BALOG-BALOG MULTIPURPOSE PROJECT-PhaseII

...the dream of every Tarlaqueno

...a great stride towards national food security

...catalyst to countryside development and economic progress

PROJECT BRIEFER

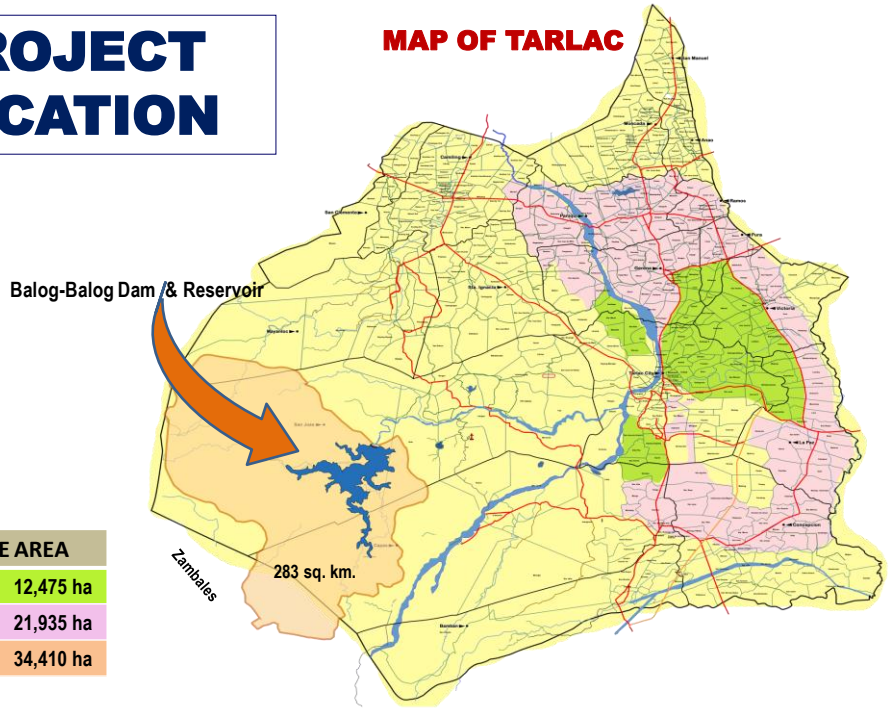
Nat'l. Academy of Science & Technology

May 9, 2014

PROJECT LOCATION

MAP OF THE PHILIPPINES

PROJECT LOCATION



SERVICE AREA	
Existing	12,475 ha
New	21,935 ha
Total	34,410 ha

PROJECT PROFILE

Name of Project : **Balog-Balog Multipurpose Project-Phase II**

Project Location : **San Jose, Province of Tarlac, Philippines**

Total Project Cost : **15.816 Billion**

Implementation Schedule :

	Phase I	Phase II	Total
Schedule	1999 - 2012	2013 - 2016	
Cost, P	2.362 B	15.816 B	18.178 B
Area, ha	12,475	21,935	34,410
FBs	7,340	15,660	23,000

PROJECT SCOPE

(SCHEME OF DEVELOPMENT)

The Project involves the construction of the Balog-Balog Earthfill Dam at the upper Bulsa River, construction of irrigation canals & structures, and access roads for:

- **Irrigation (8 towns & 1 city)**
  - **Service Area - 34,410 ha**
  - **Farmer Beneficiaries - 23,000 Farmers**
- **Flood Control**

PROJECT COMPONENTS

- **Civil Works**
  - **a. Dam (Height =105.5 m. ; Length = 1,429.47 m.)**
  - **b. Diversion Tunnel (Diameter = 11 m. ; Length = 433.25 m.)**
  - **c. Irrigation Canals & Structures**
    - **Main Canals - 60 km.**
    - **Laterals - 248 km.**
- **Land/Right-of-Way Acquisition**
- **Institutional Development (130 Irrigators Associations)**
- **Resettlement (745 families)**
- **Watershed Management (700-ha Pilot Project)**

