

## 付 属 資 料

1. 要請書
2. 実施細則 (I/A)
3. 協議議事録 (M/M)
4. 収集資料リスト

No. 04 899

The Department of Foreign Affairs of the Philippines presents its compliments to the Embassy of Japan and has the honor to endorse the project, "*Study for Planning on Improvement of the Functions of Irrigation System and Watershed*" (formerly entitled *The Master Plan Study on Controlling Irrigation Watershed Deterioration*), as proposed by the National Irrigation Administration (NIA) to the Government of Japan under the FY 2004 Development Study Program.

The project aims to facilitate a comprehensive master plan for the rehabilitation of National Irrigation Systems and assist NIA in prioritizing rehabilitation programs in consideration of forecasts on future deterioration.

The Department would appreciate being informed of the Japanese Government's decision on this request.

The Department of Foreign Affairs avails itself of this opportunity to renew to the Embassy of Japan the assurances of its highest consideration.

05 April 2004, Pasay City



*Application for the Technical Cooperation (Development Study)  
By the Government of Japan*

Priority Issues and Areas  
No. \_\_\_\_\_

**THE MASTER PLAN STUDY  
FOR  
CONTROLLING  
IRRIGATION WATERSHED DETERIORATION**

**TABLE OF CONTENTS**

1. Project Digest.....	1
2. Terms of Reference of the Proposed Study.....	9
3. Facilities and Information for the Study.....	12
4. Global Issues (Environment, Women In Development, Poverty, etc.).....	13
5. Undertaking of the Government of the Philippines.....	14
6. Other Issues.....	14



## 1. Project Digest

### (1) Project Title

*The Master Plan Study for Controlling Irrigation Watershed Deterioration*

### (2) Location

*195 National Irrigation Systems (NISs) nationwide  
(Please refer to the Location Map as Attachment-1.)*

### (3) Implementing Agency

#### (a) Name of the Agency

*National Irrigation Administration (NIA)*

#### (b) Number of the Staff of the Agency (as of 2001)

*Permanent Staff 9,798  
Project Staff 3,117*

*Total 12,915*

#### (c) Budget allocated to the Agency

*789 Million Pesos (Corporate Income in 2001)*

#### (d) Organization

*Please refer to the Organization Chart as Attachment-2.  
PDD, the responsible Department for the Study, is marked \*.*

### (4) Justification of the Project

#### (a) Present conditions of the sector

*It is needless to say that irrigation systems are necessary to maintain highly productive, sustainable agriculture. To maintain irrigation systems, security of stable water sources is the biggest condition. Except groundwater utilization, any sources of water for agriculture, industry as well as drinking are provided by surface water from rivers. Watershed, as the source of river, is therefore the most important natural resources of the Country.*

*However, destruction of forest land has been accelerated in the Philippines which leads to the change of environment in watershed. For example, country's forest cover,*

which was approximately 11,500,000ha in 1970's. has been decreased to approximately 5,400,000 ha in 1997. This means, Philippines has lost about 53% of its forest land in 30 years.

Such serious forest destruction was started in 1960's by logging for exportation. Illegal logging led to the construction of road to reach forest areas which triggered illegal cultivation by landless farmers, which has become more serious situation by Kaingin (fire agriculture) by such illegal farmers to secure agricultural land by damaging forest areas nationwide.

It shall be understood that there are social and structural problems as background of such illegal cultivation, caused by the limitation of the development of agricultural production in low land for self-sufficiency of food which does not correspond to population increase. Such farmers in poverty, who could not be benefited by ... National and Communal Irrigation Systems, have no choice but to enter mountain area to illegally cultivate by Kaingin.

As a major part of the Irrigation facilities in the Philippines, the National Irrigation Systems (NISs) was started its construction by the National Irrigation Administration (NIA) in 1964. Since then, the constructed NISs nationwide have reached 195 Systems, serving as major food production facilities in the Philippines.

However, some Systems out of 195 NISs are not performing their designed functions, especially those constructed in the early stage, due to the reasons such as deterioration. NIA is making its effort to recover their projected irrigation areas in terms of rehabilitation as hardware, and IMT as software to its development.

Destruction of forest has changed natural condition of the country, damaging recycle system of water sources and has been causing serious damages on NISs, such as:

(1) Decrease of Low Water Discharge

- Difficulties in annual planning on the intake volume
- Difficulties in providing irrigation water to terminal facilities
- Decrease of agricultural productivity in irrigation service areas

(2) Increase of High Water (flood)

- Direct damages to concrete structure of diversion dams, intakes, gates

(3) Increase of Sedimentation and Siltation

- Aside from system deterioration and insufficient operation and management due to limited fund, frequent flood and siltation are also major cause of lowering NIS function, triggered by the change of the natural condition (forest destruction) stated above.

Soil erosion caused by the destruction of forest land which causes the sedimentation in the river affects irrigation system in terms of lowering their function as well as decrease of irrigated area. As the countermeasure, NLA have to construct desilting basin and secure heavy equipment, labor and budget, which accelerate financial constraint of NLA. Furthermore, flood damages caused by the decrease of forest land gives not only direct effect on the structures (headworks, canals) but also damages to farmland which affects farmers' economy by the decrease planted areas, resulting in by the decrease of ISF (Irrigation Service Fee) collection efficiency to worsen NLA's financial situation.

In consideration of the countermeasure for such negative effect on NISs facilities by the change of natural condition, it is necessary to forecast factors on the decrease of irrigated lands in the near future. To facilitate rehabilitation plan of NISs in terms of safety in consideration of such forecast, it is quite important to conduct comprehensive detailed survey nationwide on the condition of NISs including technical consideration on the natural condition surrounding each NISs.

(b) Sectoral development policy of the National Government

In 1997, Agriculture and Fisheries Modernization Act, know as AFMA, was approved by the Congress and Senate.

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 fisher folk
- 4) global competitiveness, and
- 5) sustainability

The 2001-2004 AFMA formulated by the DA in December 2000 is the medium term AFMP, the equivalent and replacement of previous Medium Term Agricultural Development Plan. 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 package 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 for each of the most important commodities; rice, corn, sugar, coconut, HVCC, abaca, livestock and fisheries to improve income of small farmers and fisher folks.

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 rained areas. In order to maximize the benefits of irrigation in the existing system, about 705,964 hectares will be rehabilitated. This will cost the government a total of PHP 16.5 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.

While on the NIA's Corporate Plan, it is planned that target area of irrigation system under the subject to be rehabilitated will be 259,587 ha in ten (10) years starting 2001 which is approx. 30% of present irrigated area. NIA understands the necessity of the rehabilitation of NISs, however, progress of actual rehabilitation is still slow in comparison with scheduled plan, mainly due to the financial constraint.

It shall be noted that development strategy on the irrigation systems in 21st Century shall be defined as the maximum and efficient utilization (to utilize systems as fully operational as their original facilities), as compared to the strategy of 20th Century (to construct and expand irrigation system nationwide). Such new strategy aims to provide effective control on the forest destruction and provision to restore forest land in the Philippines and shall be detailed as follows:

- 1) *Rehabilitation and restoration of damaged National Irrigation Systems (NISs)*
- 2) *Execution of watershed management to secure stable irrigation water for the sustainable operation and management of rehabilitated NISs.*
- 3) *To make joint effort with related agencies (such as DENR) for the effective countermeasure on forest conservation within the watershed of irrigation systems through proper watershed management.*

*As for the joint effort with DENR, Memorandum of Agreement was already signed between NIA and DENR for the corroboration on the watershed management.*

(c) Problems to be solved in the sector

*NIA is required to solve operational problems which nationwide 195 National Irrigation Systems are facing, for the contribution to the sustainable food security of the Country.*

*As stated, NIA considers securing irrigated farmland area through the rehabilitation of NISs, as one of the most important policy. However, determination of each rehabilitation project is based on the individual request from each System's Office/Provincial Office, and implementation of such rehabilitation works is based on the priority depending on the budget condition of Central, Regional as well as Provincial Office.*

*However, 195 NISs nationwide have different causes and degrees of functional problems as well as different effect on the agricultural productivity in each area. As result, it requires various technology, time frame, organization and cost in each system. To approach to such various conditions, it requires comprehensive study to formulate most effective rehabilitation plans to prevent any further deterioration in the future such as construction of Sabo dams in watershed areas. To provide such rehabilitation policy, such study in national level shall be made to grasp the condition of deterioration of watershed caused by fire agriculture (Kaingin) to simultaneously consider on watershed management and NIS rehabilitation plan simultaneously.*

*Proposed conduction of such comprehensive study by NIA will be difficult, taking NIA's present budget and personnel into consideration.*

*It may be insufficient to execute rehabilitation with consideration only on the present damages and deterioration status but not considering environment factors. Present rehabilitation planning may, though there will be short-term effect on rehabilitation, cause further deterioration in the future due to the increase of operation and maintenance cost, decrease of irrigation efficiency as well as increase of further rehabilitation cost.*

*The proposed Master Plan Study will contribute to NIA's efficient rehabilitation planning in consideration of change of natural condition and future forecast on safety, for the implementation of NISs rehabilitation through its own fund or foreign ODA, and for NIA to efficiently utilize limited budget and maximize irrigated farmland. Concept of such new rehabilitation strategy is visualized in Attachment-3.*

*Such prioritization will be focused on the following objectives, for the contribution to the conservation of forest environment through the rehabilitation/restoration of NISs*



*nationwide, and shall be implemented as urgent polity for the conservation of limited land:*

- (1) Increase agricultural productivity in lowland area by the rehabilitation of National Irrigation Systems for the enhancement of settlement of people who cultivate mountain areas illegally by Kaingin (slash and burn), to lowland and/or hilly land;*
- (2) Facilitate Communal Irrigation Systems in foothills area to secure agricultural income of people engaging illegal farming;*
- (3) By such irrigation development, prevent further destruction of forest area by Kaingin, and*
- (4) Enhance environment protection of watershed area by sustainable reforestation.*

*(d) Other relevant Projects, if any*

*NIA has been executing some studies and projects regarding rehabilitation of NISs financed by international funding institution. For example, Irrigation Systems Improvement Project II (ISIP-II) financed by the Asian Development Bank (1997-2002), Irrigation Operations Support Project II (IOSP-II) financed by the World Bank (1993-2000), and Water Resources Development Project (WRDP) financed also by the World Bank (1997-2001).*

*ISIP-II and IOSP-II includes rehabilitation of 9 NISs and 17 NISs respectively, including component for countermeasure for soil erosion, while WRDP includes rehabilitation of 14 NISs with the study on the critical watershed areas. However, these existing projects does not cover the entire 195 NISs nationwide from it viewpoint of rehabilitation necessity in consideration of the change of natural environment. As a result, rehabilitation project of NIA is being implemented by the requests from each System Office to Central Office without priority of each rehabilitation project among 195 the NISs.*

*(e) Outline of the Project*

*(i) Formulation of the Contents of NISs Safety Inventory Survey*

*As stated above, safety of the National Irrigation Systems shall be considered by the two factors: 1) deterioration, 2) reduced function caused by the change of natural condition (flood damage, siltation/sedimentation). On the proposed Study, contents and items of the comprehensive safety survey targeting all (195) NISs nationwide will be formulated at the first stage of the Study based on the existing data on NIS and natural condition from NIA and related organizations.*

For the determination of survey items, it shall be considered that the survey will be able to provide data as the principal of future rehabilitation plan, for the classification of safety of the systems (i.e. future rehabilitation plans can be categorized to urgent, short-term, mid-term and long-term plan). Furthermore, the survey shall also provide material for the classification of rehabilitation strategy into: a) restoration of the systems to the exactly same condition as their initial designed structure, and b) improvement of the function in consideration of the future change of the natural condition.

(ii) Conduct of NISs Safety Inventory Survey

Based on the survey items selected above, Safety Survey shall be conducted simultaneously at the 195 National Irrigation Systems nationwide. The survey shall be conducted by provincial level by NIA-PIOs, with possible assistance with the local consultants hired under JICA Study. Aside from the condition of the system deterioration, survey on the natural condition shall be also conducted with the cooperation of DPWH District Office as well as Provincial DENR Office.

After the analysis on the result of above first-stage Safety Survey, the Study Team will execute more detailed survey (second-stage Safety Survey) by selecting approximately ten NISs which the predicted change of natural condition are endangering the safety of the Systems. This second-stage survey will increase the output of the Master Plan, as well as the conduction of the second study will transfer the technology of such kind of detailed study to NIA-PIO Staff and NIS Office staff for them to be able to conduct detailed survey by themselves.

(iii) Formulation of Master Plan

Based on the result of above Safety Inventory Survey, Master Plan for the future rehabilitation of 195 NISs will be formulated, indicating degree of deterioration, urgency (necessity) of rehabilitation required in accordance with the change of natural condition of the areas where NISs are located. This Master Plan will serve as the database of NIA Central Office for the strategy of the future rehabilitation program of NISs. It is quite important that after the formulation of this Master Plan, it requires certain arrangement (system) wherein this database will be periodically updated by the monitoring works of Provincial Irrigation Office and each NIS Office of NIA.

(f) Purpose (short-term objective) of the project

- To make NIA's efficient rehabilitation plan possible considering environmental conservation.

(g) Goal (Long-term objectives) of the project

- To protect existing forest land from further destruction/kaingin through the improvement of agricultural productivity in existing agricultural land.
- To increase farmer's income and improve their living condition through the efficient rehabilitation of NISs.

(h) Prospective beneficiaries

*The farmers who are the irrigators at all 195 NISs would actually be the prospective benefits from the project.*

(i) The Project's priority in the National Development Plan / Public Investment Program

*As previously stated, the present 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 rained areas. In order to maximize the benefits of irrigation in the existing system, about 705,964 hectares will be rehabilitated.*

*To maximize benefit of such plan for the rehabilitation of NISs, it is quite necessary to conduct the proposed Manger Plan Study to achieve efficient prioritization of NISs rehabilitation plan, to contribute to achieve goals of AFMP.*

(5) Desirable or scheduled time of the commencement of the Project

*The desirable time for the commencement of the project study is Fiscal Year 2004.*

(6) Estimated Cost for the conduct of the study

*The total estimated cost of the study is about Y 213.0 million. This include the GOP counterpart of about Y 11.0 million. The GOP counterpart, mostly for salaries/wages and allowances of the NIA counterpart staff assigned for the study. Presented in Tables 1.0 and 1.1 are the Schedule of Work and Cost Estimates, respectively of the proposed Master Plan Study.*

Table 1.0 SCHEDULE/WORK PLAN

		1	2	3	4	5	6	7	8	9	10	11	12	Man-Months
		Phase I			Phase II					Phase III				
		Collection/Analysis of Existing Data			Detailed Study/NIS Safety Survey and Analysis					Formulation of Master Plan				
A.	Foreign Expatriate													12
1	Term Leader/Watershed Management Expert													11
1	Irrigation & Drainage Management Specialist													10
1	Rural Development Planning Expert													7
1	Agricultural Economist													7
1	Database Management/GIS Expert													7
1	Environmentalist													7
B.	Local Consultants													
C.	Counterpart Staff													

Table 1.1 COST ESTIMATE

A.	Foreign Expatriate	
1	Term Leader/Watershed Management Expert	37,255,700.00
1	Irrigation & Drainage Management Specialist	34,964,200.00
1	Rural Development Planning Expert	31,785,600.00
1	Agricultural Economist	11,124,950.00
1	Database Management/GIS Expert	11,124,950.00
1	Environmentalist	11,124,950.00
B.	Local Consultants	40,649,050.00
	Sub-Total (Renumeration)	178,029,400.00
C.	Equipment Rentals	12,840,000.00
D.	Upgrading of Computers/GIS System	3,000,000.00
E.	Counterpart Staff Cost	1,350,000.00
F.	Miscellaneous Expenses/Contingencies	7,780,600.00
	Sub-Total (C...F)	34,970,600.00
	GRAND TOTAL	213,000,000.00

(7) Expected funding source and/or assistance

*The project study is recommended for external technical assistance from the Government of Japan through the Japan International Cooperation Agency (JICA).*

**2. Terms of Reference of the Proposed Study**

(1) Necessity / Justification of the Study

*As stated above, formulation of rehabilitation plan shall reflect the analysis of the change of natural condition surrounding NISs at present as well as the future predict. Such consideration is necessary for the maximum utilization of limited budget for effective rehabilitation works to maintain irrigated areas.*

*The proposed Master Plan under this Study will serve as the fundamental guideline for the rehabilitation works for NISs, and expected to contribute to the improvement of agricultural productivity of the country through the effective rehabilitation of NISs.*

*It shall be noted that damages to forest area is also caused by the expansion of farmland to compensate the low productivity of existing agricultural land, as well as damages to rural environment due to over-intensive cultivation/pasturage. The effective rehabilitation of NISs through this master plan study will improve agricultural productivity of existing agricultural land, and contribute to the environmental protection as the effective means for forest conservation.*

*Considering the existing Memorandum of Agreement (MOA) between NIA and DENR, participation of the latter in the said master plan study is ensured where DENR will assist NIA in the identification and prioritization of watersheds with proposed/existing irrigation projects including development and rehabilitation works. (Please see attached copy of the MOA).*

(2) Necessity/Justification of the Japanese Technical Cooperation

*The Philippine Government has insufficient source of fund for implementation of the master plan study of the proposed project. Hence, only limited report on the rehabilitation of individual or groups of NISs have been occasionally made but not comprehensive rehabilitation plan nationwide, focusing environmental compatibility. The Japanese Government has conducted a number of technical and financial cooperation for similar master plan study in other country as well as in Japan, and has accumulated rich experience and knowledge for undertaking this kind of master plan study. Accordingly, it would be very valuable as an idea of technical transfer that the Japanese experience be effectively reflected in the proposed study.*

(3) Objectives of the Study

*(Short-Term)*

- To facilitate comprehensive master plan for the rehabilitation of NISs,

*(Long-Term)*

- To assist NIA to be able to prioritize rehabilitation programs in consideration of the forecast on the future deterioration.

