

Flood Control in Indonesia

Dams to be completed
this year (2022)

Contents

Background.....	2
The Nine Dams.....	3
Lolak Dam in North Sulawesi	3
Ciawi and Sukamahi Dams in Bogor Regency.....	4
Margatiga Dam in Lampung.....	5
Sadawarna Dam in West Java	6
Semantok Dam in East Java	7
Kuwil Kawangkoan Dam in North Sulawesi	8
Tamblang Dam in Bali	9
Banyan Sila Dam in NTB	10
References.....	11

Background

Through the Directorate General (Ditjen) of Water Resources, a division of the Ministry of Public Works and Public Housing (PUPR), different infrastructure projects in the area of water resources are still being developed to help Indonesia achieve food and water security.

The continued construction of 32 dams, the creation of 47,119 hectares of irrigation areas, the restoration of 153,333 hectares of irrigation networks, the building of 28 reservoirs, provision of 3.48 cubic meters of raw water per second are the main programs for infrastructure development in the field of water resources in 2022.

According to Jarot Widyoko, director general of water resources at the Public Works and Public Housing (PUPR) Ministry, nine of the 32 dams that the government is building will be finished in 2022.

The Ciawi, Sukamahi, and Sadawarna dams (West Java province) as well as Semantok Dam will all be finished by 2022. Additionally, the construction of the Margatiga, Lolak, Kuwil Kawangkoan, Tamblang, and Banyan Sila dams is nearly finished.

The Nine Dams

Lolak Dam in North Sulawesi

One of the 45 dam projects identified as national strategic projects is the Lolak Dam in North Sulawesi, which is projected to boost North Sumatra's economic activity and is situated inside the Bolaang Mongondow Industrial Zone development region.

The Dam is situated around 210 kilometers southwest of Manado, the seat of the province, near Pindol Village, Lolak Sub-district, Bolaang Mongondow District. As of April 2022, the Lolak Dam's construction was 96 percent finished.

The construction of the project is separated into two stages, with the first stage's activities including instrumentation, excavation, and the development of the main embankment, temporary cofferdam, and main cofferdam. The building of the main embankment, the dam spillway and diversion channel, the dam intake structure, two saddle dams, hydromechanical work, and reinforcement of the dam's left pedestal are all included in the second stage of the project.

When the Lolak Dam is completed, it will have a storage capacity of **6.1 million cubic meters** and a water discharge capability of **500 liters per second**. It will supply water to **2,214 hectares** of land in North Sulawesi Province and lessen flood discharge by **12%**. Additionally, it is anticipated that the dam would transform into a new power plant with an electricity output capability of **2.43 MW** and a new tourist attraction in the area.

Ciawi and Sukamahi Dams in Bogor Regency

The Ministry of Public Works and Public Housing is finishing the building of two dry dams, known as the Sukamahi and the Ciawi Dams, which are located in the Upper Ciliwung River, Cisarua District, Bogor Regency, to prevent flooding in the area surrounding the capital Jakarta.

As a dry dam, its operation will differ from that of other dams in that neither of these dams will be flooded apart from the rainy season. The dam will be dried during the dry season. These two dams were built to improve flood control capabilities rather than for agricultural or raw water needs. The first dry dams in Indonesia were constructed in Ciawi and Sukamahi as a response to the risk of hydrometeorological disasters in Jakarta and its surroundings.

Since December 2016, work has begun on building the Ciwai Dam, which is finished physically in 2021. In order to complete the remaining work, embankments are now being built, with a progress rate of 80.2%. By 2022, it is intended that all construction will be finished.



Fig. Ciawi Dam (news.okezone.com)

Sukamahi Dam, with a volume of **1.68 million cubic meters** and an inundation area of **5.23 hectares**, was also constructed in the upstream region. It is also anticipated to lower the flow rate by **15.47 cubic meters per second**. Construction work started in 2017 and is expected to be finished in August 2022.

The Ciawi Dam has a **6.05 million cubic meter** capacity and a **39.40 hectares** inundation area. By preventing water from Mount Gede and Pangrango from flowing into the Katulampa Dam, which then empties into the Ciliwung River, this dam is intended to reduce the flood that flows to Jakarta. Flooding is expected to be reduced by **111.75 meters per second** after the Ciawi Dam is finished.



Fig. Sukamahi Dam (detikfinance)

Margatiga Dam in Lampung

The Margatiga Dam is located in Lampung's East Lampung Regency. By building this dam, it will be possible to combine the irrigation system from the Way Sekampung River with the Way Sekampung Dam and boost its capacity.

Since the Margatiga Dam falls under the category of multipurpose dams, it will eventually have irrigation raw water and flood control purposes. The community will begin to benefit from this dam's functionality as soon as it is finished.

The dam's other uses include providing East Lampung with **0.8 cubic meters** of raw water per second, lowering flooding by **83.1 cubic meters per second**, conserving water, and promoting tourism. It also features a gravity concrete dam type and rock fill with an upright core. Since December 2017, the construction has been under progress. The Margatiga Dam, which has been combined with the Way Sekampung Dam and the Batutegi Dam, will be used in the future to improve the water utilization of the Way Sekampung River, particularly in the downstream.



