

**Interreg
Danube Region**



Co-funded by
the European Union



NbS for Rural Wastewater and Stormwater Management – experiences from D-CLEAN

44th PM EG & 21st NTG Meeting

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Günter Langergraber

BOKU University, Vienna, Austria

D-CLEAN

"Improving Water Quality in the Danube River Basin: Nature-based Solutions for Sustainable Wastewater and Stormwater Management in Small Settlements"

INTERREG Danube Region Project DRP0300962;

Duration 01.04.2025 – 31.03.2028

The D-CLEAN project aims to

- aims to improve water quality within the DRB by promoting the use of **sustainable wastewater and stormwater management practices** resilient to climate change and providing stakeholders with the necessary tools
- by addressing the pressing issue of WW and SW pollution in the small settlements in Danube River Basin by **rising awareness, building capacity**, and identifying, testing and showcasing practical solutions.

D-CLEAN activities

Activity 1: Analyzing needs and challenges

- *Activity 1.1 Analysis of regional status quo*
- *Activity 1.2 Zoom-in on pilot areas*
- *Activity 1.3 Identification of Stakeholder needs*
- *Activity 1.4 Prioritization of sustainable WW and SW solutions*

Activity 2: Enhancing capacity of stakeholder

- *Activity 2.1 Development of training materials for co-design*
- *Activity 2.2 Training of stakeholders*
- *Activity 2.3 Co-design of decentralized solutions*
- *Activity 2.4 Developing Transnational roadmap*

Activity 3: Mainstreaming wastewater and stormwater management in the region

- *Activity 3.1 Establishing policy dialogs; analysis of policy needs and challenges*
- *Activity 3.2 Develop climate change-adapted regional WW and SW management strategy for small settlements*
- *Activity 3.3 Transnational Knowledge Hub on Sustainable WW and SW for the Danube Region*

D-CLEAN activities

Activity 1: Analyzing needs and challenges

- ✓ Activity 1.1 Analysis of regional status quo → **Report available (final)**
- ✓ Activity 1.2 Zoom-in on pilot areas → **Report (draft version)**
- ✓ Activity 1.3 Identification of Stakeholder needs → **Report (draft version)**
- Activity 1.4 Prioritization of sustainable WW and SW solutions

Activity 2: Enhancing capacity of stakeholder

- Activity 2.1 Development of training materials for co-design
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Activity 3: Mainstreaming wastewater and stormwater management in the region

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D-CLEAN pilot areas

Drava-Mura River Basin (Croatia)

- *Upper Međimurje region (hilly region)*

Middle Tisza River Basin (Hungary)

- *Five small settlements in a flat region (Mezőtúr, Kuncsorba, Kétpó, Mezőhek Mesterszállás)*

South Transdanubia (Hungary)

- *Five small settlements in a hilly region (Ráksi, Oroszló, Nagytótfalu, Kisharsány, Beleg)*

Lower Danube (Romania)

- *Six small settlements in Racovița (Timiș County)*

Sava River Basin (Serbia)

- *Hrtkovci, Municipality of Ruma*



D-CLEAN activities in/for pilot regions

Activity 1: Analyzing needs and challenges

– Activity 1.2 Zoom-in on pilot areas

Collection of data on

- (geographical) characteristics of pilot areas*
- Status of WW and SW management*
- Costs of technologies for WW and SW management*

Activity 2: Enhancing capacity of stakeholder

- Activity 2.1 Development of training materials for co-design

- Training materials incl. fact sheets describing various NbS for WW + SW management*
- GIS-based decision support tool***

- Activity 2.2 Training of stakeholders

- Activity 2.3 Co-design of decentralized solutions

GIS-based decision support tool

Tool to support local planners/decision makers in **initial planning phases**.

It will provide spatial analysis to visualise/analyse geographical distribution of **WW/SW scenarios** + enable comparison of solutions based on total costs (investment/operation/maintenance/reinvestment) at **different levels of decentralization**.