(4) Area to be covered by the Study

195 National Irrigation System nationwide.

*(Please refer to the Location Map as Attachment-1.)*

(5) Scope of the Study

*<Phase-I>*

a) Collection and analysis of existing data/information

- Analysis of data/info previously obtained by NIA (present condition of NISs, NIS Functional Survey, etc.)

Stability of the system in terms of river condition (low water discharge, high water or flood)

- Sedimentation condition of the river (erosion condition and protection work)
- Functional condition of headworks, pump stations, etc.
- Condition of main canals, laterals
- Condition of farm ditch
- Condition of water management
- Condition of O&M
- Condition of Ias

- Information on the present condition of forest area, reforestation program at the Department of Environment and Natural Resources

- Information on natural condition of the areas at the District Office of the Department Public Works and Highways

- Digital data of topographic maps, satellite imagery at the National Mapping and Resources Information Agency

b) Formulation and finalization of the contents/study items of NIS Safety Inventory Survey, based on the analysis of above data/information.

c) Conduct of the above NIS Safety Inventory Survey (first level)

- d) *Analysis of the result of first level survey, and selection of target NISs for second level survey (intensive survey)*

*<Phase-II>*

- a) *Conduct of detailed natural condition study (second level survey of NISs Safety Survey) at the selected target NISs*
- b) *Analysis of the result of above second level survey*
- c) *Formulation of GIS*

*<Phase-III>*

- a) *Formulation of Master Plan*
- b) *Conduct of Seminar on Safety of NISs (national level & regional level)*

(6) *Study Schedule*

*The Study period will be 12 months, including the period required for the preparation of Safety Inventory Survey. Please refer to the Study Schedule as indicated below.*

(7) *Expected Major Outputs of the Study*

*The following outputs will be prepared in the course of Study;*

- a) *Inception Report (Ic/R) : At the commencement of the Phase-I Study*
- b) *Progress Report 1 (Pr/R-1) : In the course of the Phase-I Study*
- c) *Interim Report (Iv/R) : At the end of Phase-I Study*
- d) *Progress Report 2 (Pr/R-2) : In the course of the Phase-II Study*
- e) *Draft Final Report (Df/R) : At the end of Phase-II Study*
- f) *Final Report : Within two (2) months after receiving the comments on the Study*

(8) *Expected JICA Experts, Local Consultants and Counterpart Staff*

*Foreign Expatriate (JICA)*

- a. *Team Leader*
- b. *Watershed Management Expert/Environmentalist*
- c. *Hydrologist*
- d. *Irrigation, Drainage Water Management Expert*
- e. *Rural Development Planning Expert*
- f. *Agricultural Economist*
- g. *Database Management/Geographic Information System Expert*

*Local Expatriate*

- a. *Socio-Economist*
- b. *Photogrammetrist*

c. Computer Programmer/Database management expert

(9) Possibility to be implemented/Expected funding resources

*Expected funding resources for the rehabilitation of NISs will be considered in the budget to be provided by the Government of the Philippines and possibility of the financial assistance from international organization as well as donor countries.*

(10) Request of the Study to other donor agencies, if any

*None.*

(11) Other relevant information, if any

*The GIS to be facilitated under this Study will be utilized also in the purpose to strengthen NLA's existing GIS which was provided under JICA Study on Strengthening of NLA's Management System.*

### **3. Facilities and Information for the Study**

(1) Assignment of counterpart personnel of the implementing agency for the Study (number, academic background, etc.)

*Local counterpart staff will work with the Study Team to support and carry out activities in connection with the Study. The counterpart personnel shall be drawn from the Environmental & Watershed Management Division of the Project Development Department and other offices of NLA. One or two personnel from the Forest Management Bureau of the Department of Environment & Natural Resources will also be tapped to assist the study team. Close coordination with the recently organized NLA-DENR Task Force on Watershed Management will be undertaken to make sure that future plans and programs for the protection of the watersheds supporting irrigation systems be considered in this study. The number and necessary qualification of the counterpart personnel shall be discussed with the concerned agencies/offices prior to the Inception Report stage. A memorandum of agreement shall be executed, if necessary.*

(2) Available data, information, documents, maps etc. related to the Study (Please see the attach list)

*The Study shall be based on the existing information, relevant studies, reports, publications, plans and other data generated by national and local agencies, as well as additional new information to be generated by the Study.*



- (3) Information on the security conditions in the Study Area.

*The Study Team shall consult with the JICA Philippine Office for security information before the actual activities of the Study Team in field. Local consultants shall be hired for the survey works in some NISs which are located in the sensitive areas.*

- (4) Office space for the study team.

An office space will be provided by NIA for the study team. The office shall be provided with telephone connections and other necessary equipment to be used throughout the conduct of the study.

#### 4. Global Issues (Environment, Women In Development, Poverty, etc.)

- (1) Environmental components (such as pollution control, water supply, sewage, environmental management, forestry, bio-diversity) of the project, if any

*The proposed study itself is the environment oriented, through the consideration of reforestation, mitigation of the damages caused by natural calamities (flood, etc.) and other environmental issues.*

- (2) Anticipated environmental impacts (both natural and social) by the Project, if any

*The Study will not bring any negative impacts on the natural and social environment since it would contribute to the environment protection through the rehabilitation of National Irrigation System to be able to respond to environmental degradation (flood, erosion, etc.)*

- (3) Women as main beneficiaries or not

*Yes. Diversification or restructuring of the regional economy may work to the advantage of women.*

- (4) Project components which requires special considerations for women (such as gender difference, women specific role, women's participation), if any

*The Study does not require special considerations for woman, since women are already considered as main beneficiaries of the project as stated above.*

- (5) Anticipated impacts on women caused by the Projects, if any

*The implementation of the proposed program will improve this situation through alternation of socio-economic conditions of households where women would play an important role in income generation and production activities.*

- (6) Poverty alleviation components of the Project, if any

*The main objective of the project study is poverty alleviation and improvement of their living standards by the stabilization of irrigation water supply through the rehabilitation of NISs.*

- (7) Any constraints against the low-income people caused by the Project

*None. The intended beneficiaries, the farmers who are the irrigators at NISs, would actually be the recipient of the largest incremental benefits from the project.*

#### **5. Undertaking of the Government of the Philippines**

In order to facilitate the smooth and efficient conduct of the Study, the Government of the Philippines shall take necessary measures:

- (1) *to secure the safety of the Study Team,*
- (2) *to permit the members of the Study Team to enter, leave and sojourn in the Philippines in connection with their assignment therein, and exempt them from foreign registration requirements and consular fees,*
- (3) *to exempt the Study Team from tax, duties and any other charges on equipment, machinery and other materials brought into and out of the Philippines for the conduct of the study,*
- (4) *to exempt the Study Team for income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the Study Team for their services in connection with the implementation of the Study.*
- (5) *to provide necessary facilities to the Study Team for remittances as well as utilization of the funds introduced in the Philippines from Japan in connection with the implementation of the Study,*
- (6) *to secure permission for entry into private properties or restricted areas for the conduct of the Study,*
- (7) *to secure permission for the Study Team to take all data, documents and necessary materials related to the Study out of the Philippines to Japan, and*
- (8) *to provide medical services as needed. Its expenses will be chargeable to members of the Study.*

**6. Other Issues**

- (1) *The Government of the Philippines shall bear claims, if any arise against member(s) of the Japanese Study Team resulting from, occurring in the course of or otherwise connected with the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or willful misconduct on the part of the member of the Study Team.*
- (2) *NIA shall act as counterpart agency to the Japanese Study Team and also as coordinating body in relation with other governmental and non-governmental organizations connected for the smooth implementation of the Study.*
- (3) *The Government of the Philippines assures that the matters referred to in this form will be ensured for the smooth conduct of the Development Study by the Japanese Study Team.*

Signed: \_\_\_\_\_

Title: On behalf of the Government of the Philippines

Date: \_\_\_\_\_

MEMORANDUM OF AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

This Memorandum of Agreement (MOA) executed and entered into by and between:

The Department of Environment and Natural Resources with Office address at Visayas Ave., Diliman, Quezon City, represented herein by Secretary HERBERSON T. ALVAREZ, hereinafter referred to as the DENR;

and

The National Irrigation Administration with Office address at National Government Center, B. De Los Santos, Ave., Quezon City, represented herein by Administrator JESUS EMMANUEL M. PARAS, hereinafter referred to as the NIA.

WITNESSETH

WHEREAS, The DENR under Executive Order No. 192 dated 10 June 1987 is the primary agency responsible for the conservation, management, development and proper use of the country's environment and natural resources including forest lands and watersheds;

WHEREAS, The NIA created under RA 3601 dated 22 June 1963 is a government corporation primarily responsible for the development and management of water resources for irrigation and other potential uses throughout the country;

WHEREAS, The Forest Management Bureau (FMB) under Executive Order No. 192 is responsible in recommending policies and/or programs for the effective protection, development, occupancy, management and conservation of forest lands and watersheds including grazing and mangrove areas, reforestation and rehabilitation of critically denuded/degraded forest reservations; The FMB shall serve as focal agency for watershed management;

WHEREAS, It is essential to protect, conserve and rehabilitate the degraded areas of the watersheds with existing/proposed irrigation projects to minimize soil erosion and/or sedimentation and improve the hydrological condition of the watersheds as indicated in Annex "A";

WHEREAS, there is a need to establish and delineate the respective responsibilities of the DENR and NIA over watersheds and reservations, for purposes of effective management and development programs and projects and sustainable existence of irrigation systems within said areas;

NOW THEREFORE, in consideration of the foregoing premises, the parties hereby agree to the following:

12

## Roles and Responsibilities of DENR

The DENR shall:

1. Assist NIA in the identification and prioritization of watersheds with proposed/ existing irrigation projects including development and rehabilitation works;
2. Lead in the preparation, formulation and implementation of Integrated Watershed Plans and Programs related to the management, protection, development and rehabilitation of watersheds and reservations;
3. Facilitate the issuance of appropriate clearances necessary for the protection & development of watersheds and reservations;
4. Issue deputation orders to qualified NIA Officers/personnel as Environment and Natural Resources Officers, in accordance with existing DENR laws, rules and regulations;
5. Confiscate and take custody of forest products illegally cut, harvested or collected from said watersheds, and file appropriate charges in court and dispose of the same in accordance with existing forestry laws, rules and regulations;
6. Organize Multi-Sectoral Watershed Management Councils (WMC) to provide oversight functions on watershed management planning and implementation;
7. Undertake jointly with NIA and concerned agencies information, education and communication campaigns to create awareness and appreciation among the populace on the importance of forest resources and watersheds;
8. Jointly with NIA, initiate mechanism for sourcing of funds from international and local funding institutions for the development and rehabilitation including maintenance of identified priority watersheds and reservations; and
9. Jointly form a task force with NIA, co-chaired by the Assistant Administrator for Project Development and Implementation/NIA and Director of Forest Management Bureau/DENR, to prepare the guidelines to implement this MOA.

## Roles and Responsibilities of NIA

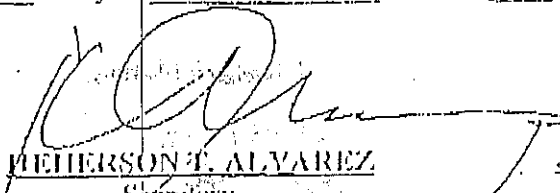
The NIA shall:

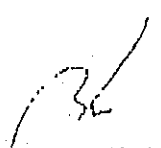
1. Identify in coordination with DENR through PMB priority watersheds and reservations supporting irrigation projects requiring immediate rehabilitation and development;
2. In collaboration with the DENR and other concerned agencies and instrumentalities, prepare watershed management plans and programs for said watersheds and reservations;
3. Secure appropriate environmental clearances and permits from the DENR as necessary for the protection and development of watersheds and reservations;

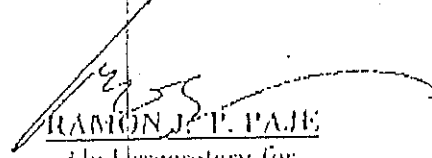
4. Provide protection measures by requesting the DENR for the deputation of qualified NIA officers / personnel as Environment and Natural Resources Officers, who shall safeguard watersheds/reservations from various destructive elements;
5. Assist DENR in enforcing existing forestry laws, rules and regulations within said watersheds;
6. Assist DENR in information, education and communication campaigns to create awareness and appreciation among the populace on the importance of forest resources and watersheds;
7. Undertake jointly with DENR the conduct of studies and/or Research & Development (R & D) on watershed technology generation and application;
8. Jointly with DENR, initiate mechanisms for the sourcing of funds from international and local funding institutions for the development, rehabilitation and maintenance of identified priority watersheds and reservations, as shown in Annex "A"; and
9. Jointly form a task force with DENR, co-chaired by the Director of Forest Management Bureau/DENR and Assistant Administrator for Project Development and Implementation/NIA, to prepare the guidelines to implement this MOA.

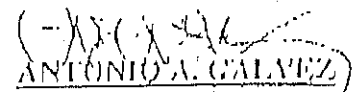
This MOA shall take effect immediately and shall continue to be in full force until terminated and/or modified by mutual consent of the herein parties.

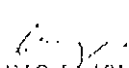
IN WITNESS WHEREOF, the parties have affixed their respective signature on this 17 th day of June 2002 at Quezon City.

  
PETERERSON T. ALVAREZ  
 Secretary  
 Department of Environment  
 and Natural Resources

  
JESUS EMILIANUEL M. PARAS  
 Administrator  
 National Irrigation Administration

  
RAMON J. T. PAJE  
 Undersecretary for  
 Environment and Natural  
 Resources Operations

  
ANTONIO A. GALVEZ  
 Assistant Administrator for  
 Project Development & Implementation  
 National Irrigation Administration

  
 DEMETRIO V. IGNACIO JR.

