Vietnam

Name: The Vietnamese Tunnelling Association - Vta (Chi Hoi Cong Trinh Ngam)

TUNNELS – UNDERGROUND WORKS

Hầm Mũi Trâu

Mui Trau Tunnel Project
Danang, Vietnam
2015 – 2017
CLIENT: Songda Enterprise 10.5 and Son Hai Construction Co., Ltd
CONTRACTOR: Songda Enterprise 10.5 and Son Hai Construction Co., Ltd
DESCRIPTION: 1.280m length and 10.5m diameter including 2 parallel single tunnels, the tunnels were excavated by the New Austrian Tunnelling Method (NATM).

Phuoc Tuong – PhuGia road tunnel in Hue

The Thua Thien – Hue (VNA) – The Phuoc Tuong – Phu Gia road tunnel on the National Road 1A crossing Phu Loc district, the central province of Thua Thien – Hue has been put into use.

The construction of the tunnel started in May, 2013 under the build– operate– transfer (BOT) model at a total cost of 1.74 trillion VND (77.8 million USD).

The Phuoc Tuong-Phu Gia tunnel allows a speed limit of 80km per hour.

It is expected to facilitate the smooth traffic flow and contribute to reducing traffic accidents, which often occurred in the Phuoc Tuong-Phu Gia pass, said Phan Bao Trung, head of the local traffic police station.-VNA

Huoi Quang Hydroelectric Power Station Project

The Huoi Quang hydroelectric power plant, funded by AFD, has the following objectives:

- Support electricity development in Vietnam via expansion of its electricity generating system;
- Encourage the choice of renewable energies via hydroelectricity;
- Promote compliance with international standards in terms of handling the social and environmental impacts of the project.

Project description

The Huoi Quang dam is located in the mountainous provinces of Lai Chau and Son La, on the Nam Mu River, a tributary of the Da River (on which there are already the Son La and Hoa Binh hydroelectric power plants, the two biggest in the country, and soon the Lai Chau facility). It is part of a comprehensive development plan featuring a chain of five hydroelectricity plants.

The dam being built in Lai Chau Province will be 99 metres high. The power plant, a few kilometres downstream in Son La Province, will have two turbines for a total generating capacity of 520 MW.

AFD's funding focuses on the dam's electromechanical equipment, installation work and two panels of experts. The first of these is caring for safety, monitoring of workmanship quality on the site, review of the design of the emergency evacuation plan, and the like. The second is concentrating on the social and environmental impacts of the project, which includes mitigating the effects of the project on water quality and fish habitats, compensation for displaced inhabitants and helping them re-establish their sources of income.

Impacts

The installed power capacity is in keeping with economic development in northern Vietnam.

This project will help combat climate change. The choice of hydropower is preferred over coal- or gas-fired plants that emit greenhouse gases and pollutants. The project's carbon footprint is such that it will enable a reduction 1,120,000 t eq. CO_2 a year over the next several decades of operation. Given the cost of the project, that comes to a saving of US$10.5 (€8.10) per t eq. CO_2, which is relatively low compared with similar projects (hydroelectric projects generally have a range of €6 to €15/tonne).

To minimise as much as possible negative impacts on the local environment and communities involved, EVN is implementing an environmental and social management plan. An independent panel of experts (the French firm Artelia) is making regular field visits to monitor implementation of these risk mitigation measures.

In this way, the effects on water, flora and fauna biodiversity as well as site-related impacts will be controlled.

Nearly 900 families have been relocated or are in the process thereof. They are receiving financial compensation for their former landholdings and property.

Additionally, the project is providing coaching to the local people with regard to this change in their living circumstances. The challenge is to help re-establish income-generating activities for the families that lost their rice paddies or other crop fields, and include such things as forest management and fish farming in the future dam reservoir.

This project will have positive social effects: the electricity supply will mainly benefit industry and trade, thus inducing job creation and contribute to the alleviation of poverty and vulnerability of the poorest rural communities.

Timeline and amounts

Start-up: Work started in late 2008 with the construction of access roads to the site. The first turbine of the dam will be operational in late 2015, the second by mid-2016.

