

**Location:**

South Sulawesi

Value:

Total US\$ 150 Million

Joint Venture US\$72 Million

Client:

PT. INCO

Contract Type:

Cost Reimbursement

Duration:

September 1998 to August 1999

Consultants:

- Pacific Rim Power (PRP)
- Fluor Daniel Indonesia

Description of Works:

Thiess Indonesia worked in a joint venture with Astaldi SpA of Italy to undertake the Balambano project, which included the completion of the RCC dam, penstocks, spillway, intake and powerhouse. This formed part of the US\$600M expansion of the PT INCO nickel smelting operation.

One of the largest RCC dams built in the region at the time, the construction presented a number of unique challenges, in particular, placing technique to cope with the heavy rainfall in the area, as well as the logistics to this remote area. After early problems with the river diversions, the works were accelerated and completed to a very tight program.

The Balambano dam is 95m high RCC gravity dam, with a crest length of 350m. The wall contains 528,000m³ of lean RCC and features a PVC membrane installed on the upstream face. The upstream face is vertical and the downstream face stepped at 0.8H:1V, with structural facing mix used on both the upstream and downstream faces.

The 38m wide spillway includes three chutes with 16m high radial gates, located on the middle of the dam body. Around 45,000m³ of conventional concrete was placed on the spillway and intake structures. Water is conveyed to the powerhouse via twin 5m diameter steel penstocks anchored to the downstream face of the dam.

The powerhouse located on the downstream toe has two Francis Turbines with a combined capacity of 140MW. The dam was designed as nine separate monoliths, numbered from left to right and separated by vertical construction joint of 30 to 45cm centres.

The major civil infrastructure project was successfully completed in a remote location and to a very tight program.