination of redundant personnel.

(2) NIA is required to make further effort to increase ISF revenue, as charge for its service. Income from beneficiaries has its limit, however, the deficiency should be covered by project implementation fee, such as increased management fee and engineering service fee on SSIP or CIP. Special subsidy against natural disaster, typhoon for example, is also to be secured since irrigation facilities are easily affected by natural calamity.

(3) Organizational restructuring should be conducted by drastic measures including management transfer to regional offices, integration of RIOs, establishment of PIMO by combining NISO and PIO.

While keeping the basic concept of NIA's own Streamlining Plan, the substantial reorganization plan was here proposed taking into account the long term development plan of NIA.

(4) The highest priority is given to NIA's financial viability as an independent quasi-governmental corporation. To achieve this objective, more efficient development of both new and rehabilitation projects as well as implementation of O&M are required. Especially the following improvements are important to implement and proceed IMT.

1) Rehabilitation project before IMT

2) Strengthening O&M function of PIMOs

3) Ensuring O&M fund

(5) The strengthening programs are proposed to be carried out according to the implementation schedule of the Action Plan. However, such reformative programs need much time for their implementation. During the transition period, government subsidy is to be provided. To implement the strengthening plan under this framework, the NIA should submit more detailed and concrete improvement schedule and program to DBM and is required to realize them step by step.

10.2 Recommendations

To realize the objectives of the proposed strengthening plan, the implementation of the Action Plan is essential. NIA should enforce the following actions in collaboration with concerned authorities.

(1) The Action Plan should be implemented immediately. NIA should organize special Task Force Teams directly under the stewardship of the Administrator to prepare among others, operational plans, schedules and coordinative arrangements with related authorities. The Task Force Teams to be established are: (a) Task Force for Consolidation of NIA Organization, (b) Task Force for Strengthening O&M, and (c) Task Force for Improvement of Financial Viability and so on.

(2) With reference to increasing financial viability, NIA should: (a) restore as interim measure the 1975 ISF rates through the powers of the NIA Board, (b) increase management fee for O&M fund, (c) explore other revenues through the disposition of other assets, and (d) reduce personnel cost through the early retirement program.

(3) With reference to the early retirement plan, NIA should immediately: (a) conduct a survey of employees who are willing to retire and (b) estimate the retirement package and explore the financing options either through borrowing or by special legislation.

(4) On project development and implementation, NIA should immediately: (a) devolve this function to the RIOs , (b) strengthen manpower capability in project preparation and evaluation, (c) update manuals and design standards and (d) apply the use of computers and new software to enhance the level of design analysis.

(5) With regard to O&M, NIA should consider: (a) procurement of minimum O&M equipment for quick response repair and maintenance; (b) implementation of O&M fund, the cost of which to be jointly shared between the NISO and IAs, and (c) continue the capacity improvement plan on water management and ISF collection introduced under the JICA Study Team.

(6) With reference to the MIS, NIA should: (a) review its ISSP and reformulate an integrated plan for MIS, (b) establish an integrated IT department at CO and prepare the corresponding IT development plan, and (c) continuously update the GIS introduced by the JICA Study Team and expand it to other regions.

(7) As regards the reorganization, NIA should: (a) work out the implementing mechanisms for the transfer of functions as well as people from the CO to the field offices, (b) assess and prepare the required staffing pattern for new structures, and (c) coordinate with other agencies for the approval of the integration of RIOs and NISOs with PIOs including the required staffing.

(8) On the strengthening of top management, NIA should expand the membership of the Board and work for the appointment of the Administrator as co-chairman.