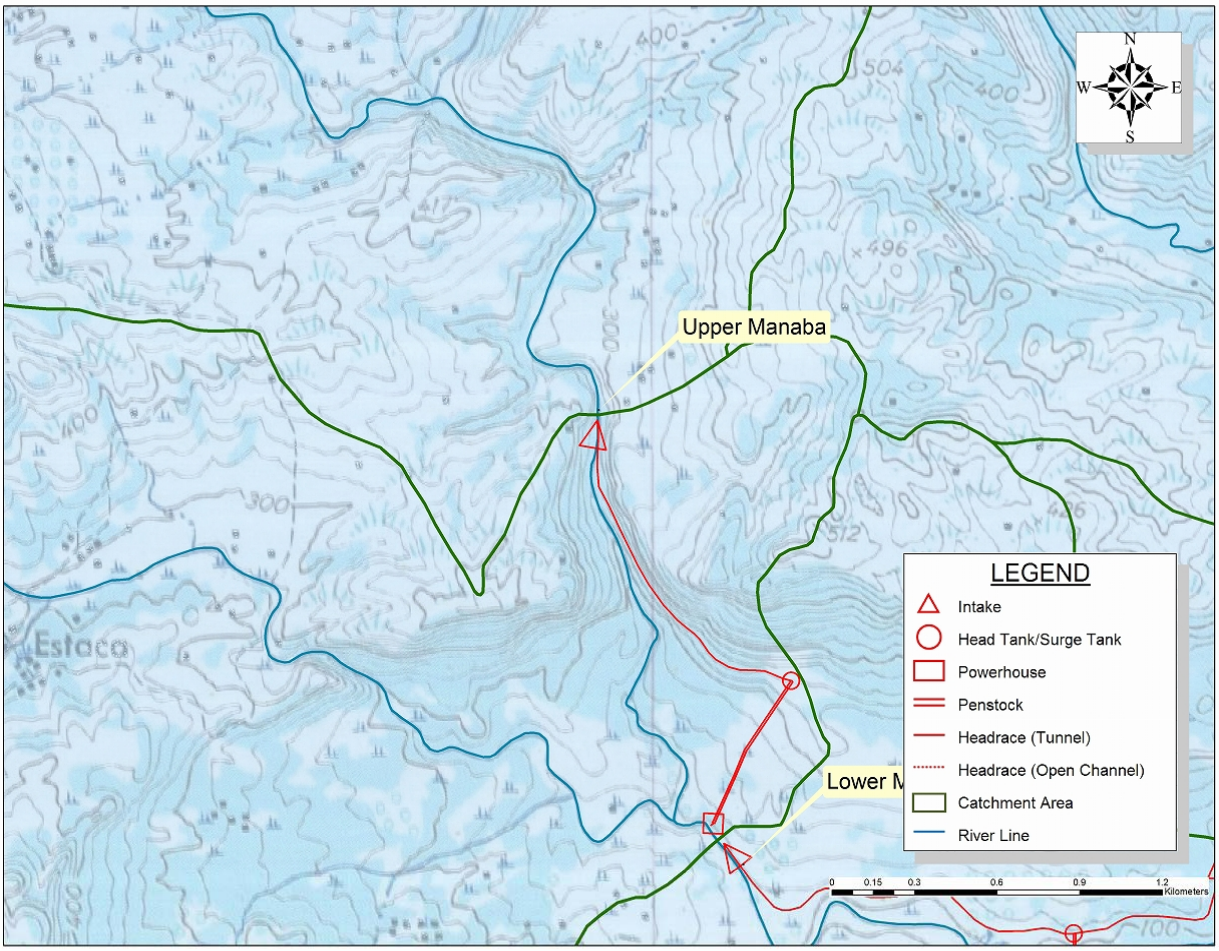
APPENDIX-5

47 POTENTIAL PROJECTS WITH SITE RECONNAISSANCE

JICA POTENTIAL SITE WITH SITE RECONNAISSANCE (1 / 47)

