

NARBO's 9TH IWRM TRAINING
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Building on IWRM Good Practices

The Laguna Lake Basin Experience

SECTORAL PERSPECTIVE: IRRIGATION

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OVERVIEW

- The Irrigation Agency
- Irrigation Development Process
- Project Categories
- Plans & Programs
- Program Strategies
- Other Interventions
- Irrigation Management Transfer
- Irrigation Experiences in the Immediate Environs of Laguna Lake

NATIONAL IRRIGATION ADMINISTRATION

- NIA is a government-owned and-controlled corporation (GOCC) created under RA 3601 signed on June 22, 1963.
- Its mission is to develop and manage irrigation systems and provide irrigation services in conjunction with recommended crop cultural practices.
- NIA's contribution to the Food Staples Sufficiency Program (FSSP) is to increase production and harvested area through construction and rehabilitation or improvement of irrigation systems and its appurtenant facilities.

IRRIGATION DEVELOPMENT PROCESS

Phases	Activities
Phase 1 – Project Identification, Investigation and Selection	Selection & evaluation, gathering of climatic data, topographic survey and data gathering for project profile
Phase 2 – Feasibility Study & Detailed Engineering Design	Feasibility: hydrology, geology, agriculture & land resources, economic & financial analysis, environmental impact assessment; Detailed Engineering: Survey mapping, design plans & specifications, derivation of unit cost, Program of Work and contract documents,
Phase 3 – Pre-construction & construction Works	Pre-construction: Right of Way, project facilities and access road; Construction: Staking-out, construction of dam, spillway, conduit & irrigation facilities
Phase 4 – Operation and Maintenance	Irrigation water requirement, cropping calendar, water delivery & distribution, monitoring of water discharge, system review & planning

* *New projects*

ADMINISTRATION OF FUNCTION

- Central Office
- Regional Offices
- Irrigation Management Offices

PROJECT CATEGORIES

- Foreign-Assisted Projects – Funding from World Bank, ADB, JICA, JBIC, others
- Locally-funded Projects – financed out of general funds from revenue collections and domestic borrowings of the national government

CATEGORIES OF IRRIGATION SYSTEMS

- Integrated River Irrigation Systems
- National Irrigation System
- Communal Irrigation System
- Pump Irrigation System

WATER FOR IRRIGATION

- **GRAVITY**- invariably located at higher level than the fields to be irrigated; the main sources are rivers, streams and creeks; depends on the water supply of the river source at a given time and is called “run-off-the-river”
- **PUMP** – uses suction to draw water from a lower source than the fields to be irrigated
- **STORAGE/RESERVOIR** – In areas where the demand of water exceeds the minimum river discharge, water is stored at a time it is abundant for use during low water level at the source

OPERATION OF IRRIGATION SYSTEMS

PARTICULARS	NATIONAL IRRIGATION SYSTEM	COMMUNAL IRRIGATION SYSTEM
Service Area	1,000 hectares & above	Less than 1,000 hectares
Project Implementation	Agency-implemented	w/ farmers participation
Operation & Maintenance	NIA & Irrigators Association	Irrigators' Association
Water Charges	Irrigation Service fee for rice crop: Cash equivalent of 100 kg for wet, 150 kg for dry & 3 rd season crop in gravity-irrigation	Farmers pay amortization to pay back cost of construction, at least 75 kg/year

CURRENT AGENCY PLANS & PROGRAMS

- Area generation in rain-fed areas
- Restoration and rehabilitation in water-deprived and deficit portion of service areas
- Improvement of water dependability by promoting best farming practices

PROGRAM STRATEGIES

- To increase serviceable area (SA) - Generation of irrigated area with preference to rain-fed rice areas; Rehabilitation of dysfunctional irrigation facilities or those with water deficit/overage problems; and, Restoration of area.
- To increase Cropping Intensity (CI) – Promotion of rice-intensifying cropping pattern; water-saving farming system; rehabilitation & improvement of irrigation system; and, crisis-alleviating water distribution.

OTHER INTERVENTIONS

Method	Impact
Tap New stream	Increase water supply
Water Impounding	Store water
Reuse Drainage Water	Increase water supply
Setup Transitory Reservoir	Increase water supply
Heighten Dam Crest	Increase intake discharge
Line Irrigation Canals	Minimize conveyance loss
Restrict Offtake Discharge	Minimize wasteful diversions
Repair Dilapidated Facilities	Improve water conveyance

IRRIGATION MANAGEMENT TRANSFER (IMT)

- Refers to the transfer of management, operation and maintenance of the NIS to IAs, wholly or partially, depending on the size of the NIS and capacity of IA wherein NIA and IA agree on the financial arrangement.

