

## Types of dams



### **Solid gravity dam: Lake Vyrnwy Dam, Wales – masonry (stone built) dam built across River Vyrnwy (Welsh: Afon Efyrnwy)**

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In a gravity dam, its weight holds it in position. The foundations must be excavated to sound bedrock. This type of dam needed a large volume of masonry and so needed a nearby suitable source of rock. These dams are best built on an impermeable, high load-bearing foundation which is strong and will not settle much under load.



### **Solid gravity dam: Grand Coulee Dam – a concrete gravity dam on the Columbia River in the U.S. state of Washington, USA.**

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In a gravity dam, its weight holds it in position. The foundations must be excavated to sound bedrock. This type of dam needs a large volume of concrete and so needs a nearby suitable source of sand and aggregate. These dams are best built on an impermeable, high load-bearing foundation which is strong and will not settle much under load.



**Concrete arch-gravity dam: Glen Canyon Dam on the Colorado River in Arizona, USA**

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For an arch-gravity dam, its curved shape holds the dam in position against walls and floor of gorge-like valleys. This dam needs solid bedrock: joints and fractures are potential weaknesses. The volume of sand and aggregate needed to build this dam is small and so this type of dam is often cheaper to build. Arch-gravity dams are best constructed in narrow valleys.



**Earth dam or embankment dam: Karapuzha Dam, in the Indian state of Kerala, is one of the biggest earth dams in India.**

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In an earth or embankment dam, the mass of the dam is spread over a wide area. The weight and size of the dam hold it in position. The foundations must be firm. It has a very large volume and so a large quantity of low-quality fill from a nearby source is needed. These dams have an impermeable core made of clay or concrete and usually have a thin layer of stone (rock facing) on the side of the earth pile in contact with the reservoir. These dams are usually built in wide, shallow valleys.