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**Working Paper**

## Assessing the resurgent irrigation development program of the Philippines: Institutional arrangements for irrigation governance

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# Assessing the Resurgent Irrigation Development Program of the Philippines – Institutional Arrangements for Irrigation Governance

*Agnes C. Rola, Therese R. Olviga, Francis John F. Faderogao,  
and Chrislyn Joanna P. Faulmino*



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Assessing the Resurgent Irrigation Development Program  
of the Philippines –Institutional Arrangements  
for Irrigation Governance

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PHILIPPINE INSTITUTE FOR DEVELOPMENT STUDIES

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## Abstract

This project aims to evaluate the effectiveness and efficiency of the government's irrigation program. It focuses on technical, physical, and institutional aspects of performance of both national (NIS) and communal irrigation systems (CIS), and selected case studies. The governance component describes and analyzes the governance mechanisms of the entire irrigation project cycle from planning to monitoring and evaluation. It draws on the findings from the other studies within this project, while focusing on governance, particularly higher-level issues cutting across national and communal systems and also across the other water sector agencies.

The project was done in two cycles. Cycle 1 conducted in 2015 covered the seven regions of Luzon. Respondents were National Irrigation Administration (NIA) officers from the 7 Regional Irrigation Offices (RIO) and 14 Irrigation Management Offices (IMO), in the following provinces: 1) Laguna; 2) Ilocos Norte; 3) Cagayan; 4) Isabela; 5) Nueva Vizcaya; 6) Benguet; 7) Pangasinan; 8) Nueva Ecija; 9) Pampanga; 10) Camarines Sur; and 11) Occidental Mindoro. The Cycle 2 covers NIS and CIS in eight (8) IMOs and 6 RIOs in the Visayas and Mindanao regions. The 8 selected Irrigation Management Offices (IMOs) visited for this study are in the following provinces: 1) Leyte; 2) Bohol; 3) Iloilo; 4) Capiz 5) North Cotabato; 6) South Cotabato; 7) Davao del Sur;; and 8) Bukidnon. Correspondingly, the 6 Regional Irrigation Offices (RIOs) are Regions 6,7,8,10,11and 12, where only four were visited. The CIS and NIS IA level governance data were gathered by the technical teams. Whenever possible, data from Cycle 1 gathered from Luzon were integrated in this report.

KIIs were conducted in all the IMOs and 4RIOs included in the study. KIIs were also conducted in national agencies including the DA-BSWM, DENR-RBCO, DAR, DILG, NPC and NWRB. Focus group discussions were conducted in NIA Central Office and NEDA Regional Office VI.

Results of the national agencies' KIIs validated what is in the literature and results of the same exercise last Cycle 1 (Rola 2015): that irrigation development plan is fragmented both vertically and horizontally, database used for planning has multiple sources, the whole irrigation sector is composed of several agencies, each with each own plan, and technical personnel, and these agencies while collaborating with one another can also cause some data reporting problems. Respondents from the national agencies all agreed that an integrated irrigation development plan is needed.

Institutional arrangements in the planning and design of irrigation projects are a challenge as there is not enough organizational links among them. Implementation of irrigation projects is done mainly by the NIA and the BSWM. The NIA has the technical capacity to implement projects, thus maintaining this capacity will be important for sustainability. For project implementation, farmers in both the NIS and CIS IAs participate in terms of labor/manpower/assistance in implementation. Half of the respondents said that free irrigation policy is not at all beneficial in terms of management of the IAs O and M. All NIS IAs still follow the provisions of the IMT, despite the new policy. With free ISF, the IAs were "encouraged" by NIA to collect from members some amounts which IAs can keep and use to augment their O&M funds. Data for service area and cropping intensity are taken from reports from the field. There is a set system for monitoring the irrigation system performance based on field reports. There is GIS capacity in the country that the NIA may access for more modern monitoring and reporting. It is also recommended that water resource and research centers be put in place in the academe to have a central

body for data storage and analysis. An apex body to harmonize policies and programs across the water sector will also be ideal.

**Keywords:**

Institutional arrangements, irrigation governance, water governance, free irrigation policy, water rights, project cycle

## Table of Contents

<b>1. Introduction</b>	1
<b>2. Objectives</b>	1
<b>3. Conceptual Framework</b>	2
3.1. Water Institution and Water Sector Performance	2
3.2. Institutional Arrangements for Irrigation Governance	5
3.3. Irrigation Development Project Management Cycle	7
3.4. NIA Irrigation Project Management Structure	13
<b>4. Relevant Literature</b>	13
<b>5. Methodology</b>	14
5.1. Scope of the study	14
5.2. Data Collection	15
5.3. Data Analysis	16
<b>6. Results and Discussion</b>	16
6.1. Macro Level Institutional Analysis	16
6.1.1 The Irrigation Implementing Agencies	16
6.1.2 The Agriculture and Natural Resources Sector Involved in Irrigation	20
6.1.3 The Oversight Agencies for Irrigation	25
6.1.4 Other Competing agencies in the use of water	26
6.1.5 Comparative Analysis of Irrigation Development Cycle: NIA and DA-BSWM	27
6.2 Meso Level Institutional Analysis	30
6.2.1 Regional Institutional Landscape Analysis	30
6.2.2. Role of the Regional Irrigation Office (RIO)	34
6.2.3 Role of the Irrigation Management Office (IMO)	54
6.3 Micro Level Governance of IAs	67
6.3.1. NIS IAs Governance	67
6.3.2. CIS IAs Governance	76
<b>7. Key Messages and Recommendations</b>	86
7.1 Craft an integrated and dynamic irrigation development plan with the NIA as lead	86
7.2 Beef up technical capacity of the NIA in the implementation of irrigation projects	86
7.3 Ensure the quality of the system to be turned over to IAs to minimize the rehab activities; and encourage the IAs to improve on their management	87
7.4 Institutionalize a modern M&E system covering NIS and CIS	87
7.5 Establish water resource and research centers in the academe for water data storage, analysis and decision support to the various water agencies	88
7.6 Create an apex body for water that can harmonize policies and plans for the whole water sector	89
	91
<b>8. References</b>	
<b>9. Annexes</b>	95

### List of Tables

Table 1.	Irrigation related responsibilities of various national agencies.	6
Table 2.	Irrigation project management activities of NIA and responsible units.	9
Table 3.	Irrigation project management activities of NIA in NIS and CIS.	11
Table 4.	Study sites of the project, Cycle 2.	15

Table 5.	Nature of coordination of NIA institutional linkages.	17
Table 6.	Linkages of the BSWM regarding irrigation matters.	19
Table 7.	DAR's Linkages with other water agencies.	20
Table 8.	RBCO institutional linkages.	22
Table 9.	NPC link with other water related agencies.	24
Table 10.	DILG Linkages with other water related bodies.	24
Table 11.	Project ID, Planning and Design in NIA, DA-BSWM and DAR.	28
Table 12.	Implementation of irrigation projects at the NIA, DA-BSWM and DAR.	28
Table 13.	O and M operations in NIA, DA-BSWM and DAR.	29
Table 14.	Monitoring and Evaluation processes in NIA, DA-BSWM and DAR.	30
Table 15.	Trans-basin / sectoral water allocation.	37
Table 16.	Average Rating on IMT and RatPlan (scale of 0-4 with 4 as most successful).	39
Table 17.	Share of RIO in IMO collection and the viability incentive grant.	42
Table 18.	Water Pricing (in cavans per hectare) (before the free irrigation policy).	42
Table 19.	Accountability of NIA's functions.	43
Table 20.	Decision making for cropping calendar.	44
Table 21.	Training programs conducted.	45
Table 22.	RIO institutional arrangements with other agencies.	45
Table 23.	Degree of Participation in planning and climate resilient plans.	47
Table 24.	Representation/participation in planning and design stage, RIO level.	48
Table 25.	Project Cycle Governance, Implementation stage.	50
Table 26.	Project Cycle Governance, Operations and Maintenance stage.	51
Table 27.	Incentive Mechanisms for RIO.	53
Table 28.	Conflict resolution (n=19)	55
Table 29.	Inter-basin conflict settlement (n=19)	56
Table 30.	IMO support to CIS and LGU (n=19)	56
Table 31.	Role of IMO in various IA activities (n=19)	57
Table 32.	Financing and Pricing: Budget Allocation (n=19)	58
Table 33.	Repayment rate and mode of collection (n=19)	58
Table 34.	Role of IMO in Payment Collection and Disbursement (n=19)	58
Table 35.	Personnel Matters (n=11)	59
Table 36.	Issues and Concerns by NIS and CIS according to the IMOs (n=19)	60
Table 37.	IMO institutional linkages with other agencies	61
Table 38.	Project Cycle Governance, planning and design stage	63
Table 39.	Project Cycle Governance, Implementation stage	63
Table 40.	Project Cycle Governance, Operations and Maintenance stage	64
Table 41.	Project Cycle Governance, Monitoring and Evaluation.	65
Table 42.	Incentive Mechanisms for IMO.	66
Table 43.	Characteristics of NIS IAs respondents, by IMT model and location, frequency distribution.	69
Table 44.	Awareness of the free irrigation policy, source of information and actions taken, NIS IAs.	69
Table 45.	Participation of the NIS IAs in the Operations and Maintenance of the System in Visayas and Mindanao.	70
Table 46.	Participation of the NIS IAs in the monitoring and evaluation of the system performance.	73
Table 47.	Incentive Mechanisms for NIS IAs.	76
Table 48.	Perceived benefits of the free irrigation policy by NIS IAs (in %).	76
Table 49.	Frequency count of CIS IA respondents, by size of the CIS.	78
Table 50.	Awareness of the free irrigation policy, source of information and actions taken.	78
Table 51.	Participation of the CIS IAs in the Planning and Design Stage of the Project Cycle.	79
Table 52.	Participation of CIS IAs in the implementation of the project construction.	80

Table 53.	Participation of the CIS IAs in the Operations and Maintenance of the CIS System.	81
Table 54.	Participation of the CIS IAs in the monitoring and evaluation of the system performance.	83
Table 55.	Incentive Mechanisms.	84
Table 56.	Perceived benefits of the free irrigation policy	85

### List of Figures

Figure 1.	Institutional linkages within a water institution.	3
Figure 2.	Exogenous factors on institution-performance interaction.	4
Figure 3.	Conceptual framework of the Cycle 2 study:Governance mechanisms of the irrigation project cycle.	5
Figure 4.	Planning and investigation stages for an irrigation project.	8
Figure 5.	NIA's Service Process Model.	9
Figure 6.	NIA Management Structure/Flow of Activities between NIA Offices.	13

### List of Boxes

Box 1	The Jalaur River Multi-purpose Project (JRMP):Role of NEDA Region 6	31
Box 2	Recommendations from NEDA 6	33
Box 3	Example of a Water Apex Body: Thailand's National Water Resources Committee	90

### Annex

Annex 1	Guide Questions for Regional Irrigation Offices – RIO and Central Office governance (Cycle 2)	95
Annex 2:	Guide Questions for Irrigation Management Offices-IMO governance (Cycle 2)	103
Annex 3	Guide Questions for Irrigators' Associations CIS Governance Cycle 2	110
Annex 4	Guide Questions for Irrigators' Associations NIS Governance Cycle 2	113
Annex 5	Guide Questions for National Agencies	116
Annex 5.1	Guide Questions for National Agencies-DENR RBCO	116
Annex 5.2	Guide Questions for National Agencies-DA-BSWM	118
Annex 5.3	Key Informant Interview–National Agencies- others	122
Annex 5.4	Guide Questions for NEDA	124
Annex 6	Directory	125



## **List of Abbreviations**

ADB	Asian Development Bank
AFMA	Agriculture and Fisheries Modernization Act
APP	Annual Procurement Plan
ARC	Agrarian Reform Communities
ARISP	Agrarian Reform Infrastructure Support Project
ATI	Agricultural Training Institute
AWD	Alternate Wet and Dry
BODs	Board of Directors
BOT	Build-Operate-and-Transfer
BSPP	Balikatan Sagip Patubig Program
BSU	Benguet State University
BSWM	Bureau of Soil and Water Management
CAR	Cordillera Administrative Region
CARP	Comprehensive Agrarian Reform Program
CIDF	Communal Irrigation Development Fund
CHARM	Cordillera Highland Agricultural Resource Management
CIRDUP	Comprehensive Irrigation Research and Development Umbrella Program
CIS	Communal Irrigation System
CLUP	Comprehensive Land Use Plan
CNC	Certificate of Non-Coverage
CO	Central Office
COA	Commission on Audit
COB	Current Operating Budget
CSO	Civil Service Organization
DA	Department of Agriculture

DAO	DENR Administrative Order
DAR	Department of Agrarian Reform
DBM	Department of Budget and Management
DENR	Department of Environment and Natural Resources
DILG	Department of Interior and Local Government
DOE	Department of Energy
DOF	Department of Finance
DOH	Department of Health
DOLE	Department of Labor and Employment
DOT	Department of Tourism
DPWH	Department of Public Works and Highways
DS	Dry Season
DSWD	Department of Social Welfare and Development
ECC	Environment Compliance Certificate
EGF	Environmental Guarantee Fund
EGGAR	Engineering Geological and Geohazard Assessment Report
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EMB	Environmental Management Bureau
EMD	Equipment Management Division
EMF	Environmental Monitoring Fund
ENRO	Environment and Natural Resources Officer
EO	Executive Order
ET	Evapotranspiration
FAO	Food and Agriculture Organization
FGD	Focus Group Discussion
FMB	Forest Management Bureau
FPA	Fertilizer and Pesticide Authority

FSPP	Food Staples Security Program
FUSA	Firmed Up Service Area
GAA	General Appropriations Act
GCC	General Conditions of Contract
GCG	Governance Commission for GOCCs
GIS	Geographic Information System
GOCC	Government Owned and Controlled Corporations
IA	Irrigators' Association
ICC	Investment Coordination Committee
IDD	Institutional Development Division
IDF	Industry Development Fund
IDO	Institutional Development Officer
IDP	Institutional Development Program
IEC	Irrigation Engineering Center
IMO	Irrigation Management Office
IMT	Irrigation Management Transfer
IRA	Internal Revenue Allotment
IRR	Implementing Rules and Regulations
IRRI	International Rice Research Institute
ISF	Irrigation Service Fee
JICA	Japan International Cooperation Agency
JRMP	Jalaur River Multi-Purpose Project
KII	Key Informant Interview
LGC	Local Government Code
LGU	Local Government Unit
LLDA	Laguna Lake Development Authority
LLP	Low Lift Pump
LWUA	Local Water Utilities Administration

M&E	Monitoring and Evaluation
MAO	Municipal Agriculture Office
MAOs	Municipal Agriculturists Officers
MENRO	Municipal Environment and Natural Resources Officer
MGB	Mines and Geosciences Bureau
MMDA	Metropolitan Manila Development Authority
MMT	Million Metric Tons
MO	Memorandum Order
MOA	Memorandum of Agreement
MOOE	Maintenance and Other Operating Expenses
MPDO	Municipal Planning and Development Office
MRIIS	Magat River Integrated Irrigation System
MWSS	Metropolitan Waterworks and Sewerage System
MYWAS	Multi-year Water Allocation System
NAPOCOR/NPC	National Power Corporation
NCIP	National Commission on Indigenous Peoples
NEDA	National Economic and Development Authority
NFA	National Food Authority
NGO	Non-Government Organization
NIA	National Irrigation Administration
NIMF	National Irrigation Management Fund
NIPAS	National Integrated Protected Areas Act
NIS	National Irrigation System
NOAH/UP NOAH Center	University of the Philippines Nationwide Operational Assessment of Hazards
NOV	Notice of Violation
NPC	National Power Corporation
NWRB	National Water Resources Board

NWRC	National Water Resources Council
O&M	Operation and Management
OCD	Office of Civil Defense
OP	Office of the President
OP-APSAM	Office of the Presidential Assistant for Food Security and Agricultural Modernization
OSP	Open Source Pump
PAA	Policy Arrangement Approach
PAGASA	Philippine Atmospheric, Geophysical, & Astronomical Services Administration
PAMB	Protected Area Management Board
PCA	Philippine Coconut Authority
PCIC	Philippine Crop Insurance Corporation
PD	Presidential Decree
PDIP	Participatory Irrigation Development Program
PDP	Philippine Development Plan
PENRO	Provincial Environment and Natural Resources Officer
PIAS-DG	Pacific Institute of Advanced Studies in Development and Governance
PIM	Participatory Irrigation Management
PIO	Provincial Irrigation Office
PMO	Project Management Office
PNOC	Philippine National Oil Company
PO	Peoples' Organization
POW	Program of Work
PPMP	Project Procurement Management Plan
PPP	Public-Private Partnership
PRAISE	Program on Awards and Incentives for Service Excellence
PTFMRBRD	Presidential Taskforce on Mindanao River Basin Rehabilitation and Development

RA	Republic Act
RAFCI	Regional Agriculture and Fisheries Council
RB	River Basin
RBCO	River Basin Coordinating Office
RBO	River Basin Organization
RDC	Regional Development Council
RFO	Regional Field Office
RIM	Regional Irrigation Manager
RIO	Regional Irrigation Office
RLUC	Regional Land Use Committee
ROW	Right of Way
RPlan/RatPlan	Rationalization Plan
SA	Service Area
SDD	Small Diversion Dam
SEC	Securities and Exchange Commission
SFR	Small Farm Reservoir
SSIP	Small Scale Irrigation Project
SSIS	Small Scale Irrigation Systems
STW	Shallow Tube Well
SUC	State University and Colleges
SWIP	Small Water Impounding Project
SWISA	Small Water Impounding System Association
TOR	Terms of Reference
UCPB	United Coconut Planters Bank
UNDP	United Nations Development Programme
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UPRIIS	Upper Pampanga River Integrated Irrigation System

USAID	United States Agency for International Development
VE/VA	Value Engineering/Value Analysis
VIG	Viability Incentive Grant

# **Assessing the Resurgent Irrigation Development Program of the Philippines – Institutional arrangements for irrigation governance**

*Agnes C. Rola, Therese R. Olivga, Francis John F. Faderogao,  
and Chrislyn Joanna P. Faulmino<sup>1</sup>*

## **1. Introduction**

Agriculture is the highest consumer of water, accounting for 84% of total water use in Asia and 72% globally (David 2003). Ironically, agriculture generates the lowest economic return per unit of water (Turrall et al. 2011). The Comprehensive Assessment of Water Management in Agriculture asserted that improvement in water use in agriculture is crucial in order to meet the challenges of increasing pressure on water resources due to rising water demand. A looming water crisis may be averted if reforms in the ways water is managed and governed are put in place (FAO 2012).

In the Philippines, accelerated irrigation development significantly contributed to rice self-sufficiency/surplus in 1968 and 1977. However, over the years, irrigation development has faced many technical and institutional constraints. The poor performance of irrigation systems has been attributed to several factors including inadequate database for planning, inadequate institutional capacity and mechanisms for development, design mistakes, poor quality of construction, inadequate and fragmented support services for irrigated-agriculture, and complexity of operation including socioeconomic and institutional management (David 2003). All these concern water governance.

One emerging lesson calls for a governance regime that connects various actors and decision makers in setting rules for managing water resources in order to sustain the desired state. Irrigation can no longer be addressed in isolation, implying coordinated and integrated water resource planning and management among institutions. Implementation of policies (e.g., devolution to LGUs and IAs, free irrigation versus cost recovery schemes) at both the national irrigation and communal irrigation system levels has to be evaluated to see what works and what does not work so that appropriate policy reforms can be formulated.

## **2. Objectives**

Overall, the project aims to evaluate the effectiveness and efficiency of the government's irrigation program. It focuses on technical, physical, and institutional aspects of performance of both national (NIS) and communal irrigation systems (CIS), and selected case studies. The study is structured by system (NIS and CIS) covering both technical (physical/engineering) issues, and governance (institutional) issues. Technical and institutional evaluation is conducted along the stages of the project cycle, namely:

- Project identification
- Project preparation, appraisal, and selection
- Project implementation
- Operations and maintenance
- Monitoring and evaluation

---

<sup>1</sup> The first, second, and third authors are professor, university research associate, and university researcher at the College of Public Affairs – University of the Philippines (UP) Los Banos, respectively. Meanwhile, the fourth author is a research fellow at the College of Engineering, UP Diliman.



Thus, the study will cover the following:

- i. For the planning and design stage:
  - a) To analyze the institutional capacity of the project proponent (selected NIS or CIS) in arriving at an appropriate, science-based, and economically viable design of an irrigation project;
  - b) To describe the institutional capacity of the project decision-making system in conducting an independent and competent appraisal of proposed irrigation projects; and
  - c) To recommend strategies for addressing institutional capacity gaps; delineation of roles of DENR, DA, NIA, IAs, and LGU; and ensuring proper coordination across agencies and meaningful consultations with end users.
  
- ii. For the implementation stage:
  - a) To assess the institutional capacity of NIA, LGUs, and BSWM, in implementing irrigation projects, including timeliness and transparency in procurement
  - b) To delineate the proper role if any, of farmers, in project implementation, including right-of-way issues.
  
- iii. For the operations and maintenance stage:
  - a) To understand the implications of the new free irrigation policy for O&M of irrigation systems;
  - b) To assess the impact of the new free irrigation policy on the IMT program;
  - c) To assess the capacity of IAs, NIA, and LGUs, in terms of O&M, in an era of the free irrigation policy;
  - d) Together with the technical team of the NIS and the CIS, to determine appropriate costing of O&M; and
  - e) Come up with recommendations for the O&M strategy addressing capacity gaps of IAs; cost recovery; addressing perennial problems of siltation and inadequate water supply, especially in an era of the new free irrigation policy.
  
- iv. For M&E:
  - a) To recommend ways to institutionalize an efficient M&E system covering NIS and CIS, ensuring proper information is collected in a timely manner and use for operations and planning;
  - b) To identify broadly the reforms needed in cross-sectoral areas such as: water pricing, allocation of water rights, finance of O&M, as well as organizational framework for national and communal systems.

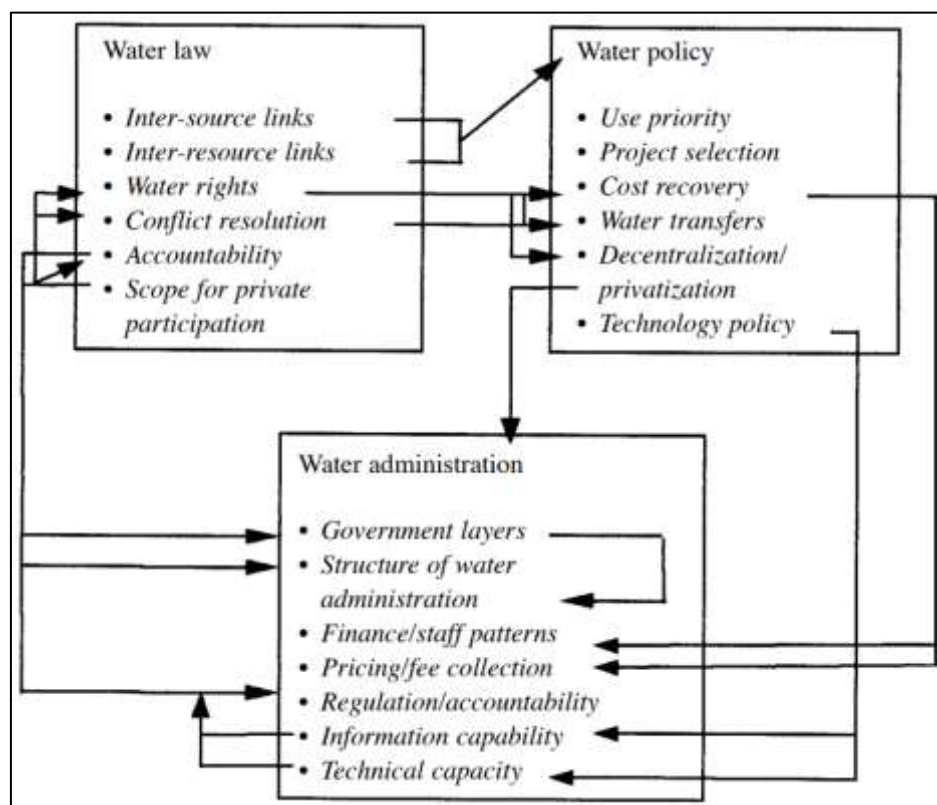
### **3. Conceptual Framework**

#### *3.1. Water Institution and Water Sector Performance*

Irrigation development and management is situated within the broader context of water sector and water institutions. It exists within a legal framework and is subject to policy and

administrative arrangements. Saleth and Dinar (2004) conceptualize water institution as defined by water law, water policy and water administration (Figure 1). The framework presents components that may shape or influence irrigation water governance institutional environment, and consequently its management and performance. From possible intra- and inter-institutional linkages, well defined water rights can facilitate water transfers and pricing, cost recovery and which in turn may facilitate private sector participation. In turn, private sector participation/decentralization can help improve water administration.

Applying this framework to irrigation water governance, variables that may be looked into based on unbundled components of water laws, water policies and water administration are perceptions by water managers on the legal basis in water governance, water rights and conflict resolution, trans-boundary water transfers, water pricing, functional capacities of water organizations, and inadequacies in existing water organizations. Furthermore, effectiveness of water law, water policy, and water administration for this study will be described in terms of irrigation water sector performance. This can be measured by the total irrigated areas; yield per hectare; cropping intensity, percent collection of irrigation fees and the viability of the sector in general. Impacts of exogenous factors such as socio-economic, political and resource-related factors will be described qualitatively.

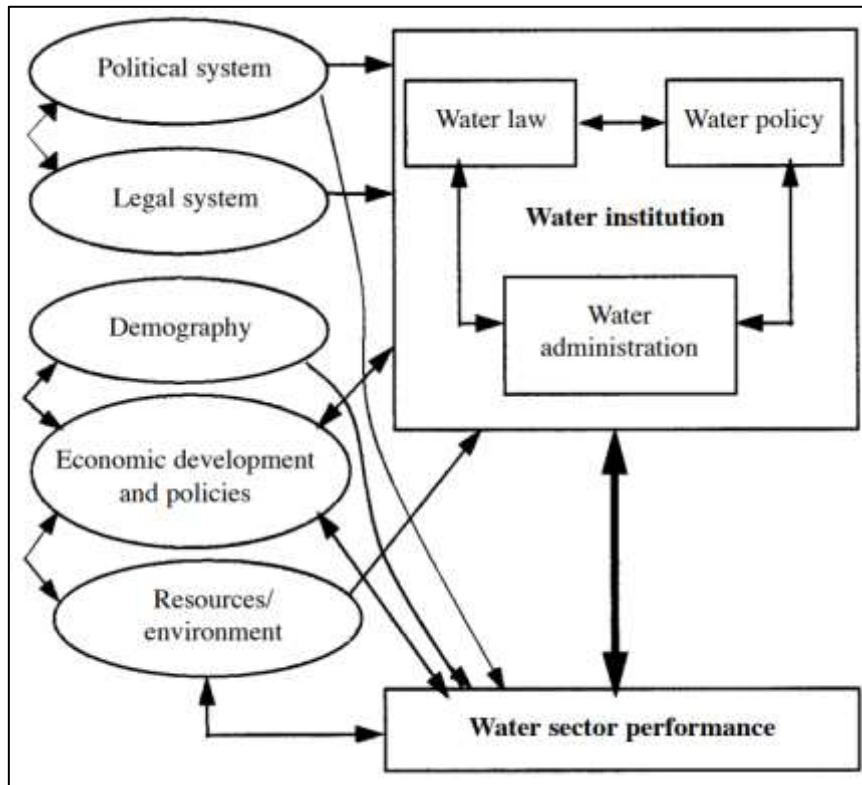


**Figure 1. Institutional linkages within a water institution.**

Source: Saleth and Dinar 2004

Extending the water institution framework, Saleth and Dinar (2004) present the linkage to water sector performance and the exogenous factors that may affect both in various processes (Figure 2). Using the decomposition approach, water sector performance can be evaluated in terms of physical performance, financial performance, economic efficiency, and equity performance. Saleth and Dinar (2004) suggest the following variables to be considered:

demand-supply gap, physical health of water infrastructure, conflict resolution efficiency (low cost and less time, and smoothness of water transfers across sectors, regions and users for the physical aspect; investment gap (actual vs. required and financial gap (expenditure vs. cost recovery) for the financial aspect; pricing gap (water prices vs. supply cost) and incentive gap (actual water prices vs. scarcity value of water) for economic efficiency; and equity between regions, equity between sectors and equity between groups for equity performance.



**Figure 2. Exogenous factors on institution-performance interaction.**

Source: Saleth and Dinar 2004

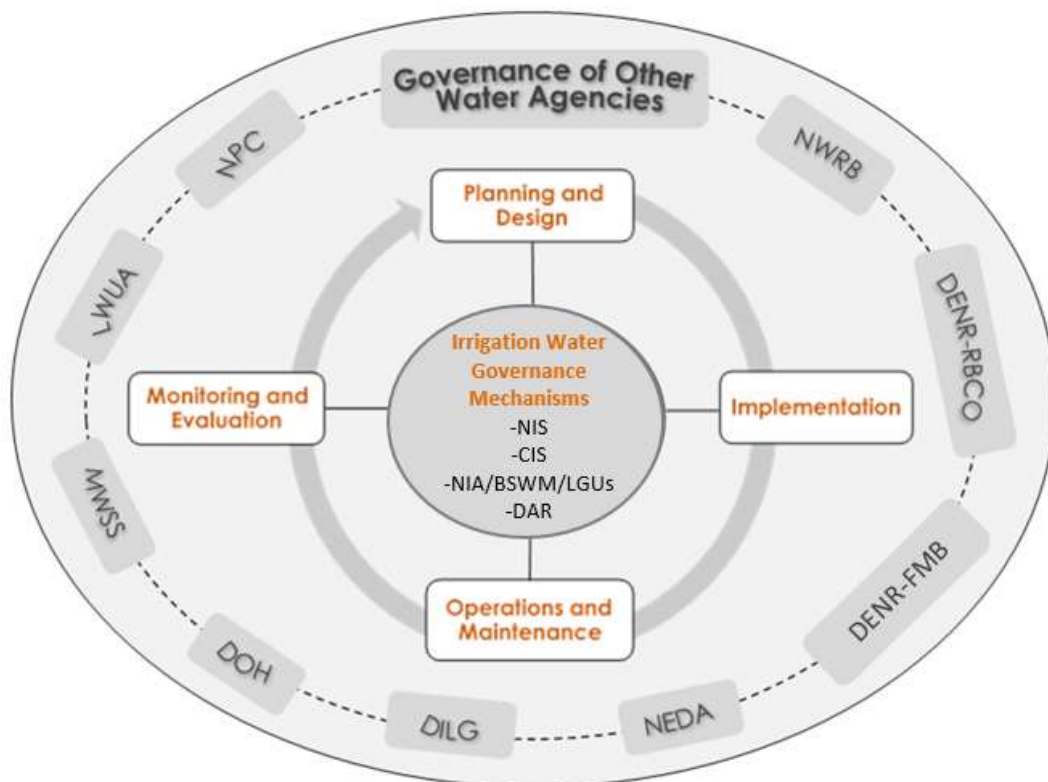
The *physical performance* for irrigation water governance will be gathered from the physical/technical evaluation of the NIS and CIS systems. The physical aspect, which may require water balance data, will rely on readily available secondary data. For the data needs on demand (or water requirement) and supply (or availability) gaps, physical health of the water infrastructure, conflict-resolution efficiency (low cost and less time), and smoothness of water transfers across sectors and users, the last two can be gathered from institutional/governance surveys.