ACKNOWLEDGEMENT

Republic of the Philippines)  
Quezon City : S.S.  
Metro Manila )

BEFORE Me, a Notary Public for and in the above jurisdiction, personally appeared the following:

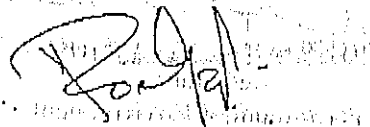
<u>NAME</u>	<u>CTC/Passport No.</u>	<u>Date/Place Issued</u>
HEHERSON T. ALVAREZ	00496785	1/7/02 - Manila
JESUS EMMANUEL M. PARAS	10405107	1/14/02 - Cagayan de Oro

Known to me and known to be the same persons who executed the foregoing instrument and they acknowledged to me that the same is their true act and voluntary deed and that of the entities, which they respectively represent.

This instrument, denominated as a Memorandum of Agreement by and among the Department of Environment and Natural Resources and the National Irrigation Administration, consist of four pages including this page where this acknowledgement is written, and has been signed by the parties and their instrumental witnesses on each and every page thereof.

WITNESS MY HAND AND SEAL on the date and place first above written.

Notary Public



ATTY. ROSANNE B. TURINGAN

NOTARY PUBLIC

UNTIL Dec 31, 2002  
PTR NO. 29415802-1-1002  
IBP NO. 107743

Doc. No. 321  
Page No. 69  
Book No. 1  
Series of 2002



### Schedule

work	Spec.	Quantity	February			March			April			May			June	July	August
			10	20	30	10	20	30	10	20	30	10	20	30			
Preparation																	
Temporary Unwatering																	
Earthwork																	
Remove existing apron		498 m <sup>3</sup>															
Excavation		2299 m <sup>3</sup>															
Upstream cut-off																	
Concrete	21N/mm <sup>2</sup>	150 m <sup>3</sup>															
Concrete block works																	
Steel form		120 sets															
Block yard		3300 m <sup>2</sup>															
Concrete placing	18N/mm <sup>2</sup>	1006 pieces															
Filter mat		54.78 m <sup>2</sup>															
Concrete block placement		1006 pieces															
Site clear up																	

Concrete work: (Ready mixt concrete 72m<sup>3</sup>/day)  
38pieces/one day. Remove form after 5days from  
3party

(40days)

(50days)

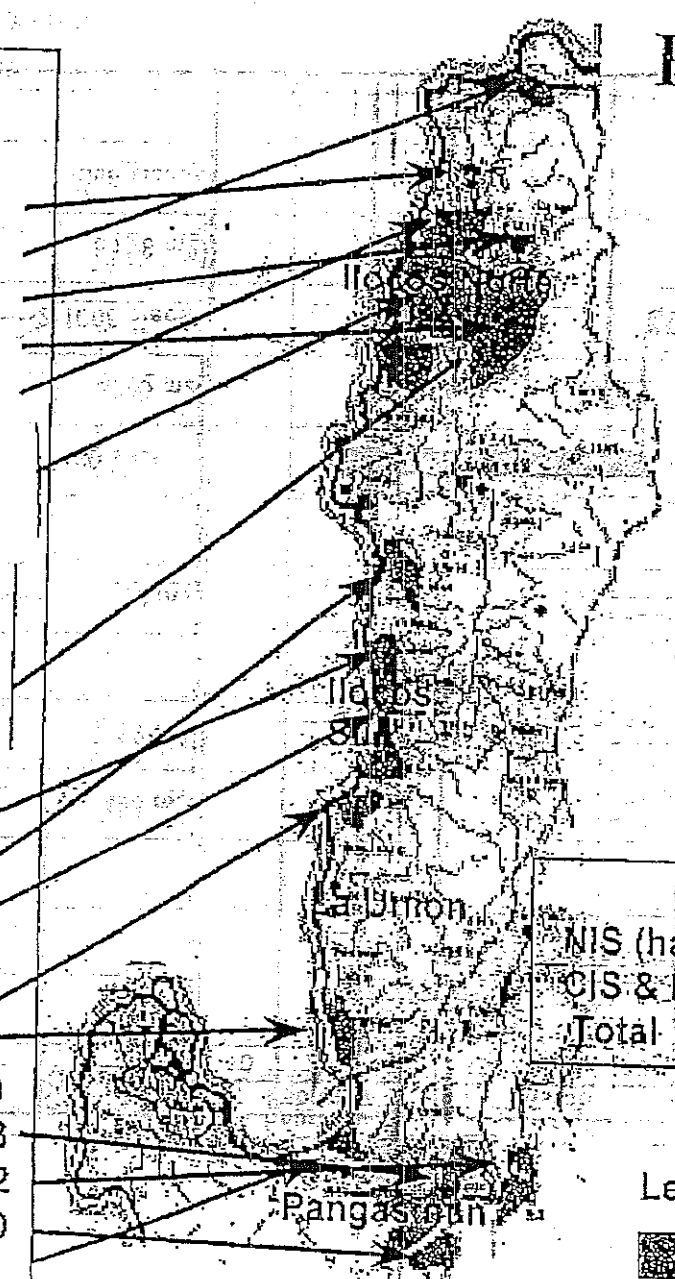
(20pieces/day)

- ⊗ Working time, 8hours/day, 7days/week
- ⊗ Maxmum concrete shipping capability 80m<sup>3</sup>/day



# Region 1 Irrig. Devt.

RIS	Service Area (ha)
Ilocos Norte	17,034
Laog-Vintar RIS	2,377
Bolo RIS	425
Cura RIS	431
Dingras RIS	1,016
NMC Pasuquin RIS	729
Bonga Pump #1	298
Bonga Pump #2	655
Bonga Pump #3	201
Labuganon RIS	1,961
Solsona RIS	1,818
Madongan RIS	3,621
Papa RIS	2,822
Nueva Era RIS	680
Ilocos Sur	3,806
Tagudin RIS	1,345
Sta Maria-Burgos	919
Sta Lucia-Gandon RIS	1,542
La Union	4,873
Amburayan RIS	3,420
Masalip RIS	1,453
Pangasinan	30,159
Agno-Sinuclan RIS	12,663
Ambayoan-Dipalo	6,402
Lower Agno Totonoguen	7,500
San Fabian-Dumuloc	3,594
Total	55,872



Potential Area	- 277,180
Service Area	- 172,468
Irrig. Devt	- 62.22%

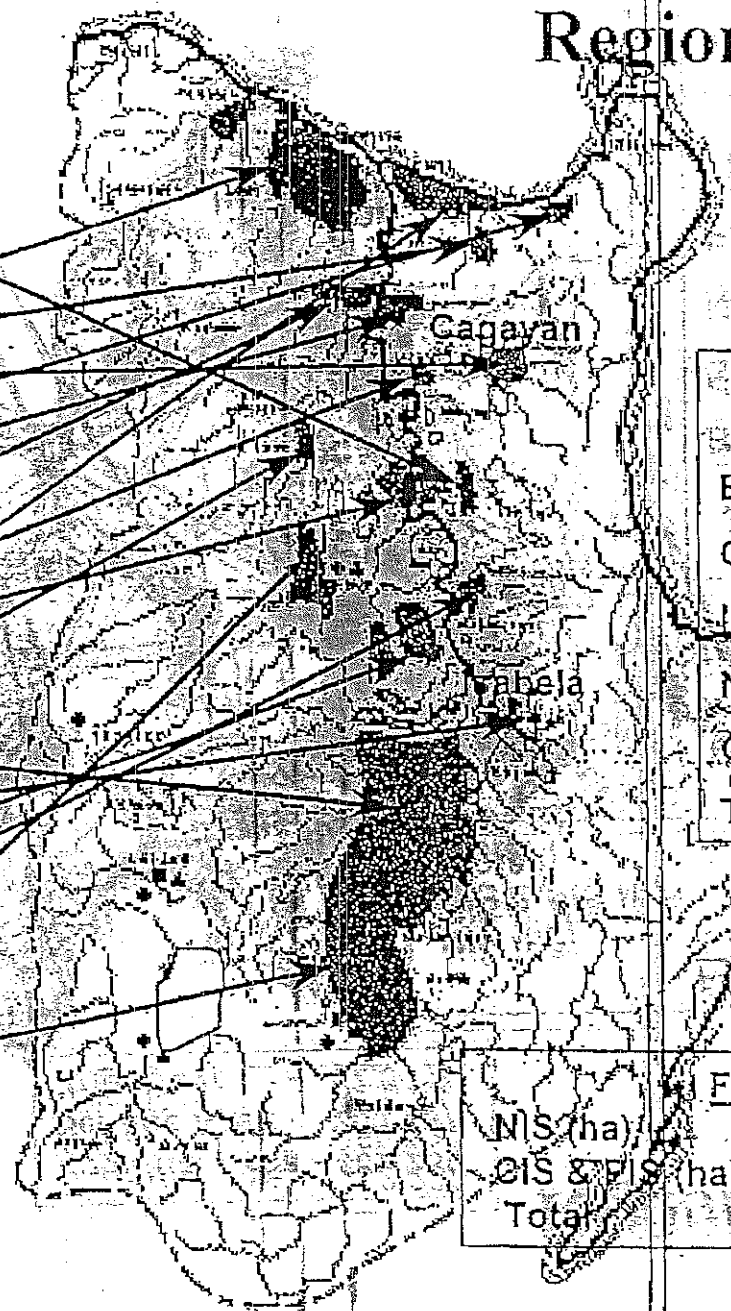
Communal Irrigation System	Area (ha)
Ilocos Norte	- 32,519
Ilocos Sur	- 13,259
La Union	- 6,908
Pangasinan	- 63,910
Total	- 116,596

	Functional	Non-Functional
NIS (ha)	- 24,977	30,895
CIS & PIS (ha)	- 42,870	73,726
Total	- 67,847	104,621

- Legend
- Existing irrigation systems
  - Ongoing irrigation projects

# Region 2 Irrig. Devt.

NIS	Service Area (ha)
Cagayan	38,947
1. Pinacanauan RIS	- 880
2. Apayao-Abulog RIP	- 10,048
3. Banurbur RIS	- 1,087
4. Baggao RIS	- 2,067
5. Baua RIS	- 2,419
6. Dummun RIS	- 1,802
7. Zinundungan RIS	- 2,045
8. Iguig-Alcala-Amulong PIS	2,306
9. Magapit Pump RIS	- 10,914
10. Solana Pump RIS	- 2,777
11. Lower Chico RIS	- 1,856
Isabela	92,901
1. Magat RIS	- 85,586
2. Tumauini RIS	- 3,615
3. Mallig RIS	- 2,427
4. San Pablo-Cabagan	- 1,273
Quirino	2,784
1. Magat RIS	- 2,784
N.Vizcaya	2,160
1. N.V. Bagabag	- 2,160
<b>Total</b>	<b>- 136,792</b>



Potential Area	- 472,640
Service Area	- 196,261
Irrig. Devt	- 41.52%

Communal Irrigation System	Area (ha)
Batanes	- 50
Cagayan	- 24,176
Isabela	- 6,898
Noeva Vizcaya	- 23,331
Quirino	- 5,015
<b>Total</b>	<b>- 59,469</b>

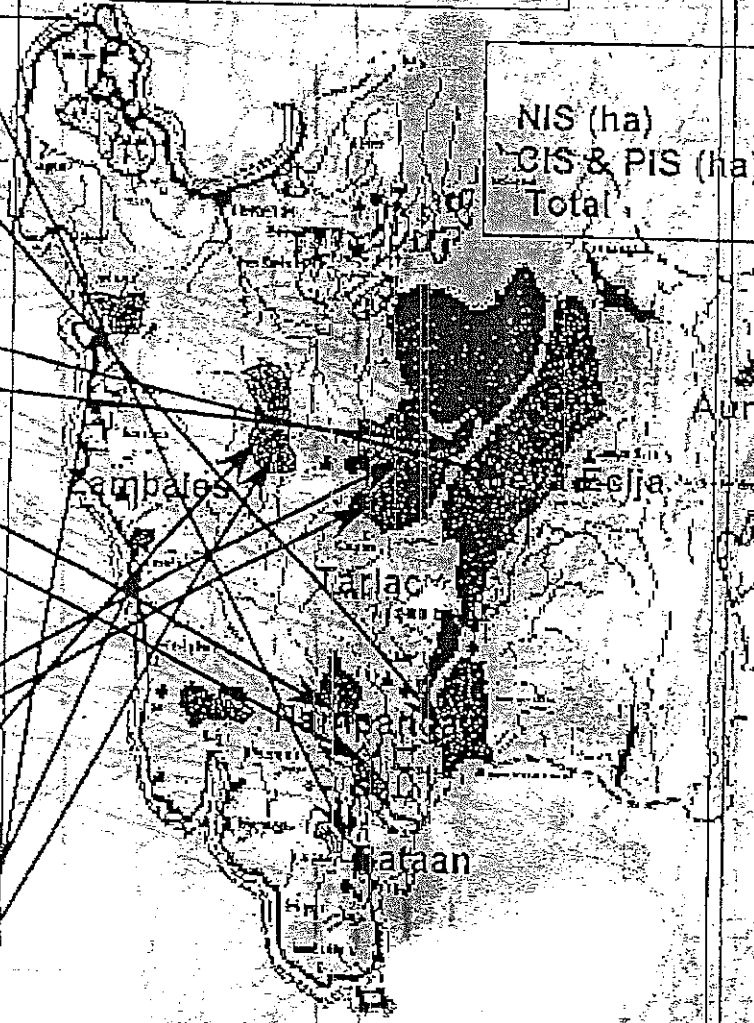
	Functional	Non-Functional
NIS (ha)	- 110,319	26,473
RIS & PIS (ha)	- 41,488	17,981
<b>Total</b>	<b>- 151,807</b>	<b>44,454</b>

# Region 3 Irrig. Devt.

NIS Service Area (ha)

Bataan	1,021
1. Coio-Caulaman RIS	- 1,021
Bulacan	36,860
1. Angat-Maasim RIS	- 31,485
2. UPRIS	- 5,375
Nueva Ecija	93,696
1. UPRIS	- 92,383
2. Nueva Ecija RIS	- 1,313
Pampanga	4,044
1. Porac Gumain RIS	- 4,044
Tarlac	21,877
1. Tarlac RIS & San Miguel RIS	- 13,297
2. Camiling RIS	- 8,580
Zambales	7,103
1. Bucao RIS	- 1,231
2. Sto Tomas RIS	- 3,924
3. Nayom-Bayto RIS	- 1,948
Total	- 169,335

