



REPUBLIC OF INDONESIA  
MINISTRY OF NATIONAL DEVELOPMENT PLANNING/  
NATIONAL DEVELOPMENT PLANNING AGENCY


# PUBLIC PRIVATE PARTNERSHIP

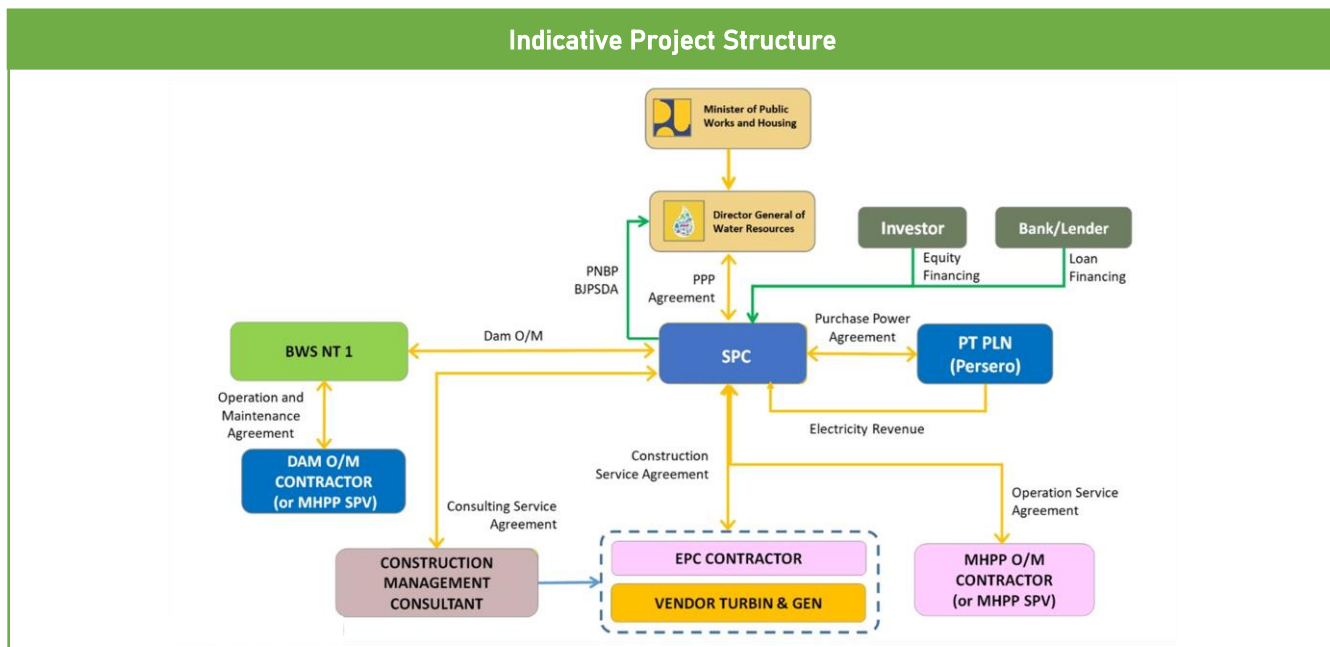
INFRASTRUCTURE PROJECTS PLAN IN INDONESIA

# 2022

# Bintang Bano Dam Maintenance and Provision of Mini Hydro Power Plant in West Nusa Tenggara

Location : West Sumbawa, West Nusa Tenggara Province

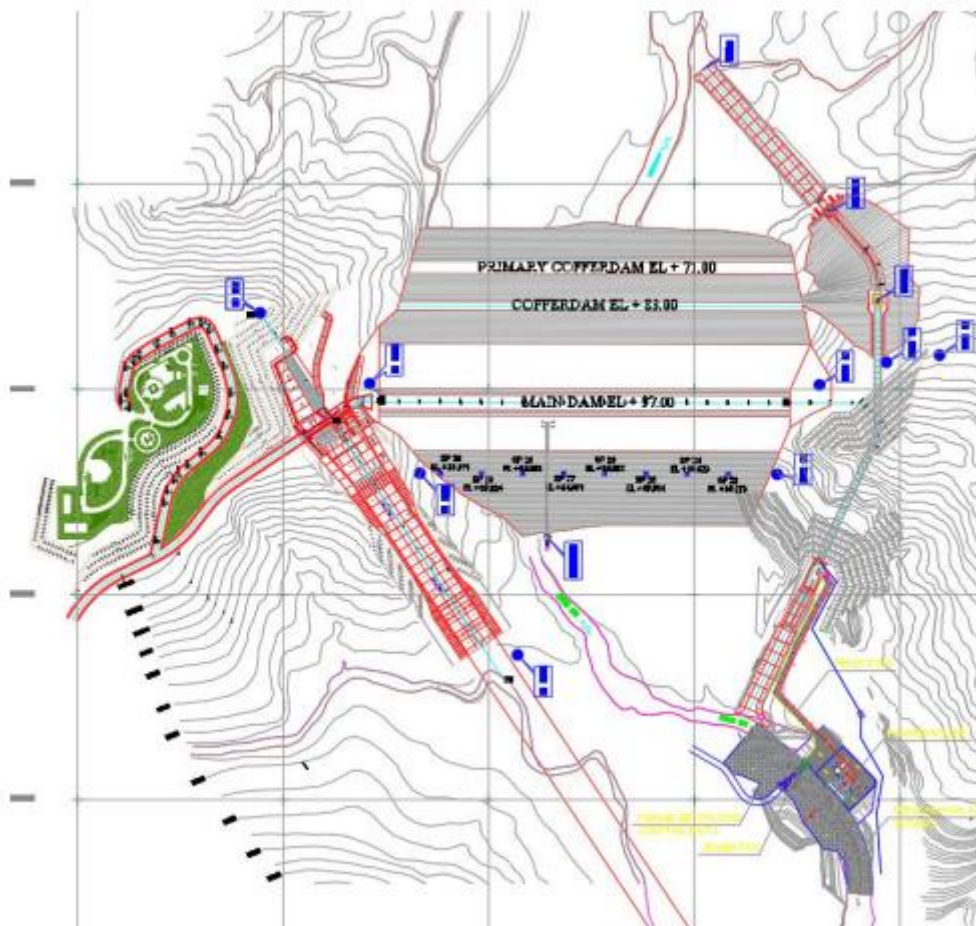
<b>Sector : Water to Energy Infrastructure</b>	<b>Sub-Sector : Mini Hydro Power Plant</b>
	<p><b>Description:</b>                  Along with the potential demand increase in tourism, agriculture, mining, and commerce sector in NTB, power consumption will also rise significantly, with an average energy sales growth of roughly 9.14% over 10 years. Therefore, the Ministry of Public Works and Housing is planning to build electric power system facilities including generation, transmission, and distribution of the Bintang Bano power plant to fulfill future electricity demands.</p>
<p><b>Government Contracting Agency:</b>                  Minister of Public Works and Housing</p> <p><b>Type of PPP:</b>                  Unsolicited</p> <p><b>Return of Investment:</b>                  User Charge</p>	<p><b>Estimated Project Cost:</b> USD 11.39 Million</p> <p><b>Financial Feasibility:</b>                  IRR : 12.51%                  NPV : USD 3.99 Million</p> <p><b>Estimated Concession Period:</b> 27 years</p>