PROJECT NAME **Upper Manaba**



LOCATION

Island	Bohol
Region	CENTRAL VISAYAS
Province	BOHOL
Municipality	GARCIA HERNANDEZ

RIVER

River Basin	Manaba
River	Manaba

RESERVOIR

Reservoir Volume	-	Mil m^3
Effective Volume	-	Mil m^3
High Water Level	-	m

Coordinate

	Latitude	Longtitude
Weir/Dam	9'41'15'	124'17'1'
Intake1	-	-
Intake2	-	-
Powerhouse	9'40'22'	124'17'18'

POWER GENERATION PLAN

Max Output	0.95	MW
Power Generation Type	Run of River	
Annual Power Generation	4.523	GWh
Plant Factor	52%	
Catchment Area	22.82	km^2
Maximum Discharge	1.03	m^3/s
Gross Head	126.00	m
Effective Head	117.24	m
Intake Water Level	245.00	m
Tailrace Water level	119.00	m

PROJECT EVALUATUION

Construction Cost	6.23	Mil USD
	269.25	Mil PHP
Unit Cost / kW	6,526	USD
	281,911	PHP
Unit Cost / kWh	1.27	USD
	54.81	PHP
EIRR	3.8%	
FIRR	0.7%	

*1USD =43.2PHP (03/2012)

CIVIL WORKS

Main Weir	Height	3.0	m
	Crest Length	15.0	m
Headrace	Open Channel	1,300.0	m
	Tunnel	-	m
Penstock		730.0	m
Tailrace		10.0	m
Access Road		1.3	km

EM / TL WORKS

Turbine	Type	Cross Flow
	Number of Unit	one unit
Transmission	Line Voltage	- kV
	Length	2.0 km