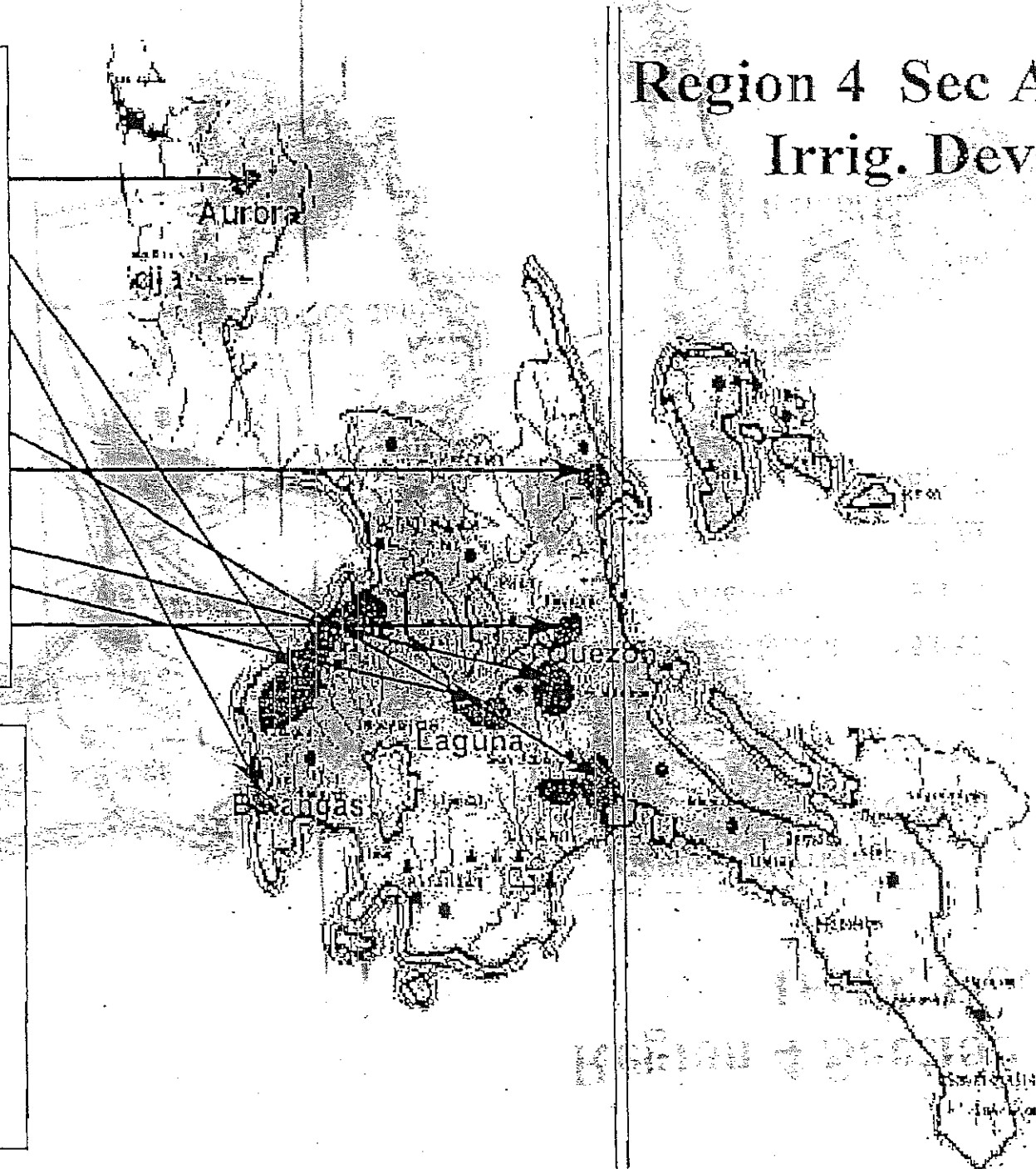
Potential Area - 482,230  
 Service Area - 250,797  
 Irrig. Devt - 52.01%



NIS (ha)	- 117,746	<u>Functional</u>	<u>Non-Functional</u>
CIS & PIS (ha)	- 25,972		
Total	- 143,718		51,589
			55,490
			107,079

Communal Irrigation System	Area (ha)
Bataan	- 6,501
Bulacan	- 5,915
Nueva Ecija	- 23,104
Pampanga	- 22,959
Tarlac	- 14,727
Zambales	- 8,256
Total	- 81,462

# Region 4 Sec A Irrig. Devt.



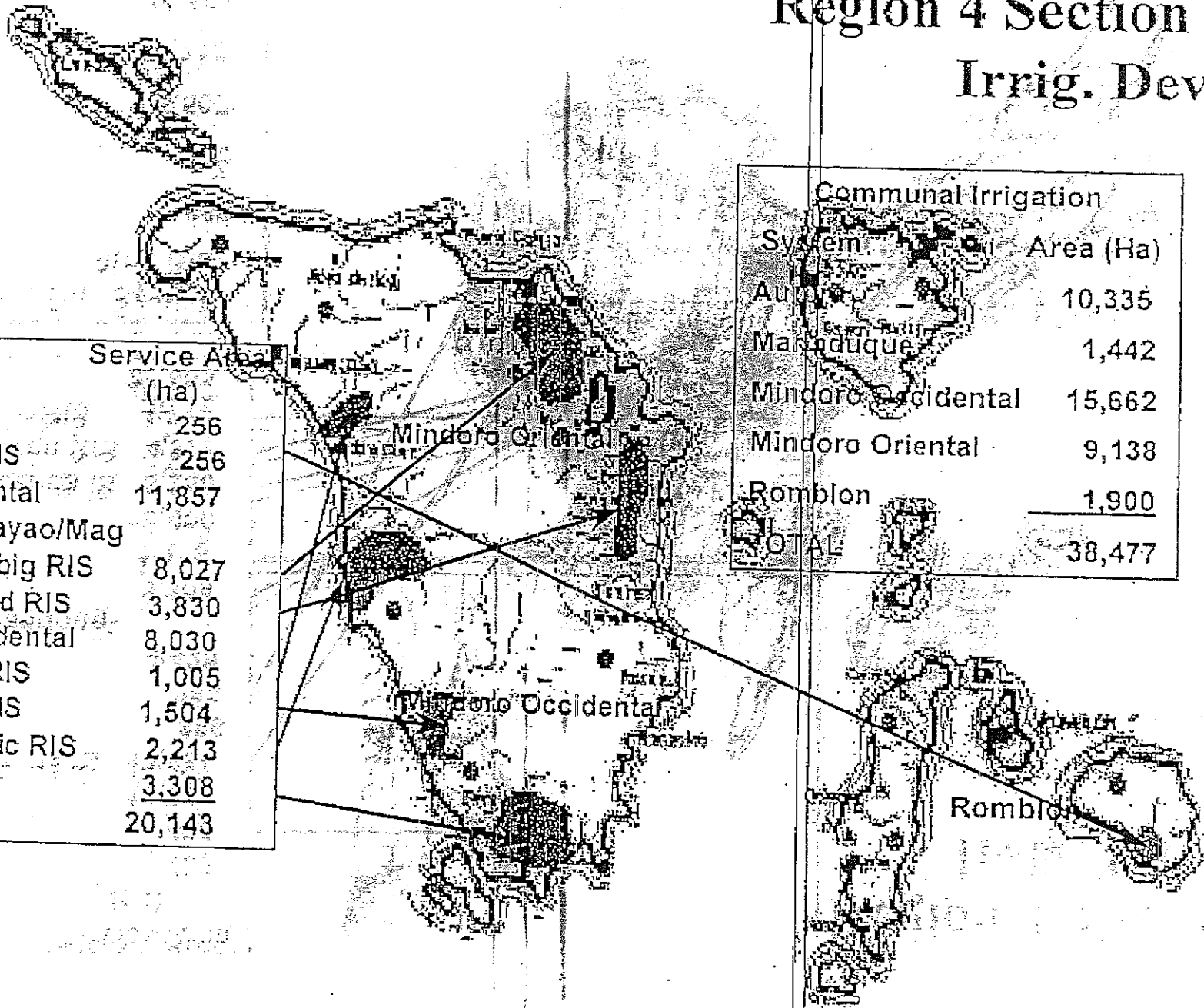
IS	Service Area (ha)
Aurora	485
Disalit RIS	485
Cavite	13,086
Cavite Friar Lands IS	13,086
Batangas	886
Palico RIS	886
Quezon	4,428
Dumacaa Hanagdong- Lagnas RIS	3,309
Agos RIS	1,119
Laguna	10,000
Laguna-Friar Lands IS	3,250
Sta Cruz Mabaacan RIS	4,977
Sta Maria Mayor RIS	1,773
JB-TOTAL	28,885

Communal Irrig. System	Area (Ha)
Batangas	2,950
Cavite	502
Laguna	5,507
Rizal	3,715
Quezon	10,555
SUB-TOTAL	23,229

# Region 4 Section B Irrig. Devt.

NIS	Service Area (ha)
Romblon	256
1. Cantigas RIS	256
Mindoro Oriental	11,857
1. Bacao Bucayao/Mag Asawang tubig RIS	8,027
2. Pula-Bansud RIS	3,830
Mindoro Occidental	8,030
1. Pagbahan RIS	1,005
2. Lumintao RIS	1,504
3. Amnay Patric RIS	2,213
4. aguray RIS	3,308
<b>SUB-TOTAL</b>	<b>20,143</b>

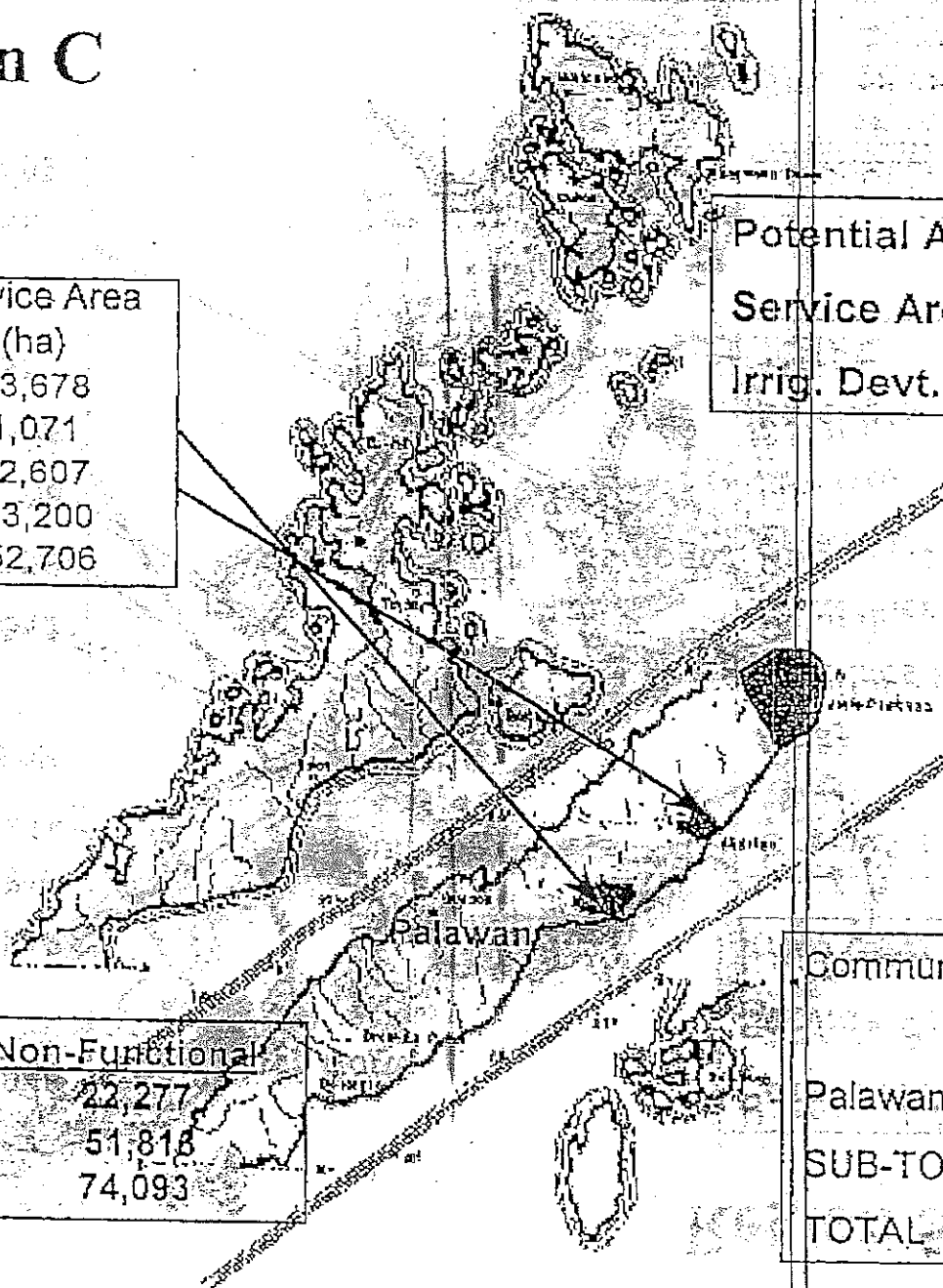
System	Area (Ha)
Aurora	10,335
Masduque	1,442
Mindoro Occidental	15,662
Mindoro Oriental	9,138
Romblon	1,900
<b>TOTAL</b>	<b>38,477</b>



# Region 4 Section C Irrig. Devt.

NIS	Service Area (ha)
Palawan	3,678
1. Batang Batang RIS	1,071
2. Malatgao RIS	2,607
SUB-TOTAL	3,200
TOTAL	52,706

Potential Area (Ha)	- 263,590
Service Area	- 126,590
Irrig. Devt.	- 48.03%



	Functional	Non-Functional
NIS (ha)	- 30,746	22,277
CIS & PIS (ha)	- 22,068	51,818
Total	- 52,497	74,093

Communal Irrigation System	Area (Ha)
Palawan	12,178
SUB-TOTAL	12,178
TOTAL	73,884

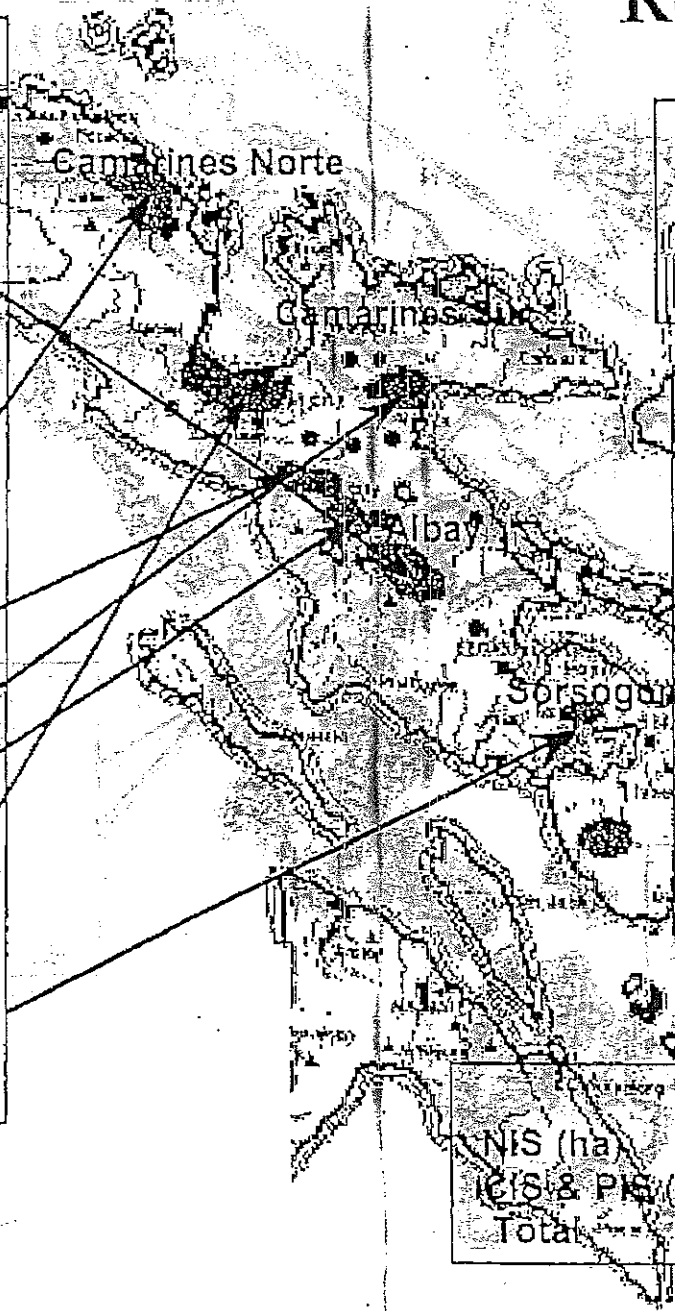
# Region 5 Irrig. Devt.

