FIG Joint Land Administration Conference

UNIVERSIDADE FEDERAL DE SANTA CATARINA

TU Delft

CLIMATE RESILIENT SPATIAL PLANS: REVISED LADM CLIMATE ADAPTATION PROFILE

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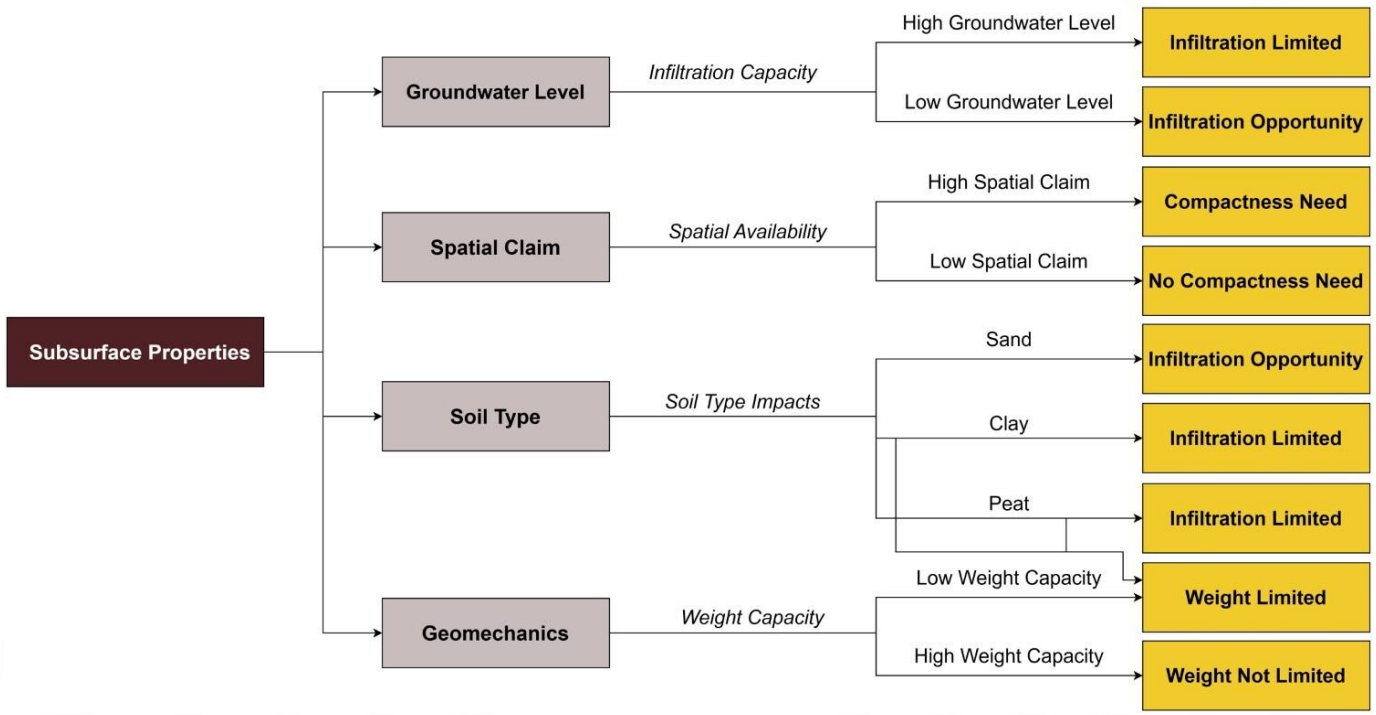
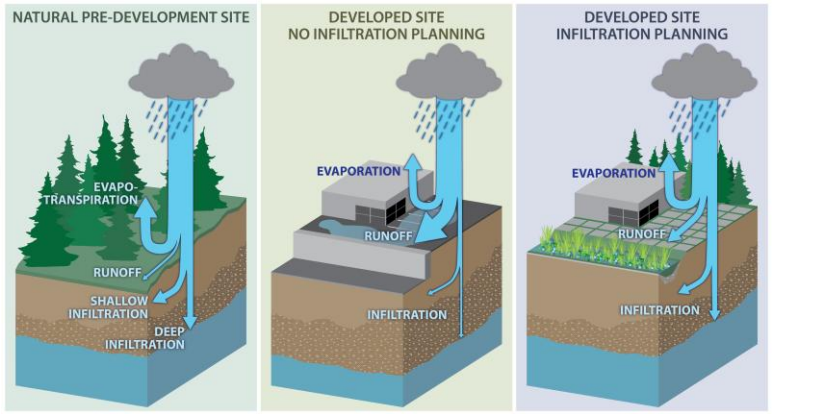
INTRODUCTION

