Securing Safe, Assured and Abundant Living

The Susobana Dam is a multi-purpose dam for flood control, hydropower generation and water supply. ---------- Overview of the Project

The Susobana River originates in Mount Togakushi and Mount Takatsuma, and flows into the flatlands at the north-western corner of the Zenkoji Basin. It then flows around the western part of downtown Nagano City, finally joining the Sai River at the land of Tambajima. It is a class A river with the drainage area of 280km^2 and the length of 50km.

Because of its large catchment area, the Susobana River used to cause flood damage in the lower river region. On the other hand, there was a demand for larger water and electricity supply due to the urbanization of Nagano City. Because of these reasons, the Susobana Dam project was drafted as part of the Susobana River Integrated Development Project, including a drastic flood control and improved water and electricity supply capability. In the fiscal 1964, construction of the first prefectural multi-purpose dam started to control floods and to supply water for waterworks and electricity. It was completed in the fiscal 1969 spending six years at a cost of 3.3 billion yen.

FLOOD CONTROL----------For Safety of Lower River Region and Security of Assurance

The dam protects the lower river region from floods using 10,000,000m^3 of water from the altitudes between 561.5m and 537.5m, decreasing the design-flood discharge to 520m^3/s by storing 660m^3/s of water out of 1,180m^3/s in the reservoir.

HYDROPOWER GENERATION------Supplying Stable Electricity to Local Communities

At Susobana Power Plant directly under the dam, electricity is generated with the maximum water-intake of 18.0m^3/s, using 2,500,000m^3 of water between the altitudes of 545.5m and 537.5m during the flood season, and using 9,200,000m^3 of water between the altitudes of 560.0m and 537.5m during the non-flood season, resulting in the maximum output of 14,600kW of electricity.

WATER SUPPLY----------Supplying Water to Households in Nagano City

The Susobana Dams supply homes in Nagano City with 54,250m^3/day of water (Susobana Dam: 22,000m^3/day, Oku-Susobana Dam: 32,250m^3/day), using 300.000m^3 of water between the altitudes of 538.5m and 537.5m.

Overview of the Dam and Reservoir

Dam			
Location	Left Bank	Minamioki, Iwato, Iriyama, Nagano City	
	Right Bank	Kamishirooki, Konabe, Nagano City	
Dam Type		Arched concrete dam	
Height	Spillway Section	75.0m	
	Bulkhead Section	83.0m	
Crest Length		211.16m	
Width	Crest	4m	
	Base	18.2m	
Volume	Main Dam	119,864m³	
	Apron, Auxiliary Dam Dividing Wall	10,926m³	
Crest Altitude		EL 563.0m	
Bedrock Altitude		EL 480.0m	

Reservoir		
Catchment Area	250m²	
Surface Area	0.578m²	
Surface Length	4.517km	
Normal Water Level	EL 560.0m	
Surcharged Water Level	EL 561.5m	
Normal Water Level in Flood Season	EL 545.5m	
Water Level for Secure Water Supply	EL 538.5m	
Lowest Water Level	EL 537.5m	
Flood Control Water Level	Flood Season EL 537.5m	
	Non-Flood Season EL 556.0m	
Flood Control Depth	Flood Season 24.0m	
	Non-Flood Season 5.5m	

Water Depth for Power Generation	Flood Season	8.0m
	Non-Flood Season	22.5m
Water Depth for Water Supply		1.0m
Gross Storage Capacity		15,000,000m³
Effective Storage Capacity		10,000,000m³
Storage Capacity for Sedimentation		5,000,000m³
Storage Capacity for Flood Control	Flood Season	10,000,000m³
	Non-Flood Season	3,060,000m³
Generation Capacity	Flood Season	2,500,000m³
	Non-Flood Season	9,200,000m³
Water Supply Capacity		300,000,m³
Flood Surcharge		800,000m³
Flood Control Capacity	Flood Season	2,500,000m³
	Non-Flood Season	2,260,000m³
Estimated High-Water Discharge		1,180m³/s
Estimated Maximum Discharge		520m³/s
Adjusted Discharge		660m³/s

Power Generation	
Discharge for Maximum Power	18.0m³/s
Maximum Net Head	98.35m
Maximum Output Capacity	14,600kW

Water Supply (Including Discharge from Oku Susobana Dam)	
Maximum Supply	54,250m³/day
Maximum Water Intake	0.628m³/s

Yunose Regulating Reservoir	
Effective Storage Capacity	290,000m³

OUTLET FACILITIES

Normal Spillway Gate (Conduit Gate)	5.36m wide	4.531m high	2 units	Pressure welding steal roller gate
Normal Spillway Guard Gate (Conduit Guard)	5.836m wide	6.514m high	2 units	Steal caterpillar gate
Auxiliary Spillway Gate (Crest Gate)	9.0m wide	6.8m high	3 units	Steal tainter gate
Outlet Facility for Irrigation			1 unit	Jet flow gate

MONITORING SYSTEM

Telemeter Precipitation Station: 4 locations (Hikage, Yamanaka, Togakushi, dam)
Water Level Station: 4 locations (Okubo, Soyama, Okada, dam)

ALARM SYSTEM

Susobana Dam	1 unit 5.5kW siren, 50W speaker
Ageya, Mosuge, Satojima	3 units 2.2kW siren, 50W speaker
Minami Nagano, Amori	2 units 7.5W siren, 50W speaker
Koshibami	1 unit 50W speaker
Okada, Kutan	2 units 50W speaker, electric display
Warning Vehicle	1unit siren, speaker
Alarm Sign	35 locations

COST ALLOCATION

Expenditure	Percentage
Flood Control	88.6%
Power Generation	8.7%
Water Supply	2.7%