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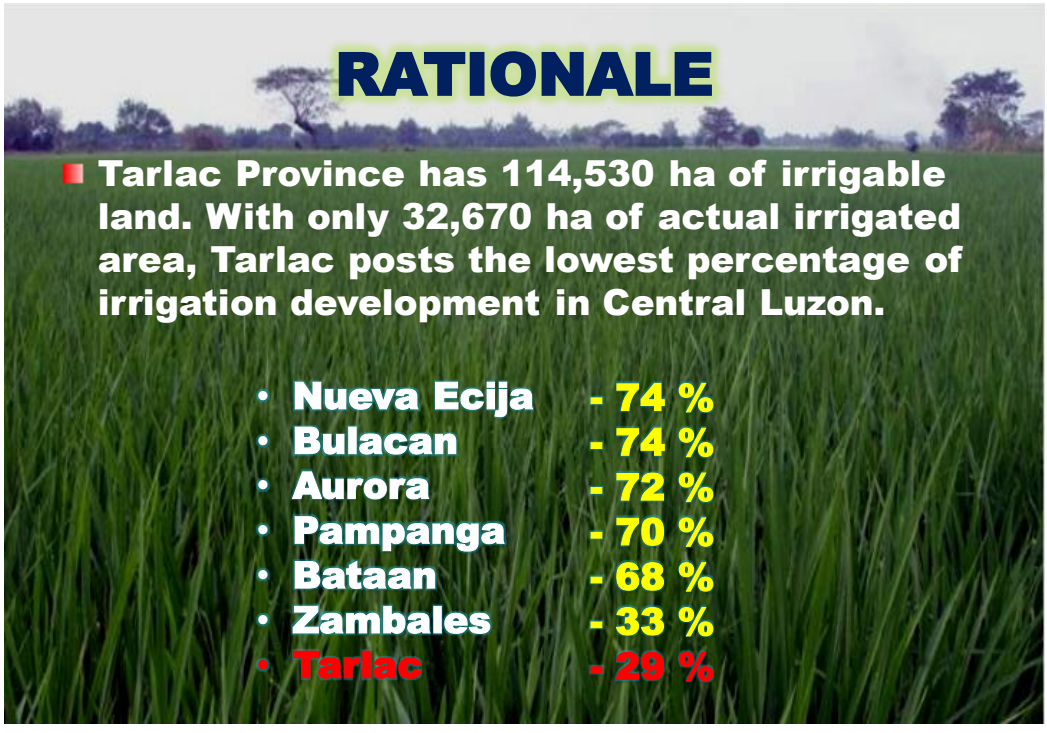


STATUS OF IRRIGATION DEVELOPMENT

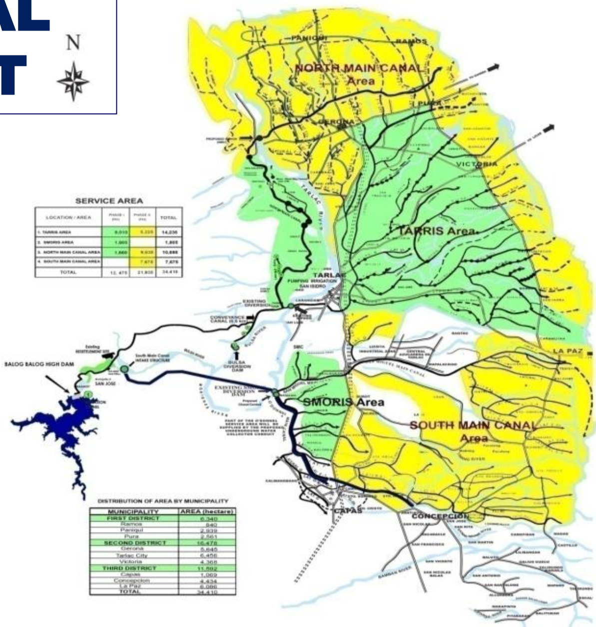
REGION III	TOTAL IRRIGABLE AREA (ha)	TOTAL SERVICE AREA (ha)	IRRIGATION DEVELOPMENT (%)	REMAINING AREA TO BE DEVELOPED (ha)
Aurora	16,630	11,920	72	4,710
Bataan	11,520	7,817	68	3,703
Bulacan	51,970	38,225	74	13,745
Nueva Ecija	208,640	155,422	74	53,218
Pampanga	57,370	39,900	70	17,470
Tarlac	114,530	32,670	29	81,860
Zambales	38,200	12,503	33	25,697