Data on *financial performance* based on investment gap (actual vs. required) and financial gap (expenditure vs cost recovery) will be gathered from secondary data from NIA.

*Economic efficiency* evaluated in terms of pricing gap (water price/ISF vs. supply/investment cost) will come from secondary data from NIA while the only qualitative discussion on incentive gap (actual water prices vs. scarcity value of water) can be offered-as there are no known estimates of scarcity value for water which will have to be site specific to make some sense.

The last component on equity dimension can be measured between sectors (e.g. for Angat water used by 3 sectors), within systems across locations of groups (i.e. upstream vs. midstream vs downstream). This will not be presented in this study.

For this Cycle 2 project, the governance component will also describe and analyze the governance mechanisms of the entire irrigation project cycle from planning to monitoring and evaluation (Figure 3). It will draw on the findings from the other studies within this project, while focusing on governance, particularly higher-level issues cutting across national and communal systems and also across the other water sector agencies. Figure 3 illustrates the water administration component of the water governance framework illustrated in Figure 1, and which is embedded in the factors affecting irrigation performance in Figure 2. The three figures (Figures 1, 2 and 3) altogether reveal that water administration as component of water institution is critical in the irrigation water performance (as further discussed in the NIS and CIS reports).



**Figure 3. Conceptual framework of the Cycle 2 study: Governance mechanisms of the irrigation project cycle.**

### 3.2. Institutional Arrangements for Irrigation Governance

To govern irrigation water, three functions are needed: water use management, watershed management and water quality management. Even with these three, there are at least 13 national agencies that play a part (Table 1).

These agencies can be grouped into irrigation implementing agencies, other agriculture and natural resources agencies with mandates on water, oversight agencies, and other agencies competing in the use of water. Aside from implementing irrigation projects, NIA is also mandated with both water use management and watershed management. However, because of the rationalization plan, there is no personnel at the NIA now that is concerned with watershed protection and management. The DA BSWM is charged with the promotion of the Small Scale Irrigation Projects that refers to the Small Water Impounding Project (SWIP), Small Diversion Dam (SDD), Shallow Tube Well (STW) and Small Farm Reservoir (SFR) for organized farmer association. It provides supplemental irrigation; incidental function such as flood control structure and other economic uses like for fishery and livestock production. Small Water Impounding System Association (SWISA) was established because of these programs. (Source: <http://www.bswm.da.gov.ph/successstory/002/small-scale-irrigation-systems>).

Other agriculture and natural resource agencies are involved or ideally should be involved in irrigation. In the past, NIA was the only institution that governs irrigation water. With the devolution, the local governments (LGUs) were also given the mandate to construct communal irrigation systems and to build inter- barangay irrigation infrastructure.

DAR works very closely with the LGUs in the operation of the irrigation system. Seemingly, there is no clear institutional link between the NIA and the DENR with respect to watershed management which is a noncompliance to the Agricultural and Fisheries Modernization Act (AFMA) provision (Rola 2015). NIA gets water permits from the NWRB, in the same way that the Water Districts that are supervised by the Local Water Utilities Administration (LWUA) do.

Responsibilities of other national agencies are shown in Table 1. Water related operations of these agencies will affect the project cycle management of the irrigation systems. For instance, delays in the decision of the NEDA and delays in the releases of funds of the DBM surely affect the performance of the NIA, in general.

**Table 1. Irrigation related responsibilities of various national agencies.**

<b>Agency</b>	<b>Responsibilities</b>
<b>Irrigation implementing offices</b>	
NIA	Responsible for irrigation development in the Philippines
DA BSWM	Builds Small Scale Irrigation Projects (SSIP).
<b>Agriculture and natural resources agencies involved in irrigation</b>	
DAR	Invests in irrigation systems in Agrarian Reform Communities (ARC)
NWRB	Issues water permits for all irrigation systems. For NIS systems, the arrangement is government to government; so no fees are involved. For the CIS and other private systems, the IAs, LGU or the NIA apply for the permit.
DENR- FMB	Forest management; NIA has now a joint MOA with FMB for watershed level activities, which needed to be finalized.
DENR-RBCO	Monitoring of the River basin management plans
NPC	Member of the NIA board. Co-management with the NIA on the watersheds where Pantabangan and Magat dams are located. Co-

	manages water releases. Watersheds supporting these dams are responsibility of the NPC.
DILG	DILG supervises and does capacity building for small impounding systems. DILG ensures that LGUs connect with the PDP; and that the CLUP-PDP central plans are linked.
<b>Oversight Agencies</b>	
NEDA	Investment Coordination Committee (ICC) of the NEDA Board approves big ticket irrigation projects (PhP 2.5 Billion and above) NEDA Regional Development Council (RDC) reviews and endorses the small projects (less than 200 million pesos) to the NIA Central Office.
GCG	It coordinates and monitors GOCC operations. It meets every three months to assess performance of GOCCs where this report is submitted to the President. NIA is GOCC.
DBM	Oversight of the budget together with the DOF, Landbank and the NEDA
DPWH	Gathers data for water gauging station for major rivers that NIA can use in their decisions to irrigate.
<b>Agencies competing in the use of water</b>	
LWUA	Connects with NIA for some domestic water supply needs when the water source permit is owned by the NIA.
MWSS	Coordinates with NIA during water crisis, when irrigation water supply is secondary only to domestic water supply. MWSS provides for domestic water supply in Metro Manila; during water crisis, domestic water is priority; but farmers should be compensated, according to the Water Code.

Source: Primary data from key informants.

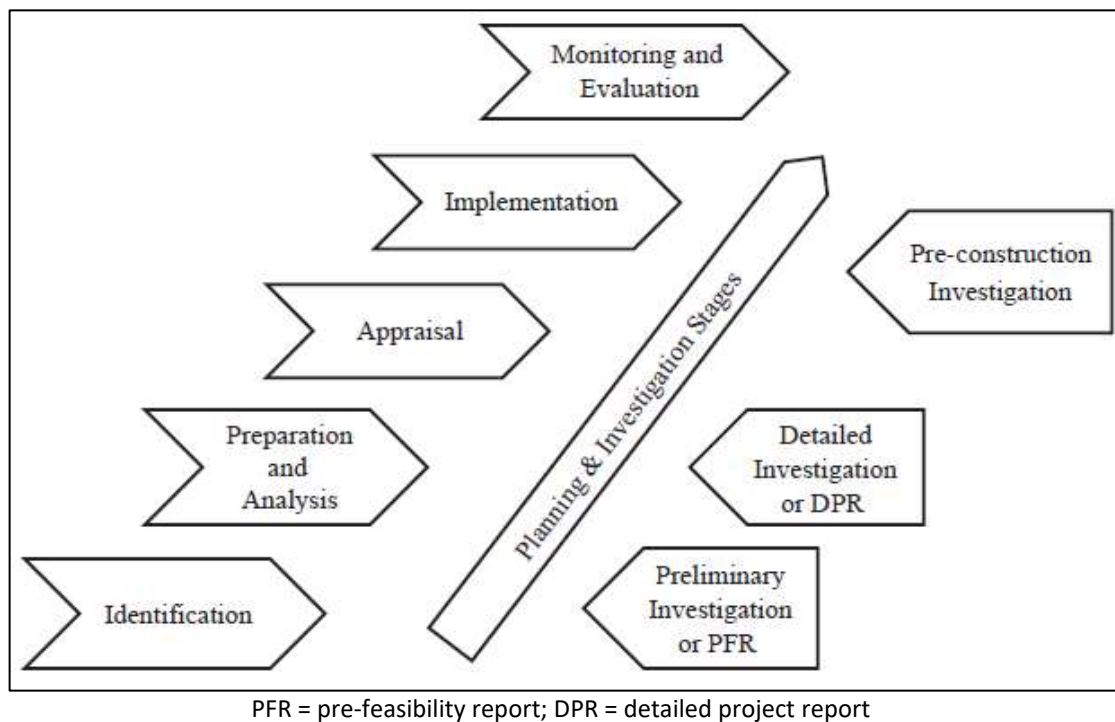
### 3.3. Irrigation Development Project Management Cycle

There are two main elements in managing irrigation projects: overall management function and management of specialized activities that are specific for irrigation development such as water distribution and irrigation maintenance. Such activities require certain kinds of management styles, resources and technical capacity to be performed (FAO, n.d.).

Important tasks in irrigation project management include 1) setting objectives and priorities (short-term, medium-term, long-term); 2) directing the annual planning and budgeting processes; 3) directing the formulation of detailed work programs for staff members within each of the project's units; 4) monitoring and training staff and farmers to implement the program; 5) supervising the day-to-day implementation of the program, identifying problems that arise and finding solutions for them; 6) monitoring project performance against objectives; 7) monitoring staff performance against agreed work targets; 8) seeking the opinion of the project's clients (the farmers) about the quality of the services provided to them; and 9) identifying strengths and weaknesses and recommending appropriate remedies for the weaknesses (FAO, n.d.). These functions are divided across management levels of NIA (i.e. CO, RIO and IMO) and in various offices at each level (e.g. CO-Engineering Department, CO-

System Management Division under the Operations Department). Furthermore, these tasks are organized and performed in various stages of the project cycle.

FAO of the United Nations (2001) determined 1) identification/preparation, 2) design, 3) implementation, 4) monitoring and evaluation as the four project phases in irrigation development. Almost similar to the FAO, Rai, Singh & Updadyay (2017) describe irrigation planning to be composed of the following stages: 1) identification, 2) preparation and analysis, 3) appraisal, 4) implementation, and 5) monitoring and evaluation (Figure 4).



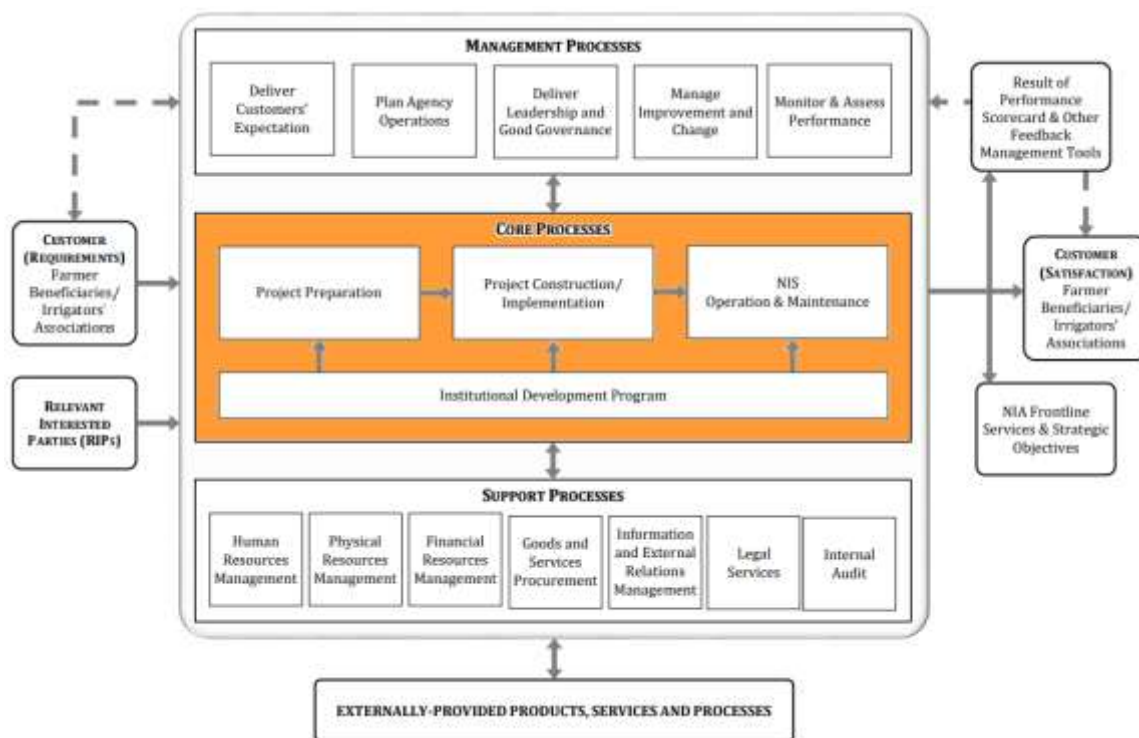
**Figure 4. Planning and investigation stages for an irrigation project.**

Source: Rai et al., 2017

An overview of the irrigation project cycle involves firstly the identification of potential projects as commonly recommended by technical specialists or farmers/irrigators' associations or local politicians. Preliminary assessments on irrigation potential before detailed planning of the project are undertaken. Once accepted, the technical aspects such as structure design and water management are investigated through feasibility studies. Some projects bundle appraisal of feasibility with the design stage while others treat this as an independent phase, but in either case a critical review is undertaken before large investments are poured into a project. Implementation of approved projects entails procurement and construction of facilities. Ideally this has high coordination and participation of farmers and when applicable, with other stakeholders. Although not explicitly identified in many basic project cycles, irrigation development includes system management, operations and maintenance following the formation of irrigation facilities. It is the phase where farmers utilize the developed irrigation systems and in cases usually for CIS, irrigation management transfer (IMT) takes place with Irrigators' Associations at the forefront. Lastly, monitoring and evaluation of the projects reveal areas for improvement that may be specific for the project or applicable to managing irrigation projects in general. Crucial to this stage is the sufficiency and quality of data collected for a comprehensive review of the project cycle processes (Rai et al., 2017; FAO, 2004; Inocencio, David & Briones, 2013.).



NIA’s Service Process Model (Figure 5) shows irrigation project management as the core process of the institution as broadly subdivided in three major processes: project preparation, project construction/implementation and NIS operation and maintenance. All core processes are supplemented by NIA’s Institutional Development Program (IDP) geared towards organizing IAs and building their capacity to partially or fully manage irrigation systems under the Irrigation Management Transfer (IMT) Program for NIS or System Turnover Program for CIS. The systematic processes cover the central, regional and irrigation management offices of NIA.



**Figure 5. NIA’s Service Process Model.**

Source: NIA Quality Management System Manual as of March 2018

The activities and corresponding responsible units per core process are summarized in Table 2.

**Table 2. Irrigation project management activities of NIA and responsible units**

Activity	Responsible Units
<b>I. PROJECT PREPARATION</b>	
A. Project Planning <ul style="list-style-type: none"> <li>• Project identification</li> <li>• Project Investigation/Validation</li> <li>• Project Design Studies</li> <li>• Plan Formulation</li> <li>• Feasibility Report</li> <li>• Project Authorization</li> </ul>	CO-Engineering Department RIO-Engineering & Operations Division IMO-Engineering Section
B. Project Detailed Engineering Design <ul style="list-style-type: none"> <li>• Preparation of conceptual designs</li> <li>• Determination of project feasibility</li> </ul>	



Considering: - Surveys and mapping - Hydrology - Geology - Agronomy - Irrigation - Drainage - Economic - Watershed Management and Environmental Study	
C. Project Procurement • Program of Works (POW) • Project Procurement Management Plan (PPMP) • Annual Procurement Plan (APP)	
<b>II. PROJECT CONSTRUCTION</b>	
• Construction Planning and Scheduling • Contract Administration • Project Evaluation and Monitoring (Construction Management Division follows the IRR of RA 9184, Commission on Audit (COA) and Office policies and Foreign Financing Procurement guidelines)	CO-Engineering Department  RIO-Engineering & Operations Division  IMO-Engineering Section
<b>III. NIS OPERATIONS &amp; MAINTENANCE</b>	
• Water Delivery • Irrigation Service Fees Collection • Repair and Improvement - Irrigation Facilities - Drainage Facilities - O&M Equipment	CO-System Management Division under the Operations Department CO-Irrigation Engineering Center (IEC) under the Operations Department CO-Equipment Management Division (EMD) under the Operations Department RIO-Engineering & Operations Division IMO-Operation & Maintenance Section
<b>IV. INSTITUTIONAL DEVELOPMENT PROGRAM</b>	
• Organization of IAs • Capacity building of IAs	Institutional Development Division (IDD) under the Operations Department but with supervision from the Engineering office on oversight functions on irrigation projects.

Adopted from: NIA Quality Management System Manual (ISO 9001:2015) issued 2018

In a more detailed workplan, NIA presents its activities per phase for NIS and CIS (Table 3). It can be observed that CIS projects involve more activities and actors particularly on the pre-construction and construction phases as farmers are involved with the project.

**Table 3. Irrigation project management activities of NIA in NIS and CIS.**

NIS	Duration (NIS)	CIS	Duration (CIS)
<b>PHASE 1 - IDENTIFICATION, INVESTIGATION AND SELECTION PHASE</b>			
<b>Project Identification</b> Selection and Evaluation	1 month	<b>Project Identification</b> Selection and Evaluation	6 weeks
<b>Pre-Engineering Study</b> -Gathering of climatic data -Topographic survey -Date gathering for project profile		<b>Pre-Engineering Study</b> -Gathering of climatic data -Topographic survey -Date gathering for project profile	
<b>Feasibility Study and Detailed Engineering Design</b> -Planning and design -Surveys and mapping -Hydrology -Geology -Agronomy -Irrigation -Drainage -Economic -Watershed management and environmental study	6-8 months	<b>Feasibility Study</b> -Hydrology -Geology -Agriculture and land resources -Economic and financial analysis -Environmental impact assessment	
		<b>Detailed Engineering Design</b> -Contract document and technical specifications -Derivation of unit cost estimates -Design plans and computations -Survey mapping	
<b>PHASE 2 - PRE-CONSTRUCTION PHASE</b>			
<b>Pre-construction Works</b> -Row requisition and acquisition -Pre-construction survey -Construction of project facilities and access road to damsite		<b>Pre-construction Activities</b> -Right-of-way -Survey works -Dam and project facilities investigation -Detailed design -Present project development -Prepare plans and estimates -Undertake det. Survey -Undertake paddy mapping parcellary survey -Formation of working committee -Mobilize farmers -Conduct planning and formal reflection sessions -Disseminate and ratify by-laws (By-Laws Committee) -Conduct regional and provincial orientation -Integrate with community IA -Preparation of necessary papers and registration of IA with SEC (IA Registration Committee) -Prepare and submit water application (Water Permit Committee) -Prepare POW -Present POW to IA -Submit POW for approval	

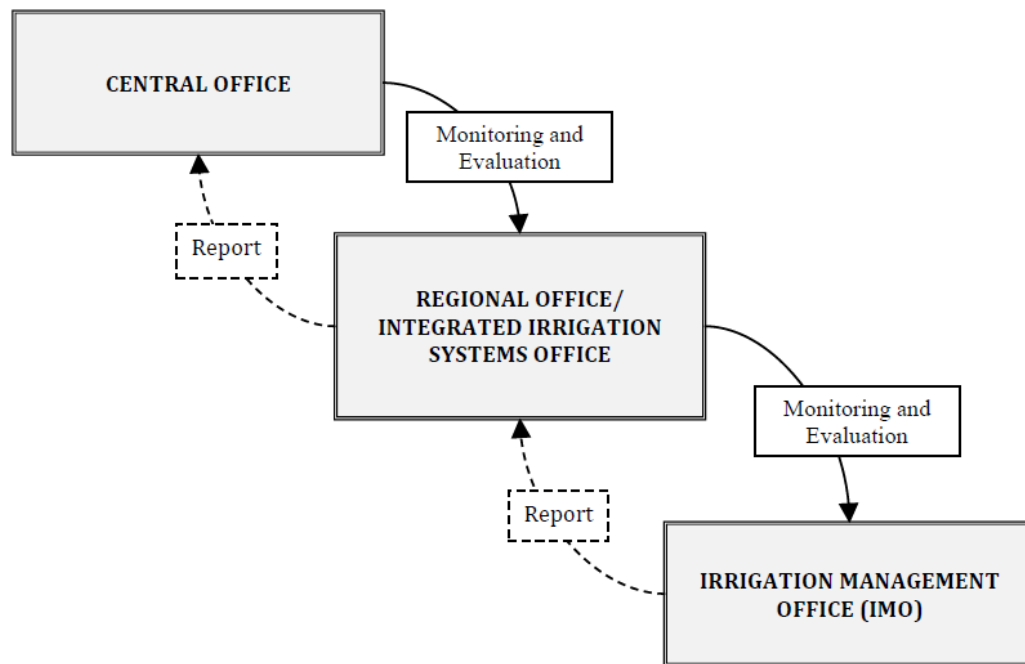
		-Completion of legal requirements -Right of way negotiation (Row Committee) -Mobilize construction working committee	
<b>Detailed Engineering Design</b>		<b>Dissemination and signing of MOA</b> -Conduct construction reconciliation workshop	
<b>Environmental Compliance Certificate</b>		<b>Prepare and submit certification for project construction</b> -Evaluate IA viability	
<b>Geologic Exploration</b>			
<b>Procurement</b>			
<b>PHASE 3 - CONSTRUCTION PHASE</b>			
<b>Construction of Diversion Works</b>		<b>Procurement and Delivery of Construction Materials</b> -QQCC inspect -Received and record delivered materials	
<b>Construction of Irrigation Facilities</b> -Canalization -Canal structures -Drainage canal -Drainage structures -Service road -On-farm activities		<b>Moving in of Manpower and Equipment</b> -IA checks condition of equipment -Construct <i>bodega</i> and bunk house -IA provides manpower and locally available materials	
<b>Construction of Project Facilities</b> -IA office -Gate keepers quarter		<b>Construction of other Major Structures</b> -Construction of diversion works -Construction of canal structures	
		<b>Prepare FFCC</b> -Turnover of system -Review physical and financial reconciliation -Approves repayment scheme	
<b>PHASE 4 - OPERATIONS AND MAINTENANCE PHASE</b>			
Trainings are provided once the IAs are organized and when trainings are needed by the IA		<b>Assessment, Evaluation and Planning of Operations and Maintenance Activities</b> -Formulation/Implementation/Updating the calendar of farming activities	
		<b>Water Distribution and System Maintenance</b>	
		<b>Continuous Education and Training from Management</b>	
		<b>Issue Water Service Invoice</b> -Water Service Bill	

Summarized from: NIA Quality Management System Manual (ISO 9001:2015) issued 2018

Monitoring after the O and M refers to the monitoring of performance of the irrigation system.

### 3.4. NIA Irrigation Project Management Structure

The NIA Irrigation Project Management and Structure consists of three distinct offices: The Central Office, the Regional Office (RIO)/Integrated Irrigation Systems Office (for two big irrigation systems Pantabangan and Magat) and the Irrigation Management Office (Figure 6). Their functions are also shown below.



**Figure 6. NIA Management Structure/Flow of Activities between NIA Offices.**

Source: NIA Quality Management System Manual as of March 2017

Figure 6 reveals that NIA Central office performance is very much dependent on the reporting activity of the RIO and the IMO.

## 4. Relevant Literature

Many issues of irrigation development in the Philippines are purportedly traced back to project management stages. Among these are below target irrigated area due to overestimation of irrigable areas during project identification (Tabios and David, 2014; Inocencio et al., n.d.); inadequate water supply and low irrigation efficiency caused by inappropriate system designs and insufficient water resources database (Moya, 2014; Luyun, 2015); and inequitable water distribution to farmers in the absence of a water management scheme (Luyun, 2015). It is in light of these problems rooting from project management issues that processes at each phase merit careful examination.

Project implementation is characterized by delays. Projects are behind schedule, with negative slippages, and late starts causing the clogging of irrigation project for implementation. Problem causing delays in delivering irrigation projects is generally internal. Review of projects showed

that as of June 2013, NIA has achieved a mere 17% of its target, thus, resulting to backlogs, overlapping, and carry-over projects. The bulk of procurement activities for irrigation projects are lodged in the Central Office. The recent implementation of NIA-Rationalization Plan considerably reduced manpower. Hence, with limited manpower performing irrigation design, review, and procurement, it is expected that some projects have been halted. (National Irrigation Administration, 2013)

In addition, the Centre for Environment and Development for the Arab Region and Europe (2006) enumerates some of the most common causes of water conflicts, namely shortage of supply, high demands, low water use efficiencies, unplanned change in water management schemes, and inadequate institutional and legislative frameworks, among others. In attempting to address such conflicts, economic, political and ecological factors need to be taken into account for realistic resolutions (Hipel et al. 2015). In the wide and varying contexts that these conflicts arise, numerous conflict resolution mechanisms have also emerged. Some apply social participatory approaches while others make use of models and in some cases a combination of both. Most common methods are through litigation, negotiation, facilitation, mediation, arbitration and consensus building (Cap-Net UNDP 2008). Other more complex methods that have emerged are peacebuilding combined with Integrated Water Resources Management (Hileman, Hicks and Jones 2013); “shared vision modeling framework” that uses a multi-criterion decision-making (MCDM) approach for resource allocation tradeoffs (Ryu et al. 2009); system dynamics simulation model based on a causal loop diagram developed to ensure model understanding (Nandalal and Simonovic 2003); and Multi-Year Water Allocation System (MYWAS) that reduces disputes in monetary terms after accounting for the special values and social benefits of water. These mechanisms are applied in different contexts and with varying capacity, and in light of performance are evaluated in terms of how much it can be efficient.

With differential availability of water across time and space, it is inevitable that some areas are oversupplied while others experience shortage. This mismatch in water demand and supply sometimes turn to water transfer as a means to redistribute the resource. Water transfer involves flow from one catchment to another through elaborate systems of river diversion, pipelines, sea tanker (World Wildlife Fund n.d.). While a range of benefits such as flexibility and incentivized conservation are perceived in such transactions, it is also beset with issues like environmental damage and adverse impacts on other users (Western Governors’ Association and Western States Water Council 2012). The process and ease with which water transfer will be undertaken will depend significantly on the parties involved and their corresponding negotiations and agreements. But other aspects of water transfer that include size (water volume), cost, timing, distance, duration, means of conveyance, water quality, and local economies will also determine how smooth the transfer will be.

## **5. Methodology**

### *5.1. Scope of the study*

The project was done in two cycles. Cycle 1 conducted in 2015 covered the seven regions of Luzon. Respondents were National Irrigation Administration (NIA) officers from the 7 Regional Irrigation Offices (RIO) and 14 Irrigation Management Offices (IMO), in the following provinces: 1) Laguna; 2) Ilocos Norte; 3) Cagayan; 4) Isabela; 5) Nueva Vizcaya; 6)

Benguet; 7) Pangasinan; 8) Nueva Ecija; 9) Pampanga; 10) Camarines Sur; and 11) Occidental Mindoro. In addition to studying the responsibilities of the irrigation water related national agencies, the whole Cycle 2 project covers NIS and CIS in eight (8) IMOs and 6 RIOs in the Visayas and Mindanao regions. The 8 selected Irrigation Management Offices (IMOs) for this study are in the following provinces: Capiz, Iloilo, Bohol, Leyte, Bukidnon, Davao del Sur, North Cotabato and South Cotabato (Table 4). Correspondingly, the 6 Regional Irrigation Offices (RIOs) are Regions 6,7,8,10,11 and 12.

**Table 4. Study sites of the project, Cycle 2.**

Region	Province
6	Capiz
6	Iloilo
7	Bohol
8	Leyte
10	Bukidnon
11	Davao Del Sur
12	North Cotabato
12	South Cotabato

IMO's mandate is to construct and rehabilitate irrigation systems in a cluster of provinces. O and M plans are also implemented by them together with farmer-beneficiaries. (<http://www.nia.gov.ph>). On the other hand, RIOs prepare regional irrigation development, implement irrigation projects, manages O & M of NIS and IA development and assistance and renders technical assistance to LGUs on CIP/CIS Development.

### 5.2. Data Collection for Phase 2

Primary data collection was done through KIIs in the national government agencies that have irrigation functions including the DA-BSWM, DILG, DAR, NWRB, NPC, DENR-RBCO. Offices visited last July 13, 2018 were DENR-RBCO, NPC, DA-BSWM. DILG Central Office and DAR Central Office were visited last July 19, 2018. The NWRB was visited last September 6, 2018. Regional Irrigation Office (RIO) Region 6 was likewise visited last August 28, 2018.

The RIO and IMO officials were also interviewed with respect to the institutional arrangements and project cycle management. The RIO interviewed were from Region 6, 11, 12, and 8. The IMOs from all provinces that were the scope of the study were also interviewed. Copies of the interview schedules of the RIO and the IMO are in Annexes 1 and 2, respectively.

Governance questions were also integrated in the questionnaires for the NIS and CIS FGDs in the various provincial study sites. For CIS, there was a total of 24 FGDs. For the NIS, a total of 88 respondents answered the questionnaires. CIS and NIS governance questionnaires are in Annexes 3 and 4, respectively.

Focus Group Discussion was conducted last September 6, 2018 at the NIA Central Office where participants included NIA officials from the Operations, Engineering, institutional development and corporate planning. Another FGD was also conducted in NEDA Region 6

last August 29, 2018 where a multidisciplinary team was also convened for such exercise. Interview schedules are found in Annex 5.

Directory of respondents for Cycle 2 is found in Annex 6.

This report also integrates the results of Cycles 1 and 2 consolidating the Luzon with the Visayas and Mindanao data and findings for the irrigation water variables of the RIO, IMO, NIS and CIS. Data and data analysis on project management cycle are only for the Visayas and Mindanao, since this objective was not part of the Cycle 1 governance study.

### *5.3. Data Analysis*

This report used mostly qualitative techniques in data analysis. Institutional landscape analysis is used to identify the various actors in irrigation water governance and their roles and responsibilities especially in the implementation of irrigation projects and including the whole project cycle. The planned case study of one NIS and two CIS (farmer led and LGU led, if any) illustrating the irrigation project cycle, was not done due to time limitations. However, a brief case study of the Jalaur River Multipurpose Project (JRMP), an NIS, is reported here. A qualitative ex ante assessment of the possible impacts of the free irrigation policy on the O and M of the irrigation systems is discussed. The descriptive analysis of RIO and IMO level governance mechanisms is also discussed integrating both the Cycle 1 and 2 results. In addition, the descriptive data analysis of the NIS and CIS level IA governance also includes both the Cycle 1 and 2 data sets.

## **6. Results and Discussion**

### *6.1. Macro Level Institutional Analysis*

#### 6.1.1. Irrigation Implementing Agencies

##### 6.1.1.1 The National Irrigation Administration

NIA constructs, rehabilitates, restores and maintains irrigation systems for the whole country to satisfy its mandate to provide reliable irrigation service especially for rice farmers (NIA webpage). NIA implements the big irrigation programs, the national irrigation systems and also supervises the CIS. Currently, NIA implements the free irrigation policy. In this free irrigation policy, rice farms with farm sizes higher or equal to 8 hectares need to pay for the water. Corn and vegetable farmers also pay.

The 2019 budget is Php5 billion, so it may be sufficient to increase the per hectare O and M. In 2018, the budget was 2 billion pesos which was not enough for the O and M. There has been increased O and M responsibility of IAs during the RAT process. There is a perception of higher level of O and M responsibilities with the free irrigation policy. Technical personnel were also deemed not adequate during this era of free irrigation policy, according to NIA.

NIA is not anymore concerned with viability. It also feels that it does not seem to function as a government corporation after the free irrigation policy. There are no incentive mechanisms for them to raise their own funds; there are no more NIDFs and CIDFs as well as the Viability Incentive Grants. According to NIA staff interviewed, success of the RATPlan is 2 (in a scale of 0 to 4) and for IMT, 4 (in a scale of 0-5).