OBJECTIVES OF IMT

1. To organize a functional and self-reliant IAs who is capable and willing to operate and maintain the system, wholly or partially.
2. To improve performance of the NISs in terms of equitable water distribution, and timely and reliable water deliveries.
3. To provide higher opportunities to farmers of NIS for better and more profitable agricultural production, and
4. To achieve sustainability and financial viability of IAs in the operation of NISs.

IRRIGATION MANAGEMENT TRANSFER MODELS

MODEL	DESCRIPTION
Model 1	NIA manages the entire NIS but transfer specific operation and maintenance activities to the Irrigators Association such as: a) maintenance of canals, b) operation activities such as discharge monitoring and preparation of list of irrigated and planted area, and c) distribution of irrigation service fee (ISF) bills and campaign for payment
Model 2	The NIA manages the main system, from the headworks to the main canal down to the headgates of lateral canals and transfers to the IA the management of the laterals, sub-laterals and terminal facilities
Model 3	The NIA manages the headworks and portion of main canal up to the junction of the first lateral canal and transfers to the IA the management of the rest of the system downstream of the specified junction.
Model 4	The NIA completely transfers to the IA the management of the entire system including the headworks and stops all its activities on the management of the system except on monitoring, evaluation, collection of fees and technical supervision as may be requested by the IA