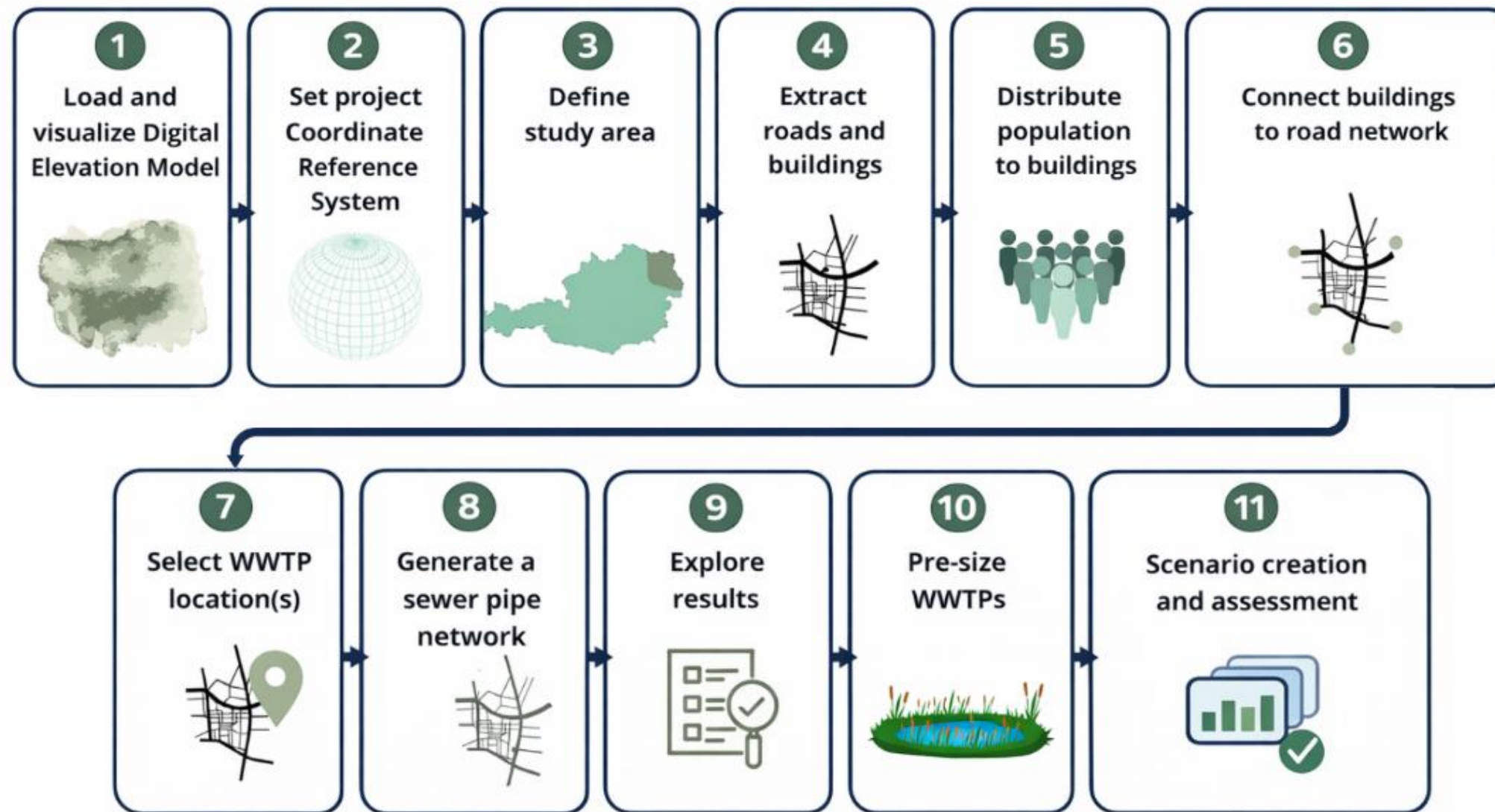
→ a QGIS plug-in to address two different questions

1. How to connect an area with no existing sewer network? (centralised / decentralised management)
2. How to limit storm water overflows in an existing sewer network?

... in collaboration with INRAe Villeurbanne, France

GIS-based decision support tool

ELAN (“urban watEr pLanning scenArios for sustaiNable cities”) is a GIS-based decision-support plugin for QGIS designed for integrated urban water management.



Example Racovița, Romania



The 6 settlements in the commune Racovița: from left to right: Sârbova, Hitiaș, Racovița (the commune seat, Căpăt, Drăgoiești, and Ficătar.

What is the optimal solution? ... One central WWTP or 6 small WWTPs, one for each commune? ... Or something in between?