Project Development Office decides on whether to do new construction or to do rehab. There are criteria for doing so. But right now, the budget is allocated for more construction (70%) than rehab. Location of the rehab sites depends on the proposal of the IAs; then NIA will evaluate and suggest if this is feasible. GAA are the sources of funds for the rehab.

NIA Central Office (NIA-CO) monitors for service area/FUSA. It plans for new irrigation/rehab/restoration update during Jan/Feb with inputs from the IMO and the RIO. Non-operational areas are for restoration. Only 62% of the irrigable areas in the Irrigation Development Plan are irrigated, so NIA plans on irrigating the rest of the areas. Rehabilitated areas are not considered new areas; only the areas for restoration can be considered such. There are data available that can be a guide in estimating irrigable areas, i.e. from the NAMRIA and the Project NOAH of the UP. However, these data are in different places and not easily accessible for use by the NIA.

### NIA incentive mechanisms with the free irrigation policy

Currently, there seems to be no incentive for NIA to provide for better service. Free irrigation has no effect on infrastructure development or O and M and has even granted heavier responsibilities as farmers are now more demanding.

President Duterte made a campaign promise, thus, the politicians triggered the policy change at the NIA. There were no consultations done at the NIA or elsewhere, just information.

On the other hand, IA members now voluntarily contribute for O and M because the NIA budget is not enough. According to the NIA, the IA has the legal personality to collect from its members.

On the current budget of the NIA for the O and M of IAs, this was derived by first subtracting from the total budget of NIA (2B in 2018), all the overhead costs, personnel cost and cost for the canal maintenance, then dividing the remaining amount by the total irrigated area to come up with the per hectare amount. At this time, the farmers are demanding a higher per hectare amount. NIA also agrees that per hectare O and M budget is very low. Currently, the per hectare budget is 150 pesos, in the past, farmers spent about 650 pesos which was what they were getting with the ISF.

### NIA Linkages

NIA works with several agencies to address its mandate, according to the NIA interviewees (Table 5). NIA glaringly did not list the BSWM as one of its institutional links, but stated that it does significant work with the DAR. As will be seen below, NIA and BSWM are the agencies directly implementing irrigation projects.

**Table 5. Nature of coordination of NIA and its institutional linkages**

<b>NIA's links with</b>	<b>Nature of collaboration</b>
DAR	NIA implements the big irrigation projects of DAR
DPWH	Gathers data for water gauging station for major rivers that NIA can use in its decision to irrigate
DA	Provides post-harvest facilities of IAs, also on the decision to import rice
NPC	Member of the board
LWUA and the MWSS	LWUA goes to the NIA if it needs domestic water supply, NIA has the water right for most water bodies; MWSS supplies domestic water in



	Metro Manila and in times of water scarcity, negotiates with NIA to prioritize the domestic water needs as per the Water Code
Private sector	IAs, PPP, but for this partnership, private sector wants profits.

#### 6.1.1.2 Department of Agriculture-Bureau of Soils and Water Management (DA-BSWM)

BSWM is concerned with Small Scale Irrigation Systems (SSIS), while NIA is concerned with the big systems. Source of irrigation budget of the BSWM is the Regional Field Office of the DA. BSWM does not invest/cover areas that are already part of NIA’s Service Area (SA). But NIA, on the other hand, as reported, sometimes re-cover (“*kinakain*”) some areas already serviced by BSWM. Some farmers with outstanding debt to NIA join the Small Water Irrigation System Association (SWISA).

BSWM establishes the SWISA which is akin to the IAs of the NIA. For SWISA, construction of the SSIS is fully subsidized by the DA and some donors solicited by the DA. In some locations, where the area of the SWISA is within the area of the NIA CIS, the CIS IA members will also not pay the amortization; or they even go out of the IA and join the SWISA. This condition confuses the farmers, according to the respondents.

#### BSWM institutional linkages on irrigation matters

BSWM works with several other agencies in addressing its irrigation mandate (please refer to Table 6). BSWM respondents felt that a close collaboration with NIA has some advantages. There can be avoidance of double counting of beneficiaries as well as service areas. The same observation was also mentioned by the DAR respondent and the DILG respondent as discussed below.

Sources of possible double counting maybe in the current SWISA, where the NIA will extend canals. Consequently, the SWISA will be counted as the IA of the NIA. The service area in the extended canals will potentially be reported by both the BSWM and the NIA. So reporting seems to be the problem; as it is not clear whether NIA is reporting all the areas or just the incremental area.

Some other reporting problems occur across agencies. For example, there were already plans and selection of constructor and bidding was completed for one project. The project is to be awarded, but it was found out that there is already an existing project in the proposed area. Since the project has been awarded and so as not to renege with the contractors, it has to be constructed in another similar site.

BSWM respondents also agree that it would be more efficient if there is a comprehensive irrigation plan/program that can be agreed upon by all stakeholders with the NIA as lead. Ideally, it was suggested that BSWM may use the RBCO master plan. Respondents said that they had a chance to review the plan, but they have not used such for their own planning purposes. BSWM has its own Master Plan for irrigation; RBCO has its own Master Plan for river basin management including the potential sites of irrigation development; NIA is developing another Master Plan.

Just like the CIS IAs, the SWISA also applies for water permits from the NWRB. NWRB also settles conflicts, such as on a diversion experienced by BSWM with NIA in a Bicol project.

BSWM was the first to implement the project but NIA obtained water permit earlier. This is a weakness in policy; because there is a time duration from the instance you acquire a permit and the actual use of the water. Seemingly, NIA has applied for water permit a long time ago and has not yet established the irrigation system.

There was also some technical advice from the NWRB with regards the location of the shallow tubewells (STW). STWs should be at least 75 m away, but sometimes farmer lot distance is just 10 m. NWRB does not have the personnel to monitor; and the BSWM does not do the monitoring.

BSWM respondents also mentioned that DA does not want to compete with the NIA in the irrigation sector. There can be some ways to converge. For instance, BSWM has a master plan for the SSIP where the regions have identified the sites. LGUs need to overlay with their masterplan and consult with the farmers. The DILG likewise believes that the RBCO river basin master plan can connect the dots for this sector.

Right now, service areas of 200 hectares and above are served by the NIA and the smaller ones by the DA BSWM. But in the field now, it seems the new 200 hectares and above is hard to find, according to the respondents. NIA may have difficulties in identifying contiguous areas. And BSWM is also concerned with developing these contiguous areas but individually. Thus, where will NIA get its future new areas?

**Table 6. Linkages of the BSWM regarding irrigation matters.**

<b>BSWM links with:</b>	<b>Nature of collaboration</b>
Sugar Regulatory Agency	BSWM renders technical assistance, especially on pump irrigation
NIA	BSWM follows the NIA designs and other technical specifications although the BSWM has its own technical personnel.
NWRB	For permitting purposes; and settlement of water conflicts.
DAR	BSWM has a MOA with the DAR for the plan and program of work of the SWIP (Small Water Impounding project). The DAR funds the project and the BSWM implements the project. They have MOA for convergence in the ARCDP and the solar pumps as well. As in the SWIP, the DAR funds the project while the BSWM implements solar pump projects.
LGU	BSWM works with disadvantaged municipalities, through the Bottom Up Budgeting to implement small scale irrigation projects. There is a fixed amount of technical assistance from the DA and the BSWM assists in the plans and program of work.
Water districts	WD also generates domestic water supply from the hand pumps and the shallow tubewells, established by the BSWM
RBCO	BSWM reviewed the masterplan, but no follow up action on collaboration. Respondent was not aware the plan was already finalized as they have not received a copy yet.

DILG	Requests technical assistance from BSWM (POWs and plans preparation)
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## 6.1.2 Agriculture and Natural Resources Agencies Involved in Irrigation

### 6.1.2.1 Department of Agrarian Reform

Resource mobilization, packaging of irrigation proposals for Agrarian Reform Communities (ARCs), coordination, monitoring of progress and timely implementation are some of the mandates of the DAR under the CARP support services.

DAR initiates the joint projects. Irrigation projects are targeted only for DAR beneficiaries. DAR has provincial offices that identify the ARC beneficiary. It also organizes Farmer Associations, just like the IAs of the NIA and the SWISA of BSWM, for resource utilization.

Technical review is with the NIA; while IAs are also formed by NIA, for DAR. DAR engineer monitors the implementation of the construction. There is a CARP-IT (Implementation Team) which is an interagency team with the LGUs if there is an irrigation project. DAR monitors the implementation of the project, whether on time, transaction is updated, while procurement is done by the NIA. DAR does not give subsidies, but just constructs the system.

#### DAR's linkages in irrigation matters

DAR works closely with NIA in the irrigation projects (Table 7). DAR funds these through the CARP-IA budget, but NIA implements these projects. DAR has a NIA-CARP-IC Special project where salaries come from the CARP budget, but spent by NIA for the irrigation. The funds were from the CARP PCGG Asset Privatization Trust. Currently, the source of budget is the CARP program from the GAA. Before the GAA, other sources of budgets were loans and grants.

In terms of technical staff, there are also engineers employed at the DAR. They review/independently appraise the NIA designs and inform provincial officers that there will be irrigation projects. Detailed designs and program of work are done by the NIA for DAR. Technical review is by the NIA.

**Table 7. DAR's linkages with other water agencies.**

DAR links with:	Nature of collaboration
NIA	Technical assistance; IMO facilitates water permits for DAR projects
NWRB	During site validation, links with the NWRB for the uses of the water
LGU	LGU facilitates the application of permits. NIA also works for the permits. The CARP-IT (Implementation Team) which is an interagency team with the LGUs, monitors the implementation of the construction. LGU equity in DAR projects is the resolution of the right of way, but not as co-implementor. It is a clearing house, i.e. CLUP verification of covered areas. DAR looked up to the local government to solve water conflict

	problem. LGU has to be consulted re their CLUP especially in the area that the ARC is already present.
DENR- EMB	NIA applies for the Environmental Compliance Certificate in behalf of DAR. Projects 300 hectares and above need a full blown ECC; less than 300 hectares, need certificate of non-coverage.
DENR-RBCO	No link, but for beneficiaries of SWIP >18 degrees slope for spring development, DAR gives funds to the DENR.
DA-BSWM	MOA to implement climate resilient farm productivity through solar pumps; for 5 hectares HYVs and vegetables. Funded from GAA.
Water Districts	Limited; only if the source of water is a spring – to find out if the Water District plans to tap the source later on.
NGOs/CSOs	Facilitates the barangay consultations on water. DAR's link with the NGO-civil society is partly during the barangay level consultation for social acceptability. NGO usually works with the IPs (and the NCIP). For instance, in the Compostela Valley, there are payments for water rights given to the community in the form of a penalty for non-compliance with the customary laws on water.
NEDA	DAR is member of the NEDA's water sector infra Com
Private Sector-USAID B Leaders	for online water balance data, geomapping, water resource data, water supply information/requirements

DAR asks the help of the LGUs in settlement of right of way (ROW). But LGU equity is the resolution of the right of way, not as co-implementor. If the source of irrigation is a spring and if there is a plan for development, DAR collaborates with the LGU or whoever has the right to the source of water; by letting the LGU or the NIA ask for permit from these owners.

ARC Development Plan is consistent with the Barangay and the LGU plan validated through consultations at the barangay and municipal levels and this is the role of the LGU. NIA applies for the Environmental Compliance Certificate for DAR projects.

There is also observed conflicting water usage. DAR looked up to the local government to solve this problem. LGU has to be consulted re their CLUP especially in the area that the ARC is already using.

DAR's link with the NGO-civil society is a partly during the barangay level consultation for social acceptability. NGO usually works with the IPs (and the NCIP). For instance, in the Compostela Valley, there is payment for water rights given to the community in the form of a penalty for non-compliance with the customary laws on water. DAR pays every cropping as the NGO encourages the IPs to solicit this penalty. LGU was asked by the DAR to negotiate. In Laguna, NGO was also enticing the IAs (of the CIS) for payments of clearances for irrigation.

In summary, DAR is just a funder for the irrigation projects. All the other components are through partnership mostly with the local government and technically, with the NIA.

#### 6.1.2.2. National Water Resources Board (NWRB)

NWRB's procedure in issuing water permits to NIS IA is government to government. First is the conduct of a technical evaluation by computing standards per hectare to compute for water demand for the area to be irrigated. Then, water permits need to be evaluated if there is available water supply to be allocated. For CIS IA, this is treated as a private entity. If there is water supply available, then there is recommendation for approval.

According to the NWRB, most rivers have already been applied with water permits by the NIA. However, the LGUs currently demand for the water for domestic needs. LGU has to seek the approval of the NIA to access the water. NWRB has to assess whether the source being applied water permit has still some available water supply for the LGUs after the irrigation needs. NWRB also admits that data is limiting in this instance, especially with the climate change. NWRB proposes to have more funds to study water supply sources and trends.

#### 6.1.2.3. Department of Environment and Natural Resources Forest Management Bureau (DENR FMB)

The role of the DENR-FMB is to provide technical support to the central and field staff for protection and conservation of watersheds, in general. It also provides science based policy recommendation for good forest governance. Currently, NIA has a joint MOA with FMB for watershed level activities. The MOA still needs to be finalized.

#### 6.1.2.4. DENR River Basin Coordinating Office (RBCO)

DENR RBCO coordinates with the NIA in the irrigation component of the Master plan for 18 major river basins. These are river basins with 1400 sq km area or more. NIA is part of the Steering Committee which evaluates the Masterplan. NIA technically reviews and provides inputs to the Master Plans.

According to the respondent, Payments for Environmental Services (PES) are being implemented in several places: Cagayan, Iloilo and Cagayan de Oro. PES theory is clear but the mechanisms on how to do this is not clear according to the respondents.

#### RBCO Linkages with other offices

Linkages of the RBCO with other water related agencies are described in Table 8.

**Table 8. RBCO institutional linkages**

<b>RBCO link with</b>	<b>Nature of collaboration</b>
NWRB	Seeks collaboration on the Master plan, but NWRB has fragmented data base.
DA-BSWM	Has access to the maps of the RBCO so that they can be guided on where to plan for irrigation system. Also, coordination with regards to areas of land degradation, soil erosion. DA BSWM is member of the RBCO's Steering committee.
LGU	Disaster risk component of watershed management. LGU can allocate funds for this. Currently, RBCO popularizes the river basin

RBCO link with	Nature of collaboration
	management plans. RBCO would like to monitor the effects of the popularization program.
LWUA/Water District	Member of the National Steering Committee. Respondent recommendation: Water Districts need to be more active in local Watershed Management Councils (WMCs). In particular, Cebu Water District has a strong link with the RBCO.
NGOs	Some NGOs initiate creation of WMC as part of company Corporate Social Responsibility (CSR) for project sustainability. NGOs work with the NCIP in the decision to share the benefits from the PES. NGO links with the CSR.  Example- Ocdana Gold is a mining company which had set up a watershed management council for the sustainability of the project. There are also NGOs leading the coalition of watershed councils as in Iloilo.
NPC	Seeks advice regarding proposals that they can develop for watershed protection. This is needed to solicit funds from the ERC that holds the PES funds.

RBCO seeks collaboration with the NWRB, but NWRB has fragmented data base For instance, NIA permit maybe higher than what is already available. NIA permit has to be lower than the total flow. DPWH monitors surface water through the Bureau of Designs. Instrumentation is by the FMB. FMB is the agency that can provide NIA data to determine forest cover that can still support the water supply of a system. Priority for instrumentation data collection is the 143 watersheds.

#### 6.1.2.5. National Power Corporation (NPC)

NIA controls Pantabangan and Magat dams and water releases. Watersheds supporting these dams are responsibility of the NPC.

TWG meetings are done with NIA and NWRB every six months for monthly water allocation in consideration of PAGASA climate outlook advisories. Rainfall forecast are converted to water inflow. Beneficiary is the power producer.

NPC contributes to the watershed upkeep. Watershed produces water; dams regulate during spillage. In normal times, the private entity regulates. Some of the NPC dams have been sold to the private sector. There is a proposal to price bulk water.

Activities on watershed management by the NPC are funded through the Integrated Forest Protection Fund collected by the Energy Regulatory Council (ERC). PES of the NPC is spent on rehabilitation of the forest through projects such as reforestation/agroforestry, mangroves protection, and the Bantay (Watch) watershed, who polices the watershed. EO 224 defines the co-management of the NPC and the DENR of the watersheds.

EPIRA Law –¼ centavo for every kwh of generating entity must be collected to fund watershed management activities.

For NPC watersheds, PES is built in, with the ERC collecting the money. NPC can avail of these funds for the protection of the watershed only after a proposal to this effect is developed. (Note: In Los Banos, PES is built in in the water bill, but it is not clear how this is being used for watershed protection.) In Cagayan, there is a facility for rainwater harvesting during El Nino.

NPC linkages with other agencies

NPC links with other agencies are further described in Table 9.

**Table 9. NPC link with other water related agencies.**

NPC links with:	Nature of collaboration
NIA	Co-management of Magat and Pantabangan. There is a TWG where is a member, that meets once a month. The San Roque TWG meets twice a year. Also has to interphase with the NWRB in terms of the permits.
DENR-RBCO	for flood operation
LGU	NPC does IEC activities with the LGUs such as safety of the dams, other IEC campaigns, spillway releases. They work with schools, the PDRRMO, and municipal and barangay levels risk bodies. But there is no continuity of activities with the LGUs.
NGOs	as contractor for reforestation projects

6.1.2.6 Department of Interior and Local Governments (DILG)-Office Central

Legal mandate on irrigation: Section 17 of the LGC- Roles and responsibilities of water-related functions extracted from the 12 major functions. DILG supervises and does capacity building for small impounding systems.

DILG Central is a member of the Sub-com on water resources (SCWR) of the Infra Com of NEDA. SCWR is an avenue of convergence with NIA. DILG ensures that LGUs connect with the Philippine Development Plan (PDP); and that the Comprehensive Land Use Plan (CLUP)-PDP central plans are linked.

Activities of the DILG done with the NIA include an on-going water supply program which is a collaborative work with the NIA, as NIA is the holder of the water permits (Table 10).

DILG linkages with other water bodies

Table 10 shows the DILG linkages with the other water bodies.

**Table 10. DILG Linkages with other water related bodies.**

DILG links with	Nature of collaboration
NIA	Collaborates with an on-going water supply program where NIA is the holder of the water permits.

NWRB	They get water permits from the NWRB, as well as Certificate of Non-Coverage.
DA BSWM	Serve as resource persons in capacity building, provide standard designs for small impounding project.
DENR-RBCO	Attendance to the Infra Com meetings. Respondent recommendation: River Basin Master Plan should be utilized by all LGUs.
Water districts	Member of their regional hubs. Technical assistance in preparing FS, (as laboratory in training for water and sanitation projects) and O&M; strong partnerships.  WD is a big brother of the DILG in their projects. They also serve as resource persons/mentors in areas without water districts.
Academe/private sector/NGOs	DILG to establish Water Integrity Groups or citizen monitors. For instance, UP Visayas is conducting Water Assessments; Results to be presented to LGUs for planning. NGOs, academe, private sector, water service providers are members of the regional hub, and helps in social preparation.

According to the DILG Central respondent, NWRB is proposed to be converted to a Department of Water Resources by the Sub Com on Water Resources. The current NWRB highest position of Executive Director will be upgraded to Secretary level.

In terms of budgeting of projects, the following is the hierarchy of sources in the DILG:

1. LGU – Local Development Investment Plan (20% of IRA);
2. RDC;
3. National Agencies

There is also a shift to annual cash-based budget as per National Budget Memorandum No. 129. This will have implications especially in the construction of new systems. For foreign funds, NEDA should traffic these. NEDA Agriculture sector has an irrigation sector division.

River basin plans should be fully utilized by the DILG to have integration.

It was observed that there are so many plans but no absorptive capacity. DILG has set up regional hubs to be populated by academe, water providers, and the private sector to help them in capacity building for the various projects/programs.

The following are the 6 priority programs in 2019 that the regional hub can access, with national agencies: 1) Health and sanitation- DOH, 2) Farm to Market roads-DA, 3) Salintubig-DILG, 4) CIS-NIA, 5) Level 3 piped in water supply-LWUA,6) local roads and bridges-DPWH.

### 6.1.3 Oversight Agencies

#### 6.1.3.1 National Economic Development Authority (NEDA)

NEDA plays an important role in the review and approval of the irrigation projects. The Investment Coordinating Committee (ICC) reviews and approval is required for national projects amounting to P2.5B and above per NEDA memorandum dated June 27, 2017. National and LGU/local projects amounting to P200M up to P2.5B will be submitted to the ICC for



review and notation only. LGU projects costing P200M but larger than P50M require RDC and/or PDC (Provincial Development Council) endorsement. For projects for ICC approval, the NEDA regional office is the lead evaluating unit and can request inputs from NEDA Central Office Staffs (i.e. Infra Staff, ANRES, etc.).

With regards to location of the NIA big projects, NEDA now requires VEVA, or Value Engineering/Value Analysis/Assessment- this requires all sector reports/assessment before they submit the engineering design. VEVA is an environmental and social assessment. Sector studies are done first, before engineering design.

#### 6.1.3.2 Governance Commission for GOCCs (GCG)

The Governance Commission for GOCCs (GCG) was created under Republic Act No. 10149 (RA No. 10149), otherwise known as the “GOCC Governance Act of 2011”, as the central policy-making and regulatory body mandated to safeguard the State’s ownership rights and ensure that the operations of GOCCs are transparent and responsive to the needs of the public. Among others, the GCG coordinates and monitors GOCC operations and reviews their performance for submission to the President. NIA is a GOCC and hence under the supervision of the GCG. GCG ensured the abolition of offices within the NIA during the rationalization period. It also amended the rationalization plan of NIA affecting Magat and Upper Pampanga Integrated Irrigation Systems. With the free irrigation policy, the NIA does not consider itself as GOCC still, but a development agency.

#### 6.1.3.3 DBM

DBM does the oversight of the NIA budget together with the DOF, Landbank and the NEDA. Respondents perceived that DBM was not particularly prompt in budget releases. For instance, while 2015 was an El Nino year and declared as so, the funds from the DBM were only available in 2017. DOF also gets funds from the NWRB, taken from the annual dues paid by the NIA for water permits.

#### 6.1.3.4 DPWH

DPWH gathers data for water gauging station for major rivers that NIA can use in their decisions to irrigate. NIA was once upon a time administratively under the DPWH before it was transferred to other agencies.

### 6.1.4 Other agencies competing for the use of water

#### 6.1.4.1 Metropolitan Waterworks and Sewerage System (MWSS)

MWSS coordinates with NIA during water crisis, when irrigation water supply is secondary only to domestic water supply. MWSS provides for domestic water supply in Metro Manila; during water crisis, domestic water is priority; but farmers should be compensated, according to the Water Code.

#### 6.1.4.2 Local Water Utilities Administration (LWUA)

Local Water Utilities Administration facilitates improvement of local water utilities. It renders four types of assistance for the water districts: institutional, technical, financial and regulatory. It connects with the NIA for some domestic water supply needs when the water source permit is owned by the NIA.

### 6.1.5 Comparative Analysis of Irrigation Development Cycle: NIA and DA- BSWM

NIA and the DA-BSWM are the two agencies mandated to construct irrigation systems. NIA is responsible for large irrigation systems; while the DA-BSWM is concerned with small irrigation systems. Both agencies establish farmers' organizations to manage the irrigation facility.

#### 6.1.5.1 Project ID, Project Planning and Design

Table 11 summarizes the governance mechanisms in the project ID, planning and design stage of the irrigation project cycle. According to the NIA, the water supply data is 50 years old and has not been updated. This means that data used for planning may not really be reliable. At the NIA, pre-engineering stakeholders participate in the design and planning of irrigation projects. For big ticket projects needing NEDA-ICC approval, the NEDA would require a VEVA, which requires sectoral assessments first (i.e. social and environmental) before submitting the engineering design.

NIA engineering does the planning and the detailed engineering design. Private contractor implements the project/forced account by administration. NIA assigns the monitoring of the project, there is a back to the office report by the Project in charge.

NIA also does climate resilient planning. Elevation is considered in the site location (before it is 3% slope, now it is set higher at 8%, so the potential irrigated land is greater). While the IA recommends the site, there is a survey done to check the elevation.

Project design engineer writes the proposal for small projects. For big ticket projects, it will be the donor agencies. A feasibility study is done to decide on the structure. The region and the local people take care of the Right of Way (ROW) problems.

Farmers propose the irrigation sites, though some other interventions, such as those of local politicians sway decisions on the final location. Congress decides on the budget.

On the other hand, the DA-BSWM is more bottoms up in the planning of irrigation projects. DA-BSWM undertakes small irrigation systems as part of their technology intervention with farmers on appropriate small systems. The DA-BSWM has technical personnel, but consults with the NIA on the design and the site.

Because of lack of holistic planning, there were times that a location will be identified as a future project site, but actually, another agency has the final plans in constructing in the same study site.

**Table11. Project ID, Planning and Design in NIA and, DA-BSWM.**

NIA	DA- BSWM
<p>For big ticket projects, NIA and if applicable, the foreign donor do the planning and design of projects/programs.</p> <p>For small projects, NIA does the planning and design.</p> <p>NEDA requires social and environmental assessment (VEVA) before the proponent can start with the design.</p>	<p>Decision for new irrigation system areas- done by farmers, approved by Mayor and MAO, and consulted with the NIA if site is feasible and water is available. DA decides on the design of the structure. Community acceptability is part of the assessment. Farmers are consulted on the location of the system. DA BSWM has its own technical personnel.</p>

#### 6.1.5.2. Implementation

Implementation is done by the NIA and the DA regional offices for the BSWM (Table 12).

For the NIA, appraisal team is recruited by the Mission/funding agency. The team also goes to the field for recommendations. Procurement of needed materials for the structure has a delegated authority. For small projects, this will be the IMO and RIO, for large projects, Central Office (CO). Standard BAC procedure is followed in the procurement.

DA regions implement the BSWM projects, sets this up for bidding or MOA with the LGU. On the construction, the LGU provides the engineer and the DA monitors the progress of the implementation. MAO identifies the recipients of the irrigation project. Role of farmers during project implementation is the clearance of the right of way.

Due to the various governance administrations, there were observed weaknesses in the irrigation program implementation. The BSWM program is deemed as a complete dole-out, while the NIA CIS projects recover cost. There are instances that the SWISA and the CIS are located in the same barangay. With the free water from the BSWM projects, the CIS members would sometimes transfer from the CIS to the SWISA. It is perceived that the multiple agencies' role weakens the mandate of the NIA in the development planning and implementation of the irrigation programs (Rola 2015).

**Table12. Implementation of irrigation projects at the NIA and DA-BSWM.**

NIA	DA-BSWM
<p>For foreign assisted projects, there is a mission that takes care of the project/program implementation. For new projects, NIA does construction management; for repairs, system management.</p>	<p>DA regions implement the project, sets this up for bidding or MOA with the LGU. On the construction, the LGU provides the engineer and the DA monitors the progress of the implementation. MAO identifies the recipients of the irrigation project. Role of farmers during project implementation is the clearance of the right of way.</p>

### 6.1.5.3 Operations and Maintenance

For operations and maintenance, with the free irrigation policy, farmers for all agency projects need not pay anymore (Table 13).

For NIA, the level of the O and M has drastically lowered from about 650 pesos per hectare when there was still the Irrigation Service Fees (ISF) collection to 150 pesos per hectare as subsidy during the free irrigation policy. It was also mentioned by one respondent that there is less lag time in the transmission of the budget now than before the free irrigation policy. All NIS and CIS IAs still follow the provisions of the IMT.

NIA IDO personnel believe that partnership between the NIA and the IAs can still be strengthened through introduction of farming as a business to the IAs. NIA CO feels that free irrigation policy will not be beneficial in terms of managing the IAs.

While collectors are now out of job, there is more work in the technical aspect of O and M. It was claimed by the IAs that there is not enough personnel to monitor the system structure. Before, there was a water tender, now this item is the Supervising Water Resource Facilities (SWRF) Technician. Farmers are also trained on systems management, water management, and leadership training.

On the other hand, the DA-BSWM is concerned with construction and not anymore with O and M of their systems (Table 13).

**Table13. O and M operations in NIA and DA-BSWM.**

NIA	DA-BSWM
<p>For NIA IAs, the O and M costs are from the GAA (150 pesos per hectare, and 1,700 per 3.5 kilometers unlined canal and 7 kilometers lined canal). The usual O and M during the ISF regime was 650 per hectare. NIS IAs still follow the provisions of the IMT; CIS IAs are not under IMT. Some IAs collect from members to have enough to fund O and M.</p>	<p>BSWM does not give subsidies for the O and M. They just construct the structure and the farmers fund the O and M. If there are major repairs, farmers ask for assistance from the DA.</p>

### 6.1.5.4 Monitoring and Evaluation

Both agencies claimed that they have a monitoring system in place that informs them of the performance of the system and generates data for planning during the next season (Table 14). However, these agencies are not linked for this purpose, and so, there can be possible double counting in the aggregate reporting as was also expressed earlier. For NIA, data are used for planning for water allocation next season using a computational formula. NIA also needs the data for the O and M plan, done during the last quarter of the year and monitored on line.

List of irrigated and planted areas are monitored; but flow rates are not monitored. NIA has a formula to measure the total area irrigated based on liters per second supply data. Parameters such as percolation rates and evapotranspiration are being updated in the context of climate

change also. Data are housed at the CO. Data from the field are used in the choice of new system location, and in the choice of where to rehabilitate.

Data for service area and cropping intensity are taken from reports from the field. There is a new technology that was introduced by the DBM- Digital Imaging Monitoring and Evaluation, but this is not functional at the NIA at the moment.

There is an engineering center that analyzes the data. This is the fourth center established during the rationalization. Technical information, data base of IAs, technology, and access to water supply information are available.

Based on the monitored data, decision support tools such as cropping calendar can be devised. This is the basis of the O and M plan and restoration work. IAs and field personnel decide on the crop calendar. Systems Management Committee Meeting is conducted with the IAs, LGU and the NGAs for crop calendar and pattern of planting, to be approved by the Governor. MAO decides on the issuance of the Patalastas, which is their way of informing both the NIA and the IAs about the irrigation schedule for the next season.

NIA respondents rated the accountability criterion as 4 which is the highest. Transparency is also rated 4, the highest. Communication is found to be open at the NIA and most of the times there are memos that contain the field information.

**Table14. Monitoring and Evaluation processes in NIA and DA-BSWM.**

NIA	DA-BSWM
<p>At the NIA, water supply data is 50 years old. List of irrigated and planted areas are monitored; flow rates not monitored.</p> <p>Parameters are being updated such as percolation rates, evapotranspiration. Data are used for planning for water allocation next season. There is a new technology that was introduced by the DBM- Digital Imaging Monitoring and Evaluation, but this is not functional at the NIA at the moment. It was pilot tested but not really pursued for use.</p>	<p>For the DA, there is a monitoring system and monitoring of the flow rates. The water master is being taught by the DA to do this.</p>

## 6.2 Meso Level Institutional Analysis

### 6.2.1 Regional Institutional Landscape Analysis

Aside from the NIA Regional offices, several regional offices of national agencies play a role in the irrigation development cycle. These include the regional offices of the NEDA, DENR-RBCO, DA, DAR and the DILG.