## Project Digest

<b>Project Title</b>	<b>Bintang Bano Dam Maintenance And Provision Of Mini Hydro Power Plant In West Nusa Tenggara</b>
<b>Government Contracting Agency</b>	Minister of Public Works and Housing
<b>Implementing Agency</b>	Directorate General of Water Resources (DJSDA)
<b>Preparation Agency</b>	PT. Brantas Abipraya (Persero)
<b>Project Cost</b>	USD 11.39 Million
<b>Estimated Concession Period</b>	27 Years
<b>Location</b>	West Sumbawa, West Nusa Tenggara Province

### 1. Project Picture (Map and/or Illustration of Project)



Picture 1 – Layout of Bintang Bano Dam

## **2. The Opportunity**

### **2.1. Project Background**

The establishment of the Bintang Bano Mini Hydro Power Plant aims to assist in the equal distribution of electrical services while also increasing economic activity. The majority of power produced in NTB Province is generated by Diesel Power Plant, resulting in extremely high production costs. Although the electrification value is fairly high, the majority of electricity is generated by fossil fuel power plant, therefore in accordance with the Electricity Supply Business Plan (RUPTL), renewable energy-fueled power plants are required. Apart from being a power plant, the dam also has the potential to be used for irrigation, raw water supply, and flood control.