Service Area (Ha)	Area (Ha)
Mahaba Nasisi Ogsong	1,946
Hibiga RIS	1,946
Camarines Norte	2,910
Daet Talisay Matogdon	2,910
Camarines Sur	14,690
Tigman Hinagyaman-Inarihan RIS	3,542
Cagaycay RIS	1,755
Barit Rida Buhi Lalo RIS	7,208
Libmanan-Cabusao RIS	2,195
Sorsogon	950
Pili Bulan	950
San Francisco IS	950
<b>TOTAL</b>	<b>20,496</b>

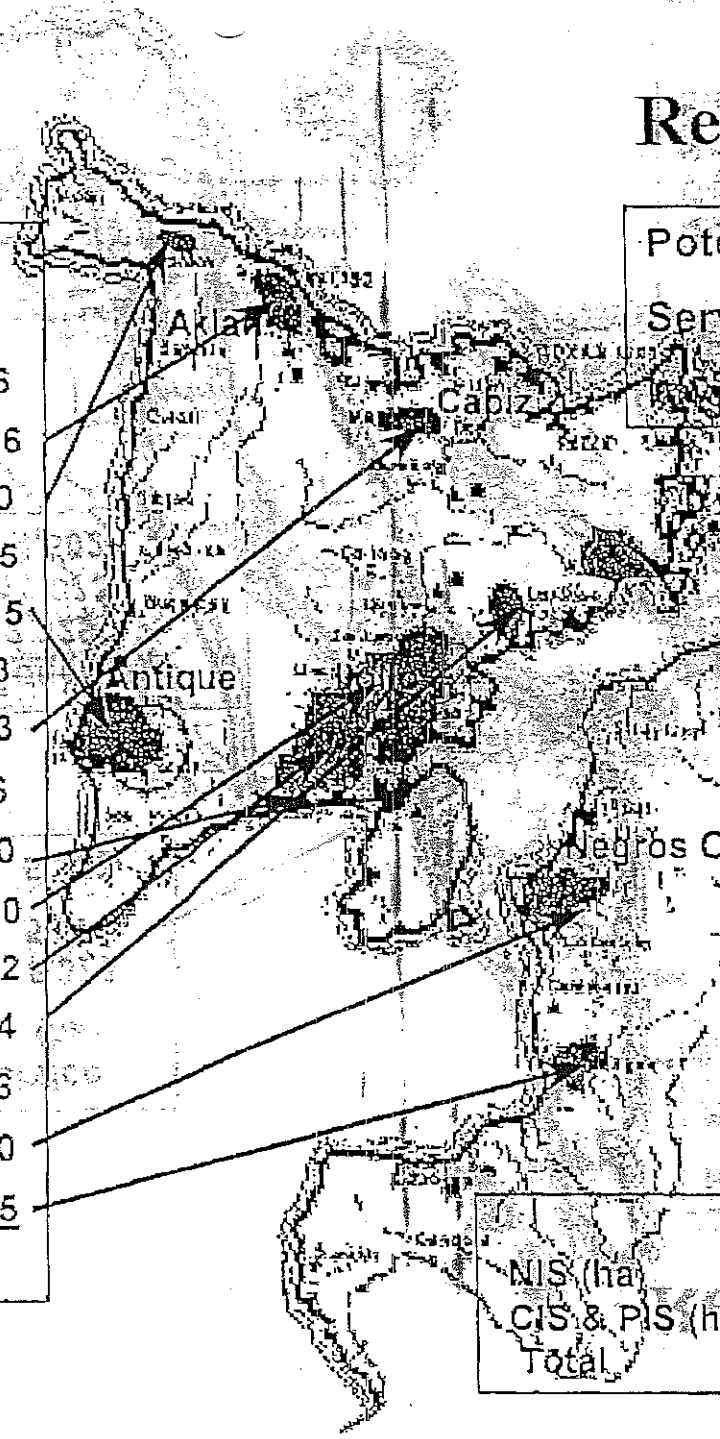
Potential Area (Ha)	- 239,660
Service Area	- 115,815
Irrig. Devt.	- 48.32%

Communal Irrigation System Area (Ha)	Area (Ha)
Albay	21,462
Camarines Norte	3,685
Camarines Sur	53,781
Catanduanes	2,152
Masbate	4,423
Sorsogon	9,816
<b>TOTAL</b>	<b>95,319</b>

	Functional	Non-Functional
NIS (ha)	18,190	2,306
CIS & PIS (ha)	28,185	67,134
<b>Total</b>	<b>46,375</b>	<b>69,440</b>



# Region 6 Irrig. Devt.



RIS	Service Area (Ha)
Aklan	4,816
Aklan RIS	3,916
Panakuyan RIS	900
Antique	5,065
Sibalom San Jose	5,065
Capiz	1,423
Ambusao RIS	1,423
Iloilo	26,456
Sibalom Tigbauan RIS	2,020
Jalaur Suague RIS	14,400
Aganan Sta Barbara RIS	8,262
Barotac Viejo RIS	1,774
Negros Occidental	14,476
Bago RIS	12,700
Pangiplan RIS	1,775
<b>TOTAL</b>	<b>52,216</b>

Potential Area (Ha) -	197,250
Service Area -	75,027
Irrig. Devt. -	38.04%

Communal Irrig. System Area (ha)	
Aklan	2,286
Antique	7,373
Capiz	2,415
Iloilo	7,392
Negros Occidental	3,110
Guimaras	235
<b>TOTAL</b>	<b>22,881</b>

	Functional	Non-Functional
NIS (ha)	36,809	15,407
CIS & PIS (ha)	13,189	9,622
<b>Total</b>	<b>49,998</b>	<b>25,029</b>

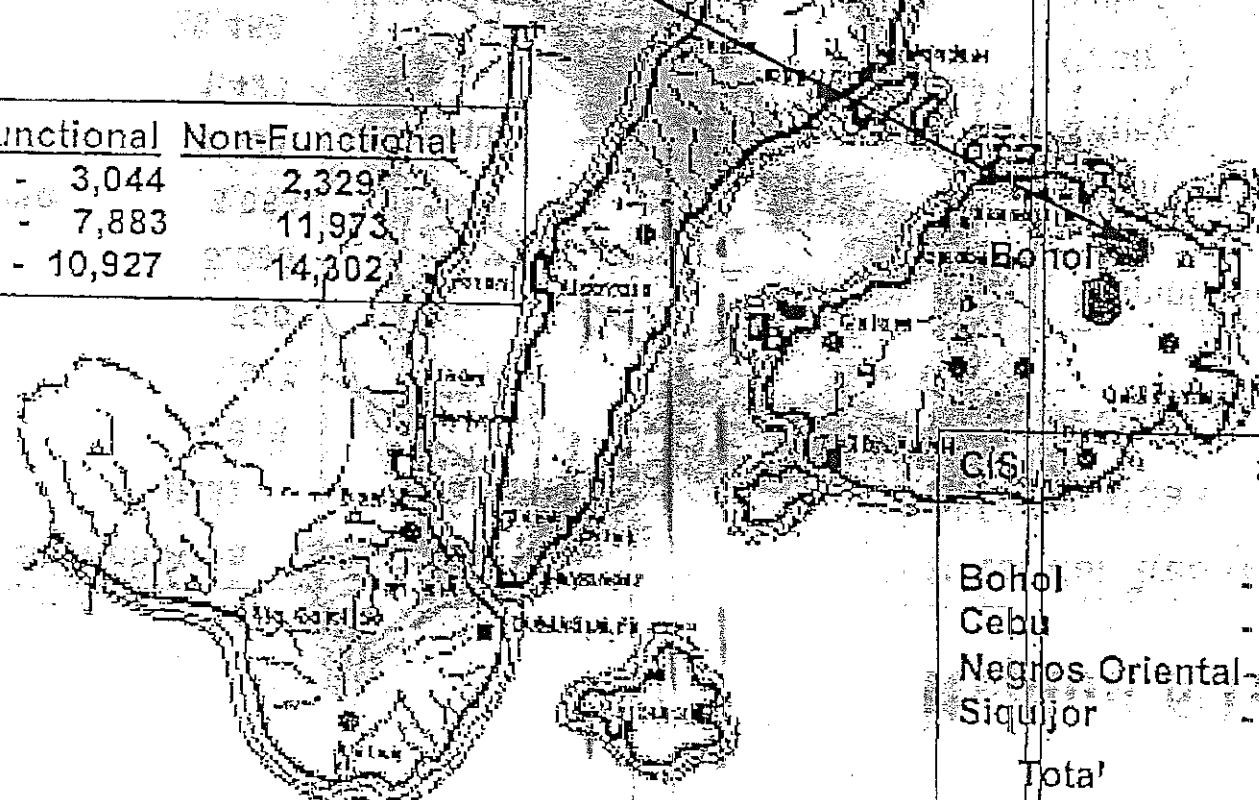


# Region 7 Irrig. Devt.

NIS Area	Service Area (ha)
Bohol	5,373
1. Bohol Irrigation System	5,373
<b>Total</b>	<b>5,373</b>

Potential Area (Ha)	- 50,740
Service Area	- 25,229
Irrig. Devt.	- 49.72 %

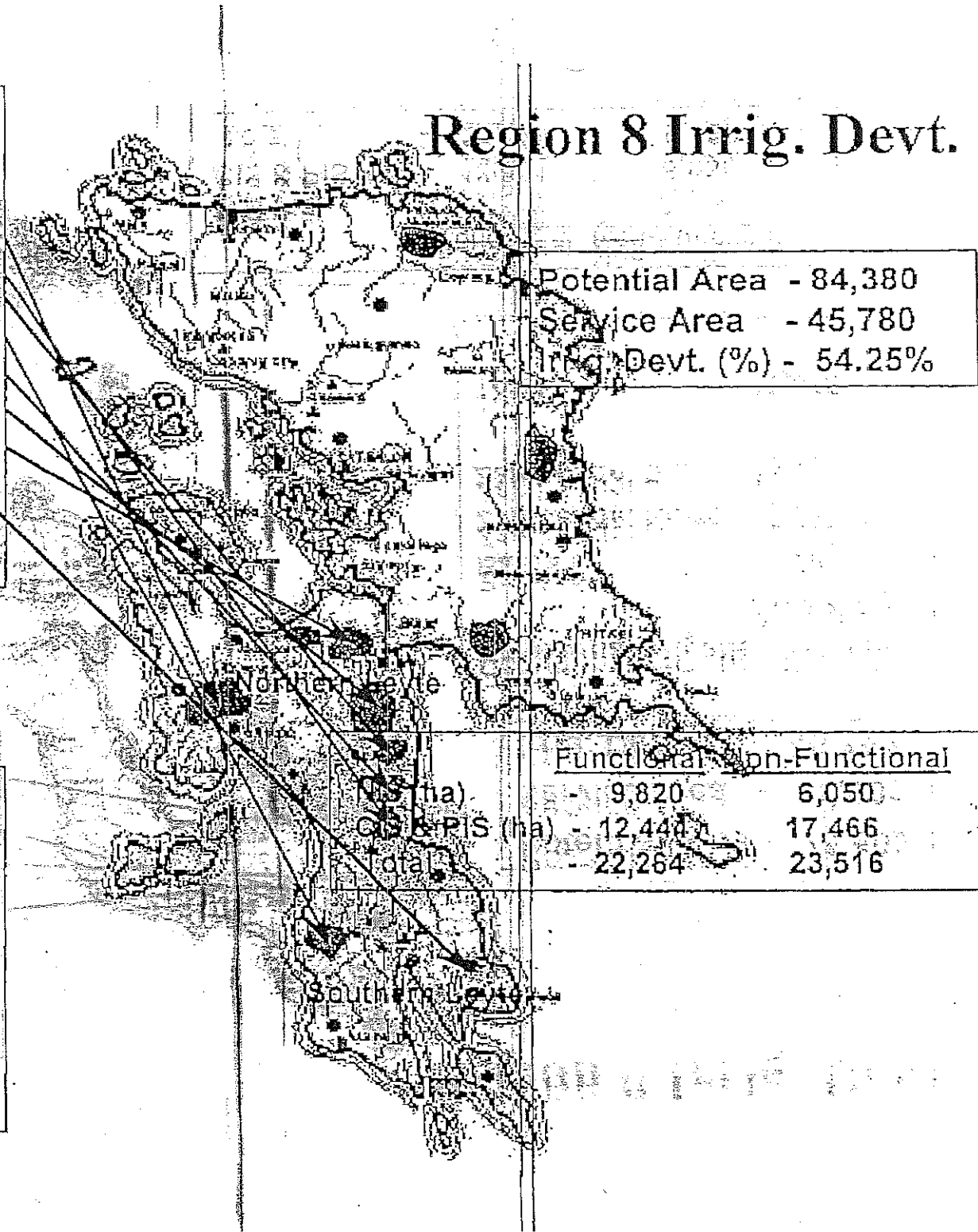
	Functional	Non-Functional
NIS (ha)	- 3,044	2,329
CIS & PIS (ha)	- 7,883	11,973
<b>Total</b>	<b>- 10,927</b>	<b>14,302</b>



CIS	Service Area (ha)
Bohol	8,958
Cebu	3,335
Negros Oriental	7,163
Siquijor	400
<b>Total</b>	<b>19,856</b>

# Region 8 Irrig. Devt.

RIS	Service Area (ha)
Northern Leyte	15,484
Bao RIS	1,917
Bito RIS	1,411
Daguitan-Guinarona RIS	1,496
Hindang-Hilongos RIS	720
Balire (N&S) Guibuga-Ibacon	1,715
Binahaan-Tibak RIS	6,041
Mainit-Pongso RIS	2,184
Southern Leyte	386
Das-Ay RIS	386
<b>Total</b>	<b>15,870</b>



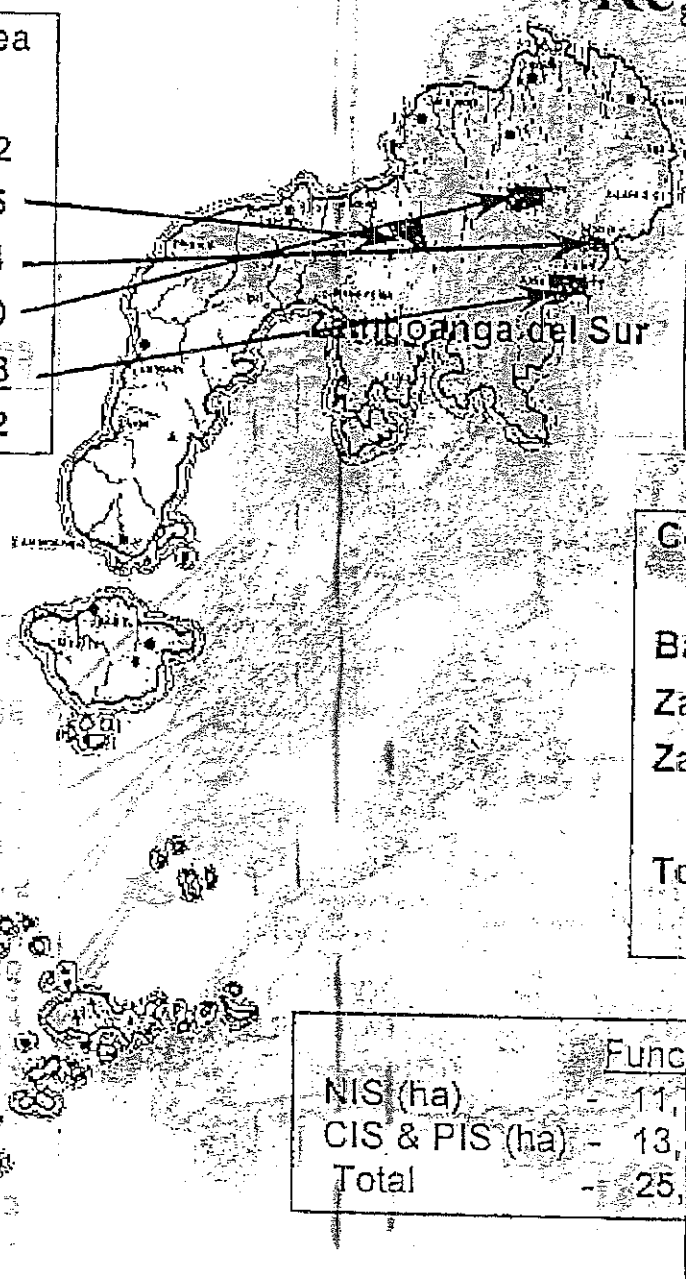
Potential Area	- 84,380
Service Area	- 45,780
Irrig. Devt. (%)	- 54.25%

CIS	Service Area (ha)
Northern Leyte	17,780
Southern Leyte	4,082
Eastern Samar	1,374
Northern Samar	1,949
Western Samar	1,728
Biliran	2,997
<b>Total</b>	<b>- 29,910</b>