ENVIRONMENT ISSUE

Protected Area	-
Volcano	-

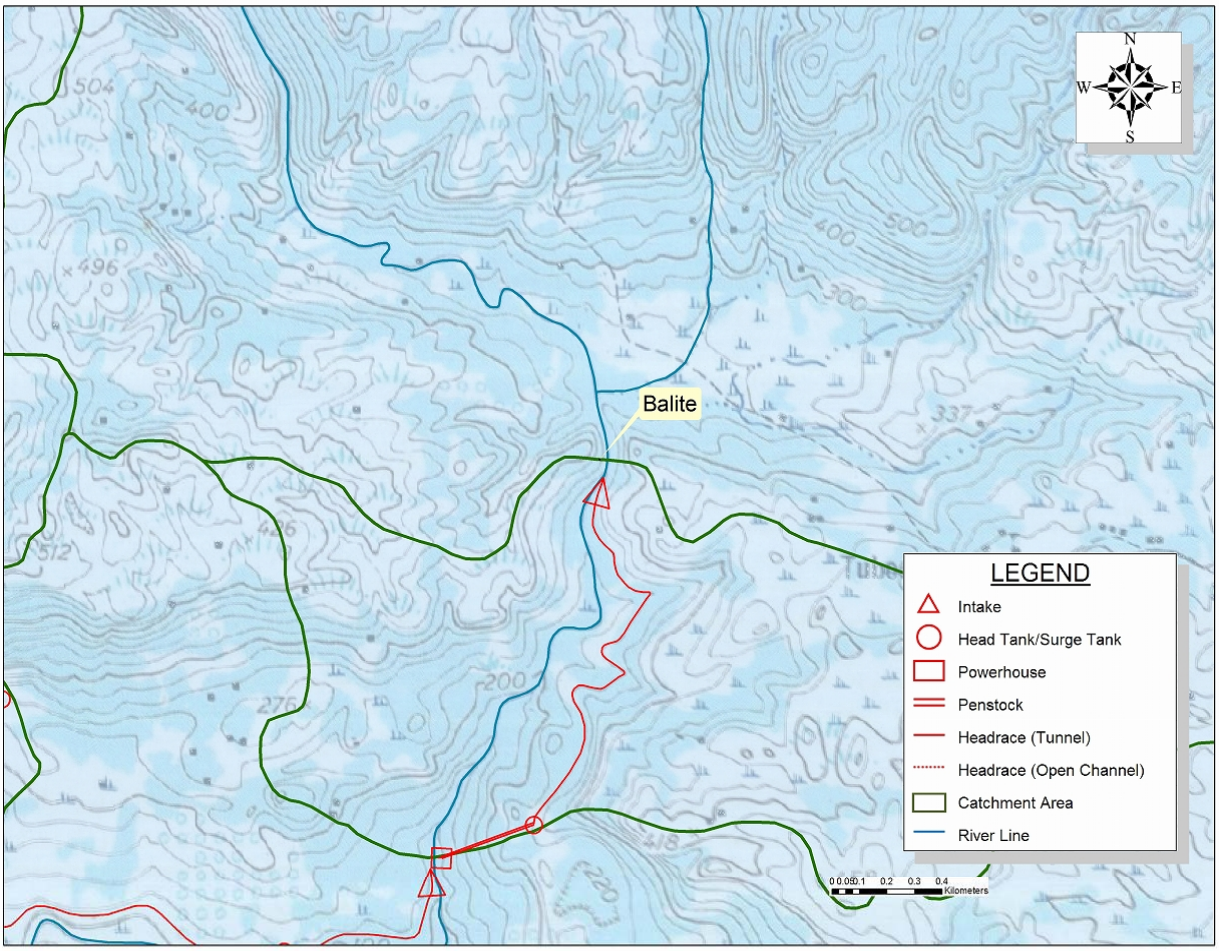
PROJECT STUDY

Study	Type	Map Study Site Reconnaissance
	Date	2012
	Sponsor	JICA

Remark

JICA POTENTIAL SITE WITH SITE RECONNAISSANCE (2 / 47)

PROJECT NAME **Balite**



LOCATION

Island	Bohol
Region	CENTRAL VISAYAS
Province	BOHOL
Municipality	JAGNA

RIVER

River Basin	Manaba
River	(Balite)

RESERVOIR

Reservoir Volume	-	Mil m^3
Effective Volume	-	Mil m^3
High Water Level	-	m

Coordinate

	Latitude	Longtitude
Weir/Dam	9'41'11'	124'18'35'
Intake1	-	-
Intake2	-	-
Powerhouse	9'40'22'	124'18'15'

POWER GENERATION PLAN

Max Output	1.30	MW
Power Generation Type	Run of River	
Annual Power Generation	5.980	GWh
Plant Factor	50%	
Catchment Area	26.77	km^2
Maximum Discharge	1.25	m^3/s
Gross Head	138.00	m
Effective Head	130.09	m
Intake Water Level	247.00	m
Tailrace Water level	109.00	m

PROJECT EVALUATUION

Construction Cost	6.04	Mil USD
	260.75	Mil PHP
Unit Cost / kW	4,633	USD
	200,138	PHP
Unit Cost / kWh	0.93	USD
	40.37	PHP
EIRR	8.5%	
FIRR	4.4%	

*1USD =43.2PHP (03/2012)

CIVIL WORKS

Main Weir	Height	4.0	m
	Crest Length	15.0	m
Headrace	Open Channel	1,500.0	m
	Tunnel	-	m
Penstock		400.0	m
Tailrace		10.0	m
Access Road		1.3	km

EM / TL WORKS

Turbine	Type	Cross Flow
	Number of Unit	one unit
Transmission	Line Voltage	- kV
	Length	1.1 km