Irrigation Experience in the Immediate Environs of Laguna Lake

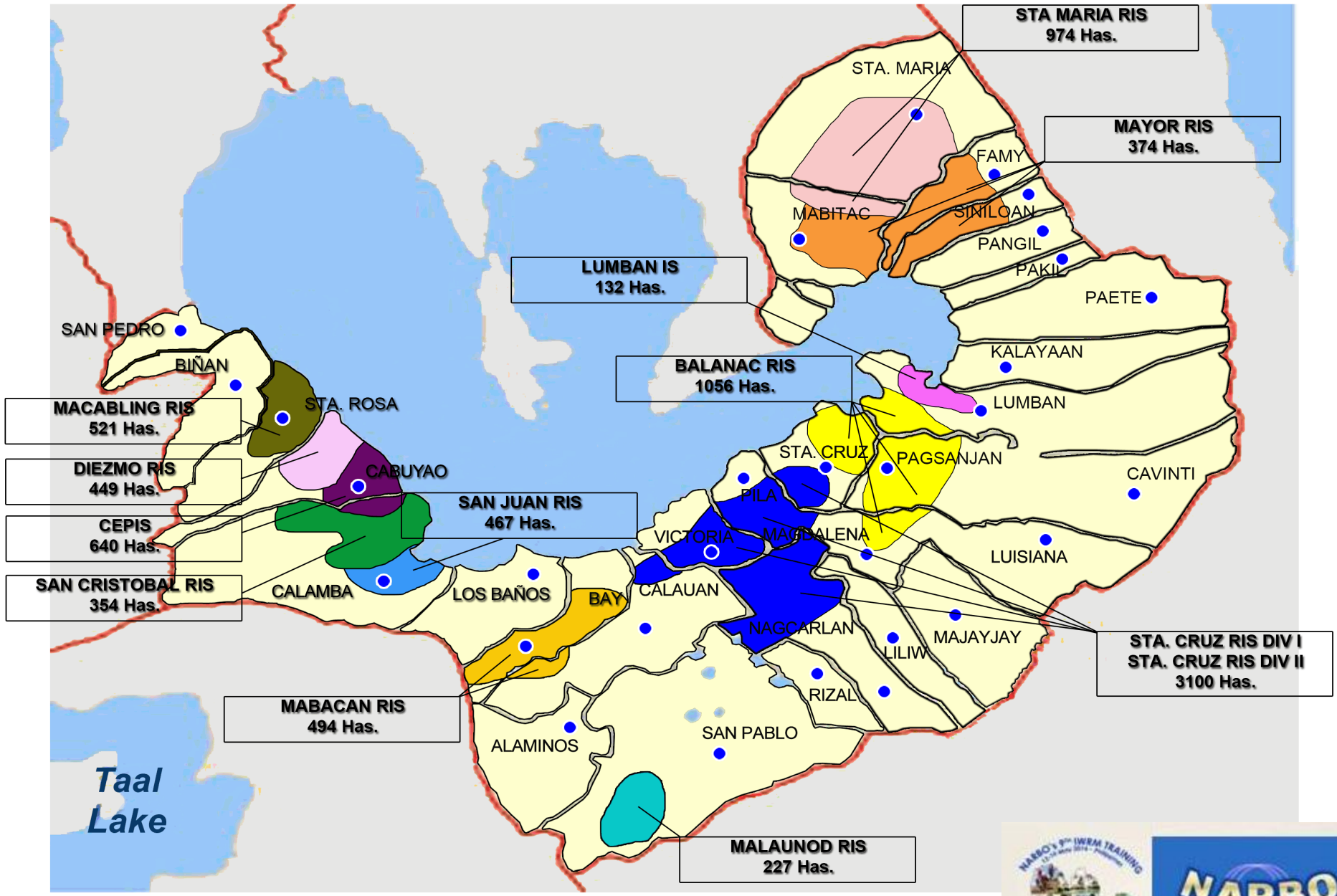
IRRIGATION DEVELOPMENT IN LAGUNA & RIZAL

	National Level	Region IV A	Laguna	Rizal
Estimated Irrigable Area, ha	3,019,608.99	85,929	24,147	8,537
Firmed-up Service Area				
National Irrigation System	740,213.74	20,450	6,840	-
Communal Irrigation System	576,419.15	18,100	3,986	2,535
Private Irrigation System	194,620.25	6,334	1,714	738
OGA-Assisted	167,342.22	2,578	-	1,184
Total	1,678,595.36	47,462	12,540	4,457
Irrigation Development, %	55.59	55.23	51.93	52.21
Remaining Area to be Developed	1,341,013.63	38,467	11,607	4,080

NO. OF IRRIGATION SYSTEMS

		Laguna	Rizal	Region IV A
National Irrigation Systems				
No.		12	-	39
Area		6,840	-	20,450
Communal Irrigation System				
No.		59	57	365
Area		3,986	2,535	18,100
Private Irrigation System				
No.		49	151	337
Area		1,714	738	6,334
Other-Govt Agency Assisted				
No.		-	384	412
Area		-	1,184	2,578
TOTAL	No.	122	592	1,153
	Area	12,540	4,457	47,462

