

Project: Drainage in Nouakchott – nature-based solution

Starting date: November 11th, 2025

Finish date (delivery): December 09th, 2025

***** IMPORTANT *****

In groups of 2 people, present the results of the project in a report-style document with a maximum of 10 to 15 pages (written in English). Hand in the Excel sheets associated with your simulations.

Questions:

1. Introduction and conceptualization (11/11/2025) – 10%

Establish a conceptual map of the mean annual water fluxes for the city in the current state and with a tree-planting solution by identifying the variables of the water budget. Is this water budget in steady-state or transient state? When possible, quantify the fluxes.

2. Groundwater flow modelling (18/11/2025) – 40%

2.1. Considering a steady state, establish a simple 2D planar hydrogeological model to map the groundwater levels in Nouakchott in the current situation. Using the simplified shape of Nouakchott, only represent a “strip” of Nouakchott that is 2 km long in the north-south axis.

Describe the boundary conditions that you used.

Compute the mean error and the mean absolute error of your model and comment if this error is acceptable for the model to be further used.

2.2. Plot a piezometric map of the current situation and describe the groundwater flow. Identify which neighborhoods are dealing with flooding.

2.3. Quantify the fluxes of the water budget for the simulated area. Is the water budget balanced?