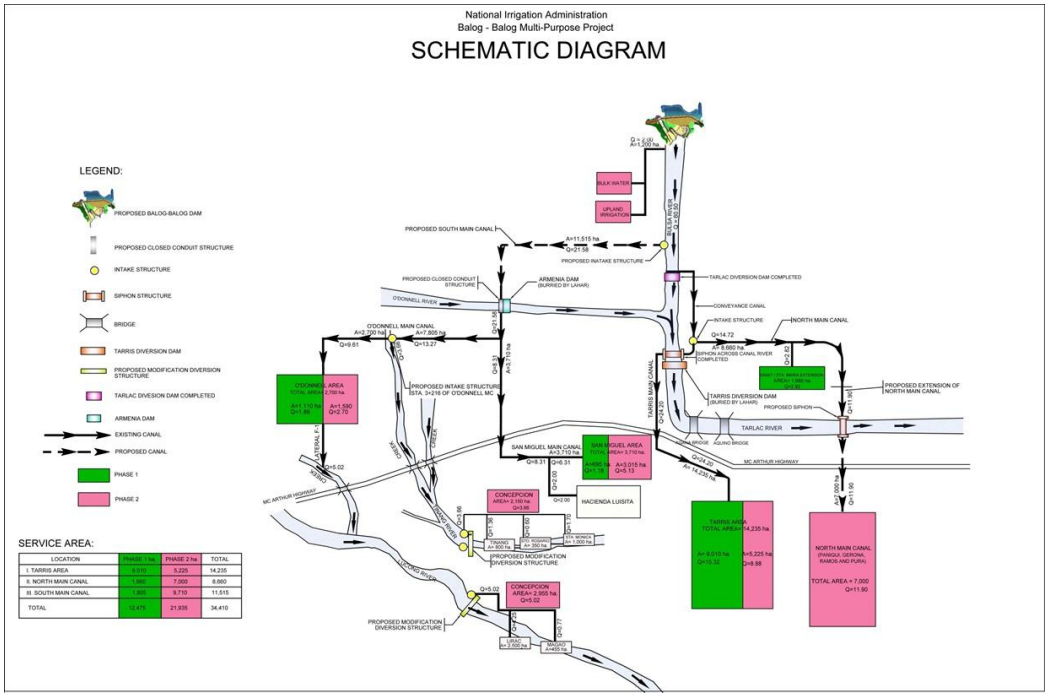
Source: NIA CORPLAN

IRRIGATION ASPECT

GENERAL LAYOUT

N

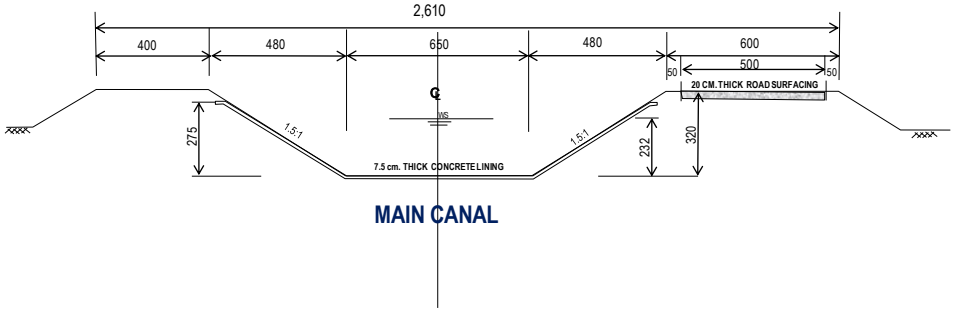




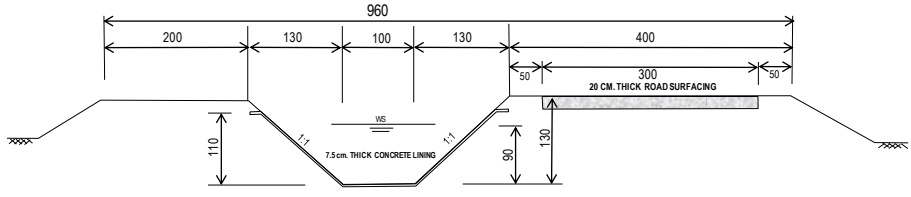
DISTRIBUTION OF AREA BY MUNICIPALITY

MUNICIPALITY	AREA (hectares)	FARMER BENEFICIARIES
FIRST DISTRICT	**6,340**	**4,227**
Ramos	840	561
Paniqui	2,939	1,959
Pura	2,561	1,707
SECOND DISTRICT	**16,478**	**11,015**
Gerona	5,645	3,773
Tarlac City	6,465	4,320
Victoria	4,368	2,922
THIRD DISTRICT	**11,592**	**7,758**
Capas	1.069	723
Concepcion	4,434	2,966
La Paz	6,089	4,069
TOTAL	**34,410**	**23,000**

