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Desealing soils to promote ecosystem services: synthesizing practices among stakeholders

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Methods

Acquiring technical data on existing urban projects and initiative including desealing practices.

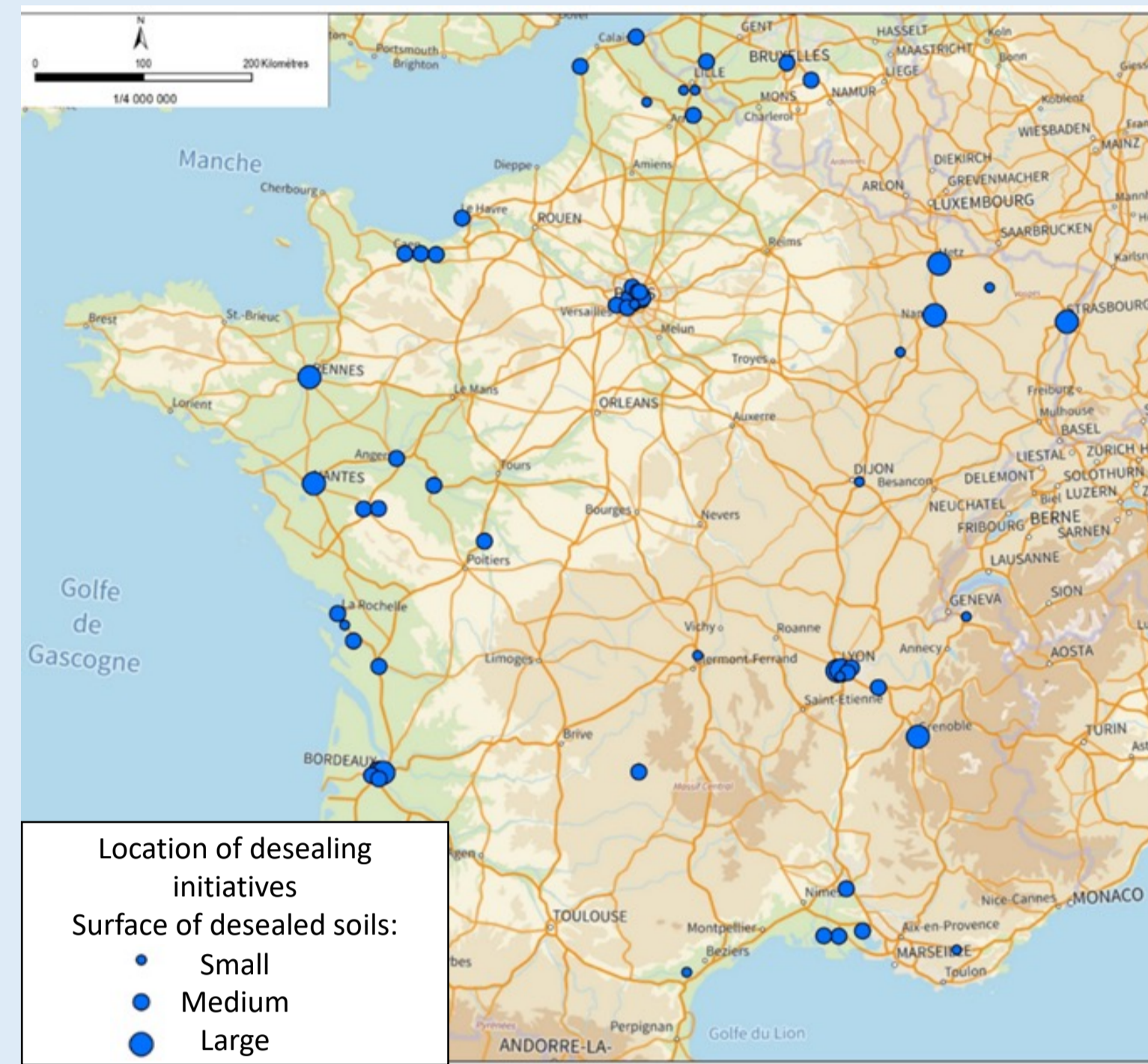
- A national survey** towards landscape managers and designers, cities and consulting engineers (Approx. 40 questions with LimeSurvey – Summer 2021)
- Documented information** from the initiatives led by private partners

Data type on desealing initiatives

- Location, stakeholders, dates
- Surface, uses before and after set-up, costs
- Type of materials, reuse or evacuation of materials
- Techniques to create fertile soils and substrates
- Difficulties and opportunities