ENVIRONMENT ISSUE

Protected Area	-
Volcano	-

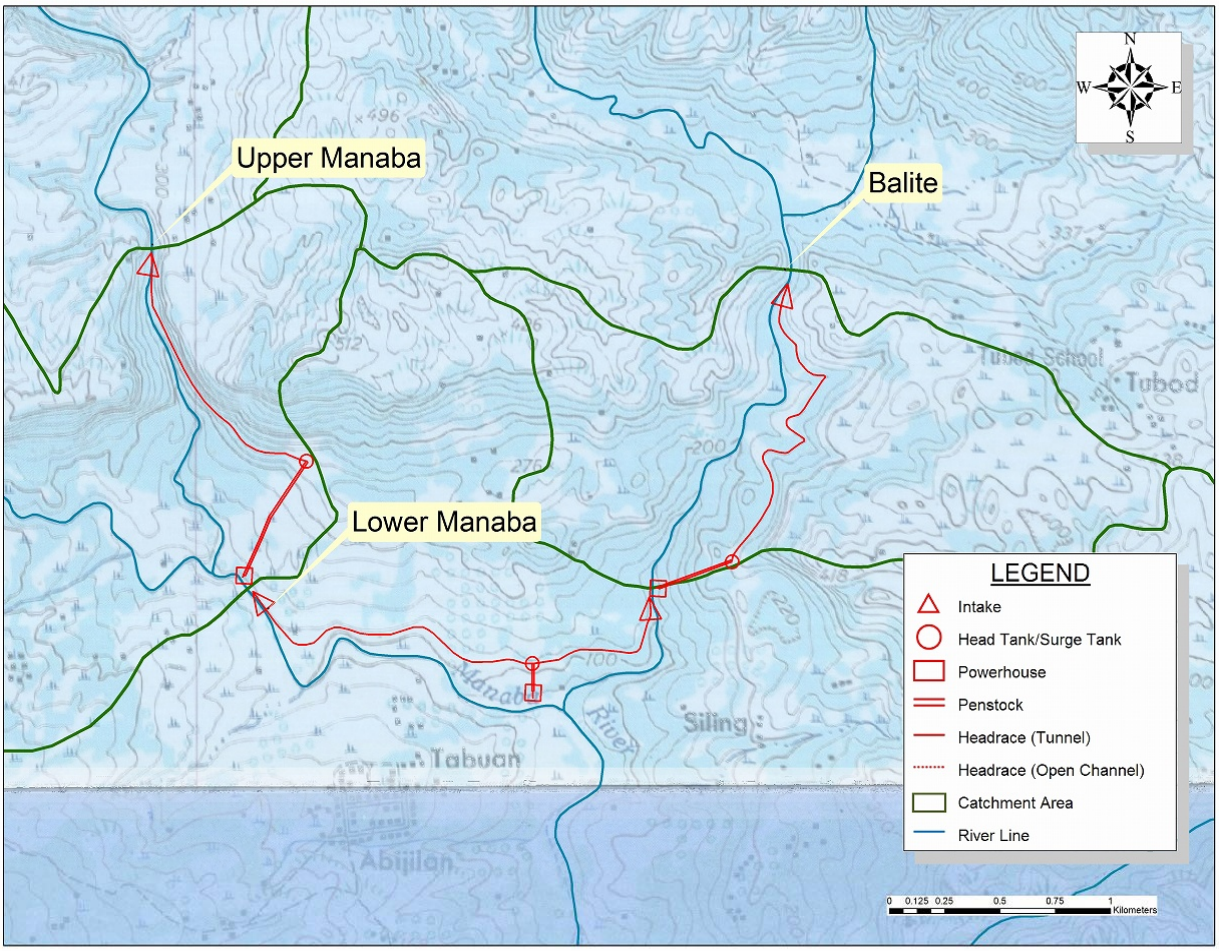
PROJECT STUDY

Study	Type	Map Study Site Reconnaissance
	Date	2012
	Sponsor	JICA

Remark

JICA POTENTIAL SITE WITH SITE RECONNAISSANCE (3 / 47)

PROJECT NAME **Lower Manaba**



LOCATION

Island	Bohol
Region	CENTRAL VISAYAS
Province	BOHOL
Municipality	GARCIA HERNANDEZ

RIVER

River Basin	Manaba
River	Manaba+ Balite

RESERVOIR

Reservoir Volume	-	Mil m^3
Effective Volume	-	Mil m^3
High Water Level	-	m

Coordinate

	Latitude	Longtitude
Weir/Dam	9'40'22'	124'17'18'
Intake1	9'40'22'	124'18'15'
Intake2	-	-
Powerhouse	9'40'11'	124'18'0'

POWER GENERATION PLAN

Max Output	0.51	MW
Power Generation Type	Run of River	
Annual Power Generation	2.712	GWh
Plant Factor	58%	
Catchment Area	67.02	km^2
Maximum Discharge	2.48	m^3/s
Gross Head	32.00	m
Effective Head	26.66	m
Intake Water Level	111.00	m
Tailrace Water level	79.00	m