TYPICAL CANAL SECTION

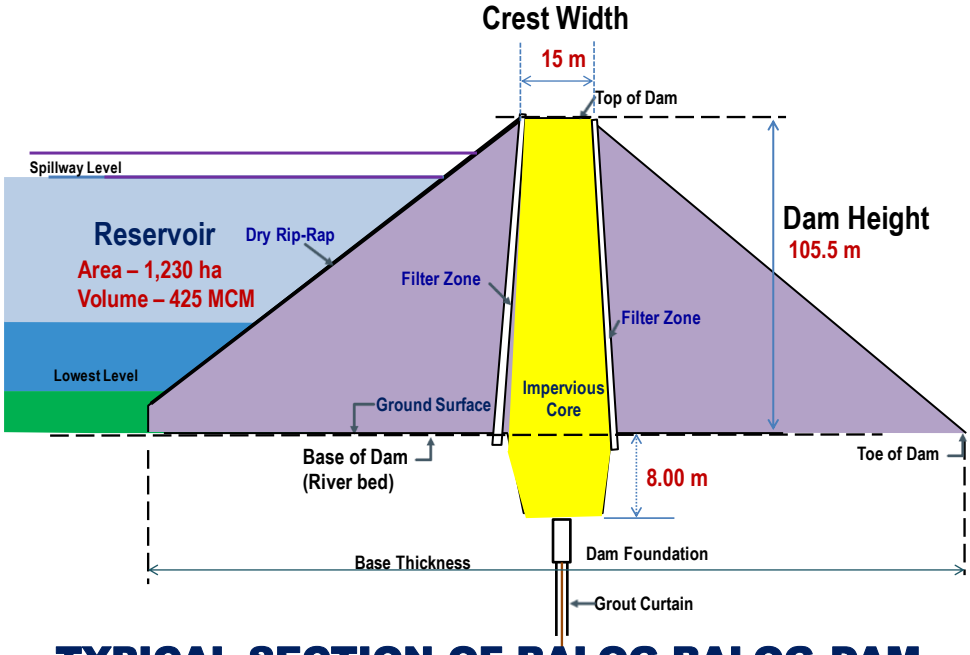


MAIN CANAL



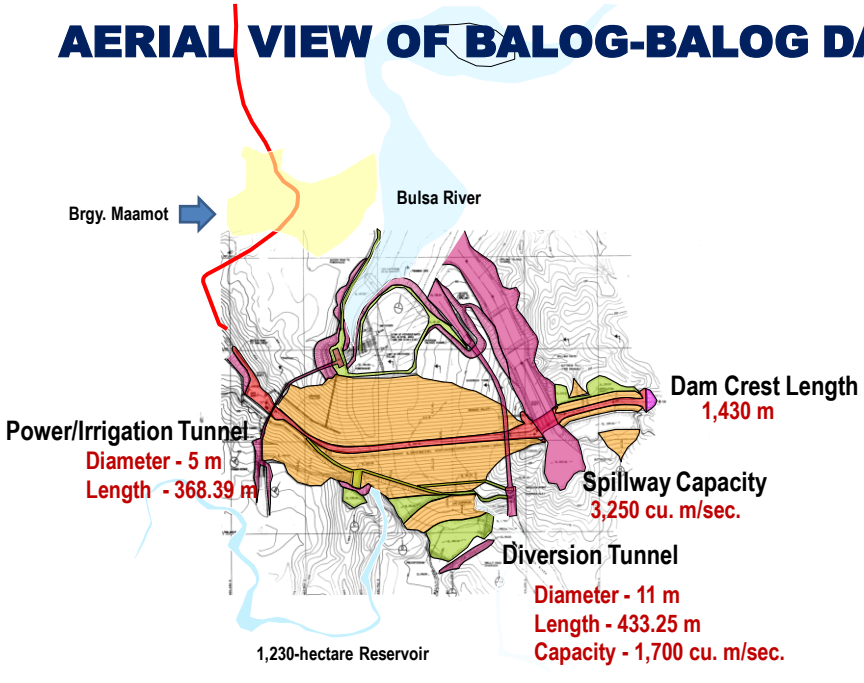
LATERAL CANAL

DAM ASPECT



TYPICAL SECTION OF BALOG-BALOG DAM

AERIAL VIEW OF BALOG-BALOG DAM

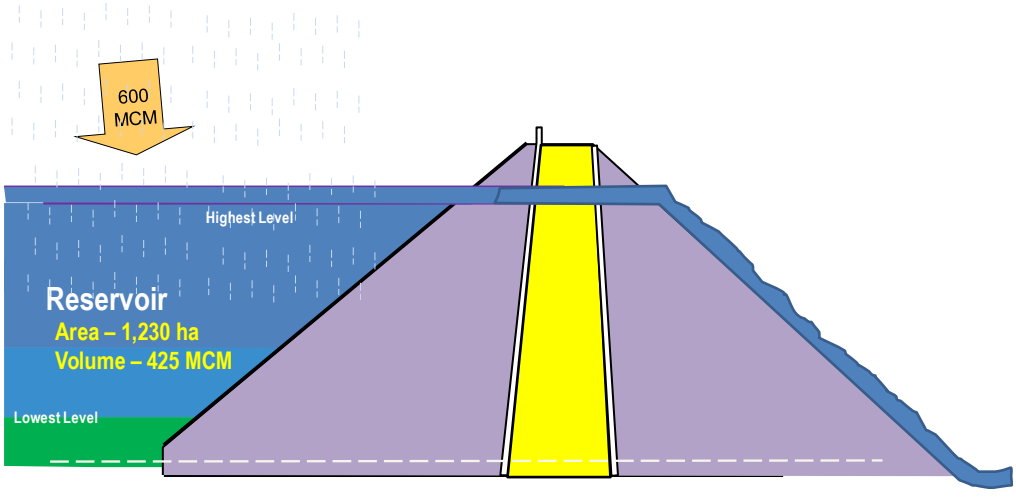


TECHNICAL FEATURES

DAM	
Type	Earth-fill dam
Height	105.50 m.
Crest Width	15.00 m.
Crest Length	1,430 m.