Fig. Margatiga Dam (BWS BALI - PENIDA)

With a storage capacity of **42.31 million cubic meters**, the Margatiga Dam is expected to irrigate a total area of **16,588 hectares**, made up of the 5,638-hectare Jabung Kiri DI and the 10,950-hectare Jabung Kanan DI. The planting intensity at DI Jabung can rise by up to **200 percent** with this anticipated irrigation water supply.

Sadawarna Dam in West Java

The Sadawarna Dam is still being built in Subang Regency, West Java. The most recent progress has reached 83 percent.

Sadwarna Dam reduces the flow of the 137 km long Cipunagara River Basin, which originates at Mount Bukit Tunggul in the North Bandung Mountains and drains into the Java Sea in the northern part of West Java.

The project's completion is scheduled for 2022 and it began in November 2018. With a **670-hectare** inundated area, this dam has the capacity to minimize floods in the three districts that the Cipunagara watershed passes—Subang, Sumedang, and Indramayu—by **26.90 cubic meters per second**. The Patimban and Pantura Port Areas of West Java can receive raw water at a rate of **0.36 to 1 cubic meter per second** from the Sadawarna Dam.



Fig. Sadawarna Dam (KOMPAS.com)

Semantok Dam in East Java

Semantok Dam is being built by the Ministry of Public Works and Public Housing (PUPR) as part of a government initiative to improve food and water security in Nganjuk Regency, East Java. The Semantok Dam project is one of the National Strategic Programs, and its completion and impoundment are anticipated for 2022.

The upright core zonal type with a height of **38.5 meters** and a peak length of **3,100 meters** is the design of the Semantok Dam. In order to channel water during the dry season to prevent drought in rice fields and boost agricultural output in the region, the dam is scheduled to have a capacity of **17.63 million cubic meters** and to irrigate **1554 Ha of land**.

The Semantok Dam's existence will be used as a flood control in the Rejoso District to contain plenty of water during the rainy season, and it has the potential for producing raw water and boosting tourism, both of which can boost the local economy.

With the completion of the Semantok Dam, it will add to the list of dams in East Java and will follow the construction of four other dams, namely Tukul Dam in Pacitan Regency, Tugu Dam in Trenggalek Regency, Bendo Dam in Ponorogo Regency, and Gongseng Dam in Bojonegoro Regency.

Kuwil Kawangkoan Dam in North Sulawesi

The Kuwil Kawangkoan Dam is located in North Minahasa Regency, North Sulawesi Province. This dam is being built as part of efforts to reduce flooding in Manado and the area around it. To facilitate flood management downstream, the dam is outfitted with a system that routinely tracks and records rainfall, water discharge, and water level development.

Total of 23.37 million cubic meters can be stored at the Kuwil Kawangkoan Dam. This dam's construction got underway in 2016 and is currently 76 percent finished. Upon completion, the massive dam may enhance villagers' quality of life by enabling them to irrigate sizable rice fields, produce power, and gain other advantages of the tourism industry.



Fig. Kuwil Kawangkoan Dam (sulsei.idntimes.com)

Tamblang Dam in Bali

The Tamblang Dam, which is in Buleleng Regency, intends to accomplish the purpose of ensuring food security and water availability in Indonesia, particularly on the island of Bali, a popular tourist destination worldwide. The Tamblang Dam is a component of the National Strategic Program (PSN), which will boost water storage in order to ensure the reliability of raw water supply and irrigation to rice fields.

The Tamblang Dam will be finished in 2022 and has a **7.6 million cubic meter storage capacity**. Additionally, this dam serves as a source of raw water with a **510 litres per second** flow for flood control, conservation areas, and new tourism possibilities in northern Bali.

Clean water will no longer need to be drilled from the ground in Denpasar and Badung after the dam is completed. It will be provided from these dams so that Bali's hotels may have water that is consistent and of high quality.



Fig. Tamblang Dam (indonesiaexpat.id)

Banyan Sila Dam in NTB

Banyan Sila Dam is situated in Central Village, Utan District, Sumbawa Regency, West Nusa Tenggara (NTB). Construction on the dam began in January 2019 and is expected to be finished in 2022 with a physical progress rate of **82.20 percent**.

The construction of the Banyan Sila dam was carried out to help national food and water security while achieving an equal distribution of infrastructural development. The dam's construction is planned to be 70.5 meters high, 787.58 meters long, and 12 meters wide at its widest point.

This will be able to produce **76 liters of raw water per second** to feed agriculture in Sumbawa Regency and irrigate an area of **3,500 hectares** with a total storage capacity of **27.46 million cubic meters** and an inundation area of **126 hectares**. The dam also reduces floods by **90.37 cubic meters per second** and benefits from a **1.4 MW** Microhydro Power Plant. Additionally, it has the potential to be a location for tourism, fisheries, and environmental preservation. When the dam is finished, farmers who previously only planted once a year will be able to raise that number to two or three plantings.



Fig. Banyan Sila Dam (beritadaerah.co.id)

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