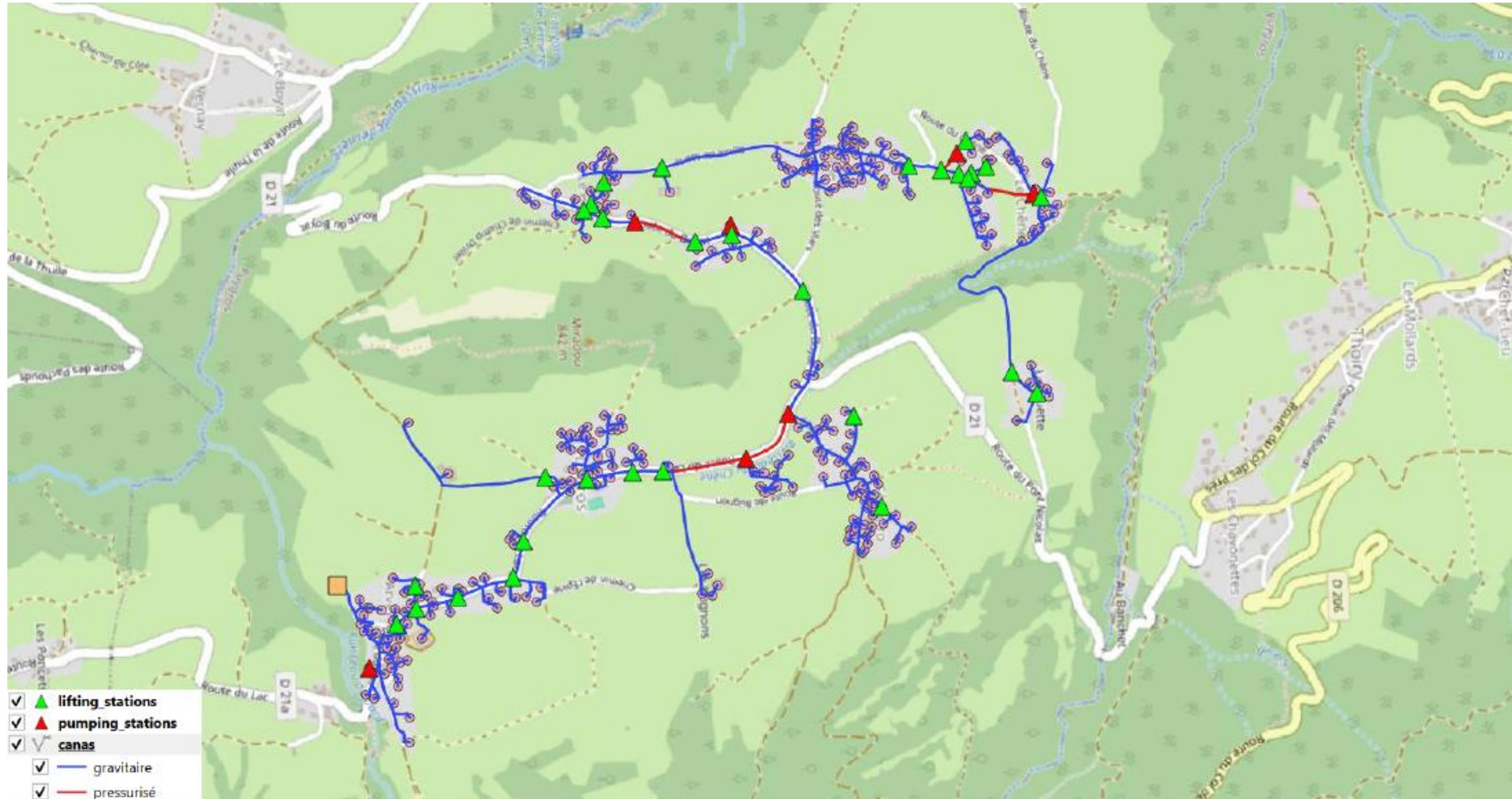
Example