RESERVOIR	
Area	1,230 hectares
Storage Capacity	425 MCM (Million Cubic Meters)
Drainage (Watershed) Area	283 sq. km.
SPILLWAY	
Type	Ungated Open Chute
Width	70 m.

TECHNICAL FEATURES

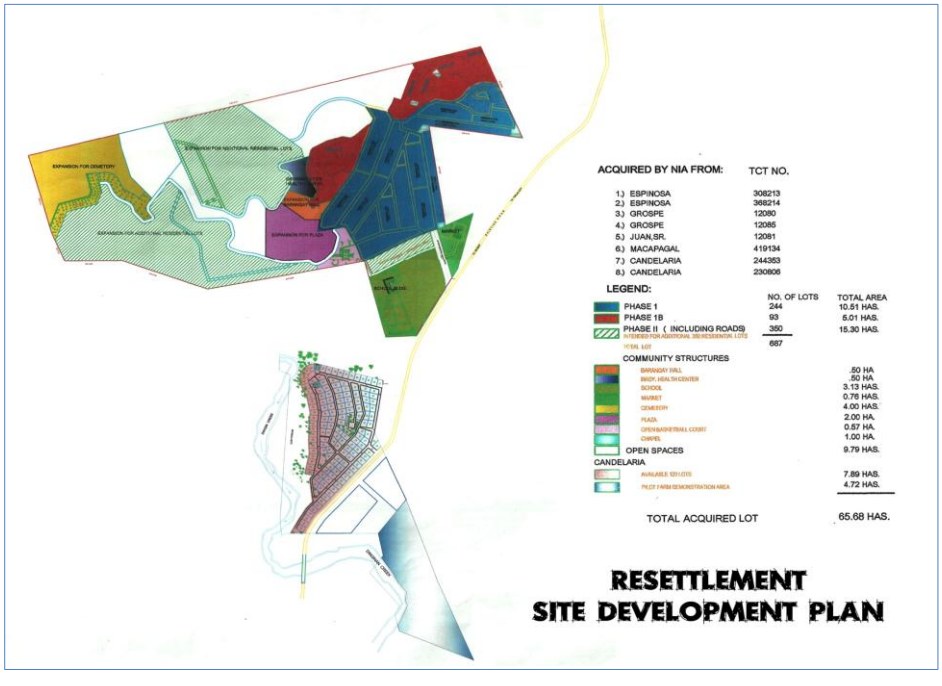
OUTLET WORKS	
DIVERSION TUNNEL	
Diameter	11.00 m.
Length	433.25 m.
POWER /IRRIGATION TUNNEL	
Diameter	5.00 m.
Length	368.39 m.