#### 6.2.1.1 NEDA Regional Offices

For small projects, irrigation project proposals emanate from the LGUs, the IAs prepare the proposal for endorsement by the Provincial Development Council sent to the NEDA Regional Development Council (RDC).

NEDA Region wears two different hats, depending on the phase of irrigation project. First, NEDA regional offices serve as NEDA Secretariat-Technical Support to the RDC (for smaller projects). NEDA is co-chair of the RDC, where the chair is appointed by the President. Second, the NEDA region serves as technical support to the Investment Coordination Council (ICC) and to the NEDA board for project planning and design (big ticket projects, i.e. the Jalaur River Multi-Purpose Project, or JRMP. Please see Box 1).

**BOX 1. The Jalaur River Multi- Purpose (JRMP) Project: Role of NEDA 6**

NEDA 6 role in the ICC review is for national and local projects in excess of P200M. The Project Development Investment Programming and Budget Division is tasked to prepare a Project Evaluation Report (using the ICC PER format) for all types of projects implemented by the national government in the region, and those requiring RDC endorsement on projects amounting in excess of P200M.

JRMP has a total cost of 11.2 Billion, government counterpart is 2.48 billion, Korean loan is 9 billion. As of end June 2018, total cost incurred is 712,000 million pesos.

The JRMP construction mandated by law was implemented in two stages due to lack of funds. Stage I, completed in 1983, was devoted for rehabilitation of existing irrigation systems while Stage II was for new construction. Stage II was never completed for unknown reasons. . After 30 years, JRMP Stage II will be started. The construction is scheduled to start Oct 2018, per the approval of the loan extension. For the JRMP, irrigation is just one component, another is the hydro component; and the bulk water. Hydro and bulk water components are through PPP.

A JRMP personnel interviewed confirmed that forest cover is not enough to sustain the water requirements of the new irrigation system, but the JRMP has planted the watershed buffer zones with fruit trees. The owners of the lots within the buffer zone were compensated; so that they will not cultivate this area. There was no data available on the number of hectares within the buffer zone. For right of way, the owners of the lands were also compensated based on the zonal value. According to the NEDA 6, land price is high due to the presence of the Farm to Market Roads (FMRs). Validation with the people in the field showed that the actual compensation is not at par with that provided for as payment of the ROW (quoted as 2,000 per hectare). The local officials were reported to be the ones identifying who are the beneficiaries and how much to pay.

Once Stage II is completed, JRMP would boast to be the biggest dam outside Luzon. Viewed in the context of achieving the rice self-sufficiency program of the government, JRMP II will be able to provide sizable increase in irrigation areas to boost rice production in Iloilo. There are also other benefits such as flood control, hydro power and domestic water supply provisions.

ON VEVA, JRMP did not have this, thus, the delay because the social component became a problem. Seemingly, until this time, there is no assessment of the environmental component. Currently, in Region 6, there is a proposal design for the Panay River Basin Irrigation System where VEVA is implemented. The VEVA on the Panay River Basin Integrated Development Project is not related to the change in its design due to the exclusion of the Sapijan Floodway component. Instead, the Sapijan Floodway is opposed by local stakeholders and the LGU due to possible

adverse effect on the local biodiversity and aquaculture industry prevalent in the area. Instead, the VEVA was required by NEDA6 in its ICC evaluation process as part of the ICC PER revised in 2009. Also, according to the economics team of the NEDA6, Panay River has excess water, and can share this with JRMP that has both the regulating dam and the flood control. The private sector was tapped by the NIA to do the assessment. If there is a change in cost higher than 10% of the original, then there is a need to change the whole proposal.

(Sources: NEDA 6 FGD responses and <http://www.nia.gov.ph/?q=content/nia-daewoo-sign-p11212-billion-contract-jalaur-river-multipurpose-project> accessed Oct 17, 2018)

Some actors in the decisions from the NEDA are the RLUC-Regional Land Use Committee, also chaired by the NEDA. These concern faults and other geological issues. Sometimes the Engineering Geological and Geohazard Assessment Report (EGGAR) which needs clearance from the MGB will be asked of the project proponents. NOAA data can also detect/provide evidence on the existence of the fault.

For big ticket projects, the NEDA together with the DILG and the DBM monitors project implementation through the Regional Project Monitoring Committee (RPMC). This is a special committee under the RDC. They monitor expenditures vis a vis the progress in construction. There is also a Provincial Monitoring Team and a Municipal Monitoring Team. The RPMC monitors quarterly. NEDA provides training for the local monitoring team. Threshold for the monitoring is 10M. For appraisal purposes, the Regional Investment Office evaluates, then sends to Public Investment Staff for irrigation reports. These reports contain progress of indicators and impacts.

**BOX 2: Recommendations from NEDA 6**

During the FGD with the NEDA 6 staff, some recommendations were offered (personal communication with RoanniMagdaug, 2018):

- 1) On the land use plans, NIA's irrigation projects like the JRMP and PRBIDP (Panay River basin Irrigation System) in Panay Island needs to be reconciled with the local land use plans. This is due to land use laws stating that lands with irrigation provided by NIA cannot be converted or used other than for agricultural production. Irrigated lands under the service area of NIA are mostly in conflict with local land use plans, as these did not take into account expansion of residential, commercial and industrial areas. Also, projections of the NIA on its service areas did not take into consideration the reduction in agriculture areas and the expansion of areas for other use not related to agriculture production.
- 2) There are alternate irrigation technologies available which could be deployed immediately and more efficiently as compared to large-scale or community wide irrigation systems being implemented under NIA's mandate. Replication of small irrigation systems under DA could be more effective use of government resources due to the following: a) it does not require large scale irrigation canals or dams, minimizing environment impact of irrigation, b) availability or renewable energy sources to power shallow tube wells irrigation or freshwater sources, and c) cost benefit in terms of timely implementation of small irrigation systems as against large scale dam-type irrigation being proposed by NIA.
- 3) Dam irrigation projects of NIA do not maximize the economic benefits of the project, particularly on the hydropower generation and bulk water supply components of the project. This is especially true in the design of the PRBIDP and the JRMP II, the dam components and bulk water supply are added as an afterthought, mostly to improve the economic feasibility of the project. Maximizing the economic benefit of the project also has benefits for NIA, first as a source of revenue for NIA (it is allowed to generate power for dam projects, with the Casecanan Dam as the model), and second, addressing long-term water supply concerns in municipalities and cities downstream by providing bulk water supply. There is also the tendency by NIA to prioritize water use for irrigation as against human consumption and industry use, particularly for dam irrigation projects.
- 4) NEDA 6 also suggests that host community of the source of water be given a % share in the revenues just like in the mining projects.
- 5) Develop a regional irrigation master plan to connect the activities of the various agencies. In AO 20, once there is an irrigation canal, there is no other land development. DILG local assists in the development of the comprehensive development plan.

#### 6.2.1.2 Regional DENR- RBCO

Regional RBCO and other stakeholders formulate the watershed management Master plan. At the regional level, NIA is member of the Technical Working Group (TWG) and attends the Focus Group Discussions (FGDs) on setting the mission and vision of the Master Plans. After formulation, this is endorsed by the Regional Development Council (RDC). This is now a reference material for the planning for irrigation. Both the BSWM and the DILG recognize that this plan should be a reference when doing irrigation planning. (Note: DA as represented by BSWM and DILG are also engaged as stakeholders in the crafting of the Master Plans.)



DENR-FMB does not have regional representation. NIA and FMB do not have linkages at the local level.

#### 6.2.1.3 Regional Department of Agriculture (DA)

DA regional offices implement the BSWM irrigation projects; sets this up for bidding or MOA with the LGU. It also supervises O and M and M and E of the CIS.

#### 6.2.1.4 Regional DAR Office

DAR provides irrigation as one component of the support services for the Agrarian Reform Communities (ARCs). The Central DAR office informs provincial officers that there will be irrigation projects in their areas. DAR region works with the LGUs or whoever has the right to the source of water. The LGU or the NIA ask for permit from the water owners in behalf of the DAR.

#### 6.2.1.5 LGUs

Congressmen have representatives in the Local Development Council, Provincial Development Council and the RDC bodies, so they are able to participate in the irrigation planning process.

Politicians can no longer access national funds which was done previously and used for funding irrigation projects, according to the DILG respondent. This is because all projects funded nationally should have RDC endorsement.

From the local development investment plan, LGU can send proposal to the national agencies through the RDC. Those not funded from the 20% IRA will be submitted to the national level for funding.

### 6.2.2. Role of NIA's Regional Irrigation Office (RIO)

Seven Regional Irrigation Offices in Luzon during Cycle 1 and four in Visayas and Mindanao (during Cycle 2) were visited for this study. The responses based on the key informant questionnaire are summarized below. The information generated was based on the list of variables on governance as mentioned in the methodology section and classified into the respondent's articulation of the water law/rules, water policy and water administration.

#### 6.2.2.1 Water Law

##### 1. Forms of water rights (permits) and related issues

NIA is deputized by the NWRB to accept applications for water permits from the IAs. NIA applies for water rights to the NWRB in behalf of the IAs. Even those in the upstream are advised to legalize water permits. Water rights and permits are secured by the CIS IAs with the assistance of NIA (IMO). NIS water rights are secured by the NIA for each water source.

When organized, CIS apply for SEC as non-profit, non-stock organization, and operates even if it is not yet approved. They use membership fee for water permits. Currently, the applications are not being processed in one region due to non-payment of water fees charged

to the failure of the IAs to also pay. For this region, the total payable amount to the NWRB is P70million. It is not clear whether the government will condone this IA debt during this free irrigation policy era.

NWRB has standard rates but makes amendments to cater to the IAs capacity to pay. NIA also recognizes the limitation of the NWRB in the latter's decisions in issuing water rights and water permits. The water right specifies the quantity of water (in liters per second, lps) that can be accessed by the water permit applicant. However, according to NIA, this will need data on the available total flow; and so NWRB has first to check on the available flow, but most of the time, there is no available data for this. In addition, the flow data is also old. If this process of not checking the flow continues, the water conflict will surely arise as competing users of water access a water supply volume that is less than assumed by the NWRB. Due to the lack of flow data, the NIA also suspects that there is an excessive withdrawal of water (vis a vis what was stipulated in the water permit). There is also no discharge measurement.

The NIA recognizes the future problem of water competition and how it may affect food security of the country. The case of Maragondon, Cavite is cited where a bulk water supplier downstream will compete with the irrigated lands' water use. The bulk water supplier offers to pay for the excess water towards the tail end; this is fine if water is plentiful. If there is water scarcity (i.e. drought), the Water Code provisions in water use prioritization will be invoked. This means that the irrigation will be a second priority; which will result to low production in the area. NIA proposes that there should be a provision of multi-use of water even during scarcity.

There are already recorded cases of these conflicts; one cited was a ruling by the Court of Appeals which favored the IAs against the bulk water supply firm. However, there are other similar cases in various courts still undergoing litigations.

## 2. Conflict management provisions

Conflicts are resolved by NWRB in coordination with NIA and LGU. Common conflict between upstream and downstream is inadequacy of water.

IA sends the issue to the IMO first for solution, if not solved then this is sent to the region then to the Central Office ("and it lies there"). This conflict resolution is supposed to be monitored by the Operations Division. During water scarcity, there is scheduling or rotation; the cropping calendar is jointly decided by the NIA and the IA; for El Nino, they program the area for irrigation.

Conflict management within the IAs is elevated to the RIO, if these cannot be resolved among them. Issues between IAs or within the IAs are resolved in the monthly management conference. IA officers and NIA officials attend the said conference. If they can't resolve the issues and problems there they will raise the issues during the Regional Assessment and Monitoring Team Meeting. All the NIA sections and IMO attend this meeting. Aside from the problems and issue, they also talk about the target setting for the proposed irrigation facilities, target collection, and in terms of construction they talk about the target date on when the civil works will be done.

## 3. Centralization tendency

Resolutions on projects of IAs go directly to the regional office or to Manila office. Project proponents need to discuss with LGUs and projects are validated by Municipal Agriculturists Officers (MAOs).

The LGUs through a Memorandum of Agreement (MOA) can do CIS construction. But the LGUs have no capability to implement the project. MOA with LGUs and the grassroots is not practical and not operational. It is also suggested (as in Region 4A) that NIA gives technical assistance to the CIS projects.

#### 4. Degree of legal integration

NIA shares the irrigation mandate with several national agencies, such as the DAR and the DA-BSWM as discussed above. Some of NIA's mandates have also been devolved to the LGUs, but the LGUs don't have capacities to do irrigation type projects. By AFMA, LGUs also have to provide for irrigation for the local farmers. (This has watered down the responsibilities of the NIA; however, for any mismanagement of projects by non NIA offices, it is the NIA that is always blamed, according to NIA personnel).

### 6.2.2.2 Water Policy

#### 1. Project Selection Criteria

By AFMA, project selection criteria are location specific and must have other elements such as cost effectiveness, as well as potential for increasing unit area productivity, among others.

Congressmen and LGUs help identify priority projects. Project procurement process is a problem; funds are released slowly. In 2015, there was a programmed budget of PhP 525 M, but how to facilitate release of funds was a problem. In 2016, there was a proposed PhP2.3B budget for new projects, including rehab and repair and restoration.

Farmers participate in identifying the projects, NIA initiates projects and politicians also initiate projects. O and M implementation is 54% of the budget. To maintain the regular O and M, NIA solicits participation of the IAs, maintain irrigation facilities very well (with the IMTs) to avoid rehab. Right now, all O and M are paid for by the government. Some IAs have to still collect funds, as this subsidy is not deemed enough.

IAs request on new projects are validated by NIA and included in the plan. If there is water, if it is a rice field and if there is an IA, then it is prioritized. Another parameter is the political feasibility of the project. The local politicians and congressmen usually have a say on what projects to fund.

#### 2. Trans-basin and/or sectoral water transfer (for multi-purpose projects)

Trans- boundary water transfer occurs when water is taken from one watershed to be used in another watershed. This has been on-going already, according to the interviewees. For instance, in region 4A, water coming from Quezon is brought to Batangas. This agreement was to be endorsed by both provincial governments (Table 15). However, the provincial government where water is to be taken is slow to act on the said endorsement.

In this particular case, the IAs need to be organized and need to have a written policy within the IA on such water transfer and allocation should there be water scarcity. Some IAs have their own system of water allocation. A System Management Committee decides who can plant. This is done by rotation. Some areas have less water allocation, thus not able to service the whole FUSA. (Note: this trans-basin transfer needs to be studied some more in terms of its effect on food security).

There are already recorded cases of these conflicts; one cited was a ruling by the Court of Appeals which favored the IAs against the bulk water supply firm as reported above. However, there are other similar cases in various courts still undergoing litigations.

**Table 15. Trans-basin / sectoral water allocation.**

Item	Frequency
<b>Who decides?</b>	
RIO and NWRB	2
RIO-IMO	2
Local Government units	2
NIA	3
No answer/NA	2
<b>How decision was made</b>	
Based on water volume	1
Through endorsement of LGUs	1
Through Ordinances	1
Through amicable settlement	1
No answer	7
Note: No written policy; in practice, existing users must have water rights, if none, NIA advises them to get one; then evaluate if the volume of water can accommodate the new system.	

### 6.2.2.3 Water Administration

Components of water administration include organizational features, functional capacity, budget, finance, pricing and cost recovery, regulatory and accountability mechanisms, and information, research, technological capabilities.

#### 1. Organizational features

Rationalization Plan (RPlan) was fully in effect in 2011-2012. This was meant to have more unity, teamwork, but must have changed values, according to key informants. It was supposed to achieve a lean and mean organization.

The NIA officials say that because of the RPlan, the technical personnel now is in short supply relative to the needs of the clients. This is also validated in Laguna, when the CIS IAs said that they did not have any technical support from NIA, even if their system needs technical diagnosis.

In general, with RPlan, the staff reduced to 50%. There is imbalance in the technical and administrative staff numbers; in one case, the provincial CIS officer is at the same time the irrigation superintendent of an NIS. In almost all regions, there is a lot of sourcing out; but the

insecurity of tenure is affecting the work negatively. There is less time to monitor, for instance, of the stop gauges, resulting to theft. Due to staff overload, there is less time also for monitoring collection. RPlan resulted to decreased personnel to implement projects.

Time is also devoted to a lot of meetings convened by other agencies. Time is also needed to prepare reports that are requested by different offices (such as the NEDA, OP-APSAM, DA) and the NIA Central Office. These reports also have different formats. Too much office work has resulted to less time by the NIA staff for farmer interaction and monitoring as mentioned above.

In one RIO, there were 400 personnel, with only 100 permanent staff. Out of the 400, 30% are technical staff. In Region 3 the RPlan eliminated such positions as the hydrologist, environmental engineers and other engineers. There is no one in charge of water supply data. There is also no link with the DENR for watershed management; the main problem of the canals is too much siltation. This is mostly due to the soil erosion upstream. If there is no person to monitor this at the NIA, this situation will tend to aggravate. Within the region, there are now just two divisions, before there were 6 divisions. One respondent emphasized that there is a need for an Environmental Management Unit (to check if there is water in the area); and a hydrologist who will be needed in the design. In addition, there are currently no data on streamflow of rivers after the RPlan. Before, this information was generated by NIA.

RIO in the past is composed of personnel who do O and M, project construction and project implementation as an additional responsibility. With the RPlan, there is a lot of multi-tasking. Within the region they now just have two divisions compared to before which was four: the Engineering and Operations Division and the Administrative and Finance Division.

One of the RPlan's organizational impacts was the structural clustering of provincial NIAs offices into IMOs (Irrigation Management Office), the objective of which is viability. Some regions found it difficult to manage the IMOs.

Region 5 has four NIS so one IMO was created. Manpower was trimmed down. After the RPlan, there was a need to expand implementation as the budget of NIA jumped from P2B to P 20B. All regional offices implement projects with insufficient manpower who are not technically capable. While CIS are observed to be more independent, not all NIS that had IMT were prepared. The organization sometimes has no focus, are inadequately prepared for both O and M work and without service vehicles. The RIO in Bicol proposes to add IMOs, trained personnel for O and M and irrigation implementation. The counterproposal of the region is to have four IMOs, one for Cam Sur/ Cam Norte, Sorsogon and Masbate, Albay and Catanduanes. The factor is the aggregate irrigable areas. One regional official said that because of the rationalization, many employees retired early and the permanent positions were reduced.

One benefit of the RPlan, according to some respondents was the increase in the viability index. The organization became smaller, but when the budget became bigger, there was multi-tasking that was perceived to make employees less efficient.

In a scale of 0 to 4, the average NIA rating for the success of the Rat Plan is 2.5 (Table 16).

NIA finds it difficult to situate itself as a corporation and at the same time provides services to farmers which is a developmental function. This could be the reason for the perceived negative effect of the rationalization policy, whose main objective was to make the agency viable. This was achieved but at the cost of less interaction by the NIA staff with the farmers.

With the rice self-sufficiency program, NIA’s allocation increased, so at the regional level, they hired engineers on contractual basis, to teach the provincial level staff.

## 2. Functional capacity

Irrigation Management Transfer (IMT) was rated 2.75 in Luzon and 3.5 in Visayas and Mindanao, from a scale of 0 to 4 (Table 16). Monitoring the IMT IA performance is usually done by the IDO. In one region, 100 percent of NIS is under Model 1. NIS is monitored by the system office, one way of which is through cropping reports.

For IMT level 3, the share of the IA is 50% of total ISF collection; which is set aside for system maintenance. For IMT level 1, IA share is only for maintaining the surroundings which they do “bayanihan style”. IAs cannot afford to do preventive maintenance. There is also a ceiling for O and M, not more than 80,000 pesos per hectare for one system. The respondents also reported that most NIS are not ready in their increased responsibility on O and M. Repairs can be done by them, however, there is also no technical expertise to monitor dam.

IMT works in some areas, but farmers are ageing. New projects are costly. The priority is rehabilitation and restoration. However, currently, NIA budget allocation showed 75% for new construction and 25% for rehab and restoration. This was a decision coming during budget hearings. Dam construction is a major expense.

**Table 16. Average Rating on IMT and RatPlan (scale of 0-4 with 4 as most successful).**

Item	Average (Luzon)	Average (Visayas and Mindanao)
IMT	2.75	3.5
RatPlan	2.58	2.5

## 3. Budget process and cost recovery

### Budget and the budget process

According to the respondents, the budget is estimated at the RIO level through consultations with the IMO, who in turn consult the farmers on new projects and maintenance needs. RIO income is coming from the IMO income. The IMO income comes from the CIS amortization, the NIS ISF, equity during construction, equipment rental, and other sources of income.

The collection is sent to the Central Office; part of the collection will go to the NIMF as trust fund for the IAs; the amount of which is decided by the IAs, according to the respondent. This is used for payment of IA share for IMT, for remuneration of canal maintenance, and for fuel and oil. If there is sharing with the IMT, sharing depends on the NIS. The system office determines the breakeven point and the excess of the breakeven will be the share of the O and M expenses for the IAs.

Respondents believe that government wants to generate new areas and restore some areas. Prioritization of these projects is dependent on the budget that passes through the Congress; the needs of constituents are considered even if not in the list of priorities according to the NIA criteria. The Department of Budget and Management imposes the budget ceiling. In most instances, the budget that is approved is lower than the proposed, and releases are also most of

the time is delayed. RIO is not engaged in ISF collection as this is done by IMO. Collections from the field go to RIO then to central office. Salaries for RIO personnel come from collections by IMO; but with the free irrigation policy, these come directly from the NIA CO. Salaries at NIA do not come from the General Appropriations Act but from other sources; but now they are from the GAA. Salaries are delayed due to insufficient collections from field offices; salaries now are given on time.

Before the RPlan, the Budget goes straight from DBM to the regions. With the reform, the budget goes from DBM to the central office to the region. The big NIS (Angat, Upper Pampanga) have budgets direct from DBM. With the free irrigation policy, all budget comes from the GAA.

Budget estimates are sent from the IMO to the region to the Central office. Central office decides on the budget allocation and sends this to the region without explanation. Region does not know which of the proposals got funded. There is no transparency in the budget decisions.

There was however claim that IAs participate in the budget decisions and other physical infrastructure decisions. There is a regional confederation of IAs; they participate in the design and planning. There is a pre-construction conference, discussion on right of way and more intensive pre-planning. (This statement is negated by the IAs and in one region, where IAs say they were not consulted in any NIA program). It was further claimed that farmers decides where projects are to be located, projects are also allocated by congressional districts. In the end, it is the national NIA that decides on the budget allocation.

It was mentioned that 30 percent of IA income is also taxed.

Expenses include O and M, the 10% discount on the ISF, loss in sale of palay, regular maintenance but excluding the rehab and restoration due to damages from natural calamities, residual expenses in the operations of dams.

#### Sources of funds

Before the free irrigation policy, there were several sources of funds for irrigation O and M and staff salaries: ISF, CIS amortization,

O and M funds are from the collection of the NIS. NIA says that budget is sometimes not completely released to the project, such that only a certain percentage of the project can be completed in one budget year. RIO share to each IMO collection is 50% in some regions. The region was more viable before and with higher collection efficiency (CE). It was also mentioned that while records reflect P2B budget for NIA, the total release will only be PhP500,000. NIA also pays for water owned by the government in the PPP program, such as Casecanan.

For CIS, NIA funds the establishment of the system; while the CIS IA will amortize. If the IA can pay for 30% equity, then 70% will be a grant. If the project is going to be amortized, the CIS IA will pay direct cost for 50 years. Field observations showed that most CIS in Ilocos have paid the equity; but in Central Luzon, these are by amortization. Farmers pay directly to the IDOs but sometimes without issuance of receipts, so the IAs do not know how much have already been paid. IAs pay without receipt because they trust the IDOs. Some IAs claim that they have fully paid, but they don't have record for such. This reflects the lack of training on financial management by both the CIS IAs and the IDOs. All these are things of the past.

CIS IAs pay amortization for 50 years, though not anymore now. According to one regional key informant, Communal Irrigation Development Fund (CIDF) is a fund from DBM that they use for the construction of irrigation facilities and their line projects. RIO has limited knowledge about CIDFs that according to them are supposed to be used for direct cost of project construction including indirect cost consisting of supervision (field) and management fee (CO) (Rola 2015). CIDF is collected by the CIS IA. At the CO, it was reported that the CIDF does not anymore exist.

The National Irrigation Management Fund (NIMF) are funds generated from the ISF collections and used as the current operating budget. NIMF is for the Central Office, according to respondents. IA has share based on collection efficiency (if 100%). One-third of 45% CE is the IA share which is used for remuneration for maintenance. CIS O and M may be from NIA also like the NIS. Share of RIO in IMO collection is primarily used for salary of personnel. The collection and the other financial management of the IAs are weak. There is also no sanction in the law for non-remittance of ISF by the IA.

The NIMF is set aside for O and M, this cannot be used for PS payments. Currently, NIMF is non-existent; and DBM will allocate funds for O and M equivalent PhP 150 per hectare of service area and some amount for canal maintenance. This is very low according to the NIA.

NIA had also some incentive mechanisms for increased collection of the ISF. The Viability Incentive Grant (VIG) refers to awards and/or rewards given to field offices which attained high level of physical performance and financial self-sufficiency during a given period. The VIG however is also considered part of the expenses, so the units do not partake of the VIG. VIG is given at the end of the year. The VIG is 10% of the net income of the office, this is for personnel incentives and depends on personnel performance. VIG uses are varied (Table 17). It is used in conducting training and capacity building for the IAs and employee. It is also used for the general check-up of their employees. If they will not use their VIG it will go to their savings.

With the free irrigation, this index becomes irrelevant. NIA has now passed an MC on “PRAISE” (NIA-Program on Awards and Incentives for Service Excellence) which seems to replace what incentives VIG was supposed to give. It awards NIA officials based on their performance in O and M, Engineering, Financial, Institutional Development, Administrative and Customer Feedback (NIA MC 2017-036). Nature of awards is not specified, however.

**Table 17. Share of RIO in IMO collection and the viability incentive grant.**

Item	Frequency
<b>Share of RIO in IMO collection</b> Salary of RIO personnel comes from the IMO collection	3



Item	Frequency
Whole budget of RIO	2
5% management share	1
10% share	1
Equal portion as the IMO	1
No standard rate sharing	1
No answer	2
<b>Use of the Viability Incentive Grant</b>	
Training and enhancement	1
Management fee	1
Retirement package	1
Incentives for employees	5
Office repair	1
None	1
No answer	1
<i>(Multiple responses)</i>	

### Pricing and Cost Recovery

For the NIS, the IMO collects three cavans of palay per hectare at 50 kilogram per cavan for dry season and 2 cavans for wet season at PhP 17.00 per kilo. For those who use pumps, ISF is higher: 4 cavans during the dry season and 3.75 cavans during the wet season. The regional office subsidized the payment for the electric bill of those who use pumps. If the yield of the farmers is below 40 cavans they are exempted in paying the ISF. NIA staff say that they get salaries after three months, when the ISF collection is robust.

In the case of CIS, they have the option of paying only the 30% of the total project cost within one or two years depending on the agreement by NIA and IA which they call “equity”, or if they can’t produce the 30% they will pay the amortization or the total project cost in more or less 50 years again depending on the agreement of NIA and IA. In Benguet, only six out of 251 CIS IAs are amortizing.

There is an available study on the volumetric water pricing (ISF policy study). By law, water pricing is fixed only in cases of gravity irrigation (Table 18). For pump irrigation, the fee can go as high as 10 cavans per hectare. But 50% of this is subsidized by the government, thus farmers only pay 5 cavans in pump systems.

IMO level decides cost recovery for the CIS. It amounts to 30% of the project cost (equity) and this is standard across the country. CIS collection depends on the amount of loan for the constructed irrigation structure. On the other hand, pump irrigation fees are variable. This water pricing scheme is now not applicable.

**Table 18. Water Pricing (in cavans per hectare) (before the free irrigation policy).**

Irrigation Technology	Wet Season	Dry Season
Gravity	2	3
Pump	1.5 to 5	2 to 5

## 4. Regulatory and accountability mechanisms

### Accountability

From the RIO's point of view, there were no clear answers as to the accountability of the NIA in some of their various activities in the field (Table 19). According to the informants, IA reports rehabilitation to NIA; some say it is the responsibility of the planning and design division. Almost all said that monitoring of the IAs is by the IDD. Damage to structures should be reported by IA to NIA, ISF collection is by IDD.

**Table 19. Accountability of NIA's functions.**

Item	Frequency
<b>Rehabilitation</b>	
IA to NIA	4
Planning and Design Section NIA	2
Transition from NIA to IA	1
NIA	2
IMO	1
Chief of National System for NIS, IMO manager for CIS	1
<b>Monitoring of IAs</b>	
IDD	8
IA to NIA	3
<b>Damages of Structures</b>	
IA to NIA	4
IA	1
Planning and Design Section	2
IMO	3
Water master, engineering staff	1
<b>ISF Collection/Fund</b>	
IDD	5
IA to NIA (no sanction for non-remittance)	3
O&M staff for NIS, IDO for CIS	2
Water master, collection representative, cashier, IA collectors	1

### Transparency

All RIOs said there is transparency in budget process and fund allocation. The internal audit facilitated this by deputizing collection and conducting surprised audits and auditing of IAs. However, RIO felt that CIS should also be audited by the IMO (internal auditing, including the IDOs that collect fees and does the accounting).

### Cropping Calendar

The IA together with NIA representative has a monthly management conference where they discuss the planning for the water scheduling, cropping calendar, problems with regards to the IS.

The RIO facilitates formulation of the cropping calendar and is done at the IA level. Crop calendar and scheduling of water supply is done together with the IAs (Table 20). Joint meetings and conference on O & M are conducted before the onset of the cropping season. Reviews are done to check if IAs follow what has been discussed, e.g. cropping calendar, which slides sometimes.

**Table 20. Decision making for cropping calendar.**

Item	Frequency
<b>Who decide on cropping calendar</b>	
IAs and NIA	8
IAs only	2
NIA based on water delivery schedule	1
<b>Process of decision making</b>	
Joint meeting/consultation	6
Depends on the climate and water delivery	3
NIA decides unilaterally	1
For El Nino, NIA propose areas to be irrigated	1

### 1. Information, research, technological capabilities

There are no available information, data base technology, on water data (i.e. water depth, correct installation). Data base is deficient at this time. Before, there were data collected of streamflow, but now , there is no personnel to do this; the equipment that were installed to collect data has been stolen. In Umingan, Pangasinan, data on beneficiaries can be taken from the IMO. In other regions, there are no available data.

NIA appreciates the new water management technology on Alternate Wetting and Drying (AWD). According to them, there is a 30% conservation of water with this technique. NIA collaborates with Philrice in the experiments. NIA still sets the cropping calendar, depending on water delivery. NIA structures may need to be consistent with the needs of the AWD. However, there are data needs for design and that experience at the region on this is inadequate. IDOs ask resource persons from Philrice and IRRI to discuss to farmers alternate wet and dry technology.

#### Information Dissemination

There is good communication link within the bureaucracy. Before project implementation, information dissemination is conducted through trainings.

#### Research and Training

Farmers get training on system management, leadership, value formation, financial management, bookkeeping and other technologies such as AWD, organic agriculture. NIA-CIS Irrigation Superintendent conducts trainings for IAs, visits farms and has close relationship with IAs. Training topics covered include moral values and systems operations (Table 21).

Topics covered are roles and obligations, systems management, financial management, leadership management of IAs. When IA leadership changes, NIA will again conduct trainings on operations and management (O & M).