- Climate resilience benefits from **nature-based**, geology and water-informed planning.
- The Netherlands introduced in 2022 **“water and soil”** as guiding principles for spatial planning.
- This is deeply related to **subsurface information** and can be divided into four main categories.

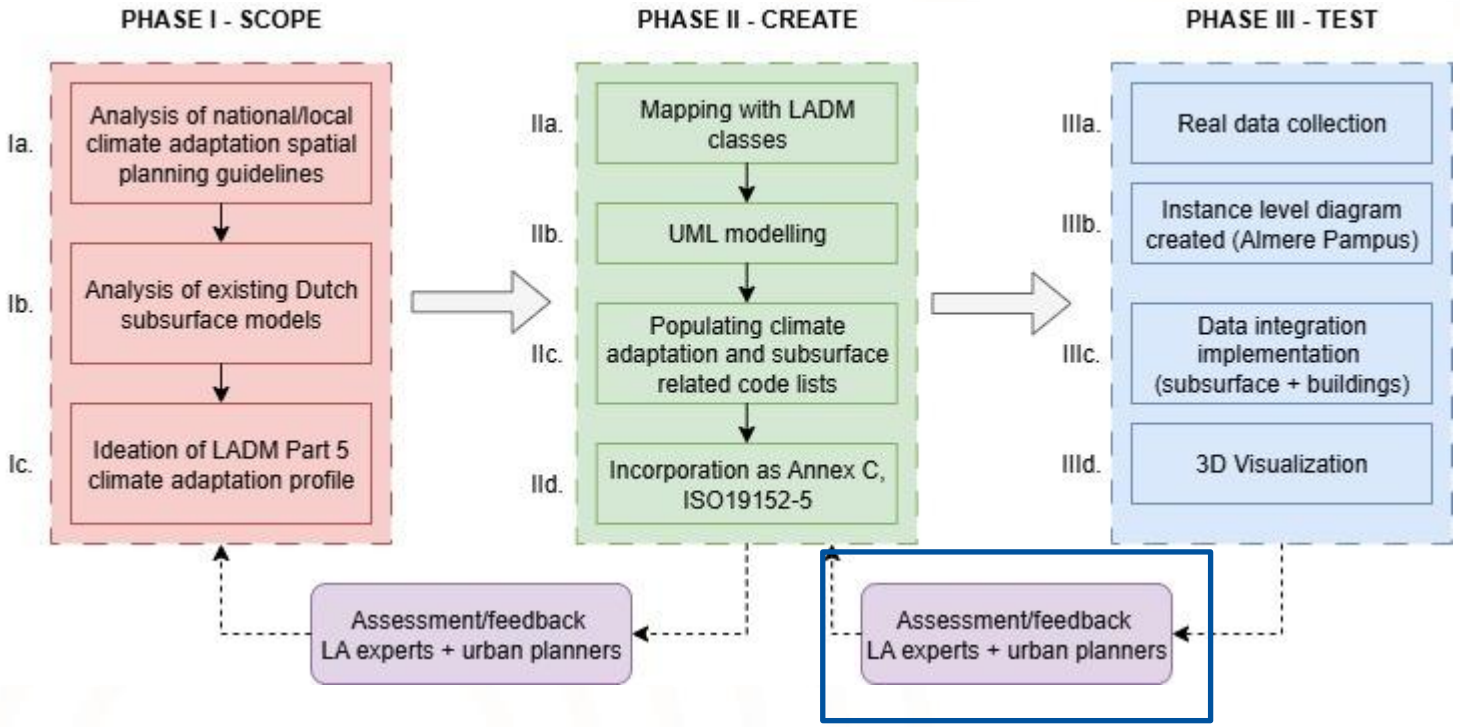




Source: Tarozzo Kawasaki et al. (right), Aspect Consulting (top left), Đorđević (bottom left), Northwest Linings (bottom right)

LADM 5 CLIMATE ADAPTATION PROFILE

- **LADM Part 5 Climate Adaptation profile** enables subsurface informed climate-resilient plans.
- Incorporated as **Annex C in the ISO 19152-5** standard.
- The current paper presents a **reviewed** version of the profile.



Source: Tarozzo Kawasaki et al. (2024) adapted from Kalogianni et al. (2021)

FEEDBACK RECEIVED

In the feedback, planners highlighted the need for:

1) External data sources integration

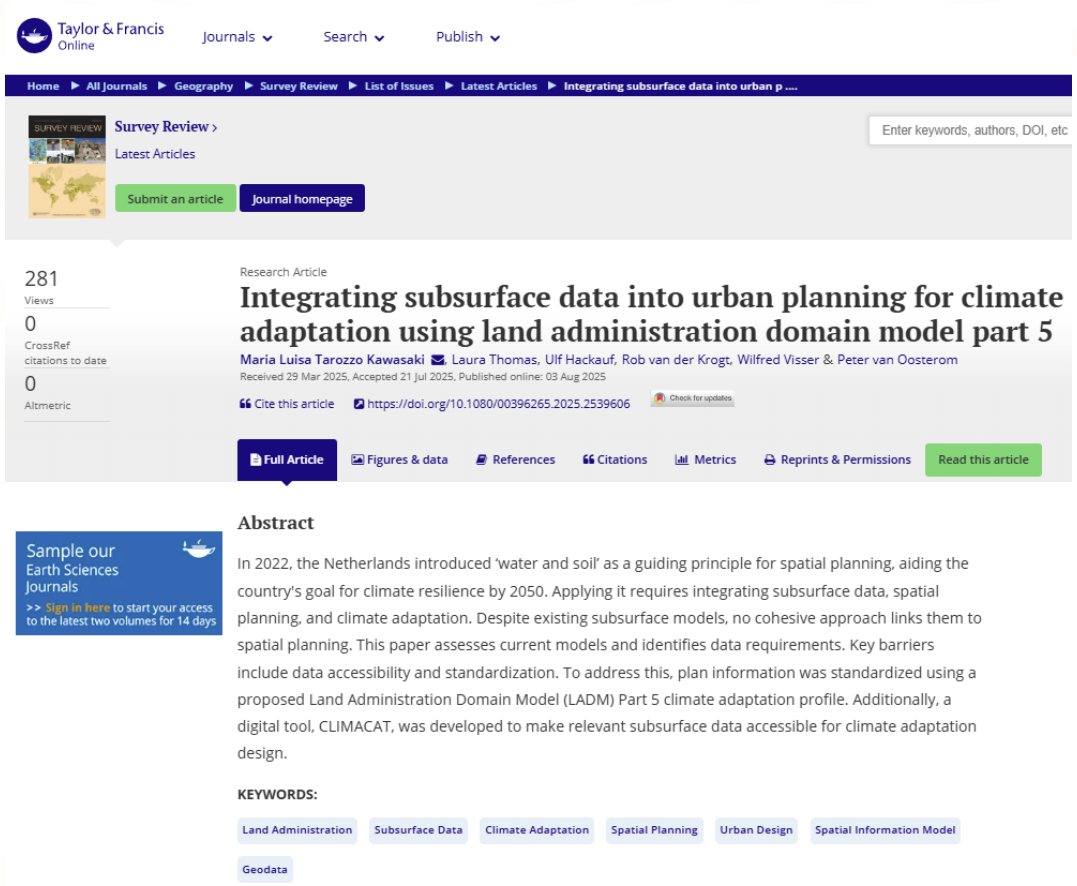
→ **LADM External Classes**

2) Improved data traceability

→ **LA_Source**

3) Flexibility for different planning contexts

→ **LADM Generic Profile**



Detailed feedback from planners