BALOG-BALOG DAM
(With Ungated Spillway)

RESETTLEMENT PROGRAM


AERIAL VIEW
RESETTLEMENT SITE CONTRUCTION
/ DEVELOPMENT
LMC-BBMPII -013-08
SITIO MAMBOG, SULA, SAN JOSE, TARLAC


ACQUIRED BY NIA FROM:
TCT NO.
1.) ESPINOSA 308213
2.) ESPINOSA 308214
3.) GROSPE 12080
4.) GROSPE 12085
5.) JUAN,SR. 12081
6.) MACAPAGAL 41934
7.) CANDELARIA 244353
8.) CANDELARIA 230806
LEGEND:
NO. OF LOTS
TOTAL AREA
PHASE 1 244 10.51 HAS.
PHASE 1B 93 5.01 HAS.
PHASE II (INCLUDING ROADS) 350 15.30 HAS.
687
COMMUNITY STRUCTURES
.50 HA
.50 HA.
3.13 HAS.
0.76 HAS.
4.00 HAS.
2.00 HA.
0.57 HA.
1.00 HA.
OPEN SPACES 9.79 HAS.
CANDELARIA
7.89 HAS.
4.72 HAS.
TOTAL ACQUIRED LOT 65.68 HAS.
RESETTLEMENT
SITE DEVELOPMENT PLAN