There is a need for continuous leadership training, financial officer training, bookkeeping, system management training, and impact of climate change, water delivery and distribution, billing, value formation / “moral recovery” with the IAs, according to the respondents. This may need to be done despite the free irrigation policy so the IAs willlevel up their organizational management.

**Table 21. Training programs conducted.**

Item	Frequency
<b>Topics of Training of farmers</b>	
Moral values	2
Systems operations	1
Systems management	4
Financial management	6
Basic Leadership	6
Bookkeeping	1
AWD	1
Organic Agriculture	1
Strategic Planning	2
<i>(Multiple responses)</i>	

#### 6.2.2.4.RIO Institutional arrangements with other agencies

Due to the many agencies that pursue irrigation, there is need for an integrated irrigation plan for the country. Sometimes, the NIA is not advised by other agencies on projects to be done; sometimes these areas overlap with the NIA irrigated areas. NIA RIO works closely with the DAR; the DAR identifies the sites but the NIA builds the system and trains the IAs. According to the Luzon based RIO, they do not have any link with the NWRB. It also does not have any link with the DA, the DENR, the NEDA, the water districts, and the NGOs (Table 22). Sometimes the private sector with an irrigation system seeks technical advice from NIA; and there are times they become under the NIA, as they seek for more funds from the government.

**Table 22.RIO institutional arrangements with other agencies.**

Agencies	Role
<b>National</b>	
DAR	Luzon: Funds for CARP and ARISP projects ; needs to get certification from NIA regarding irrigation structure requirements but sometimes this is not followed, NIA monitors project of DAR; works with NIA in irrigation project implementation Visayas and Mindanao: coordination with CARP projects
NWRB	Deputized NIA to accept applications for water permits; issuance of water permits
DA BSWM	Luzon: NIA submits report to DA and OP; no link Visayas and Mindanao:there is coordination of projects; ask for seedlings
DENR	Visayas and Mindanao: coordination for clearances and other matters during project implementation
LWUA	Visayas and Mindanao: coordination re water conflicts
DBM	Visayas and Mindanao: coordination for the release of funds
<b>Local</b>	
LGU	Luzon: Project assistance to IAs; works with LGUs Visayas and Mindanao: POW negotiation, coordinance for protection and regulation of use of water
River basin (RB) Management(DENR)	Luzon: Does reforestation; no links, For big projects, ECC from DENR must be complied with

Agencies	Role
Water district	None; water rights and bulk water supply; MOA with NIA; no links; Purify water supply for strawberry farm of BSU
Private	Luzon: Hydro power plant; PCIC for insurance; Private systems seek advice from NIA; sometimes applies to be part of NIA Visayas and Mindanao: coordination in assisting farmers re rice production, provision of trainings, POW negotiation
NGOs	Some NGO submits project proposal; NGOs seek technical assistance from NIA
NCIP	Luzon: Needs clearance from this office in protected areas Visayas and Mindanao: coordination of projects involving IPs Get help from Rebel groups for accessing project sites
IAs	Visayas and Mindanao: joint coordination in project implementation, O&M of irrigation systems

Some national agencies that NIA works with according to the RIO are the Anti-Poverty Commission, the Philrice and the DAR.

At the local level, NIA works with the LGUs in the *Balikatan Sagip-Patubig* program for the 4<sup>th</sup> - 6<sup>th</sup> class municipalities. The design of the irrigation system is coordinated by NIA with LGUs as the LGU has a counterpart fund that comes from 10-15% of their IRA, depending on the class of the municipality. In addition, 30% is shouldered by the LGUs and farmers no longer pay. This program has ended three years ago. There was also the exercise of the bottoms up budgeting, where the barangay council, civil societies inform LGUs of their needs; the local poverty reduction team identifies needs at the bottom, including irrigation needs and projects are proposed to NIA, DOLE and DSWD.

It was observed that there is no connection between NIA RIO and the DENR, which is another non-compliance with AFMA provisions. But for big projects, ECC from DENR must be complied with. The local Water District also collaborates with the NIA in some instances. For instance, NIA collaborates with the La Trinidad Water District on purifying the water supply for strawberry farm of BSU. NIA's contribution is the provision of pipes while La Trinidad Water District provided water treatment/filter.

For the Visayas and Mindanao respondents, collaborative work of the RIO with other agencies is active (Table 23.b). There is mostly vertical and horizontal collaboration and coordination between RIO and the national agencies such as DAR, DPWH, DA, DENR, LWUA and the DBM.

#### 6.2.2.5 RIO Project cycle institutional arrangements.

In terms of project management, the RIO approves contracts up to PhP 50M, this is a delegated authority. The main criteria of NIA on where to construct new irrigation facility is that there should be an area and people that needs irrigation and that has a very good water source. Where to put the irrigation facility is supposed to be prioritized by the IAs; but more so political in nature. There are also cases when in the site ID, water availability was not checked during the planning (case in point Occidental Mindoro, where a 24 million peso investment went down the drain due to none availability of water-personal communication with Frances Tan, CPAf, 2014).

## Participation

Stakeholders participate in the design and planning of the project (Table 23). RIO decides on the budget, personnel and project matters. Project planning such as location of next irrigation facility may be done at the system level. NIS has the System Management Committee to guide in the decisions.

**Table 23. Degree of Participation in planning and climate resilient plans**

Item	Frequency
<b>Who does planning (budget and personnel)</b>	
Bottoms up planning	2
RIO	4
CO	5
<b>Basis for Planning</b>	
Water Supply	2
Economic Viability	1
5 year development plan	1
Resolution of IAs	3
Politicians	2
No answer	1
<i>(Multiple responses)</i>	
<b>Is plan climate resilient</b>	
Yes	7
No	0
No response	4
<b>Participation of Stakeholders in design and planning</b>	
Yes	4
No	7
<i>(Note: CIS participates in the planning; NIS does not)</i>	0

The subsequent discussions were analysis of data from Visayas and Mindanao only. Project cycle governance was not part of the Luzon activities.

The respondents were one in saying that stakeholders participate in design and planning of irrigation projects. NIA decides on the budget, NIA implements and monitors the completion (Table 24). Water availability is part of the criterion. Location is based on the feasibility and planning. According to the RIOs interviewed, NIA has the bulk of the responsibility in the planning and design for the new projects.

**Table 24. Representation/participation in planning and design stage, RIO level**

Item	Frequency (in %)
Stakeholders participate in design and planning of irrigation projects	
Yes	100
No	0
Decision maker on the budget	
NIA	75
Depends on the program	25

Decision maker on the personnel	
NIA	75
Existing already	25
Decision maker on the planning	
NIA	100
Who does the implementation?	
NIA	100
Who monitors completion?	
NIA	100
Who does climate resilient planning?	
NIA	100
Basis of decision on the location of the new system*	
Based on results of feasibility study and planning	50
Water availability	50
NIA decides	25
<i>*multiple responses</i>	
Water availability is part of the criterion on location	
Yes	100
No	0
In charge of writing the proposal	
NIA	50
Proposals form LGU/IAs/individual farmers	50
How does this proposal go up the national decision makers?	
Through NIA Central Office	25
Through results of FS study/FS report	25
Through endorsement by NIA-IMO, RIO, and political leaders	25
No clear answer	25
Is the location suggested by the IAs always followed?	
Yes	50
No	25
Depends	25
Who decides on the size of the structure?	
NIA	75
No answer	25
Who takes care of the right of way problems?	
NIA	75
No answer	25
Who makes the design of the structure?	

NIA	75
No answer	25
Social acceptability by the community is part of the assessment	
Yes	100
No	0
Farmers are consulted on the location of the irrigation structure	
Yes	100
No	0
How is the appraisal of the proposed irrigation projects done?	
Through feasibility study & availability of water source, area for irrigation and farmers willing to till the land	50
PMO at CO	25
No answer	25
Where do the proponents get the appraisal team?	
NIA	100
Who suggests on the appraisal team?	
NIA	75
No answer	25
What are the qualifications of the appraisal team?	
Technical capabilities	50
No answer	50
Who sets these qualifications of the appraisal team?	
Within the defined qualification standards of NIA in accordance with CSC	75
No answer	25
Who sets the budget for the appraisal?	
NIA	75
No answer	25
In charge of validating list of farmer beneficiaries*	
NIA	100
IA	50
<i>*multiple responses</i>	
In charge of validating the tenure of farmers*	
NIA	100
IA	50
<i>*multiple responses</i>	

Implementation of new projects was seen to be participated actively by the farmers, where IA formation starts before the construction (Table 25). NIA is in charge of the procurement of materials, through the usual bidding process. Problems in procurement that may delay the construction include weather, delay of budget release and legal procurement process that needs to be followed.



**Table 25. Project Cycle Governance, Implementation stage**

Item	Frequency (in %)
Farmer participation during implementation	
Yes	100
No	0
Start of IA formation	
Before IS construction	100
Timelines met by all concerned	
Yes	25
No	25
Sometimes	50
In charge of procurement of needed materials for the structures	
NIA	100
Method of procurement	
Bidding	100
Problems in procurement that may delay the implementation process	
Weather, delay of budget release	25
Legal procurement process that needs to be followed	25
No problem re procurement	25
No answer	25

The condition of the O and M now is different as the funds are coming from the national government and not the ISF anymore. The respondents say that the level of O and M now is greater than before the new policy and that there is no supplemental source of the O and M if subsidy is less than the expenses (Table 26). The respondents seem not to know who decides on how much O and M to be sent. The good news though is that the IAs still follow the provisions of the IMT, meaning IAs themselves may need to collect funds from among them to maintain their system and their level of IMT. It was also noted by half of the respondents that there is not enough funds even to maintain level 1 IMT based on the funds from government. Partnership between NIA and the IAs can still be strengthened or sustained through constant coordination and dialogue between them. Before, with the ISF, there was need for a strong link between the two, as they depend on one another for viability. Half of the respondents said that free irrigation policy is not at all beneficial in terms of management of the IAs O and M. The new policy decreased the financial capability since not all farmers pay the obligations anymore. Finally, it was perceived that there is adequate personnel within the IAs to monitor the structures of the system. So there is no need to increase the personnel complement of the NIA anymore.

**Table 26. Project Cycle Governance, Operations and Maintenance stage.**

Item	Frequency (in %)
Level of the O and M now compared to before the free irrigation policy	

Item	Frequency (in %)
Same	25
More	75
Less	0
Supplemental source of O and M, if less	
NIS Not applicable	100
CIS Not applicable	100
Who decides on the amount of O and M to send to the IAs?	
Depends	25
NIA (IMO and RIO)	25
No answer	50
Lag time between the O and M transmittal to the NIS/CIS before the policy and after the policy	
Same	100
More	0
Less	0
Are there still IAs that currently do the provisions of the IMT?	
Yes	100
No	0
Is there enough O and M from the NIA for IAs to be able to provide for the IMT model 1 agreements?	
Yes	50
No	50
How can the partnership between NIA and the IAs still be strengthened or sustained?	
Through constant coordination and dialogue between NIA and IAs	75
No answer	25
How will you maintain the relationship with IAs?	
Through constant coordination and dialogue between NIA and IAs	75
No answer	25
Will the free irrigation policy be more beneficial in terms of management of the C/N IAs O and M?	
Yes	25
No	50
No answer	25
Need for additional personnel requirements to implement the free irrigation policy	
Yes	25
No	50
No answer	25

Item	Frequency (in %)
What additional personnel requirements did NIA employ to implement the free irrigation policy?	
Additional IDOs	25
Not applicable	50
No answer	25
How did the policy affect the C/N IAs in terms of personnel?	
No effect in terms of quantity but it has negative effect on the morale of the IA officers	25
Not so much in terms of operation	25
No answer	50
How did the new policy affect the operations of the IAs?	
It decreases their financial capability since not all farmers pay the obligations anymore	50
No answer	50
Adequacy of personnel within the IAs to monitor the structures of the system	
Yes	75
No	25

One of the issues in monitoring and evaluation is the presence of a reliable and timely data base that can inform the decisions on how much to irrigate next season in terms of water availability, how many hectares need rehabilitation, the information in the cropping calendar such as when to plant, and other indicators. . NIA has an SMCs (established via an MC) where NIA, IAs, even LGUs especially in times of dry spells, meet days or weeks before the start of planting to discuss water allocation, and schedules/water flow, as discussed above. How effective is this M&E can be gauged from the NIS and CIS ratios of Actual irrig Wet/Programmed Wet & Actual irrig dry/Programmed dry. The farther from 100%, will partly indicate that the “crude (rough measures) monitoring by NIA works or does not work well

Some of the data that need regular collection are the service area of system and the inventory of service area across space. Data are stored at the field office of the NIA. Operations staff of NIA does the data analysis. Seventy five percent of the respondents mentioned that data from the field are used in the choice of location of new system and where to restore and rehabilitate. Also, most of these respondents stated that all data and information are available, and that they are ready for use of GIS techniques, with presence of skilled personnel.

#### 6.2.2.6. Incentive Mechanisms for RIO

Incentive schemes exist before the new policy. But with the current policy, there is lack of incentive for the NIA to provide better services (Table 27). According to the KII data, the new policy will have a negative effect on the O&M of the system. It has affected the financial status of IAs. Many farmers did not pay IA dues anymore which are necessary for the operations of the IA. The operation and maintenance of the NIA systems which are the duties and responsibilities of IAs under IMT program is greatly affected. Another immediate effect is on minor damages of facilities which are to be undertaken by the IAs. There needs to be availability of funds for NIA to undertake major repairs after calamities and availability of equipment for NIA to undertake repairs that are beyond the capabilities of the IAs. What

became a better service is the closer coordination of IA officers and NIA staff in operation & maintenance activities of the systems.

One incentive mechanism is for the host town or barangay to charge the irrigation system a percentage of their total operation. Part of this amount can be sent back to the RIO so they will be able to lend more positive services to the farmer beneficiaries.

#### 6.2.2.7 Effects of new policy on the operations of the NIA

In the planning stage, confirmation of new small irrigation projects and rehabilitation of existing CIS are easier since farmers are not hesitant for the project implementation due to free irrigation policy. There is negative effect on the O&M of irrigation systems, since the farmers are not willing to pay their dues. This will absolutely undermine IA funds for operation & maintenance. In NIS, IAs will no longer have their ISF share, hence less honorarium for officers who are assigned in the O&M activities. Anyway, these might be temporary due to the transition period of free irrigation policy. It is hoped that government can increase IA subsidy and canal remuneration to encourage IA officers to do a better job.

**Table 27. Incentive Mechanisms for RIO**

Item	Frequency (in %)
Incentive for NIA to provide better service	
Recognition and happiness that they feel	25
Subsidy	25
None	50
Effects of free irrigation on NIA service infra maintenance and operations of the system?	
Negative effect on the O&M of the system since it has affected the financial status of IAs. Many farmers did not pay IA dues anymore which are necessary for the operations of our IA.	25
None	25
No answer	50
What service worsened?	
The operation and maintenance of our systems which are the duties and responsibilities of our IAs under IMT program. Another is the immediate effect of minor damages of facilities which are to be undertaken by our IAs. Availability of funds for NIA to undertake major repairs after calamities and availability of equipment for NIA to undertake repairs that are beyond the capabilities of the IAs.	25
None	25
No answer	50
What became better?	
The coordination of IA officers and NIA staff in operation & maintenance activities of the systems	25
No answer	75
Effects of new policy on the operations of the NIA	
In the planning stage, confirmation of new small irrigation projects and rehabilitation of existing CIS are easier since farmers are not hesitant for	25

Item	Frequency (in %)
the project implementation due to free irrigation policy. In the O&M of irrigation systems, it has a negative effect on IAs both of the NIS and CIS since the farmers are not willing to pay their dues to IAs due to free irrigation policy mindset. This will absolutely determine IA funds for operation & maintenance of their organization and irrigation systems.	
In NIS, IAs will no longer have their ISF share, hence less honorarium for officers who are assigned in the O&M activities.	50
Full time on operations	25
Timely release of salaries of NIA staff	
Yes	75
No	25
Timely release of funds and on time O&M	
Yes	75
No	25
More delays in minor repairs	
Yes	75
No	25
Triggers in policy changes at the NIA (i.e. IMT, Rationalization, free irrigation)	
	25
Demand of farmers, congressman	25
Contracts with farmers	50
No answer	

### 6.2.3. Role of NIA's Irrigation Management Office (IMO)

Eleven IMOs in Luzon and 8 in Visayas and Mindanao were visited by the team in 2015 and 2018, respectively. This section summarizes the answers of the key interview respondents using the same list of questions of the RIO where applicable. IMO mandate is about operation.

#### 6.2.3.1 Water Law/Rules

##### 1. Issues on water permits

All respondents in Luzon had water permits and the form of permit is group or collective. Years granted as cited were 1926, 1985, 1980. According to Nueva Viscaya respondent, water tariff is PhP 11,500 /year; with 2,680 liters per second (lps) and that this is enough. Nueva Ecija responded that there is no water tariff, and that they extract 36,000 lps and lps is enough. Three IMOs say that lps is not enough. Majority of the IMOs did not have any response on the issue of water tariff, their assigned lps and whether this is enough.

In Visayas and Mindanao, most of the water permits are also collective and all have water permits. Water tariff in North Cotabato are Php 500 for CIS and Php 5,000 for NIS. The lps range from 1 to 2 per hectare, most say that this is enough for their needs.

## 2. Conflict management provisions

There is a conflict resolution mechanism used according to 17 respondents. Conflicts are due to water allocation, water competition and right of way issues (Table 28). Resolution is mostly at the IA level, or if this is more serious, the resolution can be at the Mayor's level or the CO. One NIS has a Water Crisis Committee that settles conflicts. There was also mention of a Conflict and Grievance Committee of the IMO.

**Table 28. Conflict resolution (n=19).**

Item	Frequency
<b>Existence of a Conflict Resolution Mechanism</b>	
Yes	17
No	2
<b>Examples of Conflict incidents between/among users</b>	
None/Not applicable	4
Water Use conflict (upstream/downstream)	1
Water use conflicts with the IA	2
Water permit sourced conflict	2
Right of way	3
Illegal water tapping	4
<b>Process of Conflict Resolution</b>	
IDO to IA	2
IA will settle	6
NWRB	1
IA report to NIA; NIA advised IA to report to the mayor	2
CIMO	2
NIS has Water Crisis Committee	1
Conflict mechanism hierarchy: IDO-IMO-LGU-Police officer	1
Rules in the IA bylaws are followed	1
Conflict and Grievance Committee of the IMO	2
Not applicable	2

## 3. Inter basin Issues

Most respondents said that there is no legally specified mechanism for inter-municipality or inter-basin conflicts, while others said that LGU settles the conflict or that they refer to the history of the water rights (Table 29).

**Table 29. Inter-basin conflict settlement (n=19).**

Item	Frequency
<b>Existence of legally specified mechanisms for inter-municipality/inter-basin conflicts</b>	

Yes	7
No	11
Don't know	1
<b>Mechanisms for conflict settlement</b>	
Not Applicable	12
LGUs will settle	4
MOA	2
History of water rights	1

#### 4. Provisions for accountability

IMO supports both the CIS and the LGUs. Technical support given to the CIS IAs are in terms of rehab, repair and construction, lending of equipment, design of facilities, maintenance of the system and training, among others (Table 30). Assistance given to the LGUs included technical and institutional training and design of irrigation facilities.

**Table 30. IMO support to CIS and LGU (n=19).**

Item	Frequency
<b>Technical Support given to CIS</b>	
Construction	5
Rehab	3
Repair	6
Equipment	5
Design of Irrigation Facilities	1
Maintenance of System	3
Training	7
Planning and preparation of POW	1
Monitoring of facilities	3
Validation of request	1
<i>(Multiple responses)</i>	
<b>Assistance given to LGU</b>	
None	6
Technical training	4
Design of irrigation facilities	3
Institutional Training	1
BSPP counterpart	1
Coordination	1
<i>(Multiple responses)</i>	

IMO respondents said that they do work with IAs in various spheres as indicated in Table 31. These include water delivery and distribution, water scheduling, maintenance of the system, water allocation and monitoring of the structures. In case of damages, IMO searches for budget or other ways to repair the system.

**Table 31. Role of IMO in various IA activities (n=19).**

Activities	Role of IMO
Water Delivery/Distribution	Supervision (NIS) Assistance (CIS); They control the main gate; Planning, Monitoring and crop calendar
Water Scheduling	Supervision (NIS) Assistance (CIS); Assists water master and IA in the scheduling and they post “Patalastas” regarding the water schedule; Monitoring; They set a meeting before the cropping starts; IMO with IAs- System management committee; Cropping calendar
Maintenance of the system	Supervision (NIS) Assistance (CIS); They have a regular maintenance every Sept.; They are responsible for the maintenance of the major structure and the main dam; Monitoring; provides equipment
Water Allocation within the system	Supervision (NIS) Assistance (CIS); None- IAs are the one responsible for this; Monitoring; Guided by the water permit and cropping calendar; They help the IA in the allocation
Monitoring of structures	Supervision (NIS) Assistance (CIS); They have a regular maintenance every Sept.; Monitoring; The IA reports to NIA if there are problems or damage in the structure; The gate keeper/water source facility operator monitors the structure.
<b>Actions from IMO for reported damaged structures</b>	
Evaluate and include in the program	7
IA will make resolution for IMO to investigate and include in the program	2
Site inspection/validation	11
Prepare report and POW	2
If needs huge budget, to be part of next year’s budget	12

### 6.2.3.2 Water Policy

IMO’s mandate is mostly on operation; there were no issues on policy.

### 6.2.3.3 Water Administration/Organization

#### 1. Finance and pricing

According to the respondents, DBM is in charge of their budget allocation (Table 32). They graded highly the transparency and participation in the budget allocation process. They also cited similar sources of budget as mentioned by the RIOs.

**Table 32. Financing and Pricing: Budget Allocation (n=19).**

Item	Frequency
<b>In charge of Budget Allocation</b>	
DBM	6
RIO and CO	2
RIO only	3
IMO submits budget to RIO	7



Level of <b>Transparency</b> in budget allocation process (scale of 0-4, 4 most transparent)	3.6
Level of <b>Participation</b> in budget allocation process (scale 0-4, 4 most participatory)	3.5
<b>Sources of Budget</b>	
ISF Collection	14
Equipment rental	8
GAA	6
Foreign assisted	1
BSPP-DA	1
Amortization and equity of CIS	7
CDF of Congressmen	1
5-10% of management fee of profits (Multiple responses)	1

Most of the respondents did not know the repayment rates (Table 33). Mode of collection is prevalently NIA collector for NIS and IA and NIA for CIS.

**Table 33. Repayment rate and mode of collection (n=19).**

Item	Frequency	
	NIS	CIS
<b>Repayment Rate</b>		
No answer	11	10
Below 50%	3	3
Above and equal to 50%	5	6
<b>Mode of collection</b>		
IA and NIA (IMO and RIO)	4	11
NIA collector	10	5
IMO	2	3
RIO	3	1

IMO was also asked of their role in payment collection and disbursement. Most popular answers were collection of the ISF and the amortization and either no role in disbursement or sending this collection to the RIO (Table 34).

**Table 34. Role of IMO in Payment Collection and Disbursement (n=19).**

Item	Frequency
Role of IMO in payment collection	
Gives receipts	2
Releases the IA share	1
Collection of ISF and amortization	16
IDO reminders	1
Monitoring and supervision (Multiple responses)	1
Role of the IMO in disbursement	
None	6
IMO submits collection to RIO	11
Based on delegated authority, IMO can disburse	2

## 2. Personnel Matters

In terms of personnel matters, IMO respondents said that they don't have adequate staff, no balance between managerial and operations or field personnel, and no balance between permanent and temporary staff (Table 35). This is also the result of the RPlan.

**Table 35. Personnel Matters (n=11).**

Item	Frequency
<b>Adequacy of Staff Personnel</b>	
Yes	3
No	8
<b>Balance between managerial and operations personnel</b>	
Yes	2
No	9
<b>Balance between permanent and temporary staff</b>	
Yes	1
No	10
<b>Balance between professional and non-professional staff</b>	
Yes	3
No	8
<b>% of operations staff actually working in the field</b>	
100%	2
Above and equal to 70 %	4
Below 70%	1
No answer	4
<b>Work Assignment of IDOs</b>	
Fixed Assignment	8
Rotational Assignment	1
Both	2

## 3. Issues and Concerns

IMO respondents were also asked about their issues and concerns reported in Table 36. According to them, both NIS and CIS are more worried about the lack of water supply. NIS also worries about lack of equipment and repayment scheme; while CIS worries about the lack of funds.

**Table 36. Issues and Concerns by NIS and CIS according to the IMOs (n=19).**

Item	Frequency
NIS	
Continuous funding allocation	2
Re study the RPlan	2
Lack of Equipment	5
Repayment Scheme	5

Item	Frequency
Main canal upgrade/maintenance	1
Lack of water supply	7
Political Intervention	1
Inadequacy of personnel	1
NIA as a separate agency	1
Prioritize restoration and construction	3
Cropping calendar not always followed	1
Institutional Development	1
Rapid urbanization	1
Aging farmers	1
IA is dependent on NIA	1
Siltation and flooding	2
Land conversion	1
Old equipment	1
<i>(Multiple responses)</i>	
CIS	
Review RPlan	2
Water Delivery Schedule/water allocation	4
Deterioration of System/lack of maintenance	4
Lack of manpower	1
Inadequate facilities	2
Lack of Funds	4
Water Supply	5
Political Intervention	1
Increase CIS amortization from 50% to 75%	1
Service area expanded by farmers without IA permission	1
Institutional Development	1
Aging farmers	1
Siltation and flooding	2
Land conversion	1
<i>(Multiple responses)</i>	

#### 6.2.3.4 IMO Institutional arrangements with other agencies

As with the RIO, IMO also collaborates with various national and local agencies in the performance of their work (Table 37). They collaborate with the national offices of the NIA, DAR, DPWH, DA, NPC, DENR and the regional NIA. Among their local partners are LGUs, IAs and other NGOs. The nature of collaboration is mostly right of way issues; environmental compliance in critical areas, coordination regarding projects, technology transfer, etc. They said agencies have legal mandates to assist in the irrigation sector.

**Table 37. IMO institutional linkages with other agencies**

Agency	Nature of Collaboration
National	

<b>Agency</b>	<b>Nature of Collaboration</b>
NIA CO	Luzon: Coordination regarding the projects; Budget for projects; Project identification VisMin: Budget, monitoring, policies and mandates, circulations, finalization of listings
DAR	Luzon: Fund source for some projects (ARISP and CARP projects) VisMin: CARP Projects, RISP, Agrarian Reform Fund, certificate of irrigation coverage and conversion
DPWH	Luzon: Permit to construct irrigation structures and if there is a road construction that will pass through the irrigation canal; Clearance if the construction of system will pass a national road; Right of way for main canals; flood control projects VisMin: Farm to market roads, specifications of construction
DA	Luzon: Water scheduling and distribute seeds and fertilizer to farmers; Technology transfer; BUB projects VisMin: Harmonizing of programs, rice production and machinery assistance
NPC	Luzon: If there is a project related to power generation; for cropping calendar formulation VisMin: Tree planting activities together with other government agencies, but mostly no interaction
DENR	Luzon: Tree planting activities and reforestation; Watershed management VisMin: Trainings programs, watershed management, environmental compliance in critical areas, cutting of trees for right of way issues, tree planting activities
DOH	Luzon: None VisMin: Health and sanitation issues such as that of schistosomiasis  "Changing irrigation systems are recognized as affecting the distribution of Schistosoma haematobium and S. Mansoni and its snail vectors." (Watts and El Katsha 1997)
Regional NIA	Luzon: Coordination regarding the projects; Budget for projects; Design; Monitoring VisMin: Regional policies and mandates
<b>Local</b>	
LGUs	Luzon: Assistance for the IAs like fuel subsidy for the equipment that IA use; Collection of ISF and project implementation; Coordination if there will be a project; Cropping calendar formulation VisMin: Helps in the implementation of programs, provides assistance in solving right of way problems
Private Sector IAs	Luzon: Trainings and seminars; Institutional and technical support; Participation in planning of O&M; Planning of projects and collection of fees VisMin: Partners in all forms of irrigation development
Private Sector	NGCP Pumping stations; Korean funded project-SRIP water shed component
Private Sector	Multinational companies seeking irrigation

#### 6.2.3.5. IMO Project cycle institutional arrangements

This study also attempts to generate information on decision making processes and the institutional arrangements that NIA undertakes during a project cycle. This section only refers to data from Visayas and Mindanao.

For planning and design, IMO respondents said that NIA IMO in consultation with the farmers decide on the location where water availability is part of the criteria. IA in coordination with the NIA and the LGU writes the proposal. It was found that the approach for planning and design is participatory; and social acceptability of the community is part of the assessment (Table 38).

**Table 38. Project Cycle Governance, planning and design stage.**

Item	Frequency (in %)
Decision making on location of the system	
Google maps	14
NIA-IMO in consultation with farmers	86
Water availability part of the criterion	
Yes	100
No	0
In charge of writing the proposal	
NIA	43
IA in coordination with NIA and LGU	57
Is the location suggested by the IAs always followed?	
Yes	71
No	29
Social acceptability by the community is part of the assessment	
Yes	100
No	0
Farmers are consulted on the location of the irrigation structure	
Yes	100
No	0
In charge of validating list of farmer beneficiaries	
NIA and IA (IDO-farmers)	100
In charge of validating the tenure of farmers	
NIA and IA (IDO-farmers)	100

For project implementation, farmers in both the NIS and CIS IAs participate in terms of labor/manpower/assistance in implementation (Table 39). The NIA and the contractor solicit this participation. More than 50% said that the timelines for the construction are met; the NIA is in charge of the procurement through the necessary bidding process. When failure in bidding occurs, then there will be delays.

**Table 39. Project Cycle Governance, Implementation stage.**

Item	Frequency (in %)
Farmer participation during implementation	
NIS	
Yes	100
No	0
CIS	
Yes	100
No	0
Start of IA formation	
Prior to project implementation	100
Timelines met by all concerned	
Yes	57
No	29
Sometimes	14
In charge of procurement of needed materials for the structures	
NIA through BAC	100
Method of procurement	
Following implementing rules of RA 9184/Bidding	86
No answer	14
Problems in procurement that may delay the implementation process	
Difficult to convince dealers	14
Changes in prices	14
Failure in bidding	43
Delay release of funds	14
None	14
Roles of farmers during project implementation	
Labor/manpower/assistance in implementation	100
Who involves farmers in implementation?	
NIA and contractor	100

IMO respondents believe that the level of O and M now compared to before the free irrigation policy is still the same (Table 40). But the subsidy is not enough, so the supplemental source of O and M is the collection from the IAs. This means that the IAs are willing to still pay O and M so that the system will be fully maintained. Respondents also felt that free irrigation policy may not be effective in the management of the IAs O and M, though they say it is too early to tell. The new policy will not affect the O and M role of the IAs, only the rate of collection will decrease. The IDO's role also is the same with the new policy. Respondents likewise said that NIA and IA partnership will weaken with the new policy; and this can actually be strengthened through more IECs and maintaining such partnerships through trainings and constant coordination.