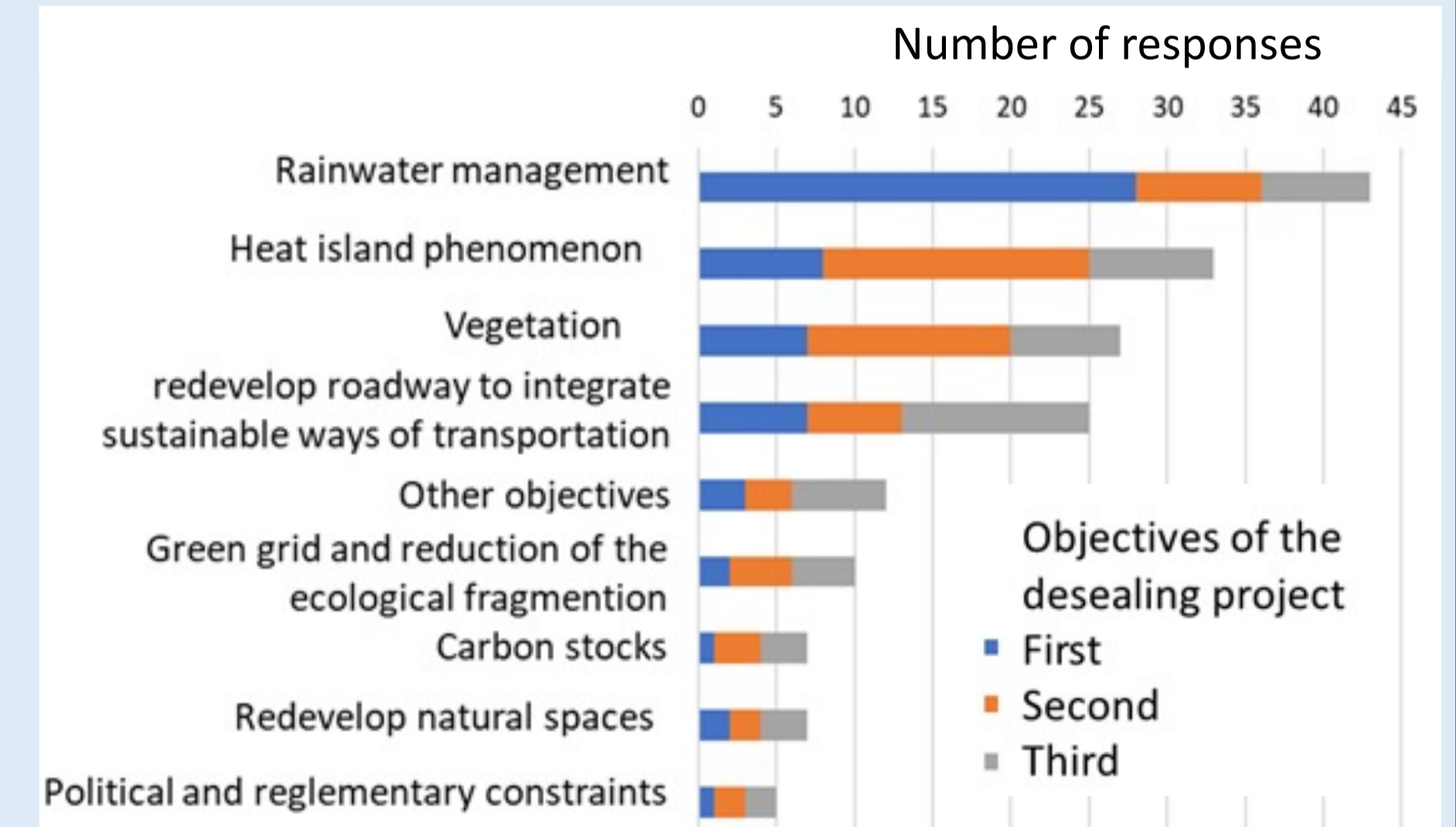
Map of the case studies

- More than 60 initiatives (40 from survey and 20 from documented initiatives)
- Collected data in France and Belgium (mostly in urban areas)



Why desealing soils ?

- Desealing mostly for rainwater management purposes
- Heat management and vegetation opportunities come as second objectives



What are the objectives behind desealing initiatives ?

