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Monitoring the healthy status of urban streams

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An introduction to urban stream syndrome

- **What is the urban stream syndrome ?**

- **Key Impacts**
  - Loss of sensitive taxa
  - Reduced channel complexity
  - Increased pollutants and channel width
- **Consequences**
  - Reduced base flow, high suspended solids, and loss of riparian vegetation.

Objective of the study

- **Main goal:** Combine **remote sensing**, **ground techniques**, and **GIS** to monitor urban stream health.

- **Importance:** Streams are critical for ecological, socio-economic, and human well-being.

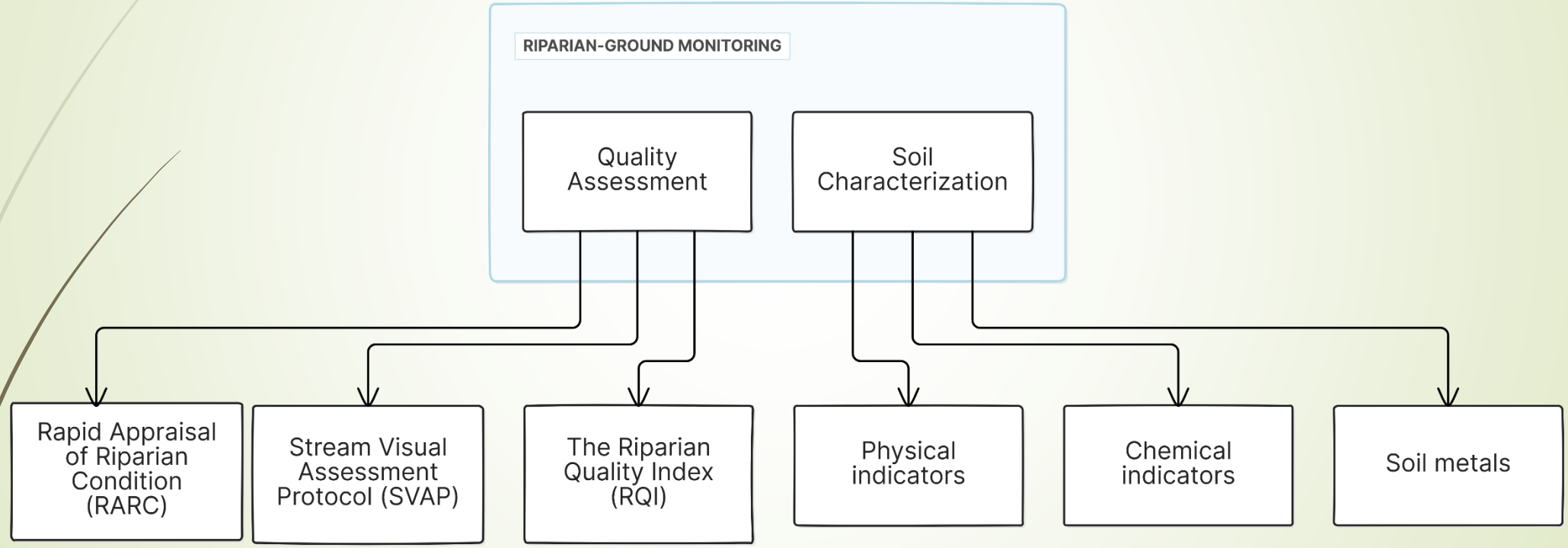
Methods Overview

1. **Remote sensing imagery**
   - Tools: Satellites, UAVs, aircrafts.
   - Use: Monitor water quality, vegetation, and land cover changes.
   - Example: Sentinel-2 for high-resolution imagery.
2. **Ground Monitoring Techniques**
   - Focus: Riparian zone and soil quality assessments.
   - Methods: Visual assessments (e.g., SVAP, RARC) and soil characterization.

Remote sensing in detail

- **Tech Advances:** UAVs are cost-effective for rapid water quality analysis (pH, dissolved oxygen, etc.).
- **Outputs:** Maps of suspended solids, chlorophyll content, thermal pollution.
- **Example Systems:** Sentinel-2 and Landsat series for monitoring inland water quality.