**Table 40. Project Cycle Governance, Operations and Maintenance stage.**

Item	Frequency (in %)
Level of the O and M now compared to before the free irrigation policy	
Same	42

Item	Frequency (in %)
More	29
Less	29
Supplemental source of O and M, if less From collection of IA's O&M fees	100
Lag time between the O and M transmittal to the NIS/CIS before the policy and after the policy	
Same	57
More	0
Less	0
Depends	14
Not applicable	29
Is the free irrigation policy more effective in the management of the IAs	
Yes	14
No	29
Depends	29
Cannot be determined yet	14
No answer	14
Reasons	
Rate of payment of O&M dues decreased	57
Farmers were able to save because they don't pay ISF anymore	43
Effect/impact cannot be seen yet because it is a new policy	14
Need for additional personnel requirements to implement the free irrigation policy	
Yes	43
No	43
No answer	14
How did the new policy affect the O and M role of the IAs?	
It is the same. Only the rate of collection decreased but the role of IAs are the same.	100
How were the LGUs who implement the irrigation facility affected by the free irrigation policy?	
Some LGUs want to handle IAs	14
Not applicable/not affected/none	86
<b>Adequacy of personnel within the IAs to monitor the structures of the system</b>	
Yes	43
No	0
Depends	14
Not applicable	14
No answer	29
Did the IDO's role change at all with the new irrigation policy?	
Yes	29
No	71

Item	Frequency (in %)
Do you think the partnership between NIA and the IAs weakened?	
Yes	0
No	100
Given the new policy, how can the partnership between NIA and the IAs still be strengthened or sustained?	
Strengthen partnership through IDOs	14
IECs	14
Maintain through trainings and constant coordination	57
No answer	15

Availability of data and modernizing the method of data collection are some of the challenges in monitoring and evaluation. Currently, the method of data collection is still manual which involves the coordination between IAs and IDOs (Table 41). Respondents likewise said that data from the field are also used for decision making for the next season, in the decision for rehabilitation.

**Table 41. Project Cycle Governance, Monitoring and Evaluation.**

Item	Frequency (in %)
Method of data collection for cropping intensity and service area	
Coordination between IAs and IDOs	100
Whether data from the field are used in estimating functional indicators being used for planning purposes	
Yes	100
No	0
Are data collected/analyzed in time for use in planning by national and regional policy makers?	
Yes	100
No	0
Location of data storage	
NIA	100
Data analysts (i.e. for trends) at the NIA	
Regional IMO	29
O&M division	14
NIA Operations Section (EOD)	29
IMO	29
In the choice of location of new system, are data from the field used?	
Yes	100
No	0
In the choice of where to rehabilitate, are data from the field used?	
Yes	100
No	0
How is the water allocation in the next season decided?	
In the NIS	
NIA	57



Item	Frequency (in %)
Cropping calendar	14
Based on SMC meeting	14
Based on O&M Plan	15
In the CIS	
IA	72
No answer	14
Based on O&M Plan	14
Existence of the System Management Council (SMC)	
Yes	86
No	0
Not applicable	14
If yes, does SMC plan for water use for the next irrigation cycle?	
Yes	57
No	29
Not applicable	14

#### 6.2.3.6 Incentive Mechanisms for IMO

With the current policy, the incentive for NIA officials to provide better service is gone. For them, this era will be more service to the farmer. That maybe is the reason why NIA says that it is losing its GOCC identity and will become purely developmental organization. Right now, the IMO respondents await the PBB as the incentive to perform (Table 42).

**Table 42. Incentive Mechanisms for IMO**

Item	Frequency (in %)
Incentive for NIA to provide better service	
Intrinsic value	14
They are GOCC so they need to generate income	14
PBB	29
None	14
Needs of farmer	14
Salary increase	15
Effects of free irrigation on NIA service infra maintenance and operations of the system?	
More budget on new systems	14
Can focus on project implementation and improvement of target areas	14
Lesser budget for IAs due to abolition of IA shares from ISF collection, greater savings for CIS	29
Less ability to hire technical staff	14
None	29
What service worsened?	
Payment collection	14
None	71
No answer	15
What became better?	

Item	Frequency (in %)
No pressure on collection	14
Less burden for farmers	43
Stronger NIA-IA partnership	14
None	14
No answer	15
Timely release of salaries of NIA staff	
Yes	14
No	86
Timely release of funds and on time O&M	
Yes	14
No	86
More delays in minor repairs	
Yes	14
No	86
Triggers in policy changes at the NIA (i.e. IMT, Rationalization, free irrigation)	
Campaign promise	14
Farmers' demand	29
For better benefit and service of the clientele	29
Change in admin	14
Copied from other countries	14

### 6.3 Micro Level Governance of IAs

#### 6.3.1 NIS IAs Governance

##### 6.3.1.1 National Irrigation System IA Performance

This section will attempt to explain the system level governance performance. The over-all performance ratings of both NIS and CIS in terms of governance indicators are above satisfactory (Nguyen 2015). This reveals that the IAs are satisfied with their current operations even if the physical indicators showed otherwise (Clemente 2015). One of the reasons for such satisfaction could be that IAs are at the mercy of the NIA in funding and other decisions such as cropping calendar and water distribution. This also implies that IAs are still not that empowered to express their desires.

Performance ratings of NIS-IAs ranged from 2.1 to 3.4 across the NIS with an overall rating of 2.8 (very satisfactory). In analyzing further the various IS activities, maintenance of canal (3.6), technical advice to farmers (3.5) and water distribution (3.4) were given the top ratings by the respondents. Maintenance of control structures had the lowest performance rating (2.0) followed by collection of other fees and the ISF (2.23 and 2.22, respectively), which is just satisfactory. The lack of capacity of some NIS IAs to maintain control structures may also be the reason for the low rating. It was also found in the NIS study that staff gauges are lacking or missing in most NIS cases visited which limits information on available flows; and canals/structures are damaged which affect water delivery service. In effect, the delivery performance ratio, an indicator which describes the actual over design discharge has yet to be assessed to show the water delivery efficiency of the systems (Clemente 2015).

The low ISF collection is revealed in the governance report. This also reflects the poor water service especially in the downstream.

NIS report also revealed that most IAs have moderate performance (consistent with satisfactory level in the cross cutting paper) levels; and only 12% are showing high performance and these are found at the upstream part which receive adequate water supply. The downstream IAs are showing low performance. It cites that even without much technical data on flows are included in the analysis, results show that water delivery is one major factor causing low performance. The inadequacy of water supply downstream can be attributed again to the technical issue on canal siltation which has reduced its delivery capacity, thus affecting the tail end users (Clemente 2015).

Based on the above, suggested policy reforms and its proper enforcement are needed according to Clemente (2015). First of all, is the need to improve ISF collection in some NIS. Second, watershed management is also needed as a preventive approach to address siltation of water courses and thus improve discharge capacity of water distribution canals. Third, canal and its appurtenant structures need regular maintenance and rehabilitation to improve efficiency in water allocation and distribution from upstream to downstream users.

Fourth, although the water quality indicators such as dissolved oxygen (DO), pH and electrical conductivity (EC) which is related to salinity level, are showing acceptable levels, this however provides baseline information which should be part of monitoring and evaluation and basis for policy formulation to avoid water quality deterioration in the future.

Lastly, the poor water distribution in most NIS cases is mainly due to water losses especially in earth canals. It is recommended to increase the coverage of lining in most NIS in order to reduce water losses and improve conveyance efficiency and thus enhance water availability (Clemente 2015).

For the future, when IMT program will be in place, NIS IAs will have to tackle the above issues. Some of these can be done by them, others will need to be assisted by national agencies and still others by the academe. Constituting this support mechanism will certainly be a challenge.

The discussion above is already water under the bridge because of the new free irrigation policy of the government.

#### 6.3.1.2 Awareness of free irrigation policy and actions taken NIS IAs

For Visayas and Mindanao, the issues being addressed are the awareness by the NIS IAs of the new policy and the incentive mechanisms that need to be put in place in the absence of the previous incentives by the NIA and the IAs to deliver better service. The project cycle governance mechanisms at the NIS level are also be discussed.

Data from the Cycle 2 came from 88 NIS IAs classified in Table 43 according to location within the watershed and across the various levels of the IMT. Amongst the 88 cases, 26 are IMT model 1, 29 are IMT Model 2, and 7 were higher than Model 2. Twenty- two are located upstream, 13 midstream and 18 downstream. A big chunk of the cases had no answer with respect to location and level of IMT.

**Table 43.Characteristics of NIS IAs respondents, by IMT model and location, frequency distribution**

IMT Model	Location				Total
	Upstream	Midstream	Downstream	No answer	
Model 1	6	5	5	10	26
Model 2	8	6	8	7	29
Model 3	1	0	1	1	3
Model 4	0	0	0	1	1
Modified	2	0	1	0	3
No answer	5	2	3	16	26
Total	22	13	18	35	88

NIS IAs are fully aware of the new policy, as far back as 2016 (Table 44). The main source of information was the NIA. Upon final passage of the policy, NIA underwent an information dissemination, conferences and meetings to discuss the next steps. But there were some changes in the operations of the IAs, since there will be no ISF anymore. For IAs with savings, they can still grow these savings. IAs also expect shortness of O&M funds due to the hesitance of farmers to pay dues and the absence of incentives. There must be proposals to determine the appropriate incentives for both the NIA and the IAs for them to sustain the O and M service of the IAs.

**Table 44.Awareness of the free irrigation policy, source of information and actions taken, NIS IAs**

Item	Frequency (in %)
Awareness of new irrigation policy	
Yes	94
No	2
No answer	4
Total	100
Date of information	
2016	30
2017	42
2018	1
No answer	27
Sources of Information*	
NIA	75
TV	5
Pres. Digong/ Sec. Pinol/ Regional Director/Administrator	4
No answer	20
<i>*multiple responses</i>	
Actions taken by NIA to implement new policy	
Conduct an SMC/interface meeting/conferences	49
Information dissemination	30
No answer	21

Changes in the operations of the NIS after the new irrigation policy*	
No more ISF collection	25
There are now savings	28
Short of O&M funds due to the hesitance of farmers to pay dues	
No more incentive	14
Enhanced cooperation in canal clearing	8
Others	9
No answer	8
*multiple responses	12
Incentives for sustaining Model 2/3	
NIA/O&M subsidy	20
No answer	80

### 6.3.1.3 NIS Project Cycle governance

One of the objectives in Cycle 2 was to understand the institutional arrangements in the various stages of the irrigation project cycle. This section will discuss the NIS IAs roles in project cycle governance.

Because NIS are mostly big projects, the participation of farmers in the planning and design stage is not that significant. Almost all of them don't participate in the decision making during the planning stage. Most items also have no answers, which reveal non-participation of the NIS IAs in this stage of the project cycle. A small percentage of the respondents said that social acceptability by the community is part of the assessment.

Most all farmers are also not involved in the implementation phase of the project.

With regards the O and M, Luzon respondents mentioned that the source of O and M funds were NIA and the GAA. NIS IAs respondents felt that they are not capable of O and M activities; and the technical background is nearly adequate.

In Visayas and Mindanao, in contrast with the planning and design and implementation of the project, the NIS IAs were more active in the O and M phase of the project cycle. Most are aware of the payment rate by the NIA for the O and M of the system and that these payments are not enough for the NIS IAs needs.(Table 45).

**Table 45. Participation of the NIS IAs in the Operations and Maintenance of the System in Visayas and Mindanao.**

Item	Frequency (in %)
Awareness on the payment rate by the NIA for the O and M of the system	
Yes	91
No	7
No answer	2
Total (88)	100
Payments received in 2017	
Yes	83

Item	Frequency (in %)
No	12
No answer	5
Total (88)	100
Payment is enough for the NIS O and M needs	
Yes	
No	12
No answer	83
Total (88)	5
Coping strategies if the NIA funds are not enough	
Collection of IA management dues	81
Own canal clearing since there is no budget/bayanihan system	2
Request for increase in subsidy	2
No answer	15
Comparison of lag time between the O and M transmittal to the NIS IA before the policy and after the policy?	
Shorter	4
Longer	7
Same	82
No answer	7
Total (n)	100
With the new irrigation policy, NIS IAs still follow the provisions of the IMT	
Yes	22
No	76
No answer	2
Total (88)	100
Adequacy of O and M from the NIA for NIS IAs to be able to provide for the IMT agreement?	
Yes	15
No	82
No answer	3
Total (88)	100
Perceptions on whether the new policy will be detrimental to the IMT operations	
Yes	24
No	72
No answer	4
Total (88)	100
Reasons for saying that new policy is detrimental to the IMT operations	
Difficulty in maintenance	62
BOD will have no income/incentives; some officers will be removed	10
No answer	28

Item	Frequency (in %)
Total (21)	100
Reasons for saying that new policy is not detrimental to the IMT operations	
They became unified	12
Modified IMT is better	68
No answer	20
Total (63)	100
Additional staffing support by the NIA with the new policy	
Yes	1
No	97
No answer	2
Total (88)	100
Whether the new policy increase the efficiency in system operations of the NIS	
Yes	14
No	83
No answer	3
Total (88)	100
Effects of the new irrigation policy on the role of the IDOs	
Whether there was a change in the role of the IDO with the new policy	
Yes	45
No	55
Total (88)	
If yes, in what ways?	
Multi-tasking; additional area; larger coverage	35
Transparency in monitoring cash flow	13
No ISF collection/ Decrease in IDOs	10
Some IDOs are assigned in institutional	10
No answer	32
Total (40)	100
Change in the collectors' role with the new policy	
Yes	43
No	40
No answer	17
Total (88)	100
Ways in which the collectors' roles have changed	
No ISF collection	82
No answer	18
Total (38)	100

The coping mechanism if the O and M funds are not enough was to collect amongst the members of the IAs. With the new irrigation policy, NIS IAs still follow the provisions of the IMT. Most respondents say that new policy is detrimental to the IMT operations because of the

difficulty in maintenance. There is no need for additional staff and the new policy is not deemed to contribute to higher efficiency of the system operation.

For monitoring and evaluation, participation of the NIS IAs is high. Monitoring is done manually by staff gauge, monitored by NIA and ocular inspection (Table 46). Most all NIS IAs have an existing monitoring system for flow rates. NIA as well as the IAs are in charge of monitoring the flow rates. When there are defects in the system, one may contact the NIA itself. There is also a system of reporting of problems in the flow rates and other issues to the NIA/ NIS IA management, follow up actions are done but interventions are done in a timely manner sometimes, but not all of the time. There is also monitoring of service area by IA members, daily and monthly. Monitoring is by IAs and the IMO and data are also reported to the IMO which form the basis for next season's decisions mostly on water allocation.

**Table 46. Participation of the NIS IAs in the monitoring and evaluation of the system performance**

Item	Frequency (in %)
Existence of a monitoring system for flow rates	
Yes	84
No	16
Total (88)	100
Person In charge of monitoring the flow rates*	
NIA	34
IA members	30
TSAG Leaders	14
Water masters/water tender	34
IA officers/Job order	12
No answer	16
<i>*multiple responses</i>	
On how monitoring is done*	
Stop gauge	32
Monitored by NIA	13
Ocular inspection	7
Through estimates/monitored weekly/checked manually	11
Others (Does nothing)	1
No answer	36
<i>*multiple responses</i>	
Place of data storage for flow rates and other data collected*	
NIA and IA	50
No answer	50
On whether there is monitoring of flow rates of the system	
Yes	84
No	16
Total (88)	100
Existence of a system of reporting of problems in the flow rates and other issues to the NIA/ NIS IA management	



Item	Frequency (in %)
Yes	59
No	7
No answer	34
Total (88)	100
Follow up actions done by the NIS IA/NIA management in such incidents	
Water tender	23
Coordination with NIA	39
IA looks for alternative actions	9
Action is implemented ASAP	7
Others (Monitoring is conducted, Bayanihan, Inspection, Follow contingency plan, Involved parties are called)	
No answer	21
(Multiple responses)	34
Timeliness of system repairs needed	
Always	38
Sometimes	51
Never	5
No answer	6
Total (n)	100
Existence of a monitoring system for service area of the NIS	
Yes	90
No	4
No answer	6
Total (88)	100
Strategies used in the monitoring for service area of the NIS	
Weekly monitoring by IA members/TSAG Chairman	28
Daily monitoring by IA members/TSAG Chairman	20
Monthly monitoring by IA members/TSAG Chairman	14
Checked by officers (no specified rate of monitoring)	13
Field visits of officers/Yearly walk-through/3x a week monitoring	6
No answer	11
Whether the service area data are being reported to the IMO	
Yes	93
No	4
No answer	3
Total (88)	100
On whether there is enough personnel to monitor the structures of the NIS system	
Yes	81
No	16
No answer	3
Total (88)	100

Item	Frequency (in %)
On whether the IMO monitors the activities of the NIS IAs	
Yes	95
No	4
No answer	1
Total (88)	100
Whether the IMO does something about NIS IA problems such as leadership	
Yes	95
No	5
Total (88)	100
Whether the IMO monitors the cropping calendar	
Yes	94
No	5
No answer	1
Total (88)	100
Decision maker on water allocation for the next season	
NIA	5
NIA and IA members	35
SMC Meeting/Federation	19
IA Federation	10
Others (NIA and IA Federation, NIA, IA, and LGU, IA members IA BOD, IA President)	23
No answer	7
Role of the IAs in the water allocation decision	
Implementation, facilitates and coordinates, makes the schedule	36
Primary approval and decision	26
IA President is the main person involved in the decision	8
Information dissemination	5
Makes the water request	6
No answer	19

#### 6.3.1.4 Incentive Mechanisms for NIS IAs

For the NIS IAs, the subsidy given by government is enough incentive for them to do well (Table 47). Respondents say that they don't need more water despite the free irrigation policy. Free irrigation is beneficial for them as there will be less expense, therefore more savings. Other perceived benefits include increased yields and incomes, increased cropping intensity and land area for production (Table 48).

**Table 47. Incentive Mechanisms for NIS IAs.**

Item	Frequency (in %)
Perceptions of the NIS IAs on their motivation to manage/operate the systems for the NIA with the free irrigation policy	
NIA incentives	34
Subsidy	44
Others (was able to save, presence of NIA support)	18
No answer	3
Farmers are more likely to irrigate or use more water per area than before the free irrigation policy	
Yes	41
No	53
Same	1
No answer	5
On whether the new irrigation policy is more beneficial than the previous one	
Yes	87
No	10
Same	1
No answer	2
Reasons for saying that new irrigation policy is more beneficial	
Less expenses, more savings, no more loan amortization	95
No answer	5
Reasons for saying that new irrigation policy is less beneficial	
It is hard to collect O&M funds	33
The prices of goods keep on increasing	11
No answer	56

**Table 48. Perceived benefits of the free irrigation policy by NIS IAs (in %).**

Benefits	Yes	No	No answer
Increasing yield	52	42	6
Increasing Income	83	15	2
Increasing cropping intensity	55	43	2
Increasing land area for production	58	36	6
Others :			
Members are not paying ISF			
More savings for them			
Enhanced coordination between members			

### 6.3.2 CIS IAs Governance

#### 6.3.2.1 Communal Irrigation IAs Performance

Performance of CIS-IAs may be gauged as well from the ratings given by respondents on their respective IAs. Ratings are a bit higher than the NIS IAs. Some CIS-IAs (33%) surveyed have received awards given by various agencies and this may also indicate their performance. Some

of these awards are: best/outstanding IA award (43%), equity/amortization award (19%), award on the use of technology (14%).

Mean performance ratings for various CIS-IA activities across the provinces were very satisfactory, ranging from 2.7 to 3.2 with overall rating of 2.9 (very satisfactory). Their low ratings are in collection of irrigation fees and other fees (same as in NIS), technical advice to farmers, and construction of facilities. They have slightly higher scores for water distribution, maintenance of canals and maintenance of control structures (Nguyen 2015).

A composite indicator is the functionality rating that aggregates four major factors O&M, financial, organization, and organizational discipline. The survey of sample IAs revealed that 50% have very satisfactory to outstanding rating (Elazegui 2015). Based on IMO's functionality reports, there are relatively more IAs with large systems that are rated very satisfactory to outstanding. In contrast, among IAs with fair rating, 40% are IAs with small CIS (Elazegui 2015).

CIS IA's success indicators most often mentioned by key informants relate to payment of amortization, successful collection of fees from IA members, and active leadership. IAs with low collection efficiency cited many reasons: attitude and perception of farmers that irrigation service is the responsibility of the government; politicians committed to the farmers that they will pay the project cost; and they claim that there is not enough water to cater to the needs of its members, especially during dry season. Over 48% of the CIS IAs reported problems related to access to water in terms of quantity and timeliness of delivery. This is related to the operation and management of the system as well as access to funds needed for rehabilitation. O&M involves different activities, e.g., minor repair, routine maintenance, emergency, and annual repairs which are not adequately covered in their collection targets.

CIS IAs were also found to have the capability of operating and managing the IS. However, despite their long experience with the irrigation system, institutional strengthening, particularly on the aspects of planning and implementing O&M and financial management needs to be sustained. Sustainability of CIS IAs operating and managing IS depends on both the technical aspects of the system as well as the institutional factors governing water allocation. Poor operational performance may reflect not only inadequate facilities but also inadequate funding, and institutional weaknesses.

Some emerging issues mentioned in the CIS Institutional Report (Elazegui 2015) remain to be a challenge for the future of the CIS and the IAs. First and most popularly mentioned is the problem of sustainability of irrigation infrastructure due to persistent environmental problems (watershed degradation, siltation, extreme climate-related events). CIS IAs apparently have none or limited role in watershed management despite their complaints with activities in the watershed affecting their irrigation systems. IAs can serve as partners in watershed management programs in collaboration with the Department of Environment and Natural Resources.

Second, IA's weakness in O&M function, lack of O&M funds (which is not included in project cost); and dependence on NIA is also a concern. IAs also raise concerns about funds for rehabilitation, access to credit, and financial subsidy. However, below 20% of CIS IAs got financial assistance, usually from DA, LGUs and NIA particularly when they are affected by climate-related hazards.

Third is the conversion of CIS into NIS as a solution to solve funding problems is apparently contradictory to the IMT principle. It relieves LGU of role as mandated by the Local Government Code/AFMA; and leaves the issue of who pays the outstanding loan/ remaining amortization payments of IA. AFMA states that turnover of CIS shall include responsibilities related to financing, planning, management, design, operation and maintenance, relevant assets and resources. Full compliance with these provisions diminishes the role of IAs and makes NIA as provider of technical and management services.

Fourth, devolution of CIS to LGU is rarely implemented because of the apparent lack of interest of the LGU, low priority for irrigation concerns, or lack of capacity (financial, technical, human resource) to operate and manage CIS (Elazegui 2015). Fifth, streamlining NIA apparently resulted in brain drain in engineering, thus affecting quality standards of CIS. The reported lack of engineers in NIA has limited delivery of technical services. The thrust of government on rice self-sufficiency will require these experts. Sustainability of IAs apparently also requires supervision of IDO. CIS development adopts the participatory approach where IAs are involved in different phases of the project, and the role of IDO is very crucial. Ideally, (based on KII), an IDO should be assigned one IA; or one base project and three radiation projects.

To sum up, CIS IAs are in a better position in the IS management than the NIS IAs, mainly because they have been managing the system since they started operations. However, technical advice and the other emerging issues as above should be addressed.

#### 6.3.2.2 Awareness of the free irrigation policy

The Visayas and Mindanao Cycle 2 study captures the free irrigation policy of the government. For this section and the two subsequent ones, discussion will only focus on the Cycle 2.

Twenty four CIS were participants of the FGD. Fifty percent of these were large CIS (Table 49). Respondents were aware of the new policy in 2017. Source of information was mostly the news (Table 50).

**Table 49. Frequency count of CIS IA respondents, by size of the CIS**

Size	Frequency	Percent
Small	4	17
Medium	8	33
Large	12	50
Total	24	100

**Table 50. Awareness of the free irrigation policy, source of information and actions taken.**

Item	Frequency (%)	Percent
Awareness of new irrigation policy		
Yes	24	100
No	0	0
Total	24	100
Date of information		
2017	23	96
2018	1	4
Total	24	100
Sources of Information*		

News		
TV	15	63
DA	8	33
Others (NIA, IDO, President Duterte, IA Meeting, Radio, Tarpaulin, Social Media, Congress)	15	62
	8	28

\*Multiple Responses

### 6.3.2.3 CIS Project Cycle governance

Just like with the NIS and the other sections above, the study also dwelt on the level of participation and other institutions that may also affect the CIS project cycle.

Respondents noted high participation in drafting a resolution when planning for new CIS irrigation system (Table 51). NIA still decides on the location of the new systems with some participation from the IAs and where water availability is part of the criterion in the site selection. IAs participate in the writing of the proposal with the NIA mainly deciding on the size of the structure. Social acceptability by the community is part of the assessment and farmers in general are consulted on the location of the irrigation structure. The IA officers validate the list of the beneficiaries and their tenure.

**Table 51. Participation of the CIS IAs in the Planning and Design Stage of the Project Cycle.**

Item	Frequency	Percent
Participation of IAs in drafting a resolution when planning for new CIS irrigation system :		
Yes	20	83
No	4	17
Total (n)	24	100
Decision maker on the location of the new systems		
IA	2	8
NIA	14	58
Both IA and NIA	3	13
Driller together with IA member	1	4
Don't Know	2	8
Participation of IAs in location of the new irrigation		
Yes	13	54
No	9	38
No response	2	8
Total (n)	24	100
Water availability is part of the criterion in the site selection		
Yes	24	100
No	0	0
Total (n)	24	100
Participation in writing the proposal		
IA	14	58
NIA	8	33
IA with assistance from LGU	1	4
No Response	1	4

Item	Frequency	Percent
Total (n)	24	100
Decision maker on the size of the structure		
NIA	24	100
Total (n)	24	100
Social acceptability by the community is part of the assessment		
Yes	23	96
No	1	4
Total (n)	24	100
Whether farmers in general are consulted on the location of the irrigation structure		
Yes	22	92
No	2	8
Total (n)	24	100
Person in charge of validating list of farmer beneficiaries		
IDO	1	4
IA/ IA Officers	15	62
IMO	2	8
No Response	6	25
Total (n)	24	100
Person in charge of validating the tenure of farmers		
IDO	1	4
IA/ IA Officers	15	62
IMO	2	8
No Response	6	25
Total (n)	24	100

IAs are formed before the project construction. Unlike the NIS IAs, the CIS IAs highly participate in the project implementation mostly as labor (Table 52). The NIA involves farmers in the implementation of construction. IAs perceive that projects are done in a timely manner.

**Table 52. Participation of CIS IAs in the implementation of the project construction.**

Item	Frequencies	Percent
Participation in the project implementation		
Yes	22	92
No	1	4
No Response	1	4
Total (n)	24	100
Construction schedules are followed (Timeliness of construction )		
Yes		
No	14	58
No Idea	5	20
No Response	1	4

Total (n)	4 24	17 100
Roles of farmers in general in the project implementation *		
Labor		
Monitoring/Supervision	17	71
No Response	6 2	25 8
Persons who involve farmers in the implementation of construction		
NIA/IDOs	21	88
No Response	3	12
Total (n)	24	100
Periods when IAs are formally formed		
Before construction	24	100
Total (n)	24	100

\*Multiple Response

CIS IAs have not yet received the O and M subsidy as a result of the free irrigation policy. However, they are aware of the payment rate by the NIA for the O and M of the system. They maintain that they will continue with collecting the O and M funds from among themselves if the government funds are not enough (Table 53). Respondents also perceive higher management efficiency level of the CIS IAs with the free irrigation policy due to the absence of amortization. They believe that the new policy will affect the CIS IAs in a positive way, mainly through savings from the O&M of the system.

**Table 53. Participation of the CIS IAs in the Operations and Maintenance of the CIS System.**

Item	Frequency	Percent
Awareness on the payment rate by the NIA for the O and M of the system		
Yes	15	63
No	8	33
No Response	1	4
Total (n)	24	100
Payments received in 2017		
No		
Total (n)	24 24	100 100
Coping strategies if the NIA funds are not enough		
Continue collecting O&M funds		
Total (n)	24 24	100 100
Perception on the higher management efficiency level of the CIS IAs with the free irrigation policy		
Yes	14	58
No	9	38
Same	1	4
Total (n)	24	100
Reasons for the higher management efficiency level perception		



Item	Frequency	Percent
No more amortization	9	38
Free irrigation	1	4
Reduced irrigation fee	1	4
Collection of O&M only	2	8
No response	13	54
Effects of the new irrigation policy on the maintenance and operations of the CIS IAs.		
Whether the new policy has affected the O and M of the CIS IAs		
Yes	17	71
No	3	12
No Response	4	17
Total (n)	24	100
If yes, in what ways are they affected?		
Improvement in irrigation	1	6
Savings will be allocated to O&M of the system	4	24
Difficulty in collecting irrigation fee/ Members stop paying	2	12
Reduction in the collection of irrigation fee	4	24
Insufficient funds for O&M	4	24
No effect yet since the system is newly constructed	1	6
Existence of links with the LGUs		
Yes	11	46
No	2	8
No Response	11	46
Total (n)	24	100

On the other hand, monitoring of the flow rates are reported to the IA management, where IAs would do rotation or water scheduling, and report to the NIA and the LGU to seek assistance (Table 54). Mostly, the MAO of the LGUs will offer some technologies from the DA as seen from previous discussion of the institutional links of the IMO. Timeliness of the repairs is always observed. There is also monitoring system for service area of the CIS. The BOT, Water Tender/Master, Barangay and IDO- NIA monitor service area. Decision maker on the water allocation for the following season is done during General Assembly by IA Officers and BOT. CIS IAs perceive just enough personnel within the IAs to monitor the structures of the system for maintenance and operations.

**Table 54. Participation of the CIS IAs in the monitoring and evaluation of the system performance.**

Item	Frequency	Percent
On whether the results of the monitoring of the flow rates are reported to the IA management		
Yes	21	88

Item	Frequency	Percent
No	1	4
No response	2	8
Total (n)	24	100
Follow up actions done by the IA management in such incidents		
Rotation or water scheduling	3	13
Reported to NIA, LGU to seek assistance	3	13
Requested water pump from DA	2	8
Created proposal/resolution for rehabilitation of the system and concreting of the canal	2	8
Timeliness of system repairs needed		
Always	17	71
Sometimes	5	21
Never	1	4
No Repair yet since newly constructed	1	4
Total (n)	24	100
Existence of a monitoring system for service area of the CIS		
Yes	24	100
Total (n)	24	100
Strategies used in the monitoring system for service area of the CIS		
By sector, BOT	13	54
Water Tender/Master	5	21
Barangay, IDO, NIA	2	8
No response	4	17
Decision maker on the water allocation for the following season:		
Decided during General Assembly	6	25
IA Officers and BOT	11	46
No response	7	29
Role of the IAs in the water allocation decision		
Decided during general assembly meeting regarding the water allocation plan	15	63
Scheduling of water delivery	1	4
No response	8	33
CIS IAs perception on the adequacy of personnel within the IAs to monitor the structures of the system for maintenance and operations		
Yes	19	79
No	2	8
No Response	3	13
Total (n)	24	100

#### 6.3.2.4 Incentive Mechanisms for CIS IAs

For the CIS IAs, free irrigation is good because this can create savings and farmers can stop paying fees (Table 55). Non- payment of amortization also minimizes conflicts between NIA and the IAs. Before the free irrigation policy, farmers were not paid to do O and M. Farmers are also more likely to irrigate or use more water per area than before the free irrigation policy. Irrigation policy is more beneficial than the previous policy of paying for the amortization, because according to the respondents, there will be additional funds for the association.