PROJECT EVALUATUION

Construction Cost	6.03	Mil USD
	260.47	Mil PHP
Unit Cost / kW	12,680	USD
	547,772	PHP
Unit Cost / kWh	2.20	USD
	95.01	PHP
EIRR	-3.8%	
FIRR	-6.0%	

*1USD =43.2PHP (03/2012)

CIVIL WORKS

Main Weir	Height	4.0	m
	Crest Length	22.0	m
Headrace	Open Channel	2,100.0	m
	Tunnel	-	m
Penstock		90.0	m
Tailrace		30.0	m
Access Road		1.4	km

EM / TL WORKS

Turbine	Type	Cross Flow
	Number of Unit	one unit
Transmission	Line Voltage	- kV
	Length	1.0 km

ENVIRONMENT ISSUE

Protected Area	-
Volcano	-

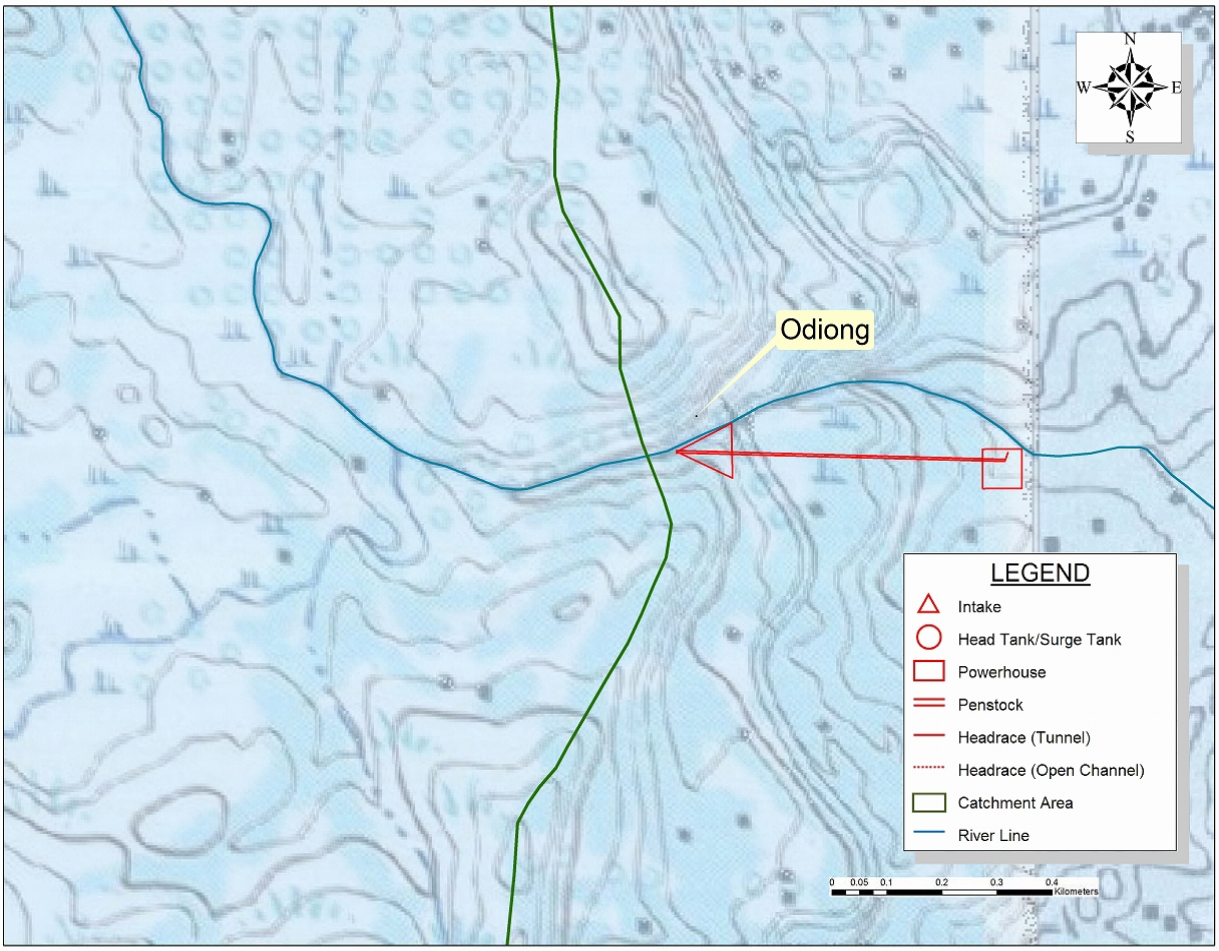
PROJECT STUDY

Study	Type	Map Study Site Reconnaissance
	Date	2012
	Sponsor	JICA

Remark

JICA POTENTIAL SITE WITH SITE RECONNAISSANCE (4 / 47)