NEW MAAMOT RESETTLEMENT
NORMAL VIEW
PROPOSED ENTRANCE
SITIO MAMBOG, SULA, SAN JOSE, TARLAC


NORMAL VIEW
PROPOSED COREHOUSE
LMC-BBMPII-R-013, 01-12
SITIO MAMBOG, SULA, SAN JOSE, TARLAC


NORMAL VIEW
PROPOSED ELEMENTARY SCHOOL
SITIO MAMBOG, SULA, SAN JOSE, TARLAC


BRGY. HALL
NORMAL VIEW
PROPOSED BRGY. HALL
SITIO MAMBOG, SULA, SAN JOSE, TARLAC


NORMAL VIEW
PROPOSED PUBLIC MARKET
RESETTLEMENT SITE
SITIO MAMBOG, SULA, SAN JOSE, TARLAC


NORMAL VIEW
PROPOSED INTER DENOMINATIONAL CHURCH
SITIO MAMBOG, SULA, SAN JOSE, TARLAC


NORMAL VIEW
PROPOSED HEALTH CENTER
SITIO MAMBOG, SULA, SAN JOSE, TARLAC


NORMAL VIEW
PROPOSED STAGE
SITIO MAMBOG, SULA, SAN JOSE, TARLAC


NORMAL VIEW
PROPOSED OPEN BASKETBALL WITH STAGE
SITIO MAMBOG, SULA, SAN JOSE, TARLAC


NORMAL VIEW
PROPOSED BRGY. OUTPOST
SITIO MAMBOG, SULA, SAN JOSE, TARLAC

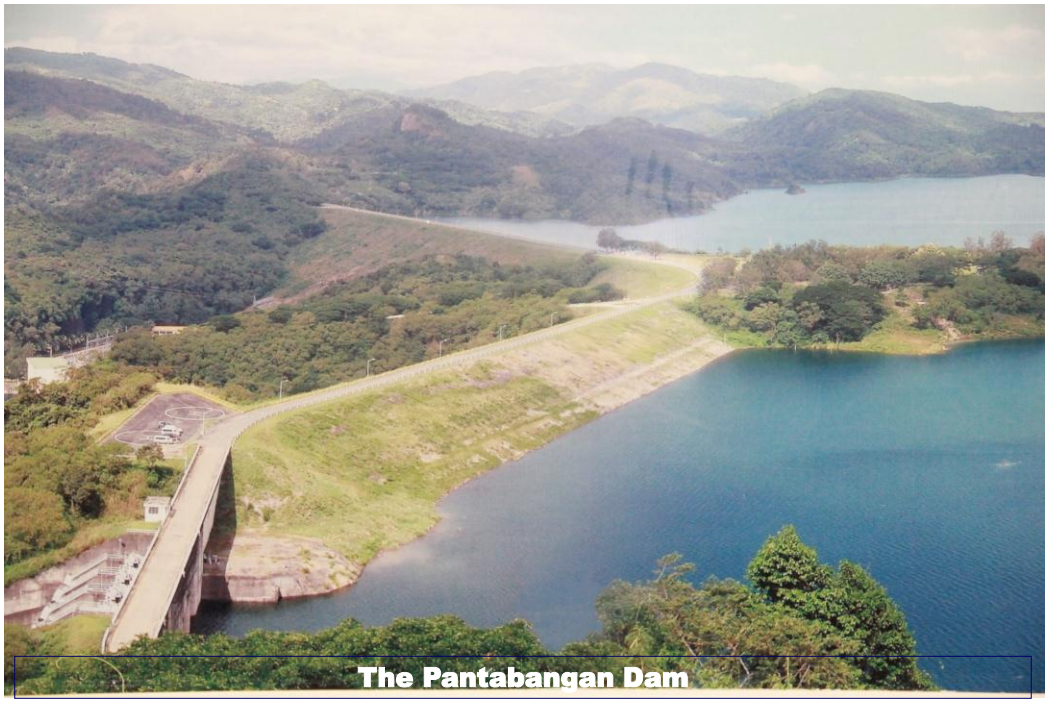
ENVIRONMENTAL SOUNDNESS OF THE PROJECT

ENVIRONMENT ASPECTS	IMPACT ASSESMENT		
	FAIR	GOOD	VERY GOOD
1. PHYSICAL ENVIRONMENT			
1.1 WATER (shallow aquifer & open body of water)			●
1.2 AMBIENT AIR		●	
1.3 AMBIENT NOISE		●	
1.4 SOIL		●	
2. BIOLOGICAL ENVIRONMENT			
2.1 FLORA/PLANT DIVERSITY		●	
2.2 FAUNA/ANIMAL DIVERSITY		●	
3. SOCIO-ECONOMIC ENVIRONMENT			
3.1 CROP PRODUCTION & DIVERSIFICATION			●
3.2 LAND VALUATION			●
3.3 GOVERNMENT REVENUE			●
3.4 LAND USE			●
3.5 EMPLOYMENT			●

FAIR – Adverse impacts are minimal to medium & can be mitigated with known measures

GOOD - Impacts are very minimal and need minimal mitigating measures

VERY GOOD – Big positive impacts which require minimal enhancement measures



The Pantabangan Dam

OTHER BENEFITS

1. Livelihood through aquaculture (150 ha) and expanded agro-economic activities
2. Flood control/mitigation
3. Better farm mobility and access to market thru constructed irrigation service roads (308 km)
4. Generation of 103,000 jobs
5. Potential generation of 43.5 MW of hydro-electric energy

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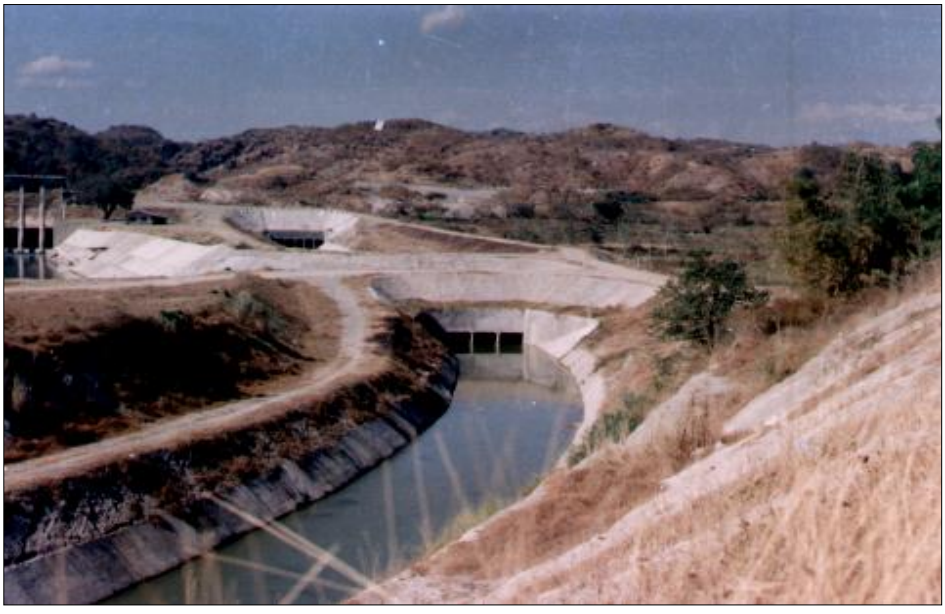
PROJECT TIMELINE & ANNUAL BUDGETARY REQUIREMENT