**Table 55. Incentive Mechanisms.**

Item	Frequency	Percent
Perceptions of the CIS IAs on the immediate effects of not paying amortization for the CIS system		
Savings for the IAs and members	5	21
Some members stop paying irrigation fee	7	29
Lower collection rate	3	12
Not much effect yet, members are still paying the O&M fee	1	4
No more funds for O&M since members no longer paying	4	17
No response	4	17
If there are savings, are these channeled to buy other inputs?		
Yes	13	54
No	8	33
No Response	3	12
Total (n)	24	100
IAs are now more dedicated to CIS maintenance because they don't have to pay for the amortization		
Yes	11	46
No	11	46
No Response	2	8
Total (n)	24	100
CIS IAs' expectation on receiving O and M funds with the free irrigation policy		
Yes	19	79
No	2	8
No Response	3	13
Total (n)	24	100
Before the new policy, are farmers getting paid for the O and M of the system?		
Yes	1	4
No	20	83
No Response	3	13
Total (n)	24	100

Item	Frequency	Percent
Farmers are more likely to irrigate or use more water per area than before the free irrigation policy		
Yes	12	50
No	9	38
No Response	3	12
Total (n)	24	100
Perceptions of farmers on whether the irrigation policy is more beneficial than the previous policy of paying for the amortization		
Yes	18	75
No	1	4
No Response	5	21
Total (n)	24	100
Reasons for saying that new irrigation policy is more beneficial		
Savings/Additional funds for the association that can be allocated for O&M	10	42
No more amortization	2	8

Table 56 summarizes the perceived benefits of the free irrigation policy. This includes increasing incomes, and not necessarily yields, increasing cropping intensity and land area for production.

**Table 56. Perceived benefits of the free irrigation policy.**

Benefits	Yes	Percent	No	Percent
Increasing yield	11	46	13	54
Increasing Income	14	58	10	42
Increasing cropping intensity	13	54	11	46
Increasing land area for production	13	54	11	46

## 7. Key Messages and Recommendations

### 7.1. Craft an integrated and dynamic irrigation development plan with the NIA as lead

The whole irrigation sector is composed of at least 3 agencies, each with each own plan, and technical personnel. These agencies while collaborating with one another can also cause some data reporting problems. There is need for an integrated irrigation development plan

that can be led by the NIA. This plan can start with the river basin plan by the RBCO-DENR and should be consistent with the various plans of the LGUs, the flood control plan of Project NOAH, inter- sectoral plans, the Agrarian Reform Communities (ARC) plan, and should also be consistent with the Sustainable Development Goals (SDGs) and the Philippine Development Plan (PDP).

To support the plan, a reliable data base is needed by all concerned: the NWRB, the DENR and the LGUs through the Comprehensive Land Use Plans (CLUPs), among others. Data for planning are available but these are located in various agencies, i.e., NAMRIA, PAGASA, NWRB, DA- BSWM, Project NOAH at the UP. Optimal location of irrigation facilities as well as water security for irrigation systems will be NIA's responsibility but only if all local and national agencies can have convergence and use just one rolling plan, and to take into account the dynamic nature of human, physical and institutional players.

Convergence of activities from the national to local levels will be needed. RBCO believes that the water issue is more local and should be viewed at the watershed level. At the local level, there should be a link between the NIA and the DENR personnel.

At the operational level, there may be a need to have a real integration. Right now, service areas of 200 hectares and above are served by the NIA and the smaller ones by the DA- BSWM. But in the field now, it seems the new 200 hectares and above is hard to find. NIA is having difficulties in identifying contiguous areas.

Further, two main recommendations are for NIA projects to be framed in a multipurpose approach and that more and more, there must be increased engagement of non- engineering experts who can do sectoral assessments.

### *7.2. Hire more technical capacity at the NIA and improve timeliness in the implementation of irrigation projects*

The DAR and even the DA-BSWM solicit the technical expertise of the NIA in project implementation. DAR engineer monitors the implementation of the construction of DAR projects, by the NIA. The technical capacities at the NIA are therefore important. Currently, the technical staff is lean due to the rationalization. The recommendation is to beef up the technical staff of the NIA to be able to address the demand by other agencies.

The timeliness of the implementation depends on the bidding process. Problems in procurement may delay the construction. As all government offices will agree, there must be a revisit of the procurement law that can facilitate efficient procurement process rather than impede this, and causing delays in project implementation.

### *7.3. Ensure the quality of the irrigation system to be turned over to IAs to minimize the rehab activities; and encourage the IAs to improve on their management*

High operations and maintenance costs are usually due to faulty designs (David 2003) and use of substandard construction materials. NIA must therefore ensure that the system being turned over to the IAs are of high quality to minimize on the O and M. Farmers should also be encouraged to be independent from government. NIA can still encourage the IAs to

improve on their IMT, but incentives may be needed. Host community of the source of water can be given a % share in the revenues just like in the mining projects; that can be used for O and M.NIA can also come up with a formula on the proportion of the annual budget for repairs and maintenance, similar to the DPWH formula.

#### *7.4. Institutionalize a modern M&E system covering NIS and CIS*

For monitoring and evaluation, participation of the NIS IAs is high. Monitoring is done manually by staff gauge, monitored by NIA and ocular inspection. NIS IAs have an existing monitoring system for flow rates. These are reported to the IA management, where IAs would do water scheduling, and report to the NIA and the LGU to seek assistance. There is a system of reporting of problems to the NIA/ NIS IA management, follow up actions are done but interventions are not always done in a timely manner. There is also monitoring of service area by IA members, daily and monthly; data are reported to the IMO which form the basis for next season's decisions mostly on water allocation.

NIA has created a System Management Council (SMC) where NIA, IAs, even LGUs especially in times of dry spells, meet days or weeks before the start of planting to discuss water allocation, and schedules/water flow. But how effective is this M&E can be gauged from the NIS and CIS ratios of Actual irrig Wet/Programmed Wet & Actual irrig dry/Programmed dry. The farther from 100%, will partly indicate that the "crude (rough measures) monitoring by NIA works or does not work well.

There is much room for improvement in the M and E system, through use of more modern technologies such as the GIS and maybe using the drones. Water quality should also be checked seasonally and should be part of monitoring and evaluation programs of NIA to become a basis for policy formulation. This is to avoid water quality deterioration in the future which could have an effect on yield (Clemente et al 2018)

GIS applications can be further enhanced in targeting interventions (i.e., in helping the NIA and the Department of Agriculture improve land productivity) and in programming areas for irrigation. But intensive data gathering is necessary especially if there is need to check recharge rates of ground water as a function of rainfall, runoff, evapotranspiration, inflows/outflows and percolation and upward flux (Clemente et al, 2018).NIA should also have a regular monitoring of structures so timely repair or replacement, of damaged or non-functional devices is done on schedule (Clemente et al.2018).

At the system level, there is available water allocation model that can guide the decisions on how much water is for irrigation and how much for the other sectors. Water data trends and water allocation modeling can be a technical support from the academe located in each region.

#### *7.5 Establish water resource and research centers in the academe for water data storage, analysis and decision support to the various water agencies*

One finding from this study was that the data for irrigation planning and development are available but these are located in several agencies and are not easily accessible. This results

to insufficient water data for planning and decision-making. One way to have an integrated data base is to establish water resource and research centers situated in different strategic universities in the country. Water Resource and Research Centers (WRRC) can support water allocation decision making. For this, technical and budgetary assistance to the NIA and the other sub-national agencies and the academe will be needed.

While government agencies already perform a variety of tasks and mandates in addressing the country's impending water crisis, tapping the academic sector is a valuable strategy. Recognizing their expertise in research and science-based policy recommendations, working with universities in water planning is not new. However, collaboration with these institutions may be difficult as the set-up of some universities is also fragmented. A university may have sufficient knowledge and experience in water-related concerns, but expertise may be spread out across its units making coordination a challenge, incurring additional cost.

The WRRC is a centralized unit specializing in water-related concerns. WRRCs can provide science-based and technical support to water-related government agencies such as NIA. It can assist in the plan and design of irrigation and management, monitoring and evaluating projects, assessing performance of facility and operations, and strengthening irrigators' associations. It can support NWRB in updating information as basis for granting water permits as well as complement its existing programs such as the LISTAHANG Tubig. The WRRC can undertake framework plans for smaller river basins and review, monitor, and later update master plans in support to RBCO. Through a science-based approach, WRRCs can assist NEDA to evaluate foreign and large locally funded water projects and prepare medium-term development plans of the water sector. Depending on available expertise, the academe can also support DBM to evaluate budget proposals from water agencies. WRRCs in essence can strengthen technical/administrative capacities for efficient and effective development, management, and governance of water resources (David et al. 2014). The first step in moving forward is to pilot such a structure with the full support of the NWRB and other water-governing bodies.

Based on the responses of the national agencies such as the DA BSWM, DILG, NWRB and the DENR RBCO, the country needs to update data on ground water and surface water supply. These are data that NWRB uses for water permitting and allocation. Data on percolation and evapotranspiration should also be updated. The formula being used to compute for the water supply through time should be calibrated to take into account climate changes. In its estimation of irrigation potential, NIA should consider projected changes in land use and the seemingly difficult issue of conversion of its service areas to other uses.

#### *7.6 Create an apex body for water that can harmonize policies and plans for the whole water sector*

Institutional arrangements in the planning and design of irrigation projects are a challenge as there is not enough organizational links among them. For instance, DENR has the mandate to protect the watershed, in doing so, it is protecting the source of water supply for irrigation. Currently, there is a MOA between the FMB of the DENR and the NIA to the effect that the FMB should ensure the protection of the water sources of the NIA.

Convergence among water related institutions implies having a super body to establish policies of the water sector as a whole. An apex body is defined as a national organization that guides the water sector in reforms for both water services and resource management. Its focus is inter-

department/inter-sectoral or inter- ministry coordination. It can take on a variety of forms, such as a national water resource council, committee, commission, board, or authority, together with its supporting offices or secretariats (ADB 2006). Establishing a national apex body is a complex task, requiring participation of all national partner agencies. In order to avoid conflict of authority, it is important that clear distinctions are made between the apex body and existing water agencies.

Creating a water sector apex body is a proactive step a country can take to manage its reform process and to ensure reforms reach the target beneficiaries (ADB 2004). While the creation of this possibly new institution is necessary, the mandates of existing water agencies and sectors should also be reviewed. Their existing roles and responsibilities would have to be re-oriented in order for it to be synchronized with the regulatory and policy making role of the proposed water apex body of the Philippines.

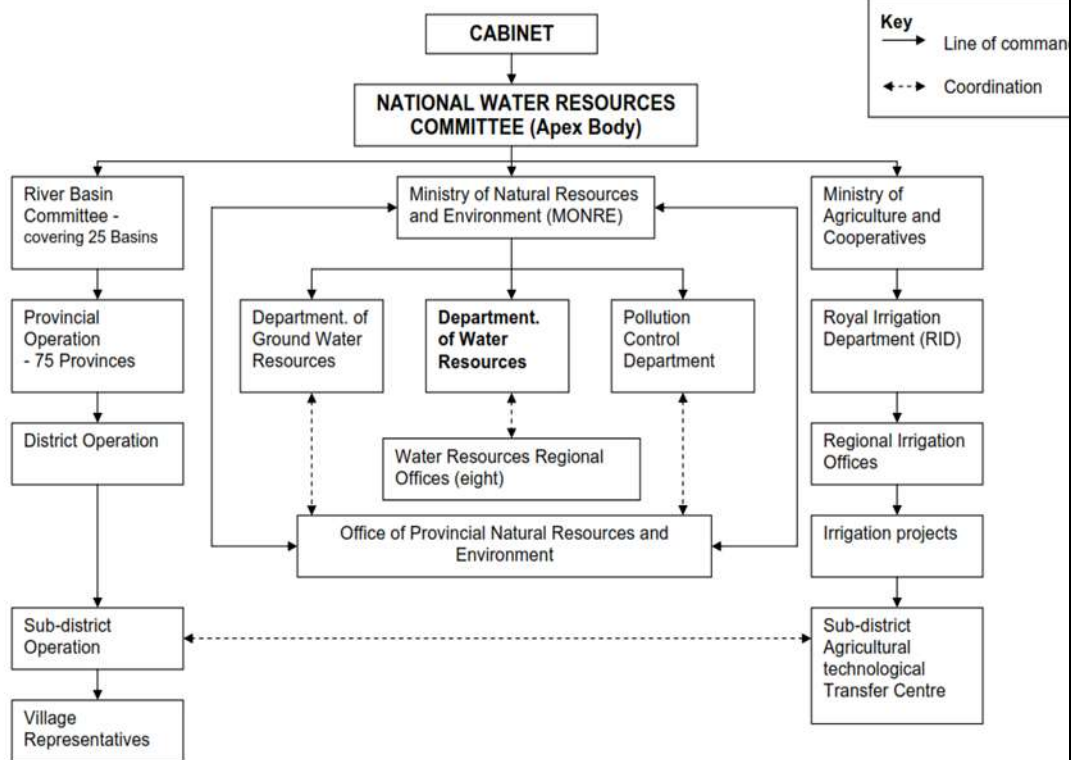
An example of a working apex body is the case of Thailand (Box 3), which has been on-going for 15 years. The apex body is a committee directly coordinating with the three big agencies: the River basin committee covering 25 basins, the Ministry of Natural Resources and the Environment (MONRE) and the Ministry of Agriculture and Cooperatives. Within the MONRE is a Department of Water that coordinates with the eight Water Resources Regional Offices (ADB 2004).

In the local context, an extensive study by Tabios and Villaluna (2012) already provided details on a proposed superbody, naming it as the National Water Resources Management Authority. This will reconstitute, elevate, and strengthen the current National Water Resources Board (NWRB). It is recommended to make the necessary measures to strengthen the NWRB, reconstitute and recognize it as the country's apex body on water.

<b>BOX 3: Example of a Water Apex Body: Thailand's National Water Resources Committee</b>
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Water Resources Management Organisation and Agencies with Water-related Missions in Thailand (adapted from DWR)



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## 9. Annexes

*Annex 1: Guide Questions for Regional Irrigation Offices – RIO and Central Office governance (Cycle 2)*

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### CLASSIFYING INFORMATION

Name of RIO: \_\_\_\_\_

Address: \_\_\_\_\_

### Respondent's Characteristics

Name: \_\_\_\_\_ Age: \_\_\_\_\_

Gender: \_\_Male\_\_ Female Educational Attainment: \_\_\_\_\_

Position in the Organization: \_\_\_\_\_

Number of years in the position: \_\_\_\_\_

### IRRIGATION WATER GOVERNANCE INDICATORS

#### 1. Water Law/Rules

1.1 Who applies for water permits for NIS/CIS? \_\_\_\_\_

1.2 Who applies for water rights for NIS/CIS? \_\_\_\_\_

1.3 What are provisions for water conflicts settlement in NIS?

\_\_\_\_\_

1.4 What are provisions for water conflicts settlement in CIS? \_\_\_\_\_

\_\_\_\_\_

1.5 What are NWRB's procedures in issuing water rights for an NIS IA?

\_\_\_\_\_

1.6 What are NWRB's procedures in issuing water rights for a CIS IA?

\_\_\_\_\_

*(Legal status-(water rights/permits, conflict management laws, by-laws of IAs approved by regulatory bodies, other rules)*

1.7 Who approves the by-laws of the IAs?

\_\_\_\_\_

1.8 Other rules that NIA RIO is subject to?

\_\_\_\_\_

#### 2. Water Policy

2.1 Political-(links between IAs, IMO, RIO, Central-governance structure)-**get the organizational structure**

2.2. Is there a different water pricing aside from the ISF, before free irrigation policy?

Yes \_\_\_ No\_\_\_ If yes, how is this done? \_\_\_\_\_

2.3 Who decides on (Trans-boundary) inter- barangay/ inter municipal or inter provincial water allocation decision \_\_\_\_\_  
*(NIA Restructuring and Reform Policy (and Impact on NIA operations) from the RIO perspective)*

2.4 Irrigation Management Transfer-how successful (scale of 0 to 4, 4 most successful) \_\_\_\_\_

2.5 Rationalization Plan (success scale 0 to 4, 4 most successful) \_\_\_\_\_

2.6 Communal Irrigation Development Funds [CIDFs]  
 Where used?  
 \_\_\_\_\_

2.7 Do these funds exist after the free irrigation policy? Yes \_\_\_ No \_\_\_

2.8 National Irrigation Management Fund (NIMF)

2.9 Do these funds exist after the free irrigation policy? Yes \_\_\_ No \_\_\_  
 Where used?  
 \_\_\_\_\_

2.10 Has there been an increased O and M responsibility of IA in NIS during the rationalization process? Yes \_\_\_ No \_\_\_

2.11 What is the level of O and M responsibility of the NIS IA after the free irrigation policy? Higher \_\_\_\_\_ Lower \_\_\_\_\_ Same \_\_\_\_\_

2.12 Is technical background by the NIA adequate to do O and M? Yes \_\_\_ No \_\_\_  
 \_\_\_\_\_

2.13 Is this still adequate after the free irrigation policy? Yes \_\_\_ No \_\_\_  
 O and M rehab projects (shift from construction to rehab)

2.14 Who decides on whether to do new construction or to do rehab? \_\_\_\_\_

2.15 Who decides where to invest in rehab? \_\_\_\_\_

2.16 Who decides on where to invest in new irrigation systems? \_\_\_\_\_

2.17 What are the sources of funds for rehab: \_\_\_\_\_

2.17.1 Before the free irrigation policy: \_\_\_\_\_

2.17.2 After the new policy: \_\_\_\_\_

*Role of the bureaucracy and financial allocation-(funding agency and NIA, NIA CO and regional office, Viability Incentive Grant)*

2.18 Before the free irrigation policy, who allocates funds for construction/rehab:

Office/Institution	Yes	No
Funding agency		
NIA Central Office		
Regional Office		
Others, please specify:		

2.19 After the policy, who allocates for the construction/rehab?  
\_\_\_\_\_

2.20 Before the free irrigation policy, how was the Viability Incentive Grant allocated?  
\_\_\_\_\_

2.21 How is the Viability Incentive Grant allocated now?  
\_\_\_\_\_

2.22 What was the share of RIO in IMO collection before the new policy?  
\_\_\_\_\_

2.23 Now, does the RIO get its budget on time from the NIA CO?  
Yes \_\_\_\_ No \_\_\_\_

### **3. Administration**

#### *Financial*

3.1 Is the current budget sufficient for continuous self- funding for IAs?

Yes \_\_\_\_ No \_\_\_\_

3.2 Is the current budget sufficient for increased viability of NIA?

Yes \_\_\_\_ No \_\_\_\_

3.3 Has the rationalization plan been effective? Yes \_\_\_\_ No \_\_\_\_

3.3.1 If yes, why? \_\_\_\_\_

3.3.2 If no, why not? \_\_\_\_\_

3.4 Does the RIO monitor for service area/FUSA? Yes \_\_\_\_ No \_\_\_\_

3.4.1 What does it use for this? \_\_\_\_\_

3.5 Is the RIO operations computerized? Yes \_\_\_\_ No \_\_\_\_

3.6 Is the RIO ready to use of modern monitoring technologies?

Yes \_\_\_\_ No \_\_\_\_

3.6.1 If no, what needs to be done ? Please check:

Training/capacity building on modern technology \_\_\_\_

Provision of hardware

Provision of software

Provision of a data space

Training on Data analysis

Others, please specify: \_\_\_\_\_

3.8 Other Issues and Concerns (list top three):

3.8.1 For NIS

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3.8.2 For CIS

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



## **IRRIGATION PROJECT CYCLE**

### **1. Representation/Participation in the Planning and Design of Systems**

**1.1** Do stakeholders participate in design and planning of irrigation projects?

Yes \_\_\_ No \_\_\_\_

**1.2** Who decides on budget? \_\_\_\_\_

**1.3** Who decides on personnel? \_\_\_\_\_

**1.4** Who decides on project location? \_\_\_\_\_

**1.5** Who does the planning? \_\_\_\_\_

**1.6** Who does the implementation? \_\_\_\_\_

**1.7** Who monitors completion? \_\_\_\_\_

**1.8** Who does climate resilient planning? \_\_\_\_\_

**1.9** What is the basis for deciding where to put irrigation facility? \_\_\_\_\_

**1.10** Is water availability part of the criterion? Yes \_\_\_ No \_\_\_\_

**1.11** Who writes the proposal? \_\_\_\_\_

**1.12** How does this proposal go up the national decision makers? \_\_\_\_\_

\_\_\_\_\_

**1.13** Is the location suggested by the IAs always followed? Yes \_\_\_ No \_\_\_\_

**1.14** Who decides on the size of the structure? \_\_\_\_\_

**1.15** Who takes care of the right of way problems? \_\_\_\_\_

**1.16** Who makes the design of the structure? \_\_\_\_\_

**1.17** Is social acceptability by the community part of the assessment?

Yes \_\_\_ No \_\_\_\_

**1.18** Are farmers consulted on the location of the irrigation structure?

Yes \_\_\_ No \_\_\_\_

**1.19** How is the appraisal of the proposed irrigation projects done?

\_\_\_\_\_

**1.20** Where do the proponents get the appraisal team?

\_\_\_\_\_

**1.21** Who suggests on the appraisal team?

\_\_\_\_\_

**1.22** What are the qualifications of the appraisal team?

\_\_\_\_\_

**1.22.1** Who sets these qualifications? \_\_\_\_\_

1.23 Who sets the budget for the appraisal? \_\_\_\_\_

1.24 Who validates list of farmer beneficiaries? \_\_\_\_\_

1.25 Who validates the tenure of farmers? \_\_\_\_\_

## **2. For implementation**

2.1 Do you solicit farmer participation during the project implementation?

Yes \_\_\_ No \_\_\_

2.2 When does IAs start its formation? \_\_\_\_\_

2.3 Are timelines being met by all concerned? Yes \_\_\_ No \_\_\_

2.4 Who procures the needed materials for the structures? \_\_\_\_\_

2.5 How is this being done? \_\_\_\_\_

2.6 What are problems in procurement that may delay the implementation process?  
\_\_\_\_\_

## **3. For the operations and maintenance stage**

3.1 What Is the level of the O and M now compared to before the free irrigation policy? Same \_\_\_ More \_\_\_ Less \_\_\_

3.1.1 If less, where does the NIS/CIS get its needed O and M? \_\_\_\_\_

3.2 Who decides on the amount of O and M to send to the IAs?  
\_\_\_\_\_

3.3. How do you compare the lag time between the O and M transmittal to the NIS/CIS before the policy and after the policy?

Same\_\_\_ More\_\_\_ Less \_\_\_

3.4 Are there still IAs that currently do the provisions of the IMT? Yes \_\_\_ No \_\_\_

3.5 Is there enough O and M from the NIA for IAs to be able to provide for the IMT model 1 agreements? Yes \_\_\_ No \_\_\_

3.6 How can the partnership still be strengthened or sustained?

3.7 How will you maintain the relationship with IAs?

3.8 Will the free irrigation policy be more beneficial in terms of management of the C/N IAs O and M? Yes \_\_\_ No \_\_\_

3.8.1 Please clarify your answer.  
\_\_\_\_\_

3.9 What additional personnel requirements did NIA employ to implement the free irrigation policy? \_\_\_\_\_

3.10 How did the policy affect the C/N IAs in terms of personnel?  
\_\_\_\_\_

3.11 How did the new policy affect the operations of the IAs?  
\_\_\_\_\_

3.12 Is there still enough personnel within the IAs now to monitor the structures of the system? Yes \_\_\_ No \_\_\_

**4. For Monitoring and Evaluation**

4.1 Are these data collected such that it is timely for use of national and regional policy makers? Yes \_\_\_ No \_\_\_

4.2 Other than mentioned in 3.6.2, what kinds of data from the field are being used for operations and planning?

4.3 What other data should be collected for operations and planning?

4.4 Where are these data housed? \_\_\_\_\_

4.5 Who analyzes these data at the NIA? \_\_\_\_\_

4.6 In the choice of location of new system, are data from the field used?  
Yes \_\_\_ No \_\_\_

4.7 In the choice of where to rehabilitate, are data from the field used?  
Yes \_\_\_ No \_\_\_

4.8 Management-leadership, is communication open to all?

4.9 Availability of information, data base, technology, access to water supply information; technical info: Yes \_\_\_ No \_\_\_

4.9.1 Are the data being managed in a data base? Yes \_\_\_ No \_\_\_

4.10 How are the data for service area and cropping intensity generated?

4.11 How ready is your office for such technology as the GIS?

4.12 Are data collected used for planning for water allocation the next season?  
Yes \_\_\_ No \_\_\_

4.12.1 For planning for areas to be rehab or to establish new areas?  
Yes \_\_\_ No \_\_\_

4.13 Who gives advice to farmers on technology, on water data, (i.s. water depth, correct installation?)

4.14 Technology/modelling/-How does this give decision support to farmers?

4.15 What models are used that can be given to farmers as decision support tools?

4.16 Crop calendar-who decides : \_\_\_\_\_

3.16.1 How are these decided?

4.17 Training of IA members: on what topics?

4.18 Accountability and Transparency

*Examples for accountability: (IA to NIA, IA member to IA, CO to RIO to IMO/ISO, to IA)*

<b>Accountability</b>	<b>Person accountable</b>	<b>How accountable (0-4) with 4 as most accountable</b>	<b>Reporting to which office/person</b>
Identifying where to do rehab			
Monitoring the IA			

Monitoring the damages of the structure			
ISF collection (before the new policy)			
Others: specify			

*Example for transparency: (CO to RIO, to IMO/ISO, to IA)*

Transparency	Process being practiced	How participatory (0-4) 4 as the most participatory	Person in charge
Budgeting process			
Funds allocation			

### **IRRIGATION WATER GOVERNANCE ARRANGEMENTS (Vertical and Horizontal)**

Has the RIO coordinated with:

<b>Agency</b>	<b>Nature of Collaboration</b>
<b>National</b>	
NIA	
DAR	
DPWH	
DA	
NPC	
DENR	
DOH	
Regional NIA	
LWUA	
DBM	
<b>Local</b>	
LGUs	

IAS	
Private sector	
Other NGOs (Please specify)	
Others (Specify)	

**INCENTIVE MECHANISM AFTER THE FREE IRRIGATION POLICY**

**1.** Currently, what is the incentive for NIA to provide better service?

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**2.** What are the effects of free irrigation on NIA service; infra or maintenance and operations of the system?

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**3.** What service worsened?

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**4.** What became better?

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**5.** What do you think are the effects on NIA operation so far?

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**5.1** Timely release of salaries of NIA staff: Yes \_\_\_ No \_\_\_

**5.2** Timely release of funds and on time O&M: Yes \_\_\_ No \_\_\_

**5.3** More delays in minor repairs: Yes \_\_\_ No \_\_\_

**6.** In your view, what have been the triggers in policy changes at the NIA? (Example of policies are rationalization, IMT, free irrigation)

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## **CLASSIFYING INFORMATION**

**Name of IMO:** \_\_\_\_\_

**Address:** \_\_\_\_\_

### **Respondent's Characteristics**

**Name:** \_\_\_\_\_ **Age:** \_\_\_\_\_

**Gender:** \_\_Male\_\_ Female **Educational Attainment:** \_\_\_\_\_

**Position in the Organization:** \_\_\_\_\_

**Number of years in the position:** \_\_\_\_\_

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## **I. IMO Budget**

1. How is the budget allocated between the CIS and the NIS? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Who allocates the budget? \_\_\_\_\_  
\_\_\_\_\_

3. How transparent is the budget allocation process? (In a scale of 0-4 with 4 as most transparent) \_\_\_\_\_

4. How participatory is the budget allocation process? (in a scale of 0-4, with 4 as the most participatory). \_\_\_\_\_

4.1 How do the allocations differ across CIS and NIS?

NIS

CIS

Personnel \_\_\_\_\_

MOE \_\_\_\_\_

5. What is the source of IMO budget before the free irrigation policy?  
\_\_\_\_\_  
\_\_\_\_\_

6. With the free irrigation policy, are the funds brought down to the IMO enough for their needs? Yes \_\_\_ No \_\_\_

7. Does the Communal Irrigation Development Fund (CIDF) still exist? Yes \_\_\_ No \_\_\_

7.1 If yes, how would this be used? \_\_\_\_\_

8. Does the National Irrigation Management Fund (NIMF) still exist? Yes \_\_\_ No \_\_\_

8.1 If yes, how will this be used? \_\_\_\_\_

9. Does the Viability Incentive Grant (VIG) still exist? Yes \_\_\_ No \_\_\_

9.1 If yes, how will this be used? \_\_\_\_\_

## **II. Personnel Matters**

1. How do you assign field workers or IDO's across CIS (e.g. rotational, fixed assignments)? \_\_\_\_\_

2. How much percentage of operations staff actually work in the field? \_\_\_\_\_
3. Is the staff personnel adequate before the new policy? Yes \_\_\_ No \_\_\_; after the new policy? Yes \_\_\_ No \_\_\_

**3.1** Is there a balance between management and operations personnel?  
Yes \_\_\_ No \_\_\_

**3.1.1** If no, why not?

\_\_\_\_\_

\_\_\_\_\_

**3.2** Is there a balance between professional and non-professional staff?  
Yes \_\_\_ No \_\_\_

**3.2.1** If no, why not?

\_\_\_\_\_

\_\_\_\_\_

**3.3.** Is there a balance between permanent and temporary staff? Yes \_\_\_ No\_\_\_

**3.3.1** If no, why not?

\_\_\_\_\_

\_\_\_\_\_

**4.** Can you describe any changes in personnel during this new irrigation policy?

Management versus Operations - \_\_\_\_\_

Professional versus Non-Professional - \_\_\_\_\_

Permanent versus Temporary - \_\_\_\_\_

### **III. Governance/ Organizational Structure/ Administration**

#### **1. Status of property rights**

**1.1** How much water tariff do you pay the NWRB?(in peso/year)\_\_\_\_\_

**1.2** How many liters per second is your water permit?(in lps) \_\_\_\_\_

**1.3** Is your lps enough for your operations? \_\_\_ Yes \_\_\_ No

**1.4** If no, where do you get the supplemental water? \_\_\_\_\_

#### **2. Conflict Resolution**

**2.1** If and when conflicts arise between water users, are there any conflict resolution mechanisms? \_\_\_ Yes \_\_\_ No \_\_\_ Don't Know

**2.2** If yes, please describe a conflict incident between water users that transpired in your locality. \_\_\_\_\_

\_\_\_\_\_

**2.3** Please describe how the conflict was resolved or not resolved. \_\_\_\_\_

\_\_\_\_\_

**2.4** Are there legally specified mechanisms for inter-municipality/trans-boundary conflicts? \_\_\_ Yes \_\_\_ No \_\_\_ Don't know

**2.4.1** If yes, please describe the mechanisms:

\_\_\_\_\_

\_\_\_\_\_

### 3. Payment or disbursement (ISF)

3.1 Before the new policy, what was the average rate of ISF payments?  
\_\_\_\_\_

3.2 What was the average rate of repayment to the amortization of the CIS?  
\_\_\_\_\_

3.3 Where do the NIS send their payments? \_\_\_\_\_

3.4 What is the role of the IMO in the payment collection? \_\_\_\_\_  
\_\_\_\_\_

3.5 What is the role of the IMO in the disbursement of ISF? \_\_\_\_\_  
\_\_\_\_\_

3.6 Where do the CIS send their amortization payments? \_\_\_\_\_

### 4. IMO mandate

4.1 Has the IMO coordinated with:

Agency	Nature of Collaboration
<b>National</b>	
NIA	
DAR	
DPWH	
DA	
NPC	
DENR	
DOH	
Regional NIA	
Private Sector	
<b>Local</b>	
LGUs	
IAs	
Other NGOs (Please specify)	
Others (Specify)	

4.2. What kinds of technical support were given to the CIS?



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4.3 What kinds of assistance were given to the LGUs?