Ground Monitoring Techniques



Case study: Karteros stream, Crete

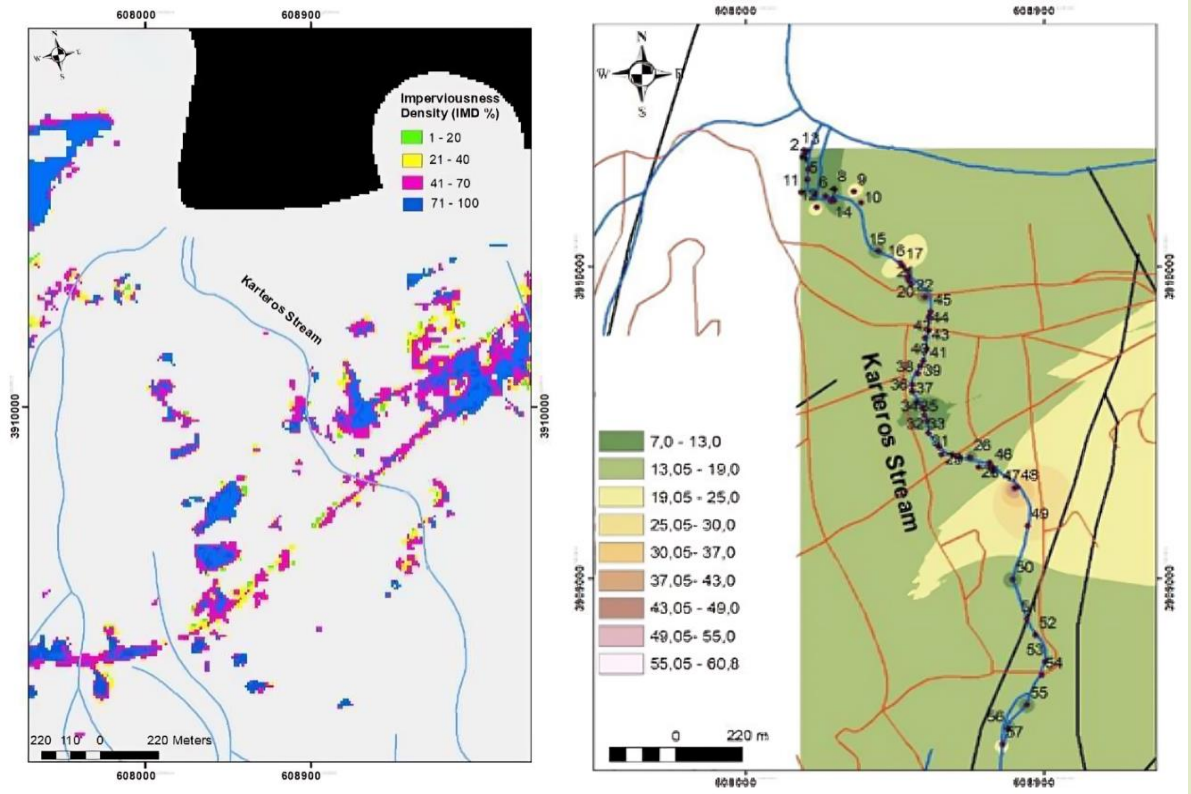
- **Overview:** Urbanization and agriculture affect Karteros stream in Heraklion.

- **Tools Used:** Imperviousness Density (IMD), and low-field magnetic susceptibility (LFS).
- **Findings:** Correlation between urbanization and sub-surface contamination.

Case study: Results of Karteros stream, Crete

- Imperviousness Density (IMD) Map: The high IMD values Indicate increased urbanization, particularly in the lower parts of the Karteros.
- Low-field Magnetic Susceptibility (LFS): The higher LFS values along the stream correlate with increased urbanization, suggesting the presence of pollutants or contamination in the

The key takeaway from this case study is that urbanization significantly impacts the hydrology and soil quality of the Karteros stream. There's a high correlation between soil contamination and urban density, emphasizing the need for targeted environmental monitoring and interventions.



The Connection Between Ecosystem and Human Health

- One Health Concept: Human health is directly linked to ecosystem health through services like clean water and air.

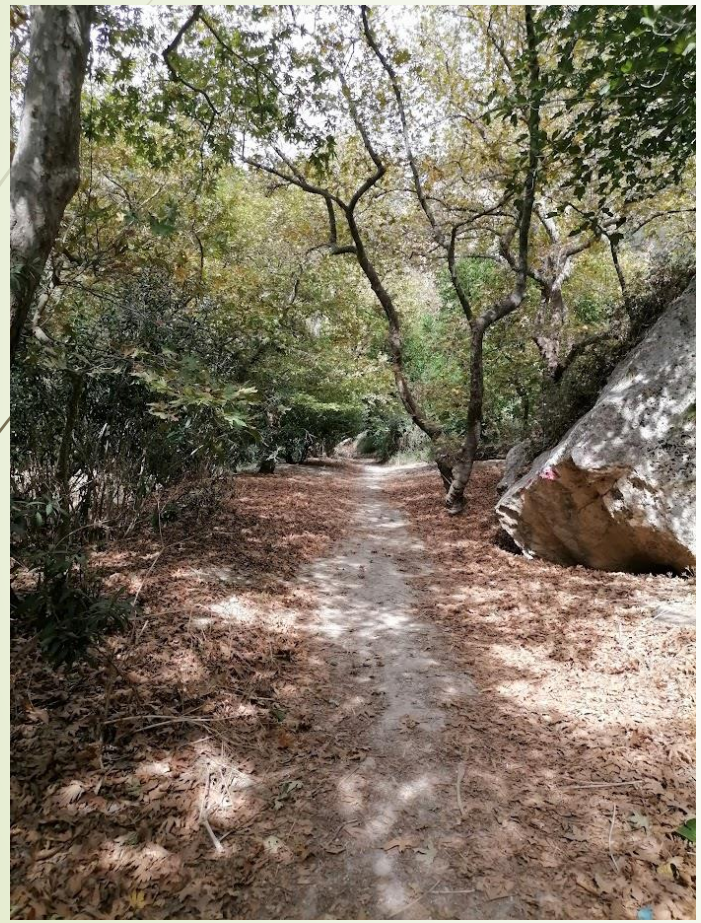
- Conclusion: Maintaining healthy streams is essential for both the environment and public well-being.

Conclusion and Future direction

- Multidimensional Approach Needed: Remote sensing + ground techniques + statistical and biological analyses.

- Call to Action: Increase research and innovation in stream monitoring for sustainable urban environments.

Thank you for your attention



One AquaHealth Web-page
https://www.oneaquahealth.eu

LinkedIn
OneAquaHealth Project

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