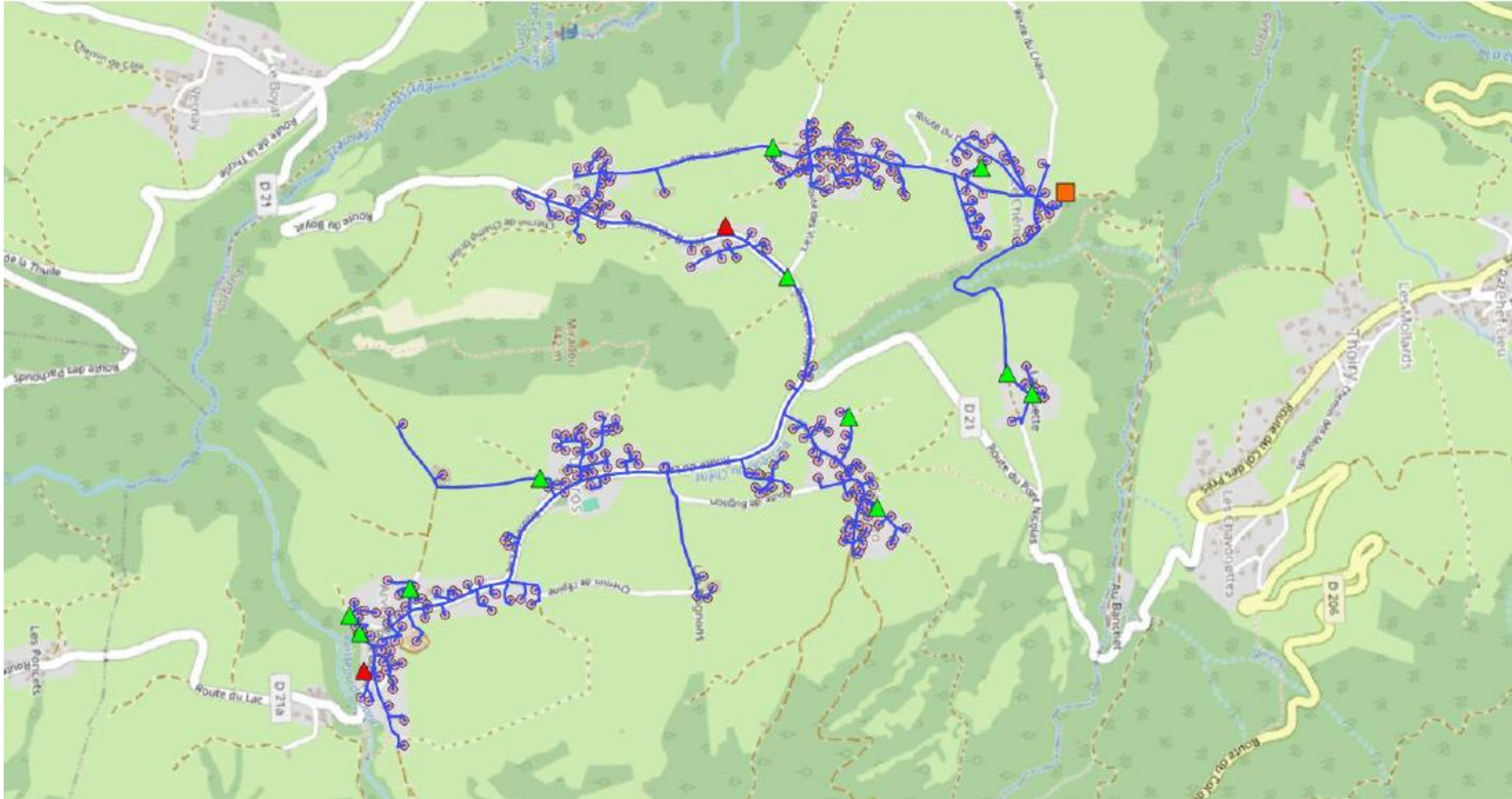
Example



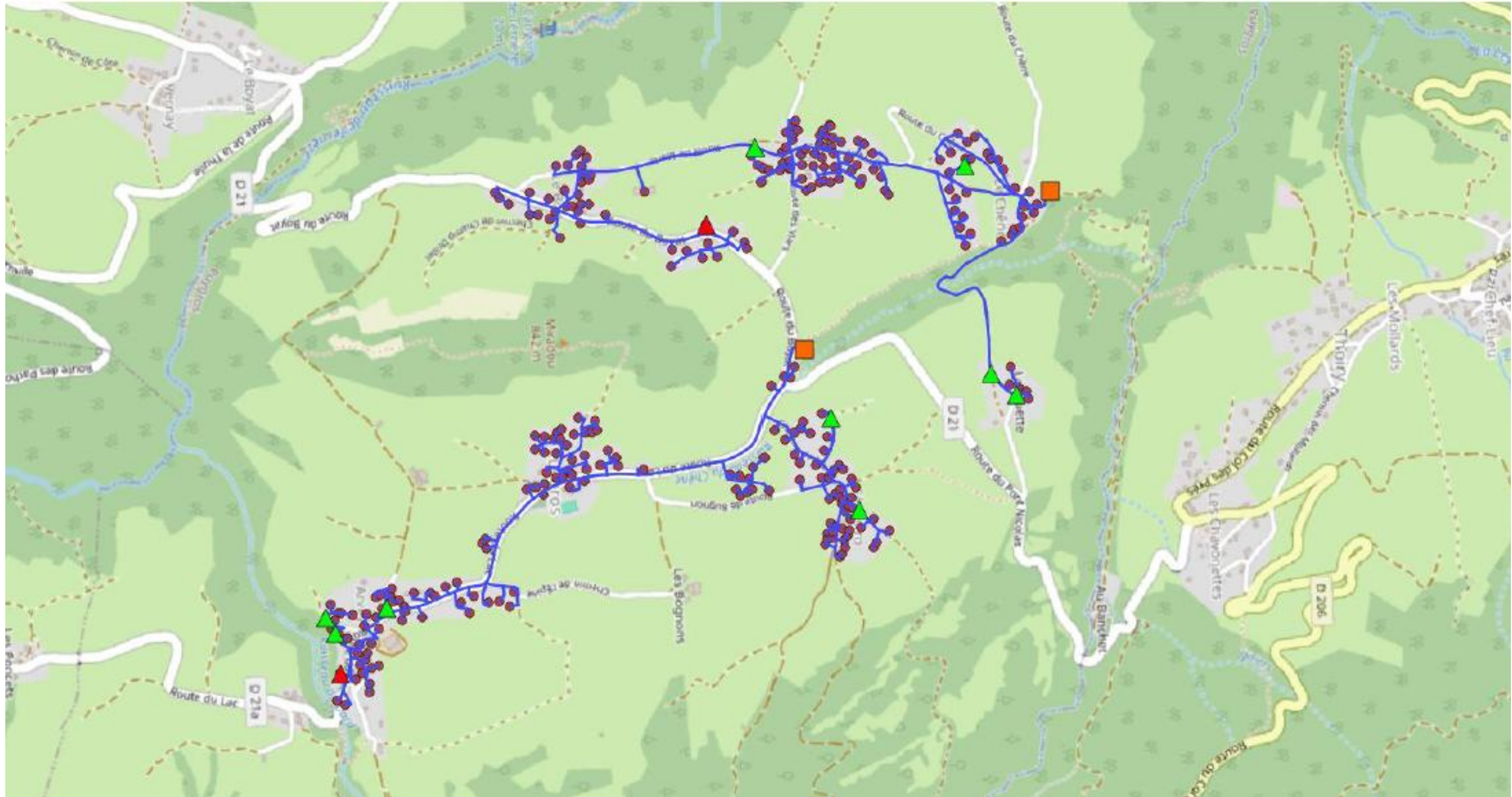
