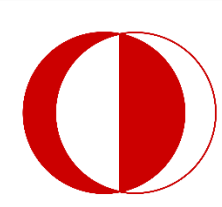


# ODTÜ KIBRIS'LA BİLİM EĞLENCELİDİR.



## New Girne Reservoir – Detention Pond

Civil Engineering Department, METU Northern Cyprus Campus

Chyngyz Berenaliev, Ozan Akbal, Gizem Gokdemir, Abdullah Shikakhwa

Iqbal Kulowmallim Hassan

Supervised by Prof. Dr. Hasan ZAIFOĞLU

### Introduction and Statement of the Problem

This project aims to save a part of the Kyrenia region in Cyprus from flood problems as much as possible. Kyrenia is a place that receives more rainfall than most regions in Cyprus. The Kyrenia region in Cyprus has problems with floodwaters. In the area located at the end of a mountainous area, it is exposed to some damage due to not directing the rainwaters correctly. This project aims to make a detention pond in order to prevent the rainwater coming from the mountains from damaging the structures. A detention pond will be built to protect the city and its structures from the floodwaters coming from the mountains due to the rains.

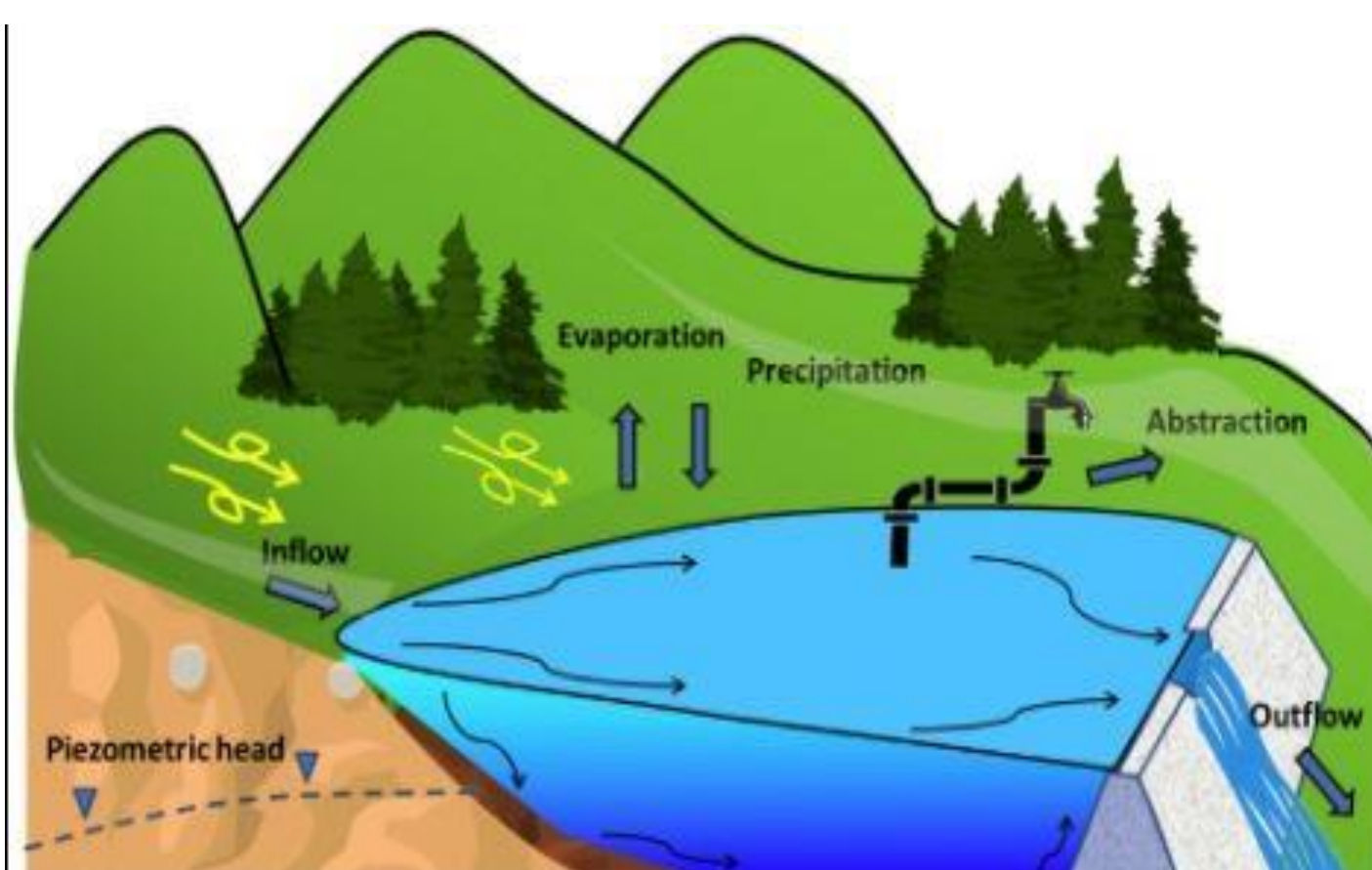
### Examples of Detention Ponds and Spillways