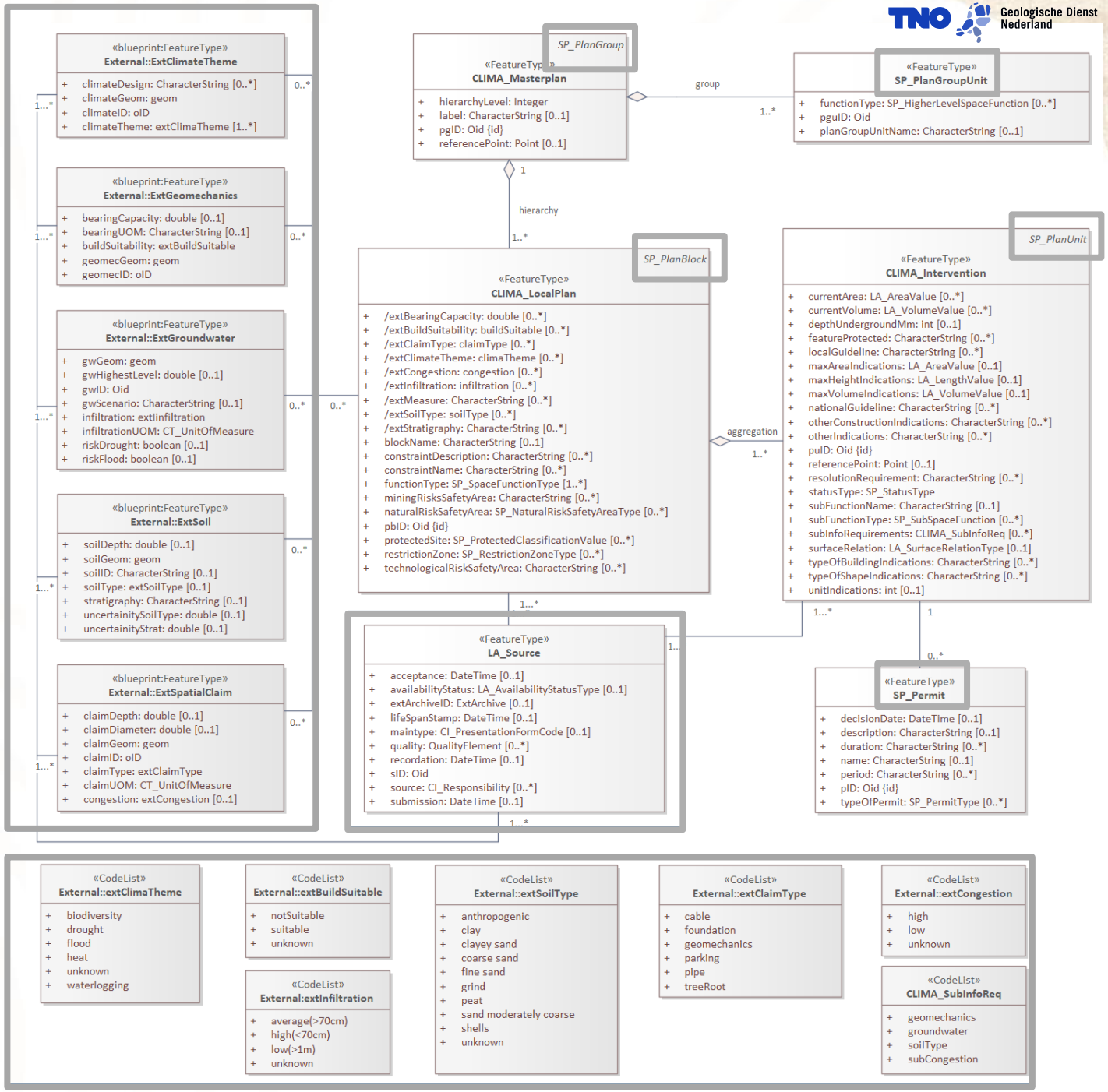
REVISED PROFILE

- **LADM Part 5** as core structure

- **External classes** for data integration:
  - *External::ExtClimateTheme*
  - *External::ExtGeomechanics*
  - *External::ExtGroundwater*
  - *External::ExtSoil*
  - *External::ExtSpatialClaim*