Example



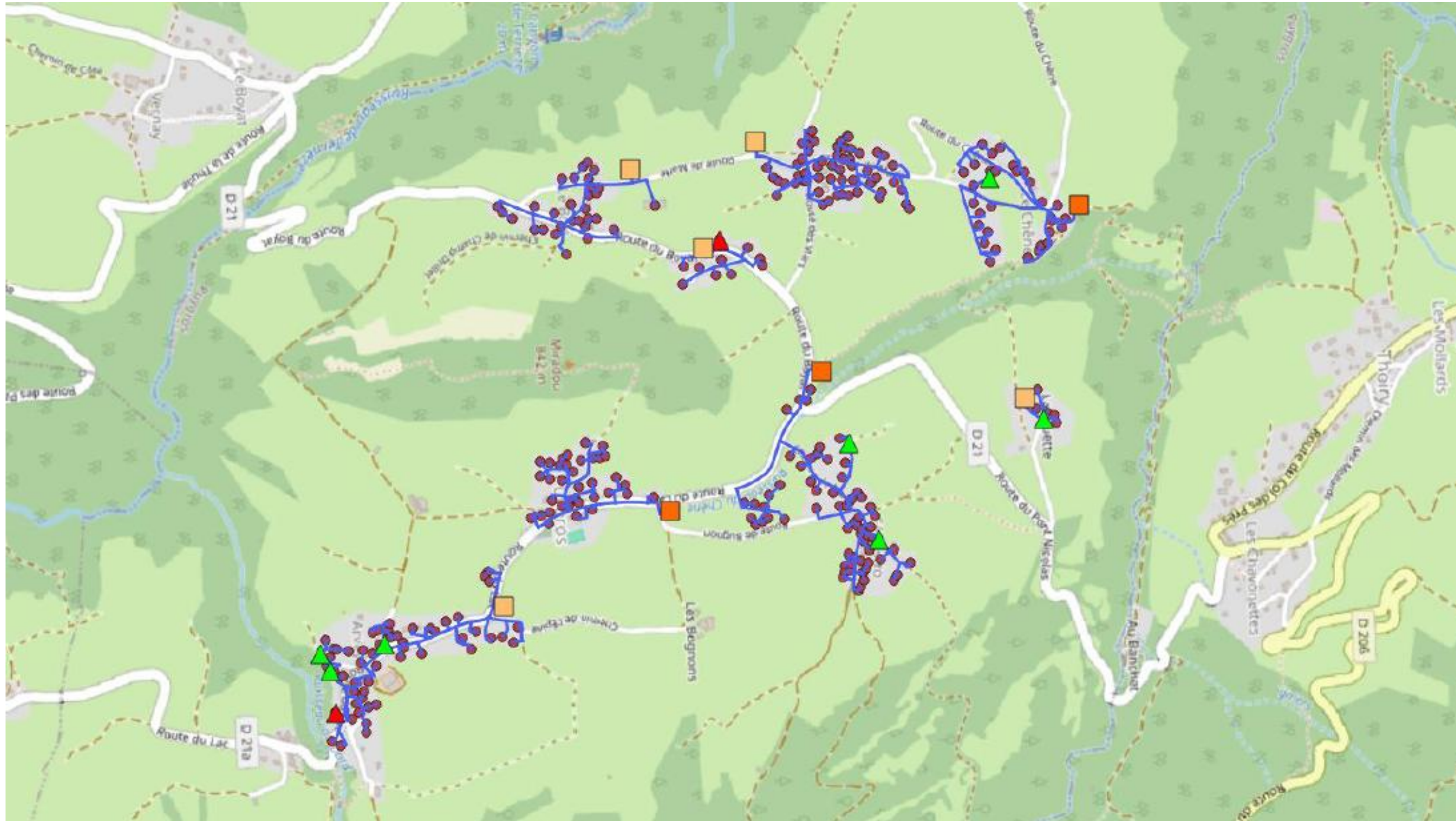
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Example