	Functional	Non-Functional
CIS (ha)	- 9,820	6,050
CIS & RIS (ha)	- 12,440	17,466
<b>Total</b>	<b>- 22,264</b>	<b>23,516</b>

# Region 9 Irrig. Devt.

NIS	Service Area (has)
Zamboanga del Sur	15,162
1. Labangan RIS	3,195
2. Salog RIS	7,224
3. Dipolo RIS	1,600
4. Sibuguey Valley RIS	3,143
<b>Total</b>	<b>15,162</b>



Potential Area	- 76,500
Service Area	- 35,001
Irrig. Devt.	- 45.75%

Communal Irrigation System	Area (ha.)
Basilan	280
Zambo. del Norte	5,427
Zambo. del Sur	<u>14,132</u>
<b>Total</b>	<b>19,839</b>

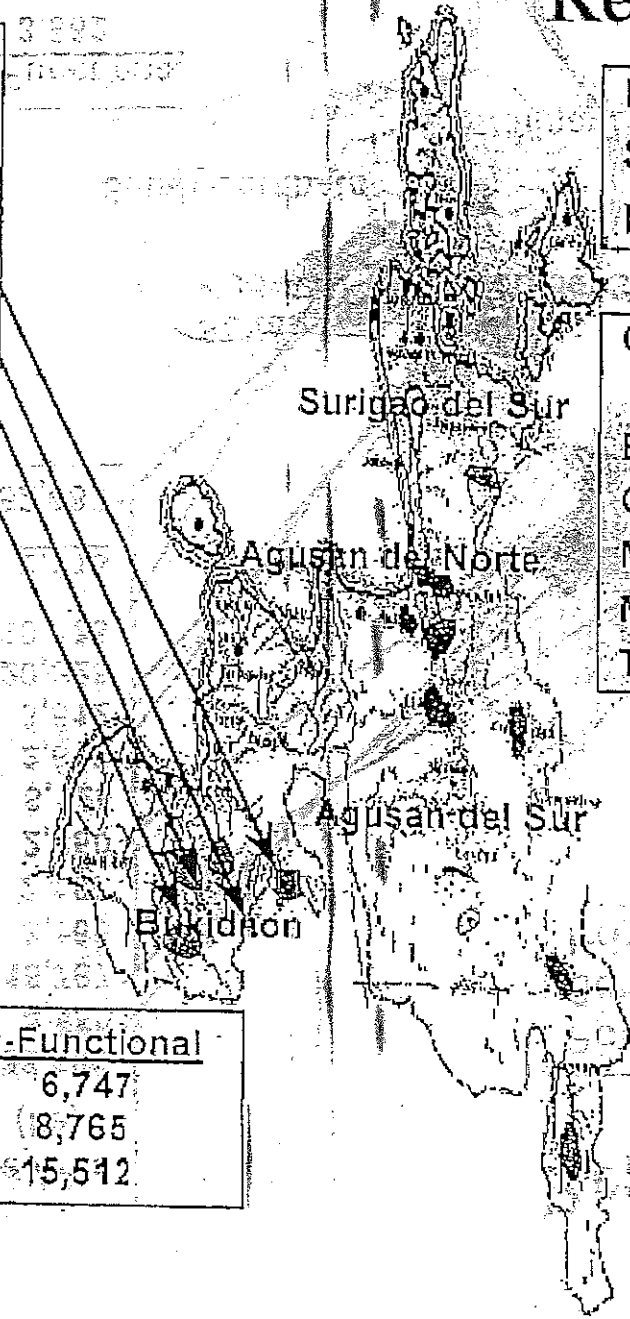
	Functional	Non-Functional
NIS (ha)	- 11,778	3,384
CIS & PIS (ha)	- 13,801	6,038
<b>Total</b>	<b>- 25,579</b>	<b>9,422</b>

# Region 10 Irrig. Devt.

IS	Service Area (has)
Bukidnon	20,696
Pulangi RIS	11,415
Roxas Kuya RIS	823
Manupali IP	4,395
Muleta RIS	4,063

Potential Area -	108,140
Service Area -	38,994
Irrig. Devt. -	36.06%

Communal Irrigation System		Area (ha.)
Bukidnon	-	9,509
Camiguin	-	594
Misamis Oriental	-	2,675
Misamis Occidental	-	5,520
Total	-	18,298

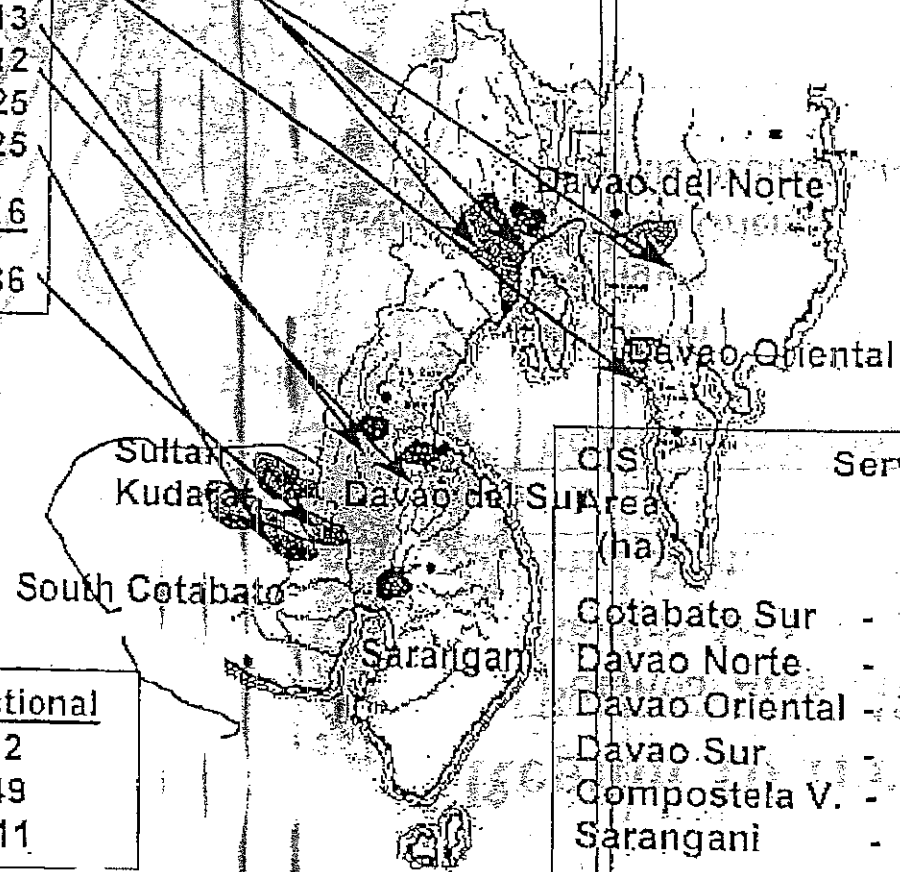


	Functional	Non-Functional
NIS (ha)	- 13,949	6,747
CIS & PIS (ha)	- 9,533	18,765
Total	- 23,482	15,512

# Region 11 Irrig. Devt.

NIS	Service Area (ha)
Davao del Norte	23,586
1. Saug-Saug Libuganon RIS	4,550
2. Lasang-Libuganon-Kipaliku	15,767
3. Batutu RIS	3,269
Davao Oriental	2,450
1. Lupon RIS	2,450
Davao del Sur	6,125
1. Mal RIS	2,613
2. Padada RIS	3,512
South Cotabato	20,325
1. Allah-Banga-Marbel- RIS	20,325
2. Siluay-Buayan RIS	2,116
<b>Total</b>	<b>52,486</b>

Potential Area	- 249,990
Service Area	- 82,597
Irrig. Devt.	- 33.04%



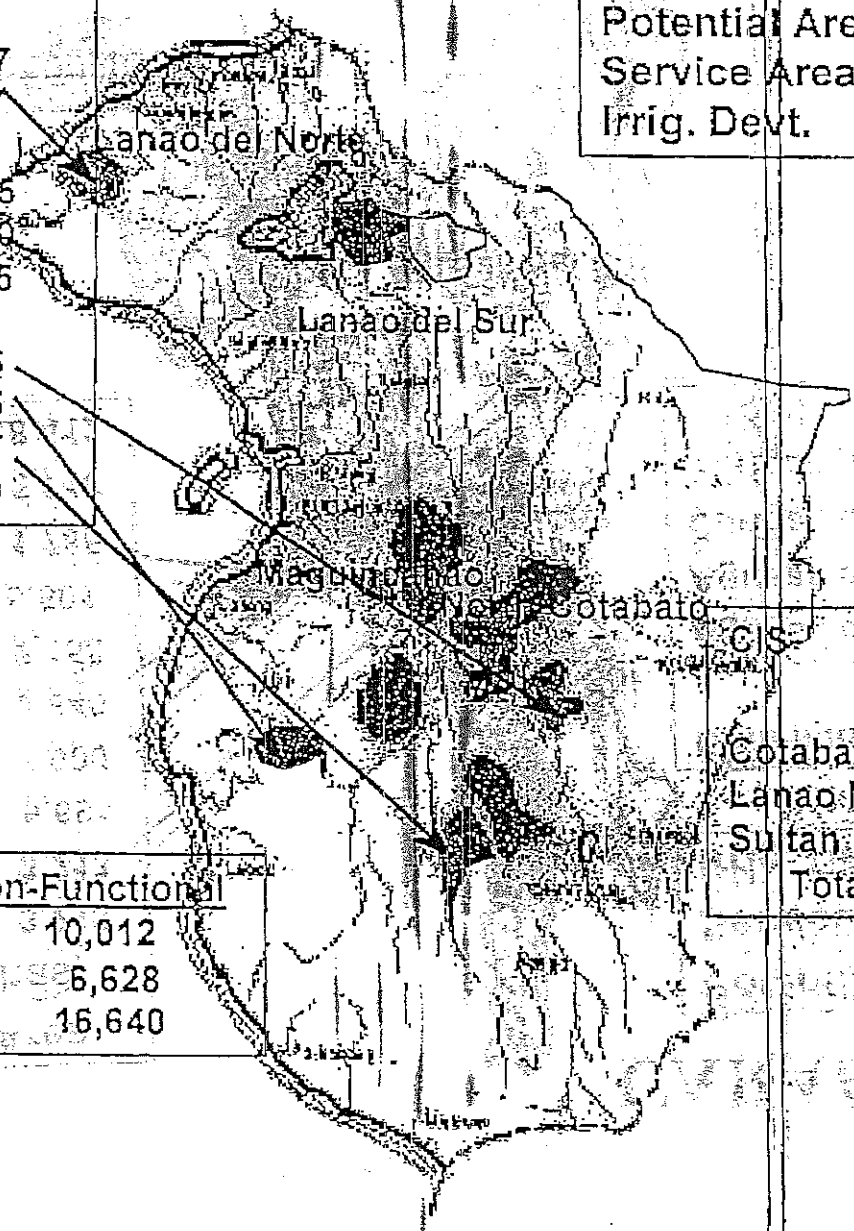
NIS (ha)	Functional	Non-Functional
	48,524	3,962
CIS & PIS (ha)	17,562	12,549
<b>Total</b>	<b>66,086</b>	<b>16,511</b>

CIS Service Area (ha)	Service
Cotabato Sur	- 7,017
Davao Norte	- 4,083
Davao Oriental	- 2,096
Davao Sur	- 9,420
Compostela V.	- 2,923
Sarangani	- 4,572
<b>Total</b>	<b>- 30,111</b>

# Region 12 Irrig. Devt.

NIS	Service Area (ha)
Lanao del Norte	4,927
1. Maranding RIS	- 4,927
Sultan Kudarat	13,355
1. Dumaguil RIS	- 2,000
2. Lambayong RIS	- 11,355
North Cotabato	20,267
1. Kabacan RIS	- 4,635
2. Libungan RIS	- 8,645
3. M'Lang-Malasila RIS	- 6,987
<b>Total</b>	<b>38,549</b>

Potential Area	- 310,220
Service Area	- 54,132
Irrig. Devt.	- 26.30%



CIS	Service Area (ha)
Cotabato Norte	- 961
Lanao Norte	- 4,703
Sultan Kudarat	- 9,919
<b>Total</b>	<b>- 15,583</b>

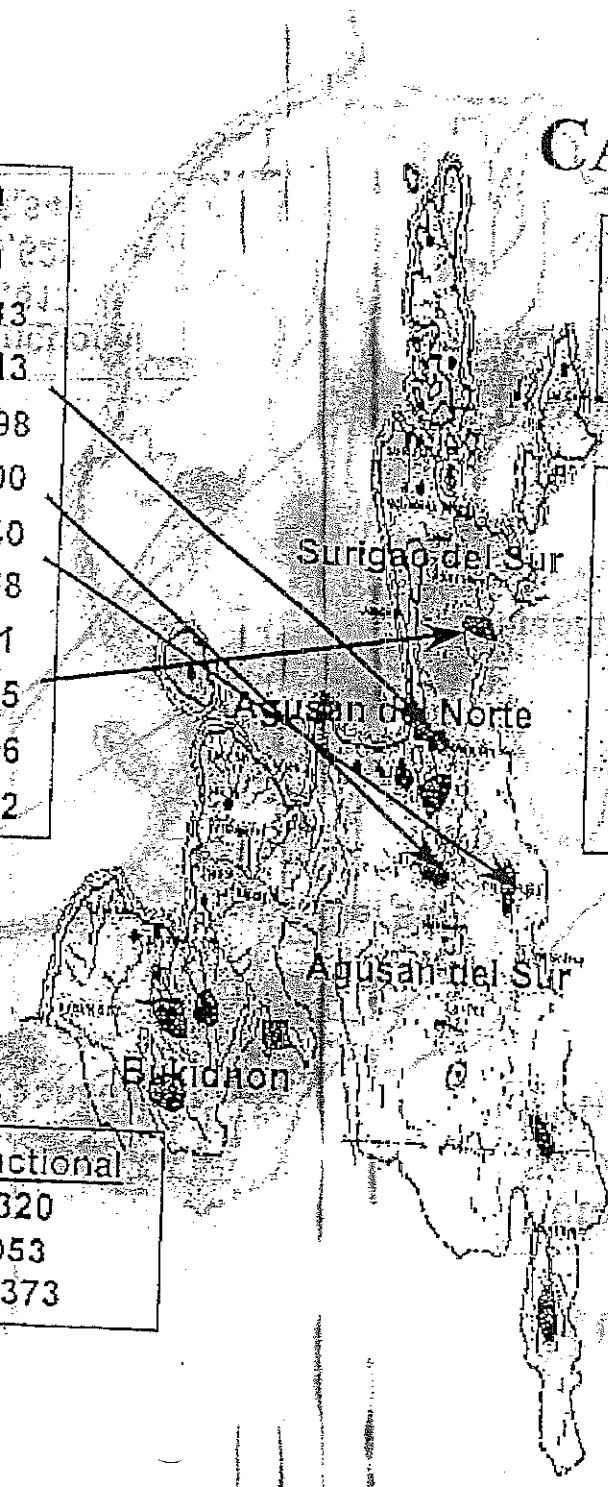
	Functional	Non-Functional
NIS (ha)	- 28,537	10,012
CIS & PIS (ha)	- 8,955	6,628
<b>Total</b>	<b>- 37,492</b>	<b>16,640</b>

# CARAGA Irrig. Devt.

NIS	Service Area (has)
Agusan del Norte	3,213
1. Cabadbaran-Taguibo RIS	3,213
Agusan del Sur	9,698
1. Andanan RIS	5,000
2. Simulao RIS	2,540
3. Gibong RIS	2,158
Surigao del Sur	5,501
1. Cantillan RIS	1,785
2. Tago RIS	3,716
<b>Total</b>	<b>18,412</b>

Potential Area	- 162,300
Service Area	- 36,632
Irrig. Devt.	- 22.57%

Communal Irrigation System	Area (ha.)
Agusan del Norte	- 5,887
Agusan del Sur	- 4,680
Surigao del Sur	- 3,741
Surigao del Norte	- 3,912
<b>Total</b>	<b>- 18,220</b>



