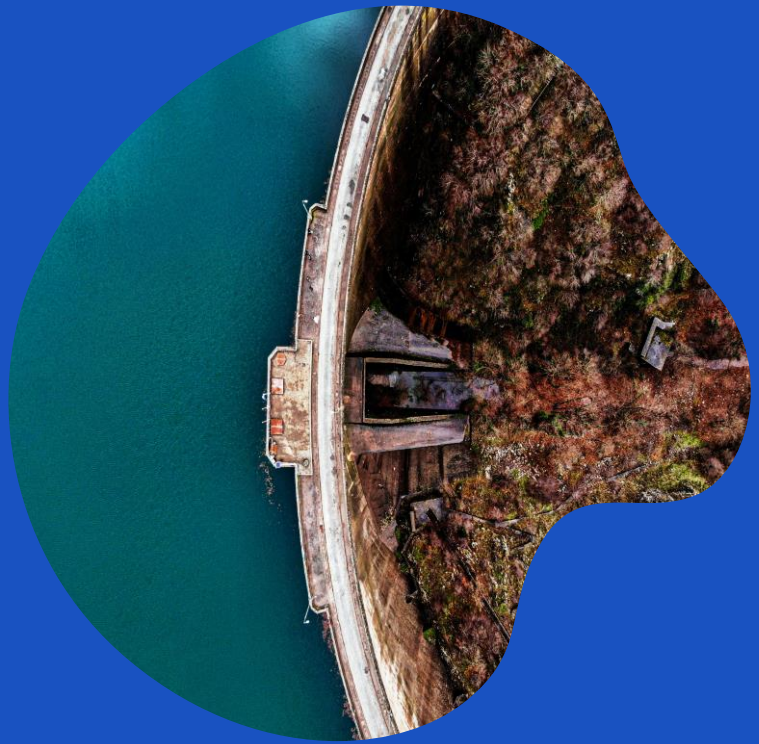
ECO_DAM
Group 19108

Content



Prior solution

To build our dam we should look for prior solutions to gain experience with this type of building, Grand Coulee Dam from the prior solution was selected to address our challenge. This dam has pros and cons, from its pros that it was used in storing large amounts of water, and this is why we chose it to be our prior solution. Another cause for choosing it that the Hasidim's construction has indeed become instrumental in industrialization, and they were used in storing large amounts of water that reached to 170billion m^3 helping in agriculture and reclamation purposes. On the other hand This dam was made from fully artificial materials that are not eco-friendly and pollute the environment this is from the disadvantages and we will correct it in our dam.

MATERIALS

Materials

Materials	Usage
Cement	Used in making the concrete that used in constructing the dam
Polycarbonate sheets	Used in making the gates of the dam
Reinforcing bars	Used in making the iron skeleton of the dam
Pipes	Used to discharge the water from the dam
Bitumen	Painted on the dam as a insulating material

How to use

We have mixed the cement, sand and gravel to make the concrete used in constructing the dam then we cut to sheets from polycarbonate to make the gates of the dam and we make an iron skeleton to the dam from the reinforcing bars. Before we pour the concrete in the mold we put the pipes that would used in discharging the water at the end we have painted the dam by a bitumen that considerd as insulating material that will insulate the dam’s body from the water.

Constructing photos


THAILAND
ONPTBUL083C

RESULTS

RESULTS

First Trial	Second Trial	Third Trial
The prototype's initial construction faced issues due to incorrect concrete proportions, increased sand and decreasing cement content that led to incoherence of the dam. The wooden mold was not coated with an insulating material, prevent removing the dam's concrete from the mold.	The second attempt approved positive results, including improved concrete cohesion and mold separation due to insulating material. Negative results included incorrect gate placement inadequate water volume, and weak gates made from thin plastic which hindered the passage of the water.	The third attempt successfully used a polycarbonate gate to discharge 25% and 50% of water, and a new container was created to accommodate the specified amount. At the end the dam was too strong to carry 10 kilogram and the concrete was knit and there was a road at the top of the dam.

Time (sec)	Volume (m^3)
4	0.01
6	0.015
9	0.02
14	0.025
19	0.03
25	0.035
32	0.04
40	0.025
48	0.05
60	0.055

RECOMMENDATION

Recommendation

Recommendation	usage	Why we don't make it.
the dam’s design should include an effective system for draining extra water	to ensure its safety and the surrounding areas, withstand potential flooding.	Because it wants more technological instruments and more money
Place smart monitoring devices on the dam to help keep track of the water level	To manage the flow of water and defend against the floods	Because it needs more modern artificial devices which was so expensive
Establishing a system of a traffic on the road at the top of the dam	To make a balance in the traffic on the dam because the traffic problems will affect the skeleton of the dam in the future	Because we can’t make it in the prototype and we will make it in the large scale.
Using water proofing cement	It will be better than using insulating material	Because of the budget and it is hard to find it in a near place

Large scale

Large scale

Place	Cost	time
Sinai is the place to build the large scale specially Al_ Ohad valley whose mouth ends in the Mediterranean Sea and we select it place to It rains a lot	The costs involved in building a gravity dam with a capacity in exhorter may easily exceed $1.5 million,	Construction of large dams takes approximately 8.6 years; and more time is needed to begin operations

THANKS!