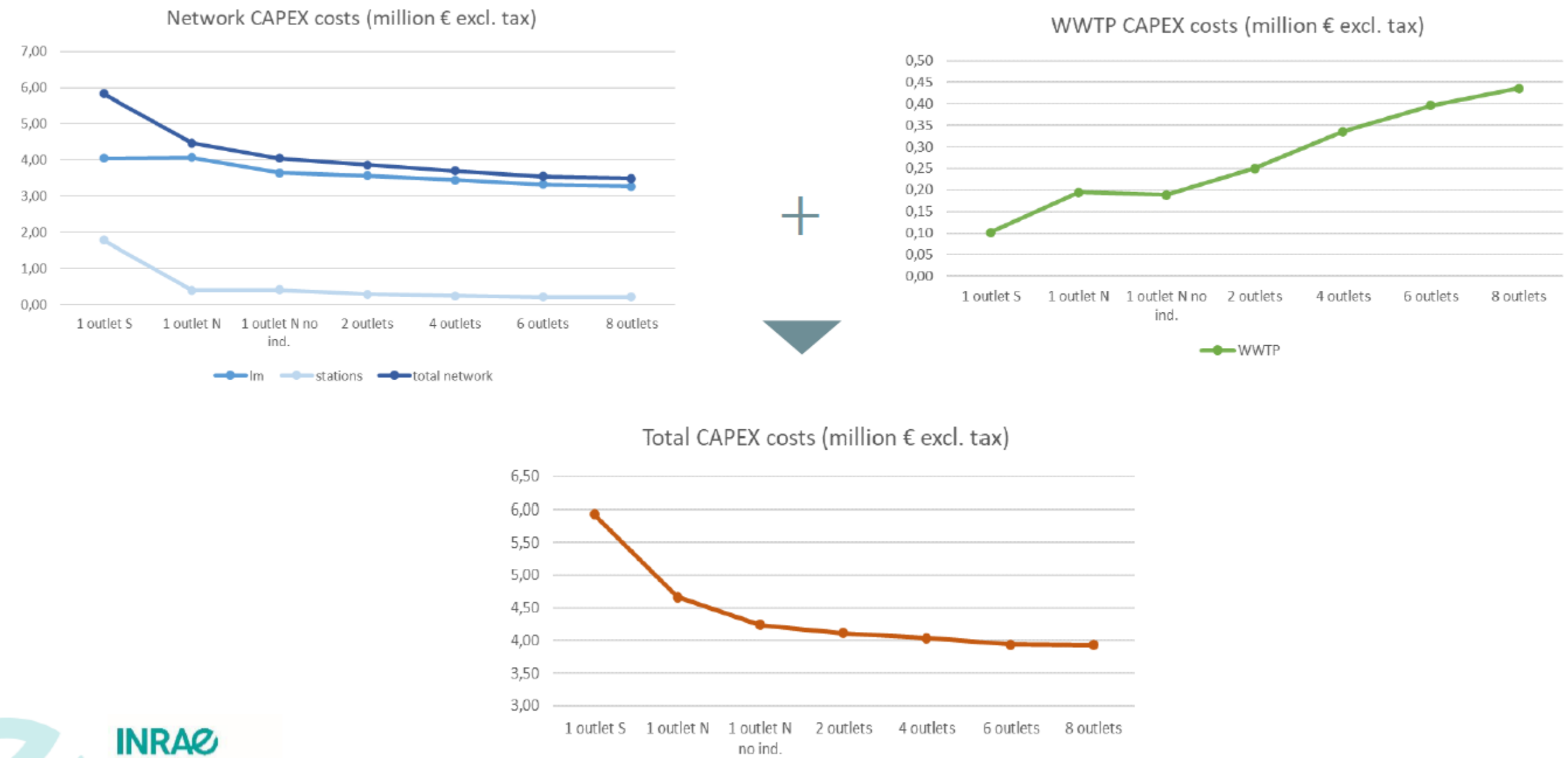


Example



Example

Estimated CAPEX costs



D-CLEAN activities in/for pilot regions

Activity 1: Analyzing needs and challenges

– Activity 1.2 Zoom-in on pilot areas

Collection of data on

- (geographical) characteristics of pilot areas*
- WW and SW management: existing systems, quantitative and qualitative indicators*
- Costs of technologies for WW and SW management*

Activity 2: Enhancing capacity of stakeholder

- Activity 2.1 Development of training materials for co-design

- Training materials incl. fact sheets describing various NbS for WW+SW*
- GIS-based decision support tool***

- Activity 2.2 Training of stakeholders

- Activity 2.3 Co-design of decentralized solutions

D-CLEAN partners

1. ***Global Water Partnership Central and Eastern Europe (SK, Lead partner)***
2. *University of Ljubljana Slovenija (SI)*
3. *University of Natural Resources and Life Sciences, Vienna (AT)*
4. *Limnos Company for applied ecology Ltd (SI)*
5. *International Association of Water Service Companies in the Danube River Catchment (AT)*
6. *Regional development agency Srem (RS)*
7. *National Administration “Romanian Waters” (RO)*
8. *Romanian Water Association (RO)*
9. *Međimurske Waters (HR)*
10. *Middle Tisza District Water Directorate (HU)*

+ 11 Associated partners incl. ICPDR, Forster Europe and stakeholders (ministries & municipalities from target countries inc. BiH)

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**Thanks for your
attention**

D-CLEAN – Improving Water Quality in the Danube River Basin: Nature-Based Solutions for Sustainable Wastewater and Stormwater Management in Small Settlements

Günter Langergraber

guenter.langergraber@boku.ac.at

+43 1 47654 81111

BOKU University

Institute of Sanitary Engineering and
Water Pollution Control

Muthgasse 18

A-1190 Vienna

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