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4.4 Roles of the IMO related to CIS and the NIS:

What is the role of the IMO in:

4.4.1 Water Delivery/Distribution: \_\_\_\_\_

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4.4.2 Water Scheduling: \_\_\_\_\_

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4.4.3 Maintenance of the system: \_\_\_\_\_

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4.4.4 Water Allocation: \_\_\_\_\_

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4.4.5 Monitoring of structures: \_\_\_\_\_

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4.5 Do the IAs know of the reporting process to the IMO (i.e. when structures are damaged?) \_\_\_ Yes \_\_\_ No

4.6 If the structures are damaged and reported to be destroyed, how does the IMO respond?

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4.7 Does the IMO monitor for service area/FUSA? Yes \_\_\_ No \_\_\_

4.7.1 How? (what is technology used?) \_\_\_\_\_

4.7.2 Is the IMO operations computerized? Yes \_\_\_ No \_\_\_

4.7.3 Is the IMO ready for use of modern monitoring technologies? Yes \_\_\_ No \_\_\_

4.7.4 If no, what needs to be done? Please check.

- Training/capacity building on modern technology
- Provision of hardware
- Provision of software
- Provision of a data space
- Training on Data analysis
- Others, please specify: \_\_\_\_\_

3.7 Other Issues and Concerns (list top three):

3.7.1 For NIS

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3.7.2 For CIS

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## IV. Project Cycle Governance

### A. For the planning and design stage:

1. Who decides on location of the system? \_\_\_\_\_
2. Is water availability part of the criterion? Yes \_\_\_ No \_\_\_\_
3. Who writes the proposal? \_\_\_\_\_
5. Is the location suggested by the IAs always followed? Yes \_\_\_ No \_\_\_\_
6. Is social acceptability by the community part of the assessment? Yes \_\_\_ No\_\_
7. Are farmers consulted on the location of the irrigation structure? Yes \_\_\_ No \_\_\_\_
8. Who validates list of farmer beneficiaries? \_\_\_\_\_
9. Who validates the tenure of farmers? \_\_\_\_\_

### B. For implementation:

1. Do farmers participate during the project implementation?
  - 1.1. For NIS - Yes \_\_\_ No \_\_\_\_
  - 1.2 For CIS - Yes \_\_\_ No \_\_\_\_
2. When does IAs start its formation? \_\_\_\_\_
3. Are timelines being met by all concerned? Yes \_\_\_ No \_\_\_\_
4. Who procures the needed materials for the structures?  
\_\_\_\_\_
5. How is this being done? \_\_\_\_\_
6. What are problems in procurement that may delay the implementation process?  
\_\_\_\_\_
7. What are the roles of farmers during project implementation?  
\_\_\_\_\_
8. Who involves them in this role? \_\_\_\_\_

### C. For the operations and maintenance stage

1. What is the level of the O and M now compared to before the free irrigation policy?  
Same\_\_\_ More\_\_\_ Less\_\_\_
  - 1.1 If less, where does the NIS/CIS get its needed O and M? \_\_\_\_\_
2. How do you compare the lag time between the O and M transmittal to the NIS/CIS before the policy and after the policy? Same\_\_\_ More \_\_\_ Less \_\_\_\_

3. Is the free irrigation policy more effective in the management of the IAs? Yes \_\_\_ No \_\_\_  
Please clarify your answer.
4. Are there additional personnel requirements to implement the free irrigation policy? Yes \_\_\_ No \_\_\_
5. How did the new policy affect the O and M role of the IAs? \_\_\_\_\_
6. How were the LGUs who implement the irrigation facility affected by the free irrigation policy? \_\_\_\_\_
7. Is there still enough personnel within the IAs now to monitor the structures of the system? Yes \_\_\_ No \_\_\_
8. Did the IDO's role change at all with the new irrigation policy? Yes \_\_\_ No \_\_\_
9. Do you think the partnership between NIA and the IAs weakened?  
Yes \_\_\_ No \_\_\_
10. Given the new policy, how can the partnership between NIA and the IAs still be strengthened/sustained? \_\_\_\_\_

**D. For Monitoring and Evaluation**

1. How are data such as cropping intensity and service area collected? \_\_\_\_\_  
\_\_\_\_\_
2. Are the data from the field used in estimating functional indicators being used for planning purposes? Yes \_\_\_ No \_\_\_
3. Are these data collected/analyzed such that it is timely for use of national and regional policy makers? \_\_\_\_\_
4. Where are these data housed? \_\_\_\_\_
5. Who analyzes these trends at the NIA? \_\_\_\_\_
6. In the choice of location of new system, are data from the field used?  
\_\_\_\_\_
7. In the choice of where to rehabilitate, are data from the field used?  
\_\_\_\_\_
8. How is the water allocation in the next season decided?  
In the NIS - \_\_\_\_\_  
In the CIS - \_\_\_\_\_
9. Does the System Management Council (SMC) still exist? Yes \_\_\_ No \_\_\_
  - a. If yes, does it plan for water use for the next irrigation cycle? Yes \_\_\_ No \_\_\_

## V. Incentive Mechanisms

1. Currently, what is the incentive for NIA to provide better service?

---

2. What are the effects of free irrigation on NIA service; infra or maintenance and operations of the system?

---

3. What service worsened?

---

4. What became better?

---

5. What do you think are the effects on NIA operation so far

5.1 Timely release of salaries of NIA staff: Yes \_\_\_ No \_\_\_

5.2 Timely release of funds and on time O&M: Yes \_\_\_ No \_\_\_

5.3 More delays in minor repairs: Yes \_\_\_ No \_\_\_

6. In your view, what have been the triggers in policy changes at the NIA? (Example of policies are rationalization, IMT, free irrigation)

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*Annex 3: Guide Questions for Irrigators' Associations CIS Governance Cycle 2*  
**(To be included in CIS instrument)**

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Name of CIS/IA: \_\_\_\_\_

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

Interviewer: \_\_\_\_\_

-----

**Preliminary questions:**

1. Are you aware that there is a new irrigation policy?

Yes \_\_\_ No \_\_\_

1.1 If yes, when did you get the information? \_\_\_\_\_

1.2 From whom? \_\_\_\_\_

2. What actions were taken by the NIA to implement the new policy?

\_\_\_\_\_

3. What actions have you taken to implement the new policy?

\_\_\_\_\_

**A. For the planning and design stage:**

1. When planning for new irrigation, does the IA draft the resolution? Yes \_\_\_ No \_\_\_
2. Who decides on the location of the new systems? \_\_\_\_\_
3. Is the location suggested by the IAs always followed? Yes \_\_\_ No \_\_\_
4. Is water availability part of the criterion? Yes \_\_\_ No \_\_\_
5. Who writes the proposal? \_\_\_\_\_
6. Who decides on the size of the structure? \_\_\_\_\_
7. Is social acceptability by the community part of the assessment? Yes \_\_\_ No \_\_\_
8. Are farmers consulted on the location of the irrigation structure? Yes \_\_\_ No \_\_\_
9. Who validates the list of farmer beneficiaries?

10. Who validates the tenure of farmers?

\_\_\_\_\_

**B. For implementation:**

7. Do you participate during the project implementation? Yes \_\_\_ No \_\_\_
8. Are construction timelines being met by all concerned?

9. How is this being done?

10. What are problems in procurement that may delay the implementation process?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

11. What are the roles of farmers during project implementation?

\_\_\_\_\_

12. Who involves them in this role?

\_\_\_\_\_

13. When is the IAs formally formed?

\_\_\_\_\_

**C. For the Operations and Maintenance Stage:**

1. Are you aware that there is now a rate for the O and M of the system?

Yes \_\_\_\_ No \_\_\_\_

2. Have you already received actual payments in 2017? Yes \_\_\_\_ No \_\_\_\_

3. Is this enough for your system's needs? Yes \_\_\_\_ No \_\_\_\_

a. If no, how do you cope with the gap? \_\_\_\_\_

4. How do you compare the lag time between the O and M transmittal to the NIS IA before the policy and after the policy? Shorter \_\_\_\_ Longer \_\_\_\_ Same \_\_\_\_

5. Will the management of the system be more efficient with free irrigation policy? Yes \_\_\_\_ No \_\_\_\_

a. If yes, why? \_\_\_\_\_

b. If no, why not? \_\_\_\_\_

6. In addition to the amortization payments, what other benefits is your IA getting from the NIA under the new policy?

\_\_\_\_\_

7. Has staffing support by NIA changed after the free irrigation policy? Yes \_\_\_\_ No \_\_\_\_

7.1 If yes, how? \_\_\_\_\_

(Ex. For NIS, collectors will focus on capacity building, etc. )

8. Did the new policy affect the maintenance and operations of the IAs? Yes \_\_\_\_ No \_\_\_\_

\_\_\_\_\_

a. If yes, how? \_\_\_\_\_

9. Do you have links with the LGU? Yes \_\_\_\_ No \_\_\_\_

10. How is the LGU, who is mandated to oversee the CIS, affected by the free irrigation policy? \_\_\_\_\_

**D. For Monitoring and Evaluation**

1. Is there a monitoring system/is anyone monitoring flow rates of irrigation?

Yes \_\_\_\_ No \_\_\_\_

1.1. If yes, how?(ask for technology used) \_\_\_\_\_

2. Who monitors the flow rates of irrigation? \_\_\_\_\_

3. Is this being reported to the IA management? Yes \_\_\_\_ No \_\_\_\_

4. If there are problems in the flow rates, or other issues, are these reported to the IA management? Yes \_\_\_\_ No \_\_\_\_

4.1. If yes, what does the IA management do to follow up?

\_\_\_\_\_

5. If there are system repairs needed, how timely is this done?

Always \_\_\_\_\_ Sometimes \_\_\_\_\_ Never \_\_\_\_\_

6. Does the IA monitor the service area of the system? Yes \_\_\_\_ No \_\_\_\_

- 6.1. If yes, how? \_\_\_\_\_
7. For allocation of irrigation water for the next season, who decides?
  8. What is the role of the IAs in this decision?
  9. Is there still enough personnel within the IAs now to monitor the structures of the system for maintenance and operations? Yes \_\_\_ No \_\_\_\_

**E. Incentive Mechanisms**

1. What is the immediate effect of not paying any amortization for the CIS systems  
\_\_\_\_\_
2. If there are savings, are these channeled to buy other inputs? Yes \_\_\_ No \_\_\_
3. Has the IA been more dedicated to the system maintenance now that they don't have to pay amortization? Yes \_\_\_ No \_\_\_
4. With the free irrigation, do you expect to receive O and M funds?
5. Before the new policy, are farmers getting paid for operating and maintaining their systems? Yes \_\_\_\_ No \_\_\_\_
6. Are farmers more likely to irrigate or use more water per area than before the free irrigation? Yes \_\_\_\_ No \_\_\_\_
7. How is free irrigation contributing to improving lives of farmers?

Benefits	Yes	No
Increasing yield		
Increasing Income		
Increasing cropping intensity		
Increasing land area for production		
Others, please specify:		

8. In your opinion, is the irrigation policy more beneficial than the previous policy of paying for the amortization? Yes \_\_\_\_ No \_\_\_\_
  - 8.1. If yes, why? \_\_\_\_\_
  - 8.2. If no, why not? \_\_\_\_\_

**For NIS FGD: Governance Team Cycle 2**

Name of NIS/IA: \_\_\_\_\_

IMT Model: \_\_\_\_\_ Location: \_\_\_\_\_

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

---

**Preliminary questions:**

1. Are you aware that there is a new irrigation policy?  
Yes \_\_\_ No \_\_\_
  - 3.1.1 If yes, when did you get the information? \_\_\_\_\_
  - 3.1.2 From whom? \_\_\_\_\_
4. What actions were taken by the NIA to implement the new policy?  
\_\_\_\_\_
3. What has changed in your operations after the new irrigation policy?  
\_\_\_\_\_
4. What are your incentives for sustaining Model 2/3? \_\_\_\_\_  
\_\_\_\_\_

**F. For the planning and design stage:**

11. Who decides on location of the new facility? \_\_\_\_\_
12. Is water availability part of the criterion? Yes \_\_\_ No \_\_\_
13. Who writes the proposal? \_\_\_\_\_
14. How does this proposal go up the national decision makers?  
\_\_\_\_\_
15. Who decides on the size of the structure? \_\_\_\_\_
16. Who takes care of the right of way problems? \_\_\_\_\_
17. Who designs the structure? \_\_\_\_\_
18. Is social acceptability by the community part of the assessment?  
Yes \_\_\_ No \_\_\_
19. Are farmers consulted on the location of the irrigation structure?  
Yes \_\_\_ No \_\_\_
20. Is the location suggested by the IAs always followed? Yes \_\_\_ No \_\_\_
21. Who decides on which area to rehabilitate? \_\_\_\_\_  
\_\_\_\_\_
22. Who validates the list of farmer beneficiaries in the new system?  
\_\_\_\_\_
23. Who validates the tenure of farmers in the new system?  
\_\_\_\_\_

**G. For implementation:**

14. Do farmers participate during the project implementation? Yes \_\_\_ No \_\_\_
15. Are timelines being met by all concerned? \_\_\_\_\_



16. What are problems in procurement that may delay the implementation process?  
\_\_\_\_\_
17. What are the roles of farmers during project implementation?  
\_\_\_\_\_
18. Who involves them in this role?  
\_\_\_\_\_
19. When is the IAs formed?  
\_\_\_\_\_

#### **H. For the Operations and Maintenance Stage:**

11. Are you aware that there is now a rate for the O and M of the system?  
Yes \_\_\_\_\_ No \_\_\_\_\_
12. Have you already received actual payments in 2017? Yes \_\_\_ No \_\_\_
13. Is this enough for your system's needs? Yes \_\_\_ No \_\_\_
  - a. If no, how do you cope with the gap? \_\_\_\_\_  
\_\_\_\_\_
14. How do you compare the lag time between the O and M transmittal to the NIS IA before the policy and after the policy? Shorter \_\_\_ Longer \_\_\_ Same \_\_\_
15. Are there still IAs that currently do the provisions of the IMT? Yes \_\_\_ No \_\_\_
16. Is there enough O and M from the NIA for IAs to be able to provide for the IMT agreement? Yes \_\_\_\_\_ No \_\_\_\_\_
17. Do you think the new policy will be detrimental to the IMT? Yes \_\_\_ No \_\_\_  
Why? Or why not? \_\_\_\_\_
18. Were there additional personnel requirements by NIA to implement the free irrigation policy? Yes \_\_\_ No \_\_\_\_\_
19. Did the new policy increase efficiency in systems operations? Yes \_\_\_ No \_\_\_
20. Did the IDO's role change at all with the new irrigation policy? Yes \_\_\_ No \_\_\_
21. If yes, in what way? \_\_\_\_\_
22. Did the collectors' role change with the new policy? Yes \_\_\_ No \_\_\_
23. If yes, in what way? \_\_\_\_\_

#### **I. For Monitoring and Evaluation**

1. Is there monitoring of the flow rates of the system? Yes \_\_\_ No \_\_\_\_\_
2. If yes, who monitors the flow rates of irrigation?  
\_\_\_\_\_
3. How is this being done? (ask for technology used)  
\_\_\_\_\_
4. Are the data kept somewhere? Yes \_\_\_ No \_\_\_
5. If there are problems in the flow rates, or other issues, are these reported to the IA management? Yes \_\_\_ No \_\_\_\_\_
6. If yes, what does the IA management do to follow up? \_\_\_\_\_  
\_\_\_\_\_
7. If there are repairs that are needed, how timely is this done?  
Always \_\_\_\_\_ Sometimes \_\_\_\_\_ Never \_\_\_\_\_
8. Does the IA monitor the service area of the system? Yes \_\_\_ No \_\_\_  
8.1. How is this done? \_\_\_\_\_
9. Is this reported to the IMO? Yes \_\_\_ No \_\_\_ Sometimes \_\_\_\_\_
10. Is there enough personnel to monitor the structures of the system? Yes \_\_\_ No \_\_\_

11. Does the IMO also monitor the activities of the IAs? Yes \_\_\_\_ No \_\_\_\_
12. If there are problems found by the IMO, i.e. leadership, does the IMO do something about this? Yes \_\_\_\_ No \_\_\_\_
13. Does the IMO monitor the cropping calendar of the IAs? Yes \_\_\_\_ No \_\_\_\_
14. For allocation of irrigation water for the next season, who decides? \_\_\_\_\_
15. What is the role of the IAs in this decision? \_\_\_\_\_

**J. Incentive Mechanisms**

1. What motivates IAs to manage/operate the systems for NIA, given the free irrigation policy?

2. Are farmers more likely to irrigate or use more water per area than before the free irrigation? Yes \_\_\_\_ No \_\_\_\_

3. How is free irrigation contributing to improving lives of farmers?

Benefits	Yes	No
Increasing yield		
Increasing Income		
Increasing cropping intensity		
Increasing land area for production		
Others, please specify:		

4. In your opinion, is the new irrigation policy more beneficial than the previous one?

Yes \_\_ No \_\_

4.1. If yes, in what way? \_\_\_\_\_

4.2. If not, why not? \_\_\_\_\_

**Annex 5.1 Guide Questions for National Agencies-DENR RBCO**

1. What is the legal mandate of the agency? Get from secondary data

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. Coordination: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- 2.1. What activities are jointly done with NIA?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- 2.2. Who defines the activity?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- 2.3. Who initiates the joint projects?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3. Budget for joint projects:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- 3.1. Where is the source?

\_\_\_\_\_

\_\_\_\_\_

- 3.2. How much is the budget?

\_\_\_\_\_

\_\_\_\_\_

- 3.3. How the budget was spent?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4. Is the technical personnel for these joint projects enough? Yes \_\_\_\_ No \_\_\_\_

If no, what kind of personnel needs to be hired?

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5. Does the NIA inform the DENR of water scarcity due to the declining forest cover in the irrigation system area? Yes\_\_\_ No \_\_\_

6. If yes, what are the responses of the DENR?

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7. Is the NIA a member of the Watershed Management Council, organized by the RBCO? Yes\_\_\_ No\_\_\_

8. If yes, what are the issues usually brought up by the NIA to the Council?

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9. Does the DENR RCBO consider the irrigation as also a reason for protection of the forest?

Yes \_\_\_ No \_\_\_

10. If yes, does the NIA link with the field level DENR personnel, with respect to their stake of having water security in the irrigation system? Yes \_\_\_ No \_\_\_

11. Are there instances that NIA pays for the environmental services to the DENR RBCO to protect the watershed? Yes \_\_\_ No \_\_\_

12. If yes, what is the mode of the PES? (cash, in kind)

13. If cash, how much is paid for environmental services? \_\_\_\_\_

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14. If in kind, what is the nature of these payments? \_\_\_\_\_

15. Horizontal and vertical linkages: Does the DENR RBCO link with the following agencies:

Agencies	Nature of Linkages or joint activities
NWRB	
DA-BSWM	
DAR	
DENR-RBCO	XXX
DENR-EMB	
LGU	
LWUA/Water District	
NGOs	

**Annex 5.2 Guide Questions for National Agencies-DA-BSWM**

**Name:** \_\_\_\_\_ **Age:** \_\_\_\_\_  
**Gender:**   Male     Female   **Educational Attainment:** \_\_\_\_\_  
**Position in the Organization:** \_\_\_\_\_  
**Number of years in the position:** \_\_\_\_\_

1. What is the legal mandate in irrigation?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Compliance to the mandate:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

a. What activities are jointly done with NIA?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

b. Who defines the activity?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

c. Who initiate the joint projects?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Irrigation Budget:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

a. Where is the source?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

b. How much is the budget?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

c. How the budget was spent?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4. Is the technical personnel enough?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

5. Horizontal and vertical linkages

Agencies	Linkages
NIA	
NWRB	
DA	
DAR	
DENR-RBCO	
DENR-EMB	
BSWM	
LGU	
Water District	
NGOs	
Others _____	

Project Cycle Management

A. For the planning and design stage:

1. Who decides on location of the facility?
2. Are farmers consulted on the location of the irrigation structure?

2. Is water availability part of the criterion?
  3. Who writes the proposal?
  4. Who decides on the size of the structure?
  5. Who takes care of the right of way problems?
  6. Who makes the design of the structure?
  7. Is social acceptability by the community part of the assessment?
  8. How is the appraisal of the proposed irrigation projects done?
  10. Where do the proponents get the team?
  11. Who suggests which team to appraise?
  12. What are the qualifications of the appraisal team?
  13. Who sets these qualifications?
  14. Who sets the budget for the appraisal?
  15. Who validates list of farmer beneficiaries?
  16. Who validates the tenure of farmers?
- B. For implementation:
17. Do you get farmer participation during the project implementation?
  18. When does IAs start its formation?
  19. Are timelines being met by all concerned?
  20. Who procures the needed materials for the structures?
  21. How is this being done?
  22. What are problems in procurement that may delay the implementation process?  
What are the roles of farmers during project implementation?
  23. Who involves them in this role?
  24. When is the IAs formed?
- C. For the operations and maintenance stage:
- D. For M&E:
24. Are the data from the field such as the service area, cropping intensity, functional indicators being used for planning purposes?
  25. Are these data collected such that it is timely for use of national and regional policy makers?

26. Other than mentioned in 1) what kinds of data from the field are being used for operations and planning?

27. What other data should be collected for operations and planning?

28. Where are these data housed?

29. In the choice of location of new system, are data from the field used?

30. In the choice of where to rehabilitate, are data from the field used?

a. What activities are jointly done with NIA?

---

---

---

b. Who defines the activity?

---

---

---

c. Who initiate the joint projects?

---

---

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6. Irrigation Budget: Secondary data

7. Is the technical personnel enough? Yes\_\_ No \_\_\_\_

If not, where do you get the needed personnel?

Do you solicit technical support from the NIA? Yes \_\_ No \_\_\_\_

8. Do you agree that an integrated irrigation plan may be more efficient in the long run?

Yes \_\_ No \_\_

If yes, what can be the role of the BSWM? Of NIA? Of the LGUs?

of DAR?

9. Do you agree that one pool of technical experts can do all the construction of the irrigation systems? Yes \_\_\_\_ No \_\_\_\_

10. If yes, will this be a good role of the NIA? Yes \_\_ No \_\_\_\_



**Annex 5.3 Key Informant Interview–National Agencies- others**

**Guide Questions**

**Respondent’s Characteristics**

**Name:** \_\_\_\_\_ **Age:** \_\_\_\_\_  
**Gender:** \_\_Male\_\_Female **Educational Attainment:** \_\_\_\_\_  
**Position in the Organization:** \_\_\_\_\_  
**Number of years in the position:** \_\_\_\_\_

11. What is the legal mandate in irrigation?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

12. Compliance to the mandate:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

a. What activities are jointly done with NIA?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

b. Who defines the activity?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

c. Who initiate the joint projects?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

13. Irrigation Budget:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

a. Where is the source?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

b. How much is the budget?

---

---

---

---

c. How the budget was spent?

---

---

---

---

14. Is the technical personnel enough?

---

---

---

---

15. Horizontal and vertical linkages

<b>Agencies</b>	<b>Linkages</b>
NIA	
NWRB	
DA	
DAR	
DENR-RBCO	
DENR-EMB	
BSWM	
LGU	
Water District	
NGOs	
Others _____	

## **Annex 5.4: Guide Questions for NEDA**

### **Respondent's Characteristics**

**Name:** \_\_\_\_\_ **Age:** \_\_\_\_\_  
**Gender:** \_\_Male\_\_Female **Educational Attainment:** \_\_\_\_\_  
**Position in the Organization:** \_\_\_\_\_  
**Number of years in the position:** \_\_\_\_\_

### **Role of NEDA in the planning and design stage of irrigation facilities:**

1. Where is the irrigation proposal coming from? \_\_\_\_\_
2. Who decides on location of the facility?
3. Is water availability part of the criterion to establish an irrigation facility?
4. Who writes the proposal?
5. Who decides on the size of the structure?
6. Who takes care of the right of way problems?
7. Who makes the design of the structure?
8. Is social acceptability by the community part of the RDC assessment?
9. Are farmers consulted on the location of the irrigation structure?
10. How is the appraisal of the proposed irrigation projects done?
11. Where do the proponents get the team?
12. Who suggests which team to appraise?
13. What are the qualifications of the appraisal team?
14. Who sets these qualifications?
15. Who sets the budget for the appraisal?
16. Who validates list of farmer beneficiaries?
17. Who validates the tenure of farmers?

Annex 6: Directory

REGIONS					
Office	Address	Contact Number	Email address	Head/Director	Position
Region 6: Western Visayas					
RIO		(033) 3296596/3203863 (033) 3296596/3203863	<a href="mailto:niaregion6@gmail.com">niaregion6@gmail.com</a>	Gerardo P. Corsiga	Regional Manager A
NEDA	Fort San Pedro Drive, Iloilo City	(+6333) 336.2392/336.9787	<a href="mailto:nedar6@yahoo.com">nedar6@yahoo.com</a>	Ro-Ann A. Bacal Gilberto A. Altura	Regional Director Asst Regional Director
IMO-Iloilo	Zone 3, Pagsanga-an-Tacas-Quintin Salas Rd, Jaro, Iloilo	T: (033) 320-0622 F: (033) 320-0622		Florencio P. Colorado	Division Manager A
Region 8: Eastern Visayas					
RIO	Marasbaras, Tacloban City	T: (053) 323- 7596 F: (053) 323-9195		Fermina B. Aling	Acting Regional Manager
NEDA	Leyte Government Center, Baras, Palo, Leyte	Tel: (+6353) 323.3092 Fax: (+6353) 323.3092	<a href="mailto:nro8@neda.gov.ph">nro8@neda.gov.ph</a> <a href="mailto:neda.region8@gmail.com">neda.region8@gmail.com</a>	Atty. Bonifacio G. Uy Meylene C. Rosales	OIC Regional Director Asst Regional Director
IMO-Leyte	Marasbaras, Tacloban City	0917-710-5035		Alejandro C. Culibar	<b>BILIRAN-LEYTE DEL NORTE- LEYTE DEL SUR IMO</b>
Region 10: Northern Mindanao					
RIO	Villarin St, Cagayan de Oro, 9000 Misamis Oriental	(088) 858-3256 (088)880-2530		<b>Engr. Ali S. Satol</b>	Regional Manager A
NEDA	NEDA-RDC-10 Building, Capistrano-Echem Sts., Cagayan de Oro City	(08822) 728072 (088) 856-1920 (088) 859-0373	<a href="mailto:nedardc10@yahoo.com">nedardc10@yahoo.com</a>	Leon M. Dacanay Jr. Mae Ester T. Guiamadel	Regional Director Asst Regional Director
IMO-Bukidnon	Bagontaas-Lurugan Rd, Valencia City, Bukidnon	(08822) 25549 (088)828-0656 0935-1087519 0948-4208775	<a href="mailto:nia.bimo@yahoo.com.ph">nia.bimo@yahoo.com.ph</a>	Engr. Aguinaldo Y. Cruz	Acting Division Manager
Region 11: Davao					
RIO	Bolton Street, Davao City	T: (082) 224-0717 F: 224-0717	<a href="mailto:niaregion11rim@yahoo.com">niaregion11rim@yahoo.com</a>	Jimmy L. Apostol	Regional Manager
NEDA	NEDA-RDC XI Bldg, Km. 7, SPED Area, Bangkal, Davao City	(+6382) 296.0161 (+6382) 296.0164 (fax)	<a href="mailto:nedaxi_davao@yahoo.com">nedaxi_davao@yahoo.com</a>	Ma. Lourdes D. Lim Priscilla R. Sonido	Regional Director Asst Regional Director
IMO-Davao Del Sur	NIA Provincial Office, Digos City, Davao del Sur	<a href="tel:082-5537368">082) 553 7368</a> <a href="tel:082-5532432">T: 082-5532432</a> <a href="tel:082-5532432">F: 082-5532432</a>	<a href="mailto:nia_piodyosur@yahoo.com">nia_piodyosur@yahoo.com</a>	Manuel L. Raneses	<a href="#">Division Manager</a>
Region 13: Caraga					
RIO	RIM Office, 2ndFloor, Regional Office, Bancasi, Butuan City	(085) 342-5353 (085) 815-2602		Madante P. Ganotisi Jane B. Huqueriza	Acting Regional Manager Public Relation Officer
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MANILA			
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DA-BSWM	Room 522, 5th Floor, Department of Agriculture Building, Elliptical Road, Quezon City, 1100 Metro Manila	T: (632) 923-0433 F: (632) 920-4318	
NWRB	8th Flr. NIA Building EDSA, Diliman, Quezon City	(632) 928 2365 (632) 920 2641	<a href="mailto:nwrbbphil@gmail.com">nwrbbphil@gmail.com</a> <a href="mailto:nwrbbsec@nwrbb.gov.ph">nwrbbsec@nwrbb.gov.ph</a>
DENR-RBCO	Main Bldg. Visayas Avenue, Diliman Quezon City 1100	926-4706 929-6626 local 2190	<a href="mailto:denr.rbcoc@gmail.com">denr.rbcoc@gmail.com</a>
DENR-EMB	DENR Compound, Visayas Avenue, Diliman, Quezon City	920-22-32 928-37-25	<a href="mailto:mail@emb.gov.ph">mail@emb.gov.ph</a>
NEDA	12 St. J.Escriva Drive, Ortigas Center, Pasig City	63 631 0945 to 56	<a href="mailto:nedapr@neda.gov.ph">nedapr@neda.gov.ph</a>
DILG	Dilg Napolcom Center,, Lungsod Quezon, Kalakhang Maynila	(02) 876-34-54	<a href="mailto:emano@dilg.gov.ph">emano@dilg.gov.ph</a>
DOH	San Lazaro Compound, Tayuman, Sta. Cruz, Manila	T: (632) 651-7800 F: (632) 711-6744	
MWSS	MWSS Compound, Katipunan Ave, Matandang Balara, Lungsod Quezon, Kalakhang Maynila	T: (02) 922-2969 F: (02) 921-2887	<a href="mailto:info@mwss.gov.ph">info@mwss.gov.ph</a>
LWUA	Local Water Utilities Administration LWUA Building, LWUA-MWSS Complex, Katipunan Avenue, Balara, Quezon City, Philippines	T: (02) 9205581 to 89 F: (02) 9223434	<a href="mailto:publicaffairs@lwua.gov.ph">publicaffairs@lwua.gov.ph</a>
NPC	BIR Road corner Quezon Avenue, Diliman 1100 Quezon City	T: (02) 921-3541 F: (02) 921-2468	<a href="mailto:corpcomm@napocor.gov.ph">corpcomm@napocor.gov.ph</a>
NPC Watershed Management Dept.	3/F Building 1 BIR Road corner Quezon Avenue Diliman, Quezon City	(02) 924-5217	
DAR	R-7, Diliman, Quezon City, Metro Manila	☐ (02) 453-7980	<a href="mailto:contact_us@dar.gov.ph">contact_us@dar.gov.ph</a>