	Functional	Non-Functional
NIS (ha)	- 14,092	4,320
CIS & PIS (ha)	- 6,167	12,053
<b>Total</b>	<b>- 20,259</b>	<b>16,373</b>

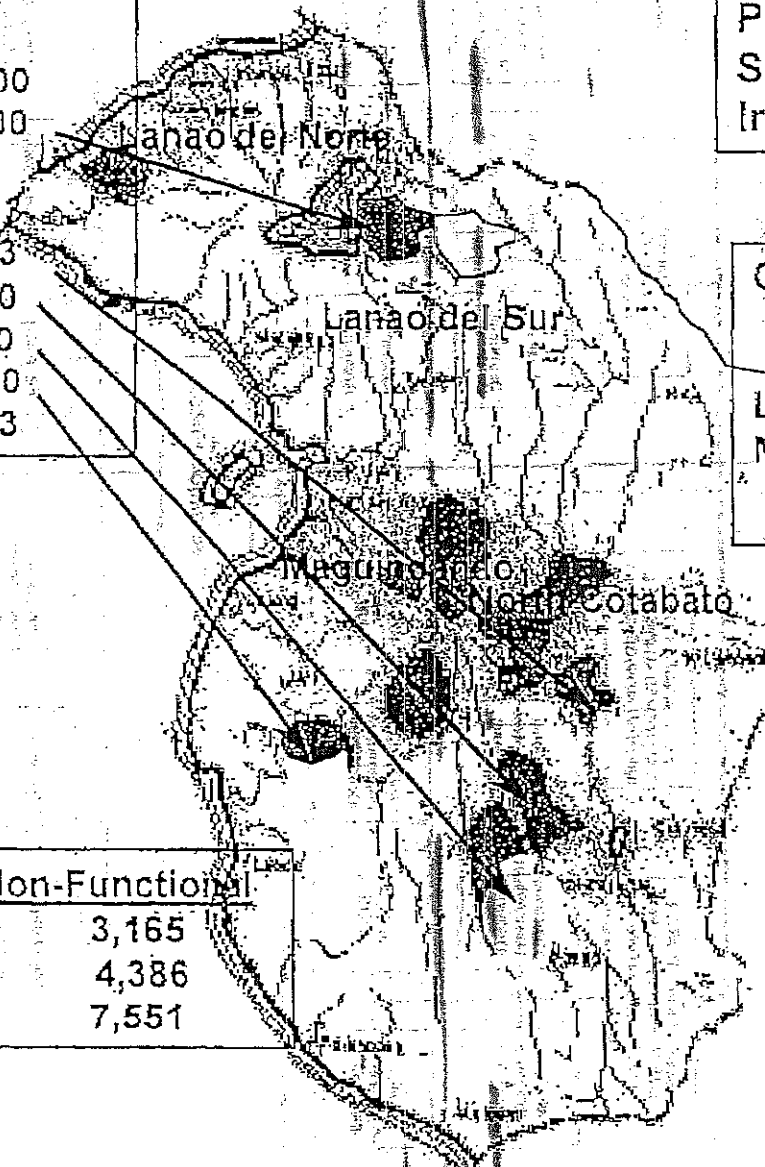
# ARMM Irrig. Devt.

NIS	Service Area (ha)
Lanao del Sur	2,500
1. Rugnan RIS	- 2,500
Maguindanao	4,533
1. Pagalungan	- 383
2. Talayan RIS	- 700
3. Libungan	- 850
3. Alip RIS	- 2,600
Total	- 7,033

Potential Area	- 156,300
Service Area	- 12,491
Irrig. Devt.	- 7.99%

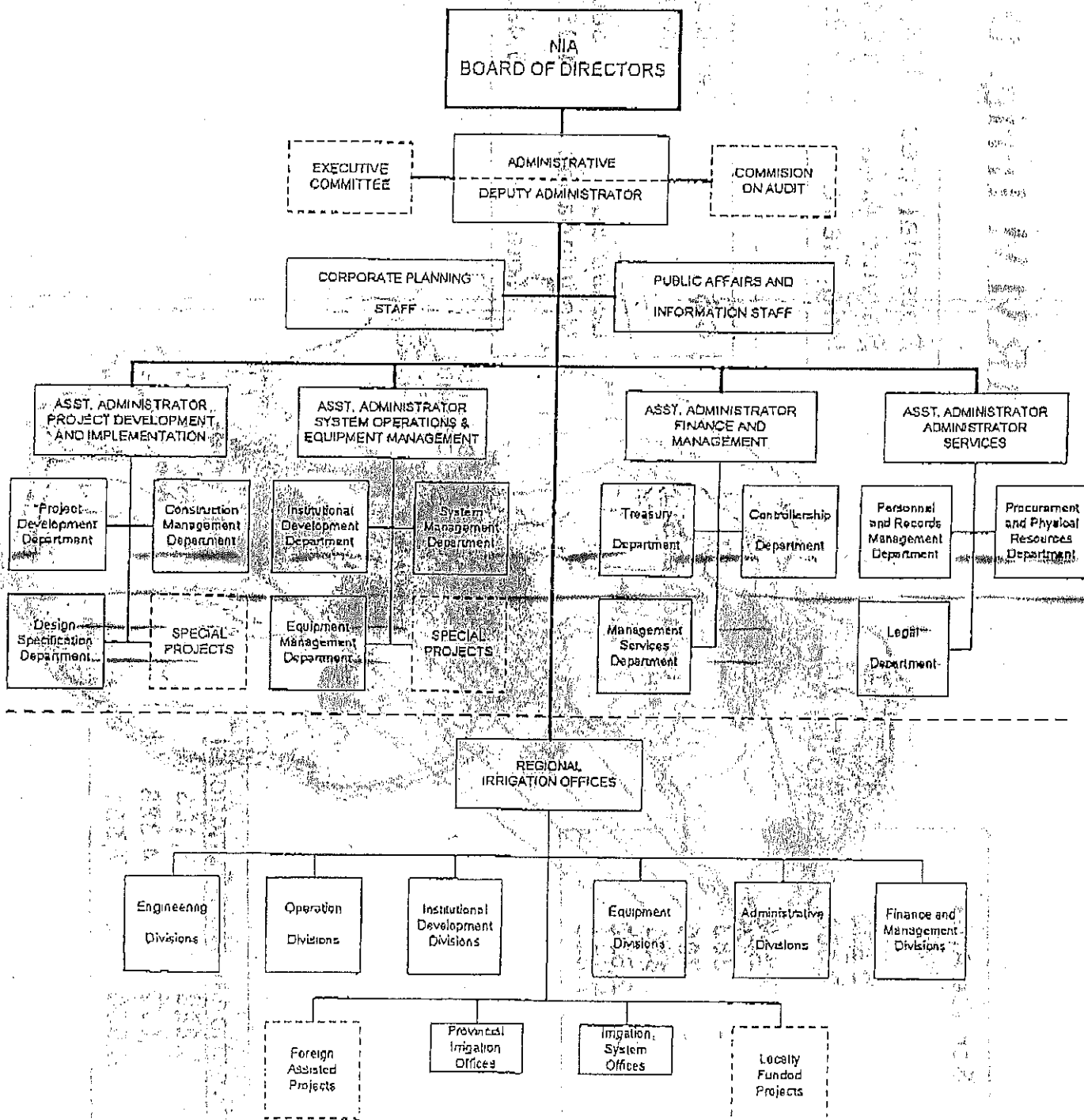
CIS	Service Area (ha)
Lanao Sur	- 500
Maguindanao	- 4,958
Total	- 5,458

	Functional	Non-Functional
NIS (ha)	- 3,868	3,165
CIS & PIS (ha)	- 1,072	4,386
Total	- 4,950	7,551



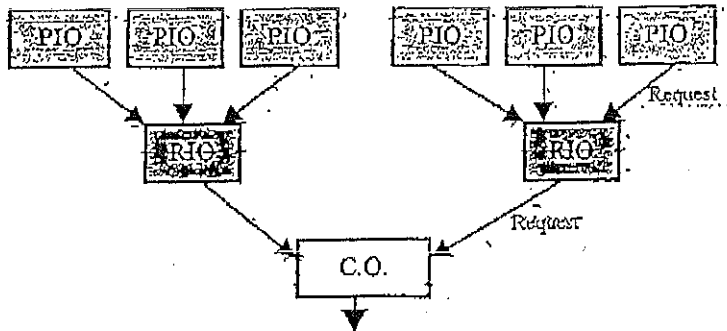


# NATIONAL IRRIGATION ADMINISTRATION ORGANIZATION CHART



NIA's Present Flow of NISS Rehabilitation

Proposed Flow (Environment Compatible)



CRITERIA

- Urgency
- Degree of Deterioration
- Strong Request from Local Stakeholder
- Relevant Factor

Is any fund available when request reaches Central Office (Yes/No)

Implementation of Selected Rehabilitation Project

Conduction of Master Plan for 195 NISa

NEW CRITERIA

- Compatibility of Environmental Condition
- Future Possibility of Damages by change of Natural Condition
- Contribution to Environment Conservation by Proposed Rehabilitation Project

Project Priority

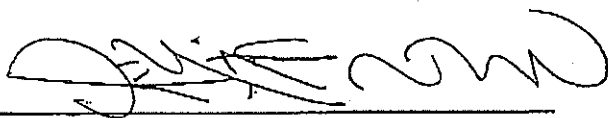
Priority List

Implementation

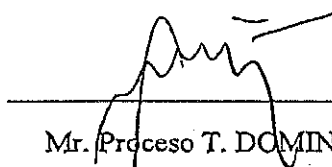
Fund Arrangement

IMPLEMENTING ARRANGEMENT  
FOR THE STUDY FOR  
THE MAINTENANCE, REHABILITATION AND  
IMPROVEMENT PLANNING METHODOLOGY OF  
NATIONAL IRRIGATION SYSTEMS  
AGREED UPON BETWEEN  
THE NATIONAL IRRIGATION ADMINISTRATION  
IN THE REPUBLIC OF THE PHILIPPINES  
AND  
THE JAPAN INTERNATIONAL COOPERATION AGENCY

Quezon City, June 23, 2005

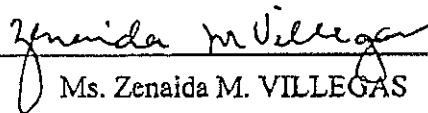


Mr. Shozo MATSUURA  
Resident Representative  
Japan International Cooperation Agency  
Philippines Office



Mr. Proceso T. DOMINGO  
Administrator  
National Irrigation Administration  
The Republic of the Philippines

Witnessed by



Ms. Zenaida M. VILLEGAS  
Acting Director  
Project Department Service  
Department of Agriculture  
The Republic of the Philippines

## I. INTRODUCTION

In response to the request of the Government of the Republic of the Philippines (hereinafter referred to as "GOP"), the Government of Japan decided to conduct the Study for the Maintenance, Rehabilitation and Improvement Planning Methodology of National Irrigation Systems (hereinafter referred to as "the Study") in accordance with the relevant laws and regulations in force in Japan.

Accordingly, the Japan International Cooperation Agency (hereinafter referred to as "JICA"), which is responsible for the implementation of the technical cooperation programmes of the Government of Japan, will undertake the Study in close cooperation with the authorities concerned of GOP.

The present document sets forth the Implementing Arrangement with regard to the Study.

## II. OBJECTIVES OF THE STUDY

The overall goal of the Study is to enable the National Irrigation Administration (hereinafter referred to as "NIA") to realize the sustainable irrigation management of the National Irrigation Systems (hereinafter referred to as "NISs").

The objective of the Study is to develop the capacity of NIA on maintenance, rehabilitation and improvement planning of NISs through:

1. the preparation of a manual for the formulation and management of NISs Inventory;
2. the formulation of a manual for the maintenance, rehabilitation and improvement planning methodology of NISs; and
3. the carrying out of technology transfer to the Philippine counterpart personnel through on-the-job training in the course of the Study.

## III. STUDY AREA

The Study shall cover all NISs nationwide. Three (3) NISs will be selected for the pilot study on the maintenance, rehabilitation and improvement planning methodology of NISs.

## IV. SCOPE OF THE STUDY

In order to achieve the objectives mentioned above, the Implementing Arrangement for the Study shall cover the following activities:

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[Phase I]

1. Collection and analysis of existing data and information related to:
  - (1) NISs Inventory
  - (2) Water resources
2. Analysis of the present methods of data collection and information management system
3. Analysis of the present methodology for the maintenance, rehabilitation and improvement planning of NISs
  - (1) Irrigation facilities
  - (2) Water management
4. Selection of three (3) pilot study areas
5. Formulation of draft format of NISs Inventory Survey
6. Conduct of the NISs Inventory Survey of the pilot study areas
7. Modification of the draft format of NISs Inventory Survey

[Phase II]

8. Analysis of the results of the NISs Inventory Survey (conducted by NIA)
9. Conduct of the pilot study on the maintenance, rehabilitation and improvement planning methodology of NISs
  - (1) Review of the collection and management system of the NISs Inventory
  - (2) Evaluation of methods for facilities functions and water management
  - (3) Rehabilitation method, including cost estimation method
  - (4) Prioritization of NISs for rehabilitation

[Phase III]

10. Preparation of a manual for the formulation and management of NISs Inventory
11. Formulation of a manual for the maintenance, rehabilitation and improvement planning methodology of NISs
12. Coordination and implementation of workshop(s)/seminar(s)

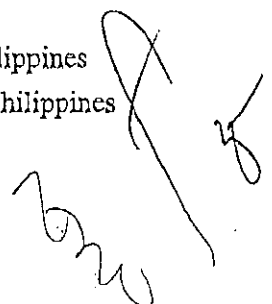
V. WORK SCHEDULE

The Study will be carried out in accordance with the tentative work schedule as attached in Annex 1.

VI. REPORTS

JICA shall prepare and submit the following reports in English to the GOP:

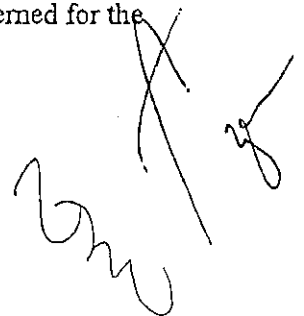
1. Inception Report: Thirty (30) copies at the commencement of Phase I work in the Philippines
2. Interim Report: Thirty (30) copies at the commencement of the Phase II work in the Philippines

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3. Draft Final Report: Thirty (30) copies after the Phase III work in Japan; GOP shall submit its comments to JICA Philippines Office within one (1) month after the receipt of the Draft Final Report.
4. Final Report: Fifty (50) copies within one (1) month after the receipt of the comments on the Draft Final Report

#### VII. UNDERTAKINGS OF THE GOP

1. To facilitate the conduct of the Study, the GOP shall take necessary measures:
  - (1) to secure the safety of the Japanese study team;
  - (2) to permit the members of the Japanese study team to enter, leave and sojourn in the Philippines for the duration of their assignments therein and exempt them from alien registration requirements and consular fees;
  - (3) to exempt the members of Japanese study team from taxes, duties and other charges on equipment, machinery and other materials brought into the Philippines for the conduct of the Study;
  - (4) to exempt the members of the Japanese study team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the Japanese study team for their services in connection with the implementation of the Study;
  - (5) to provide necessary facilities to the Japanese study team for the remittance as well as utilization of the funds introduced into the Philippines from Japan in connection with the implementation of the Study;
  - (6) to secure permission for entry into private properties or restricted areas for the conduct of the Study;
  - (7) to secure permission for the Japanese study team to take all data and documents (including photographs) related to the Study out of the Philippines to Japan, and
  - (8) to provide medical services as needed. Its expenses will be chargeable to members of the Japanese study team.
2. GOP shall bear claims, if any arise against members of the Japanese study team resulting from, occurring in the course of, or otherwise connected with the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or willful misconduct on the part of the members of the Japanese study team.
3. NIA shall act as a counterpart agency to the Japanese study team and also as a coordinating body in relation with other governmental and non-governmental organizations concerned for the smooth implementation of the Study.