PROJECT NAME **Odiong**



LOCATION

Island	Bohol
Region	CENTRAL VISAYAS
Province	BOHOL
Municipality	JAGNA

RIVER

River Basin	Alihanan
River	(Odiong)

RESERVOIR

Reservoir Volume	-	Mil m^3
Effective Volume	-	Mil m^3
High Water Level	-	m

Coordinate

	Latitude	Longtitude
Weir/Dam	9'41'30'	124'21'45'
Intake1	-	-
Intake2	-	-
Powerhouse	9'41'28'	124'22'3'

Remark

POWER GENERATION PLAN

Max Output	0.42	MW
Power Generation Type	Run of River	
Annual Power Generation	2.053	GWh
Plant Factor	53%	
Catchment Area	11.13	km^2
Maximum Discharge	0.50	m^3/s
Gross Head	116.00	m
Effective Head	109.13	m
Intake Water Level	180.00	m
Tailrace Water level	64.00	m

PROJECT EVALUATUION

Construction Cost	3.30	Mil USD
	142.48	Mil PHP
Unit Cost / kW	7,548	USD
	326,054	PHP
Unit Cost / kWh	1.43	USD
	61.73	PHP
EIRR	2.1%	
FIRR	-0.6%	

*1USD =43.2PHP (03/2012)

CIVIL WORKS

Main Weir	Height	3.0	m
	Crest Length	15.0	m
Headrace	Open Channel	-	m
	Tunnel	-	m
Penstock		580.0	m
Tailrace		15.0	m
Access Road		0.3	km

EM / TL WORKS

Turbine	Type	Cross Flow
	Number of Unit	one unit
Transmission	Line Voltage	- kV
	Length	1.2 km