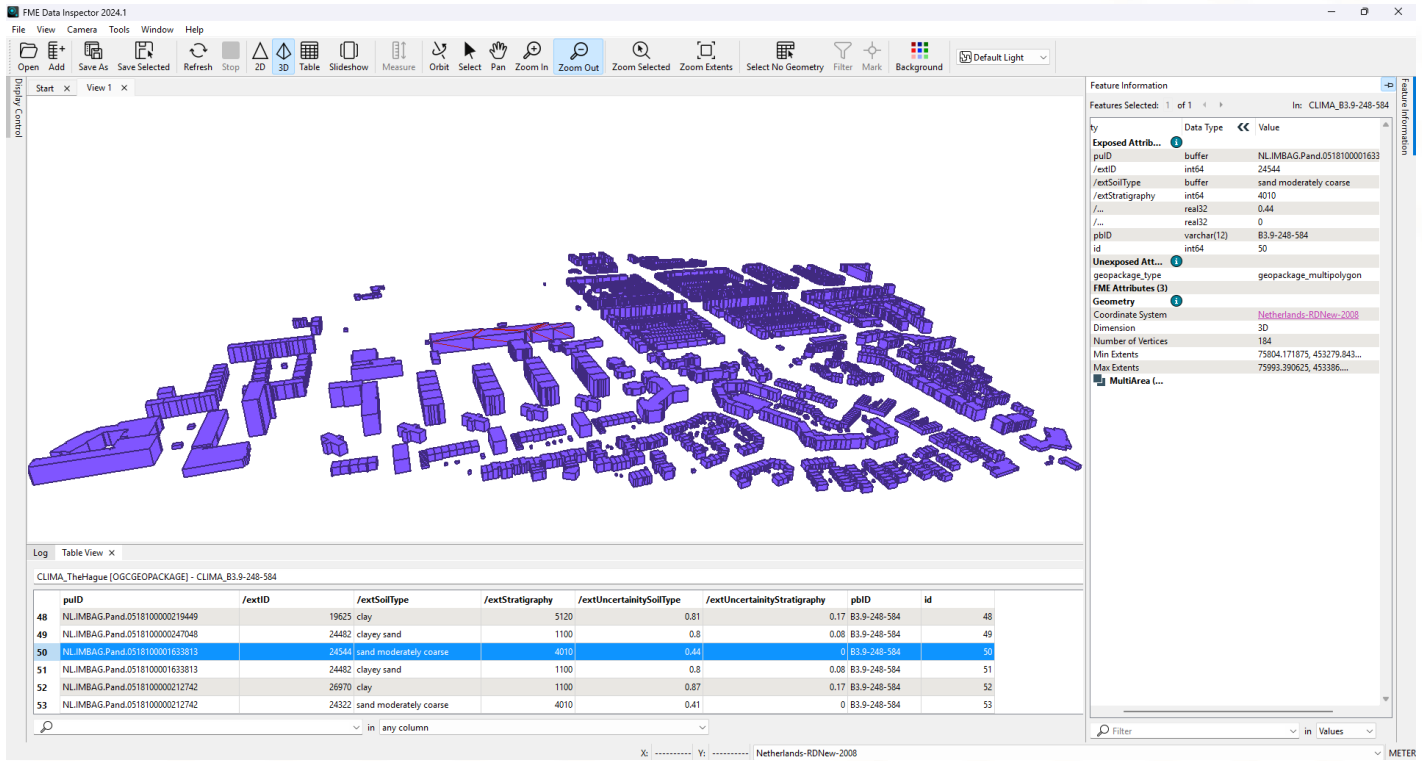
- **LA Source** for data traceability

- **Generic profile** for flexibility

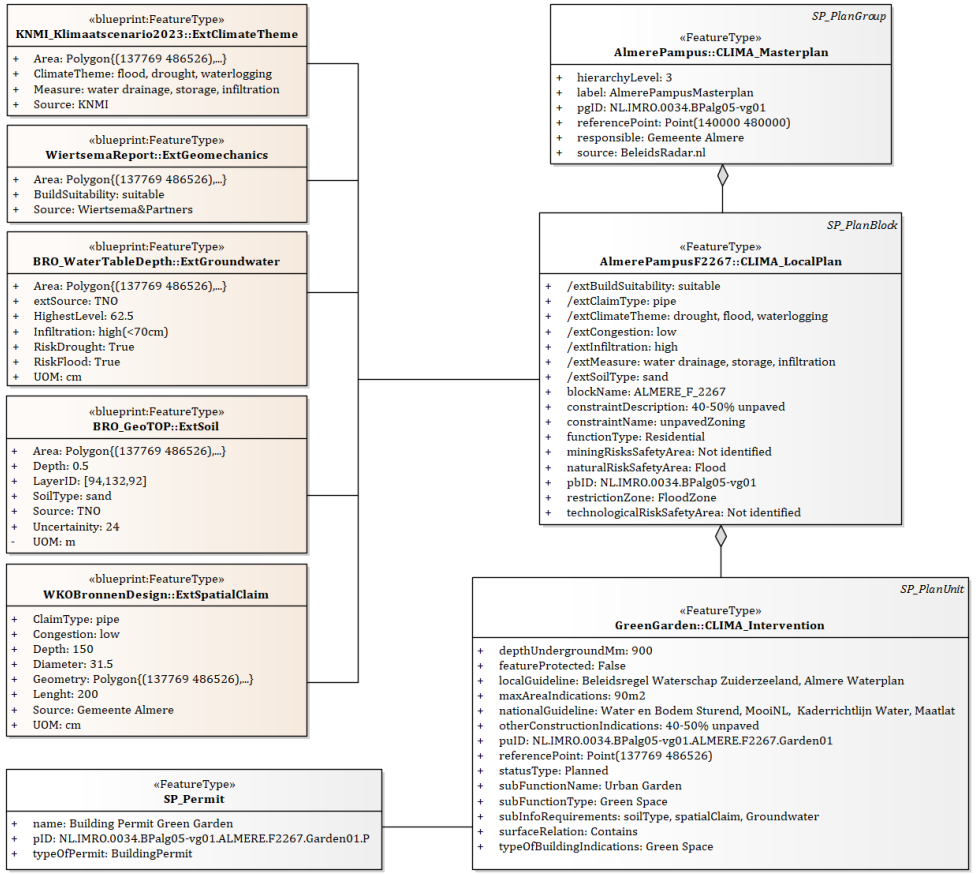


IMPLEMENTATION

External subsurface information in 3D digital twin of The Hague.



Instance diagram of Almere Pampus masterplan



Implementation in other countries as future research?

CONCLUSIONS

- The revised LADM Part 5 climate adaptation profile facilitates integrating subsurface and climate data into spatial plans.

- Its development was driven by nature-based climate resilience research, policies, and the specific challenges faced by urban planners.

- The revised profile's incorporation of **external classes** and **LA_Source** allows integration and traceability of critical information.

- Its **generic** nature allows flexibility to various planning scenarios, making it a valuable tool for planners worldwide.

- Its implementation showcase its utility in Dutch real-world scenarios. Testing is encouraged in different global contexts.

Thank you for your time!
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