A handwritten signature in black ink, consisting of a large, stylized initial 'B' followed by a series of loops and a final flourish.

4. NIA, in cooperation with other organizations concerned shall, at its own expense, provide the Japanese study team the following:
- (1) available data and information related to the Study,
  - (2) counterpart personnel,
  - (3) suitable office space with necessary equipment at the central and regional offices, and
  - (4) credentials or identification cards.

#### VIII. UNDERTAKINGS OF JICA

For the implementation of the Study, JICA shall take the following measures:

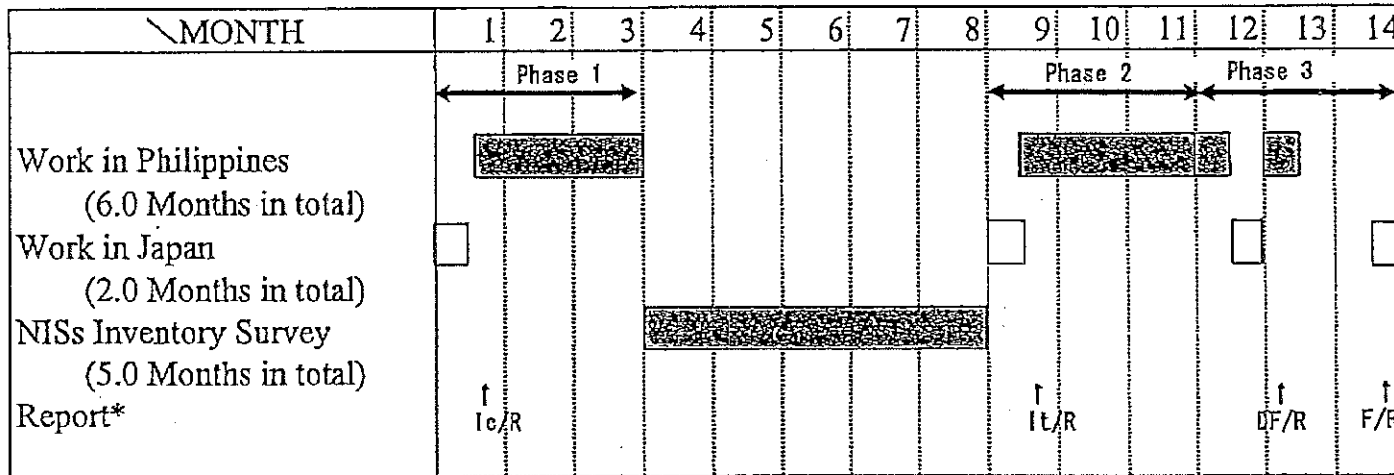
- (1) to dispatch, at its own expense, the Japanese study team to the Republic of the Philippines, and
- (2) to pursue technology transfer to the Republic of the Philippines counterpart personnel during the course of the Study.

#### IX. CONSULTATION

JICA and NIA shall consult with each other in respect of any matter that may arise from or in connection with the Study.

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WORK SCHEDULE (ANNEX I of Implementing Arrangement)



\*Reprt

Ic/R: Inception Report

It/R: Interim Report

DF/R: Draft Final Report

F/R : Final Report

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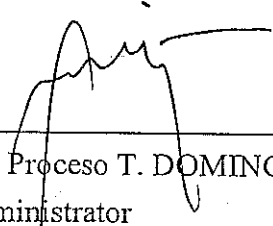
MINUTES OF MEETING  
ON  
THE DRAFT IMPLEMENTING ARRANGEMENT  
FOR  
THE MASTER PLAN STUDY  
FOR  
CONTROLLING IRRIGATION WATERSHED DETERIORATION  
AGREED UPON BETWEEN  
THE NATIONAL IRRIGATION ADMINISTRATION  
IN THE REPUBLIC OF THE PHILIPPINES  
AND  
THE JAPAN INTERNATIONAL COOPERATION AGENCY

Manila, March 17, 2005

宮坂 実

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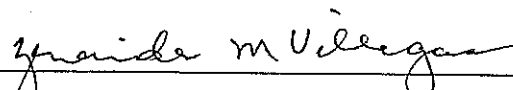
Mr. Minoru MIYASAKA  
Leader  
Preparatory Study Team  
Japan International Cooperation  
Agency (JICA)



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Mr. Proceso T. DOMINGO  
Administrator  
National Irrigation Administration  
The Republic of the Philippines

Witnessed by



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Ms. Zenaida M. VILLEGAS  
Acting Director  
Project Department Service  
Department of Agriculture  
The Republic of the Philippines

## I. INTRODUCTION

In response to the request of the Government of the Republic of the Philippines (hereinafter referred to as "GOP"), the Preparatory Study Team headed by Mr. Minoru MIYASAKA (hereinafter referred to as "the Japanese side") was sent to the Republic of the Philippines by Japan International Cooperation Agency (hereinafter referred to as "JICA") from March 3 to March 23, 2005 for the purpose of discussing and confirming the Implementing Arrangement for the Master Plan Study for Controlling Irrigation Watershed Deterioration (hereinafter referred to as "the Study").

The Japanese side held a series of discussions with the relevant authorities of the Republic of the Philippines represented by Mr. Proceso T. DOMINGO, Administrator, National Irrigation Administration (hereinafter referred to as "the Philippine side").

As a result of the discussions, the Philippine side and the Japanese side agreed on the Draft of Implementing Arrangement for the Study as shown in Annex 1.

The following are the main issues discussed and agreed upon by both sides in relation to the Draft Implementing Arrangement for the Study. The list of participants in the series of meetings is attached as Annex 2.

## II. RESULTS OF DISCUSSION

### 1. Alteration of the Name of the Study

Both sides agreed that the name of the Study "The Master Plan Study for Controlling Irrigation Watershed Deterioration", as requested, be altered to "The Study for the Maintenance, Rehabilitation and Improvement Planning Methodology of National Irrigation Systems" in order to reflect the actual scope of the Study.

### 2. Definition of Terms

Both sides agreed that the term of "Maintenance", "Rehabilitation" and "Improvement" in the Study is defined as the following;

- Maintenance: Normal and routine work to maintain the function of irrigation system
- Rehabilitation: Repair and reconstruction of irrigation system to its original operating condition.
- Improvement: Reconstruction of irrigation system to increase its efficiency

### 3. Counterpart Personnel

Both sides agreed that National Irrigation Administration (hereinafter referred to as "NIA") should take responsibility for assigning necessary number of qualified counterpart personnel from the NIA prior to the arrival of the Japanese study team.

#### 4. Coordination among the GOP

Both sides agreed that the NIA should take responsibility for coordinating among the concerned authorities in the Republic of the Philippines in order to facilitate the smooth collection of their existing data and information related to National Irrigation Systems (hereinafter referred to as "NISs") Inventory and water resources.

#### 5. Necessary Equipment and Facilities for the Study

The Philippine side will provide the Japanese study team with suitable office spaces equipped with desks, chairs, the use of photocopy machine, the exclusive use of telephone lines and telephones in the NIA central and regional offices.

#### 6. Scope of the Study

##### (1) Pilot Study

Both sides agreed that three (3) NISs will be selected to implement the pilot study on the maintenance, rehabilitation and improvement planning methodology of NISs. The pilot study areas will be selected in the first phase of the Study in consideration with the following factors:

##### 1) Facility functionality:

- a. Status of diversion dam with the condition of upstream and downstream of the river
- b. Status of main canal and water management facilities such as check gate and main-turnout
- c. Status of mechanical devices especially pump system

##### 2) Size of service area and water availability

- d. Service area
- e. Status of watershed and water availability

##### 3) Farming activity

- f. Status of water management / utilization within the system
- g. Status of agricultural production

##### 4) Progress of implementation of Irrigation Management Transfer (IMT)

##### (2) Conduct of NISs Inventory Survey

Both sides agreed that the NIA would take full responsibility for conducting the NISs Inventory Survey in accordance with the draft format of NISs Inventory Survey proposed by the Japanese study team.

Both sides agreed that the NISs Inventory Survey should be conducted in the period between the end of the first phase of the Study and the commencement of the second phase of the Study.

##### (3) Workshop(s)/Seminar(s)

Both sides agreed to hold workshop(s)/seminar(s) at the end of the Study in order to diffuse the

result of the Study. The workshop(s)/seminar(s) are to be jointly organized by the NIA and the Japanese study team.

#### 7. Training of Counterpart Personnel in Japan

The Philippine side requested counterpart training in Japan for effective technology transfer. The Japanese side promised to recommend the request to the JICA headquarters.

#### 8. Final Report

Both sides agreed that the Final Report of the Study would be made open to the public.

#### 9. Utilization of the Study Outputs

The Philippine side promised to the Japanese side that the NIA will make the best effort to utilize the outputs obtained through the Study.

#### 10. Signing of Implementing Arrangement

The Implementing Arrangement will be signed by the JICA Resident Representative and the Administrator of NIA.

#### 11. Commencement of the Study

The Japanese side notified that the Study will commence at the beginning of September 2005.

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DRAFT IMPLEMENTING ARRANGEMENT  
FOR  
THE STUDY  
FOR  
THE MAINTENANCE, REHABILITATION AND IMPROVEMENT  
PLANNING METHODOLOGY OF NATIONAL IRRIGATION SYSTEMS  
AGREED UPON BETWEEN  
THE NATIONAL IRRIGATION ADMINISTRATION  
IN THE REPUBLIC OF THE PHILIPPINES  
AND  
THE JAPAN INTERNATIONAL COOPERATION AGENCY

Manila, , 2005

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Mr. Shozo MATSUURA  
Resident Representative  
Japan International Cooperation  
Agency Philippines Office

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Mr. Proceso T. DOMINGO  
Administrator  
National Irrigation Administration  
The Republic of the Philippines

Witnessed by

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Acting Director  
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Department of Agriculture  
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The objective of the Study is to develop the capacity of NIA on maintenance, rehabilitation and improvement planning of NISs through:

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## III. STUDY AREA

The Study shall cover all NISs nationwide. Three (3) NISs will be selected for the pilot study on the maintenance, rehabilitation and improvement planning methodology of NISs.

## IV. SCOPE OF THE STUDY

In order to achieve the objectives mentioned above, the Implementing Arrangement for the Study shall cover the following activities:

[Phase I]

1. Collection and analysis of existing data and information related to:
  - (1) NISs Inventory
  - (2) Water resources
2. Analysis of the present method of collection and management system on the data and

information

3. Analysis of the present methodology for the maintenance, rehabilitation and improvement planning of NISs

(1) Irrigation facilities

(2) Water management

4. Selection of three (3) pilot study areas

5. Formulation of draft format of NISs Inventory Survey

6. Conduct of the NISs Inventory Survey of the pilot study areas

7. Modification of the draft format of NISs Inventory Survey

[Phase II]

8. Analysis of the result of the NISs Inventory Survey (conducted by NIA)

9. Conduct of the pilot study on the maintenance, rehabilitation and improvement planning methodology of NISs

(1) Review of collection and management system on the NISs Inventory

(2) Evaluation method for facilities functions and water management

(3) Rehabilitation method, including cost estimation method

(4) Rehabilitation priority

[Phase III]

10. Preparation of a manual for the formulation and management of NISs Inventory

11. Formulation of a manual for the maintenance, rehabilitation and improvement planning methodology of NISs

12. Coordination and implementation of workshop(s)/seminar(s)

## V. WORK SCHEDULE

The Study will be carried out in accordance with the tentative work schedule as attached in Annex 1.

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cooperation with other organizations concerned:

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- (2) counterpart personnel,
- (3) suitable office space with necessary equipment for both the central and regional offices, and
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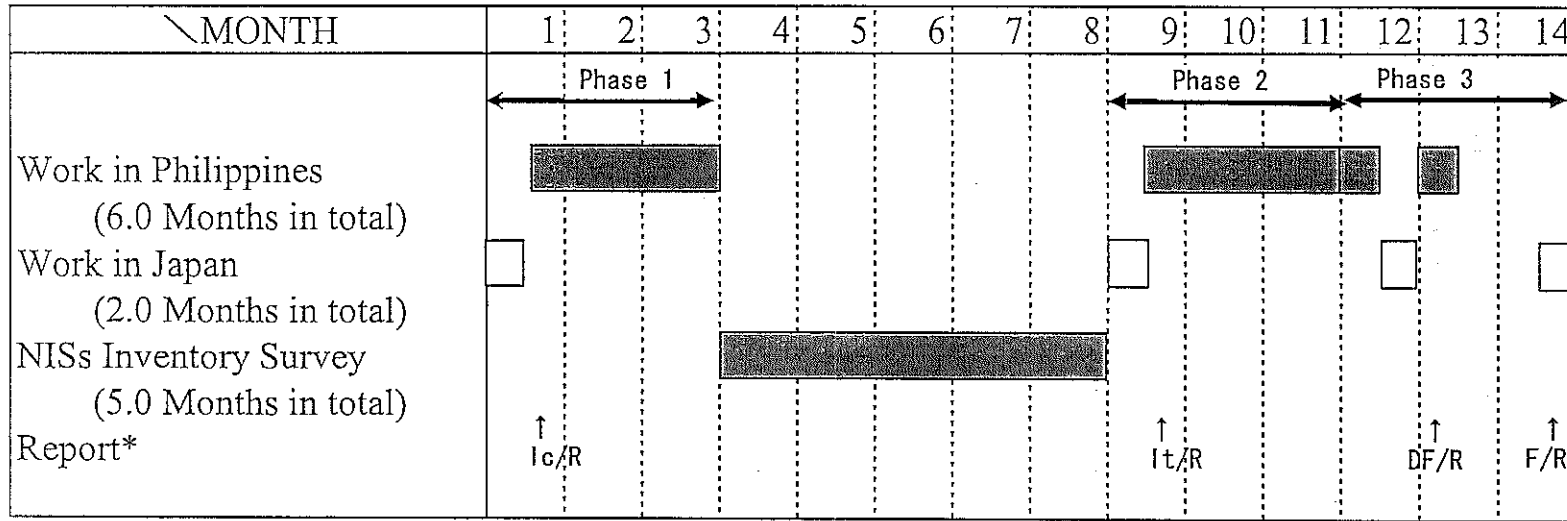
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- (1) to dispatch, as its own expense, the Japanese study team to the Republic of the Philippines, and
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#### IX. CONSULTATION

JICA and NIA shall consult with each other in respect of any matter that may arise from or in connection with the Study.



\*Reprt

Ic/R:Inception Report

It/R:Interim Report

DF/R:Draft Final Report

F/R :Final Report

TENTATIVE WORK SCHEDULE (ANNEX I of Draft Implementing Arrangement)

**LIST OF PARTICIPANTS**

National Irrigation Administration (NIA)

Mr. Proceso T. DOMINGO Administrator  
Mr. Edilberto B. PAYAWAL Manager, System Management Department

JICA Expert

Mr. Yoshihiro OZAWA JICA Expert to NIA

Preparatory Study Team

Mr. Minoru MIYASAKA Leader  
Mr. Toshiyuki YOSHIOKA Irrigation Planning  
Mr. Masahiro TAJIMA Water Resources Conservation / Irrigation Facility  
Management  
Mr. Keisuke ITO Project Planning / Preliminary Evaluation

JICA Philippine Office

Mr. Masami BOLT Project Formulation Advisor

1  
B

## 収集資料リスト

- (1) NIA 組織図 (ORGANIZATION CHART)
- (2) RESPONSE TO QUESTIONNAIRE
  - A. INVENTORY FOR IRRIGATION,
  - B. GUIDELINES/METHODS IN THE PREPARATION OF REHABILITATION PLANS,
  - C. WATERSHED MANAGEMENT)
- (3) NIA と DENR の覚書
- (4) Definition of Terms
- (5) Aganan-Sta. Barbara River Irrigation System (ASBRIS) Year-End Report CT 2004
- (6) AGANAN RIVER FEDERATION OF IRRIGATIONS' ASSOCIATIONS, INC. (ARFIA)