DEMOCRATIA - AQUA - TECHNICA

Assessing the impact of Rain Tree Management in Urban Erea

Supervisor : Professor Gaya Ulrik
Author : Asma Mabrouk

Introduction :

Climate change induces extrem weather eventssuch as intense rain fallleading to Flooding, land subsidence, Damaged infrastructure and public unsafety.

Source : www.dpa.de

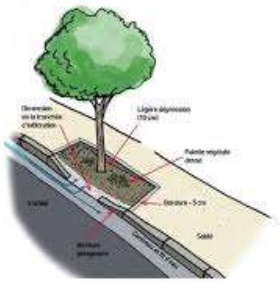
Rain tree is an innovative solution as a key part of stormwater management strategy to :

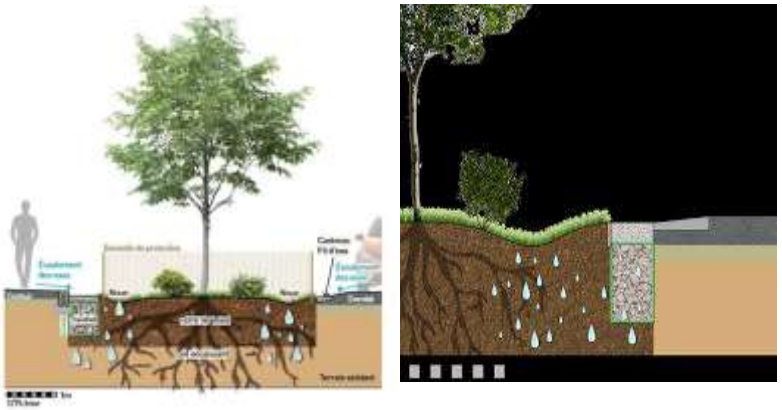
- Limit the risk of flooding
- Harvast rainwater
- Reduce atmospheric greenhouse gaz levels
- Promote biodiversity
- Improve soil health

Enhance urban ecosystems

Integration of the rain tree in an urban erea requeres :

- Depressed zone
- Vegetated zone
- Infiltration trensh





Schematic principle of integrating a rain tree in an urban area. Source: Caltran et al, 2022

Our objectives are :

1) Evaluate soil permeability for the rain tree performance
2) Assess infiltration rate capacity across seasons
3) Charactirize the water status of the rain tree through leaf relative content
4) Quantify CO2 absorption and soil carbon sequestration
5) Enhance management through AI and machine learning