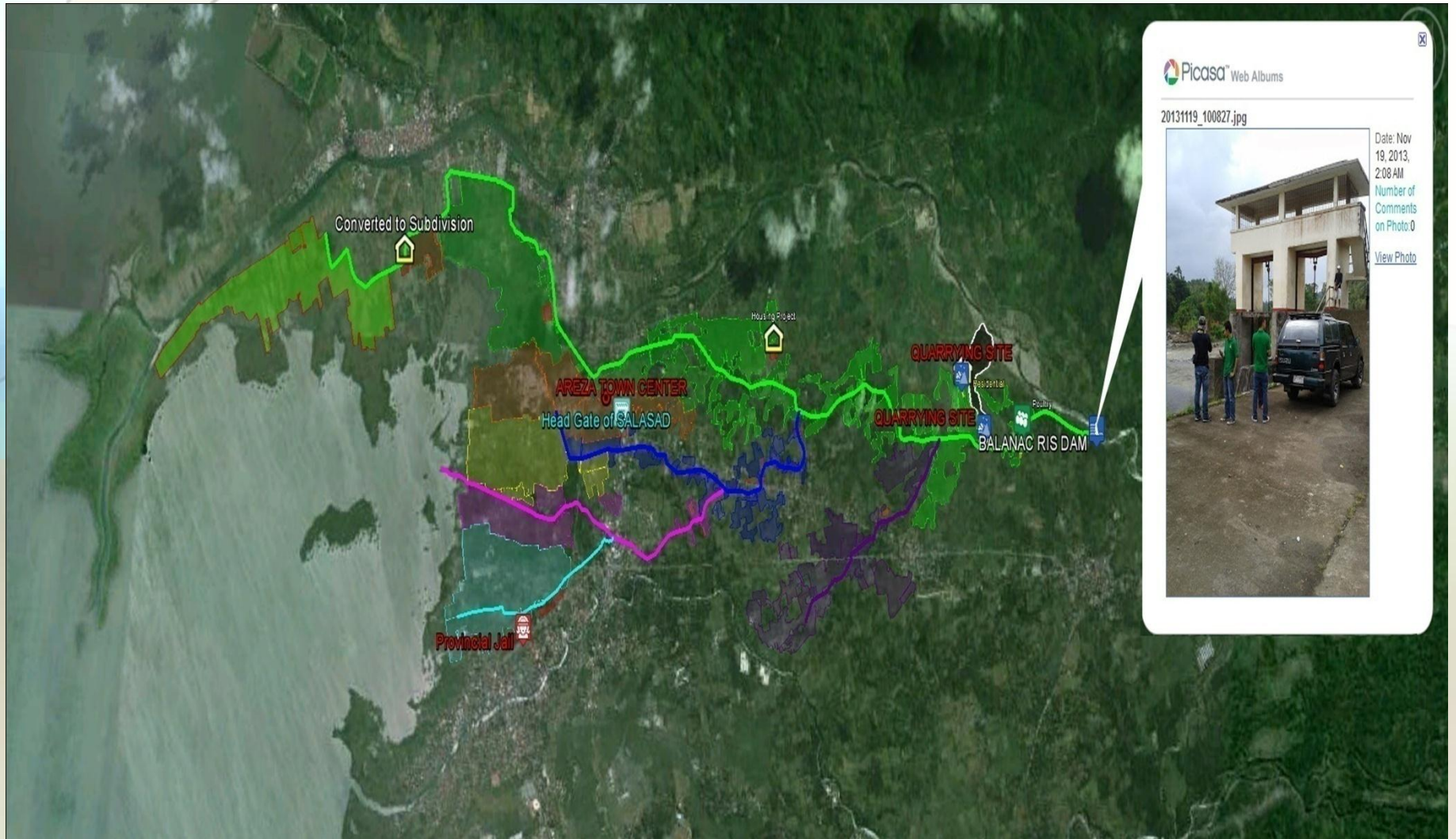


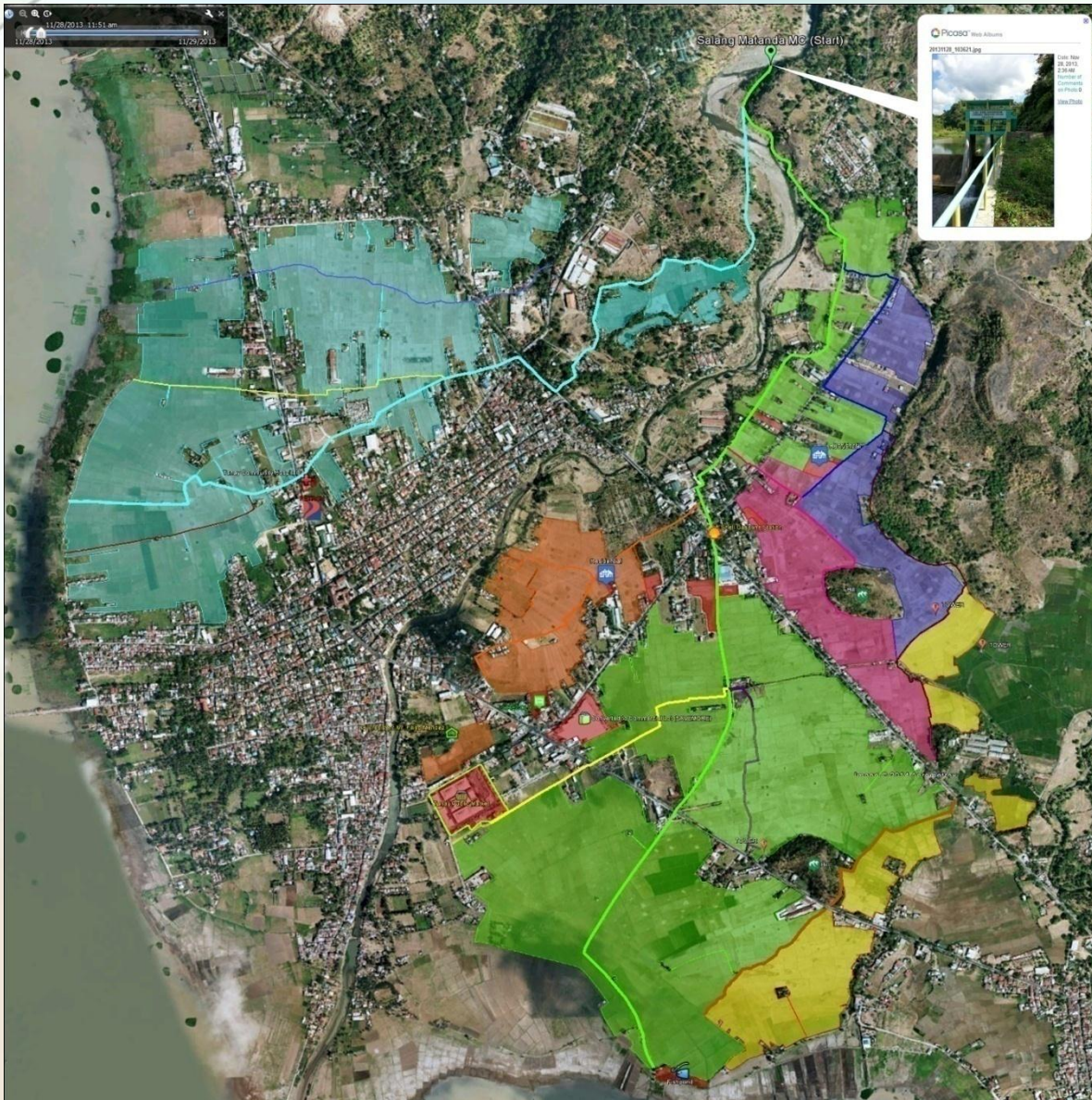


RIZAL



STILL-SHOTS OF ACTUAL GEO-TAGGING
OF
BALANAC RIVER IRRIGATION SYSTEM (LAGUNA)
AND
SALANG MATANDA COMMUNAL IRRIGATION
SYSTEM (RIZAL)





OPERATION OF NATIONAL IRRIGATION SYSTEMS

Irrigation System	Type of irrigation	Service Area	3-Year Ave. Irrigated Area (2011-2013)		
			DRY	WET	Cropping Intensity, %
Sta. Cruz	Gravity	2,161	1,960.77	1,955.97	181
Mabacan	Gravity	274	251.50	248.87	182
Malaunod	Gravity	174	159.33	159.73	183
Balanac	Gravity	1,456	864.66	892.62	121
Lumban	Gravity	69	66.46	23.10	130
Macabling	Gravity	202	202	202	200
Diezmo	Gravity	241	208.23	200.55	170
Cabuyao PIS	Pump	640	-	-	-
San Cristobal	Gravity	209	209	209	200
San Juan	Gravity	345	281.57	275.75	162
Sta. Maria	Gravity	974	863.46	900.72	89
Mayor	Gravity	374	282	258.49	144
TOTAL		6,479	5,348.98	5,326.80	168

STATUS OF IRRIGATION MANAGEMENT TRANSFER

Irrigation System	IMT Model	Length of Canal, km	Area Covered, ha	No. of Farmers
Sta. Cruz	Model 1	24.35	1,035	915
Mabacan	Model 1	3.21	83	72
Malaunod	Model 1	11.88	173.97	120
Balanac	Model 3	28.229	1,000	879
Lumban	Model 1	7.425	69	76
Macabling	Model 1	11.357	202	125
Diezmo	Model 1	12.89	241	70
Cabuyao PIS	Non-operational		377	319