ENVIRONMENT ISSUE

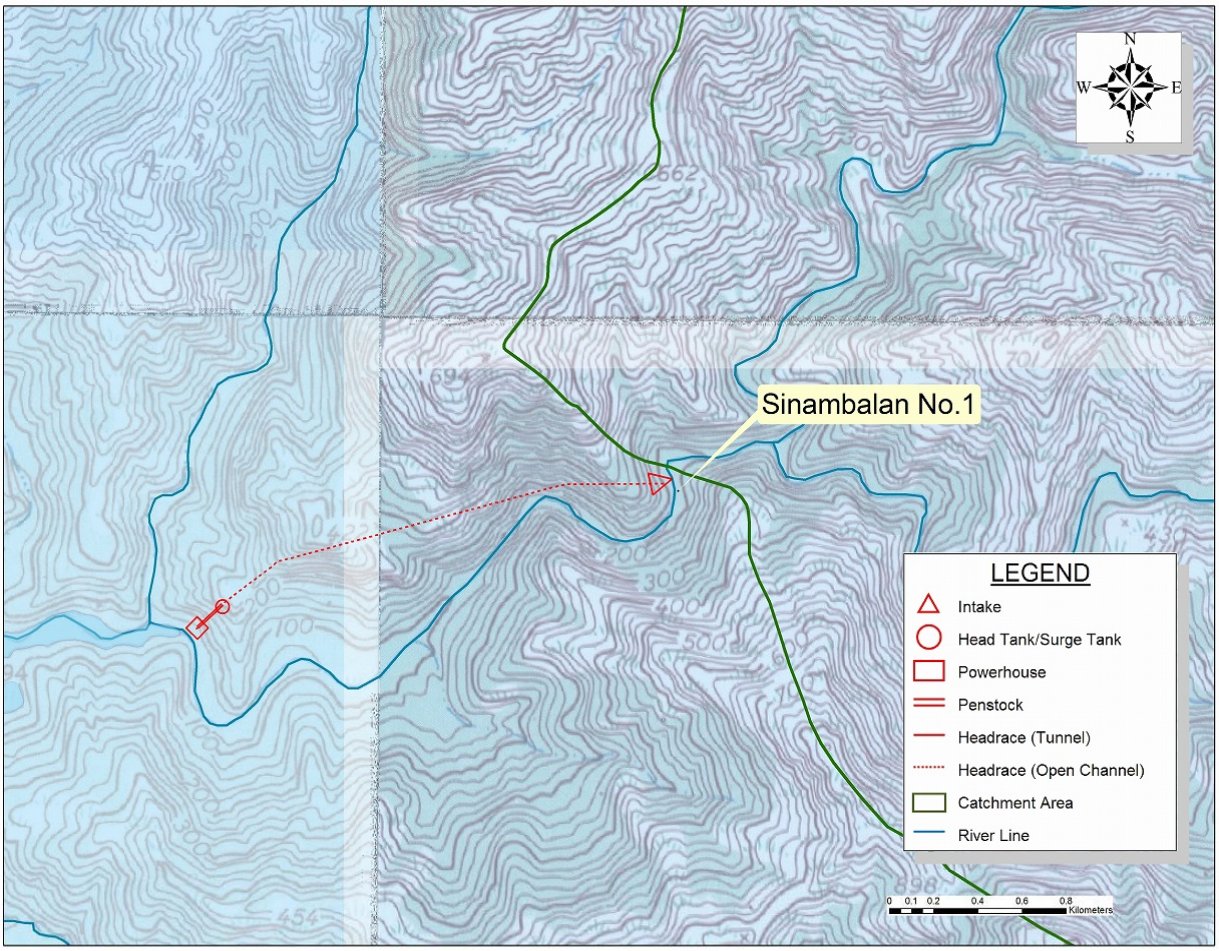
Protected Area	-
Volcano	-

PROJECT STUDY

Study	Type	Map Study Site Reconnaissance
	Date	2012
	Sponsor	JICA

JICA POTENTIAL SITE WITH SITE RECONNAISSANCE (5 / 47)

PROJECT NAME **Sinambalan No.1**



LOCATION

Island	Mindoro
Region	MIMAROPA
Province	OCCIDENTAL MINDORO
Municipality	ABRA DE ILOG

RIVER

River Basin	Mamburao
River	Sinambalan

RESERVOIR

Reservoir Volume	-	Mil m^3
Effective Volume	-	Mil m^3
High Water Level	-	m

Coordinate

	Latitude	Longtitude
Weir/Dam	13'19'30'	120'45'50'
Intake1	-	-
Intake2	-	-
Powerhouse	13'19'10'	120'44'39'

Remark

POWER GENERATION PLAN

Max Output	3.10	MW
Power Generation Type	Run of River	
Annual Power Generation	22.371	GWh
Plant Factor	78%	
Catchment Area	58.38	km^2
Maximum Discharge	4.00	m^3/s
Gross Head	105.00	m
Effective Head	96.72	m
Intake Water Level	165.00	m
Tailrace Water level	60.00	m

PROJECT EVALUATUION

Construction Cost	19.86	Mil USD
	857.96	Mil PHP
Unit Cost / kW	4,255	USD
	183,825	PHP
Unit Cost / kWh	0.55	USD
	23.64	PHP
EIRR	17.9%	
FIRR	12.3%	

*1USD =43.2PHP (03/2012)

CIVIL WORKS

Main Weir	Height	7.0	m
	Crest Length	35.0	m
Headrace	Open Channel	-	m
	Tunnel	2,150.0	m
Penstock		180.0	m
Tailrace		10.0	m
Access Road		4.7	km

EM / TL WORKS

Turbine	Type	Francis
	Number of Unit	one unit
Transmission	Line Voltage	- kV
	Length	5.7 km

ENVIRONMENT ISSUE

Protected Area	-
Volcano	-

PROJECT STUDY

Study	Type	Map Study Site Reconnaissance
	Date	2012
	Sponsor	JICA