Funding: non-sovereign non-guaranteed government loan (the first granted in Vietnam) to the State-owned Electricity of Vietnam (EVN) in the amount of US$100 million.

Ca Pass Tunnel

The new tunnel is expected to improve road transport; facilitate goods circulation between the central and south regions especially Phu Yen and Khanh Hoa provinces; and fully exploit potential for industries, trade, and tourism in the Central and Central Highlands Regions.

It also forges an important connectivity with the South East key economic zone, the Central Highlands gateway, and international maritime routes.

Work on the tunnel began in September 2014 and was completed two months ahead of schedule. The construction cost was VND 12 trillion (US$533 million) instead of VND 16 trillion as initially planned thanks to numerous changes in technical design. The project will be completely finalized in 2017.

Co Ma Tunnel

The project of Co Ma pass has a total investment capital of 748 billion dongs. Co Ma tunnel consists of two tunnels 30m apart, each tunnel is 9.75m wide with two lanes each direction. The tunnel is also equipped with modern facilities to serve the evacuation process. After more than 2 years since the commencing date, Co Ma tunnel has been completed, 2 months ahead of the deadline. Completing the Co Ma Pass and the connection to phase 1 of the Ca Pass Tunnel project with the upgrading and expansion of the National Avenue 1 will create a favorable situation for traffic in the Southern region of Phu Yen province and Northern region of Khanh Hoa province.

Ca Pass tunnel will be opened to traffic in 2017

Cu Mong tunnel

Cu Mong tunnel is 2.6km long with the total investment of nearly 4,000 billion dongs. The tunnel is between the two provinces of Binh Dinh and Phu Yen, with a start point connecting with the national avenue at km1239+119 (Binh Dinh province), and an end point connecting with the national avenue 1 at km 1247+739 (Phu Yen province). In the first phase of work, the investors are going to construct parallel tunnel tubes, 30m apart with the width of each tunnel being 9.75m; one tunnel will be bi-directional for traffic (one direction for one lane), with the remaining tunnel used for safety and escape. In the second phase (estimated after the year 2040), the remaining tunnel will be completed to allow each of the tunnels to provide two lanes for each direction. After being completed, Cu Mong tunnel is going to considerably improve the traffic situations in the national avenue area between Binh Dinh and Phu Yen, making contributions to promoting socio-eco development in Southern Binh Dinh and Northern Phu Yen as well as other adjacent regions.

Cu Mong tunnel will be up and running in 2018.

Hai Van tunnel expansion

VietinBank will provide VND4.18 trillion for the Deo Ca Investment Joint Stock Company to carry out the second phase of the project.

The company was picked to implement the Hai Van Pass tunnel project under the BOT (build-operate-transfer) form with a total investment of VND7.3 trillion (US$326.8 million), including VND1.4 trillion for phase one and VND5.9 trillion for phase two.

Work on phase two of the tunnel project is scheduled to begin in May this year and be completed in the first quarter of 2020.

Thuong Kon Tum Hydropower Project

The Thuong Kon Tum Hydropower Project involves the construction and operation of a two generating unit hydropower plant which is located on Dak Nghe river, a primary branch of Dakbla river, which is the first order branch of Se San River. The plant is located in Ngoc Tem commune, Kon Plong district, KonTum province, Vietnam. The installed capacity of this project and estimated annual gross power generation is 220MW and 1,094,200MWh1, respectively.

The main structures of the project consist of a reservoir, dam, water intake, tunnel, penstock, pressurized well, power house and discharge channel. Prior to the implementation of the project activity, electricity in Vietnam is mainly generated from fossil fuel sources and is solely distributed to consumers via the unique national electricity grid.

The project's purpose is to generate and to supply renewable electricity to the national grid. The net electricity generated from this project (annual estimated output of 1,083,258 MWh^2) will be supplied to the national grid via 220kV transmission line, which connects the plant with a transformer station. The Thuong Kon Tum Hydropower Project's main works comprise a diversion system with a diversion tunnel about 18km long; an underground power house system (underground power house, bus tunnel, main substation tunnel, switch station, exhaust and outlet inclined shaft, etc.); and a tailrace system (tailrace tunnel and canal);etc.