San Cristobal	Model 1	20.63	249	131
San Juan	Model 1	10.00	80	45
Sta. Maria	Model 3	35.547	974	727
Mayor	Model 1	19.22	246	816



STATUS OF CY 2013 PROJECTS

AS OF DECEMBER 31, 2013

No. of POW	Name of Project/ System	Direct Cost (PhP'000)	Physical Target			Actual Accomplishment				
			Area(has)			Area(has)			Status(%)	
			Gen	Rest	Rehab	Gen	Rest	Rehab	Phy	Finc'l
14	BATANGAS	54,355	181	40	185	181	40	205	100%	100%
11	CAVITE	60,248	150	88	309	150	78	319	100%	100%
17	LAGUNA	131,974	175	145	1,900	205	132	1,920	100%	100%
8	RIZAL	47,411	245	101	115	142	121	-	100%	100%
25	QUEZON	129,722	451	77	910	318	80	1,165	68%	68%
75	Total for Lumpsum	423,710	1,202	451	3,419	996	451	3,609	89%	89%
2	Quezon Pipeline Proj.	245,870	414	-	-	-	-	-	50%	48%
77	Grand Total	669,580	1,616	451	3,419	996	451	3,609	75%	74%



IRRIGATION ISSUES

- Reduction in area due to conversion of irrigated lands to industrial/commercial/residential uses
- Competition in water use (domestic & irrigation)
- Pollution caused by industrial/commercial/household wastes
- Inundation of lakeshore areas (Sta. Cruz, Lumban, Balanac, etc)
- Illegal squatting along embankment of irrigation canals
- Denudation of watershed
- Effect of climate change

THANK YOU!