### **2.2. Project Description**

The Bintang Bano Dam is located on Brang Rea River, West Sumbawa, West Nusa Tenggara. The multipurpose dam provides water for an irrigation scheme covering about 6695 hectares in West Sumbawa Regency with a water gross storage volume of 76,20 Million m<sup>3</sup>, Brang Rea River flood control with a capacity of 647 m<sup>3</sup>/second, which could generate power of 6.3 MW. Other components of the program include local water supply, recreation, and social infrastructure. Land acquisition of ± 175 ha will be provided by the Government. The option in this project development is to build a mini hydro power plant using a User Charge payment scheme to cover the private's investment, risks, and returns. The concession will last 27 years (2 years construction and 25 years Take or Pay).

### **2.3. Project Objectives**

The objectives of the West Sumbawa Mini hydro Power Plant are to fulfill the 35 GW electricity supply program, to reach all parts of Indonesia, to support the electrification ratio plan as stated in the national electricity general plan and to fulfill the needs of irrigation, raw water, and flood control. Hence, in accordance with the Ministry of Public Works and Public Housing VISIUM 2020-2024, the capacity target of Indonesia's per capita multipurpose dam is 68.11 m<sup>3</sup>/capita/year. The development of new dams in the future will be carried out to meet the national water and food security targets, in particular the provision of raw water of 54.81 m<sup>3</sup>/second in 2024.

## **3. Business Entity's Scope of Work**

Design-Build – Finance – Operate – Maintenance – Transfer

The project scope is as follows:

- a. Business Entity is responsible for Dam Operation and Maintenance Financing;
- b. Business Entity is responsible for Dam Maintenance Activities; and
- c. Design – Build – Finance – Operate – Maintenance –Transfer Mini hydro Power Plant

#### 4. Technical Specification

The technical specifications for Bintang Bano Dam are as follows:

No	PLTM	Description
1	Type	Reservoir
2	Normal Water Level	+115.5 m
3	TWL	+53.0 m
4	Estimated Planned Discharge (m <sup>3</sup> /sec)	16.00 (maximum)
5	Gross Fall Height	62 m
6	Estimated Power	6.3 MW
7	Estimated Energy	32.78 GWh
8	Generation factor	59.4 %
9	Minimum water discharge	1.63 m <sup>3</sup> /s
10	Maximum water discharge	12.15 m <sup>3</sup> /s
11	Gross fall height	62 m

No	Facilities	Description
1	Civil Building	<ol style="list-style-type: none"> <li>1. Rapid pipe foundation</li> <li>2. Power House</li> <li>3. Final Channel/ Tailrace</li> <li>4. Bridge</li> <li>5. Operator House</li> </ol>
2	Hydromechanical Equipment	<ol style="list-style-type: none"> <li>1. Rapid Pipe</li> <li>2. Steel stoplog for tailrace</li> </ol>
3	Electromechanical Equipment	<ol style="list-style-type: none"> <li>1. Turbine</li> <li>2. Generators</li> <li>3. Power Transformer</li> <li>4. Switchgear</li> <li>5. Control system and auxiliary facilities</li> <li>6. 20 kV transmission network</li> </ol>

#### 5. Environmental Impact Assessment (EIA/AMDAL) Findings

With the appointment of the Minister of Public Works and Housing as GCA, the process of environmental studies and/or AMDAL for the ongoing development of the Mini hydro Power Plant, are the responsibility of the Proponent in collaboration with BWS Nusa Tenggara I.

#### 6. Land Acquisition and Resettlement Action Plan

Based on the layout review and location of the Bintang Bano Power Plant, the location of the Power Plant is included in the Borrow-to-Use Forest Area of the Bintang Bano Dam so that the Initiator considers that no additional new land acquisition is needed. Likewise, resettlement activities and relocation of community settlements are also not required. In accordance with the land acquisition study, the construction of the Bintang Bano Mini hydro Power Plant is all located within the Ministry of Public Works and Public Housing land and does not require new land acquisition.

## 7. Project Cost Structure

Estimated Project Cost		USD 11.39 Million
Indicative Debt to Equity Ratio		
- Debt Level		70%
- Equity Level		30%
IRR		12.51%
NPV		USD 3.99 Million

## 8. Government Support and Guarantee

Government Support cannot be provided for this Project due to the fact that this project is initiated by a business entity (unsolicited project). This condition is as stipulated under the Presidential Regulation 38/2015. However, this project is still eligible for proposing Government Guarantee to PT PII.

## 9. Contact Information

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