(Adbknr,2021)



(City of Surrey, 2021)



(Florence, 2018)



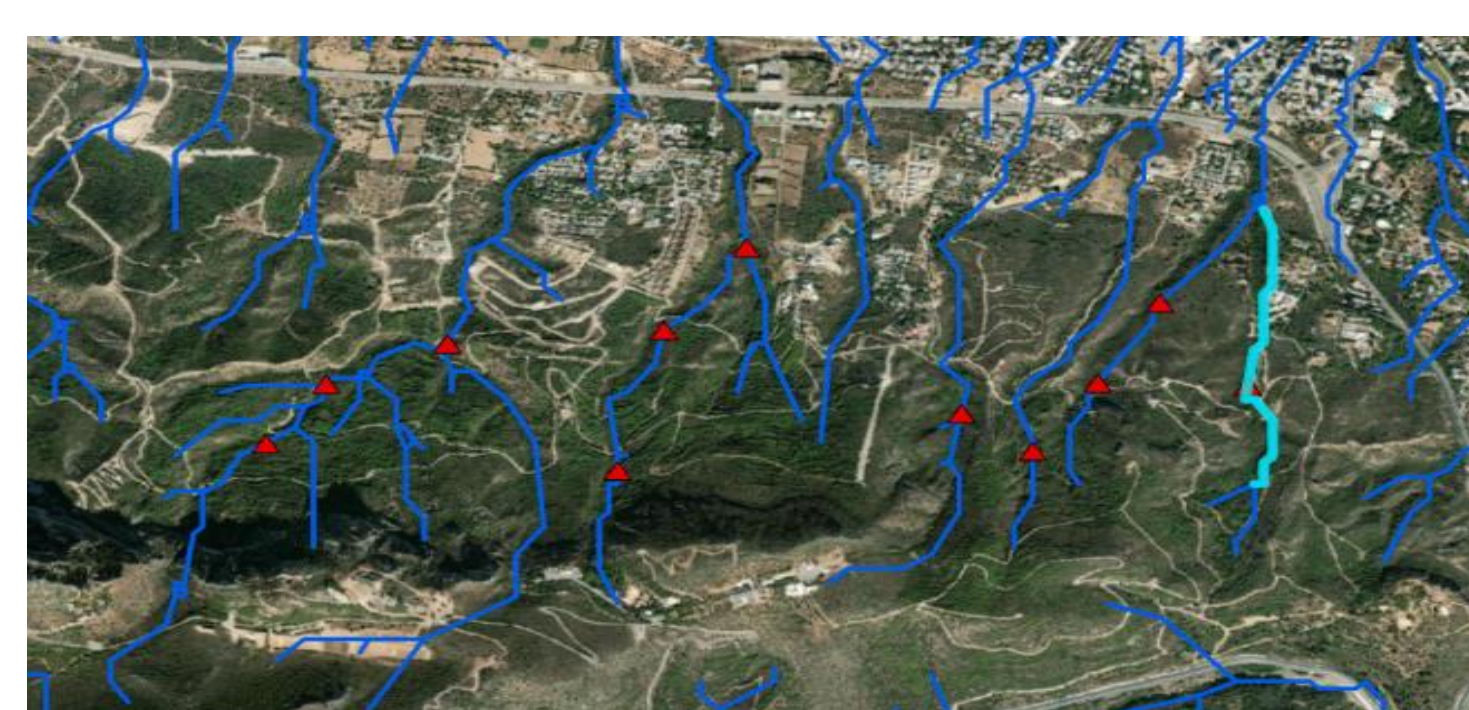
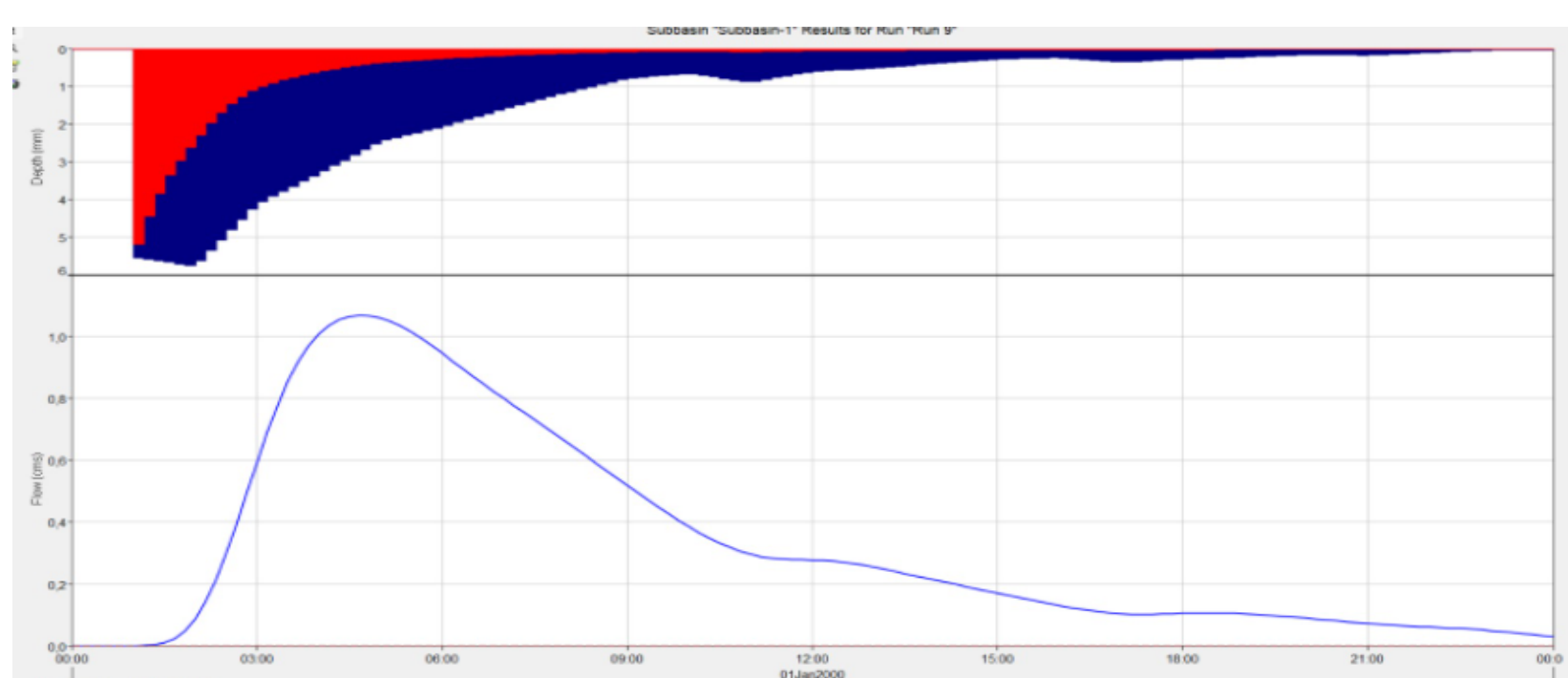
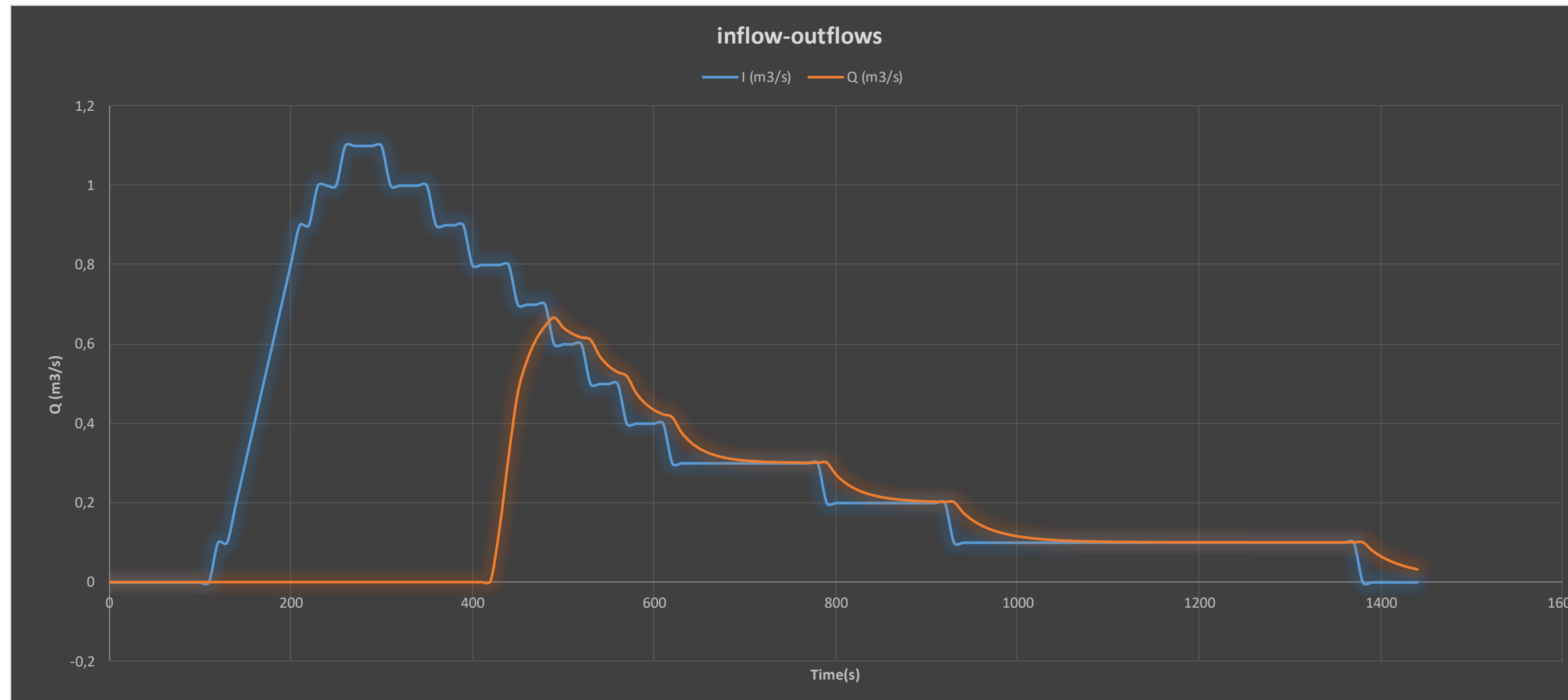
(Bureau of Reclamation, 2020)



(Wessler Engineering, 2015)

### Processes Involved in Design

ArcGIS and HEC-HMS were the main two software used to design the detention pond. ArcGIS was used to select the basin and catchment of the dam in addition to the location of the detention pond. HEC-HMS was used to obtain the inflow hydrograph and to obtain the peak inflow. Reservoir routing was conducted to obtain the outflow and to determine the storage of water along with the dimensions of the spillway (crest length and spillway depth).



### Sustainability and cost

One of the most factors that support sustainability is the water flood caused by the dams resulting in watering the surrounding areas to help increasing the land ability to be used for agriculture activities. Another positive effect from the dams is to maintain sustainability is collecting and containing clean water. Cost estimation can help in determining whether the benefits of storing water balance the estimated cost.

### Real Life Applications

- <https://www.youtube.com/watch?v=tUBx-yEtj8w>



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