ACTIVITY	ESTIMATED COST	TARGET SCHEDULE	2014	2015	2016
A. DAM & APPURT. STRUCTURES					
1. Dam (Including Diversion Tunnel)	7,902,538,385	Mar' 14 – Dec '16	757,914,471	4,000,000,000	3,144,623,914
B IRRIG.CANALS & APPURT. STRUCTURES					
1. North Main Canal Extension & Laterals	1,004,083,983	Mar '14– Dec' 16		405,000,000	599,083,983
2. South Main Canal & Laterals	1,054,814,952	Mar'14 - Dec '16		210,600,000	844,214,952
3. TARRIS & SMORIS Areas	834,101,065	Mar '14 - Dec '16	146,100,000	100,000,000	588,001,065
TOTAL CIVIL WORKS	10,795,538,385		904,014,471	4,715,600,000	5,175,323,914
C. PRE-CONST'N. & CONSTRUCTION SUPPORT ACTIVITIES	344,592,963	Jan '14 - Jun '16	39,820,000	240,000,000	64,772,963
D. PROCUREMENT BY GOVERNMENT	42,646,967	Jan' 14 – Mar '16	10,000,000	27,646,967	5,000,000
E. INSTITUTIONAL DEVELOPMENT	51,194,843	Jan '14 - Dec '16	12,350,000	12,500,000	26,344,843
F. RESETTLEMENT PROGRAM	630,000,000	Jan '14 - Dec '16	103,200,000	275,000,000	251,800,000
G. REPAIR & MAINT. OF PROJECT FACILITIES, ACCESS ROADS & EQPT.	127,716,842	Jan '14 - Dec' 16	51,280,000	25,321,648	51,115,194
H. CONSULTING SERVICES	106,000,000	Mar '14 - Dec' 16	18,000,000	50,000,000	38,000,000
I. WATERSHED MANAGEMENT	84,900,000	Jan '14 - Dec '16	13,520,000	40,000,000	31,380,000
TOTAL DIRECT COST	12,182,590,000		1,152,184,471	5,386,068,615	5,643,736,914
J. TAXES	890,540,000	Jan '15 – Dec '16		450,000,000	440,540,000
K. PRICE CONTINGENCIES	1,525,160,000	Jan '15 – Dec '16		737,072,000	788,088,000
I. PHYSICAL CONTINGENCIES	1,218,200,000	Jul '14 – Dec '16	682,000	579,128,000	638,390,000
TOTAL INDIRECT COST	3,633,900,000		682,000	1,766,200,000	1,867,018,000
GRAND TOTAL	15,815,950,000		1,152,866,471	7,152,268,615	7,510,754,914

- Contract Procurement
- Construction Schedule

SOME OF THE COMPLETED WORKS UNDER BBMP-PHASE I

Tarlac Diversion Dam



Conveyance Canal

Upstream Portion of North Main Canal

Two-Lane Bridge with a Drop Structure at North Main Canal

Lateral Canal with Service Road in the Mt. Pinatubo-affected TARRIS Service Area

Lateral Canal with Service Road in the Mt. Pinatubo-affected SMORIS Service Area

Some of the Completed Structures in the North Main Canal Area

Photos of some NIA completed reservoir projects

CALANGO SRIP – SRIP
Zamboanguita, Neg. Or.

Impounding Earthfill Dam

CALANGO DAM SPILLWAY

CAPAYAS IRRIGATION SYSTEM
(Capayas Dam Spillway)

BOHOL IRRIGATION PROJECTSTAGE I
(Malinao Spillway)

BOHOL IRRIGATION PROJECTSTAGE II
(Bayongan Dam)

BOHOL IRRIGATION PROJECTSTAGE II
(Bayongan Dam)

Diversion Chute
– conveys water from Malinao Dam to Bayongan Dam

NASIG–ID SRIP – SRIP
Zamboanguita, Neg. Or.

Impounding Earthfill Dam

DAUIN SRIP – SPISP
Dauin, Neg. Or.

Impounding Earthfill Dam

Malinao Intake Structure

THANK YOU