I. Typology of desealing initiatives:

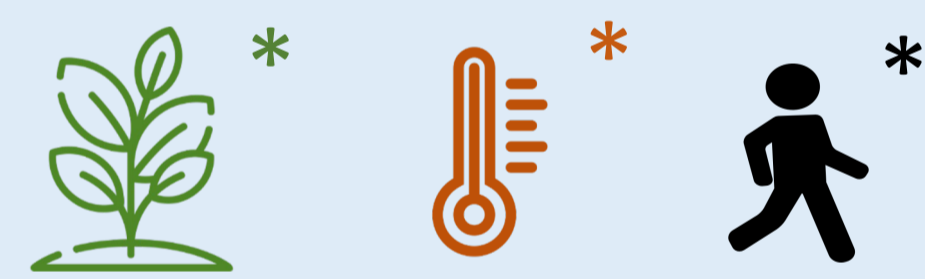
(1) Various desealed surfaces, (2) potential for new plantations and (3) concertation with citizen

Roadway, parking lot and square requalification

Desealed and planted schoolyards

Brownfield requalification

Municipalities' desealing initiatives for citizens

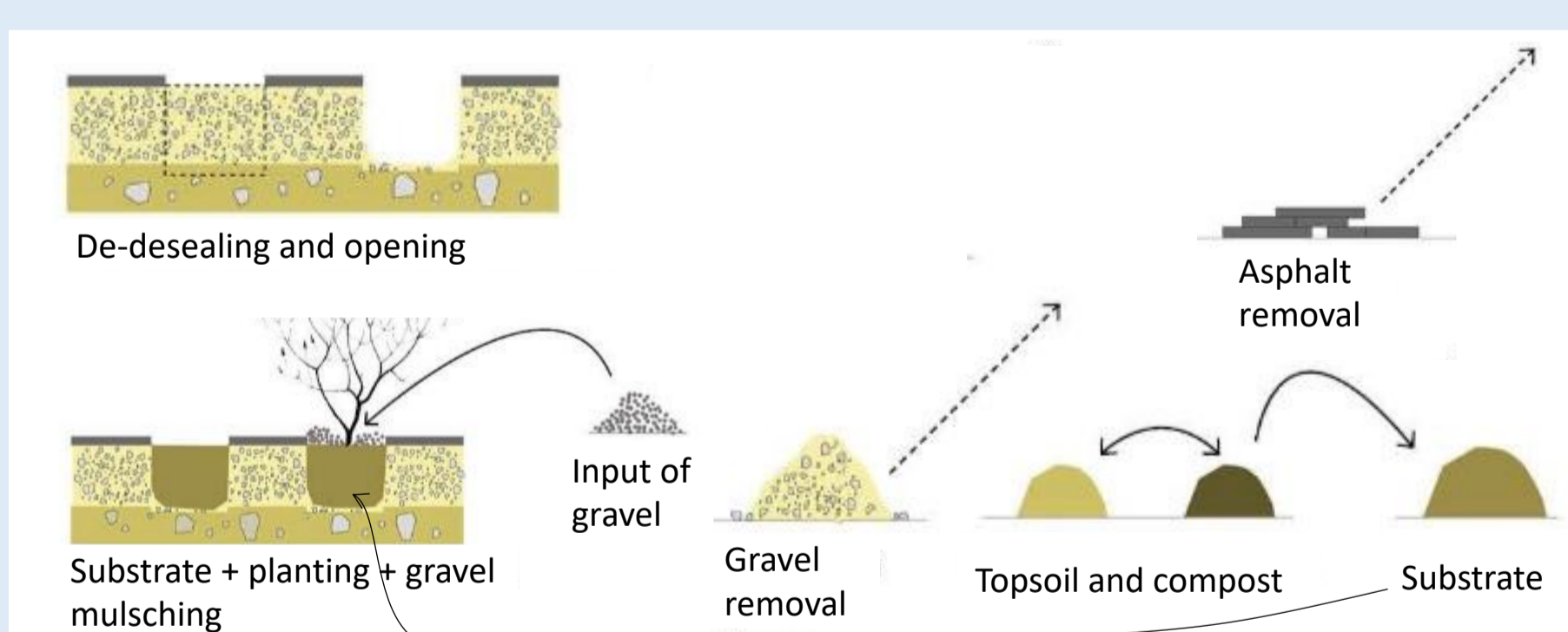


Main objectives : *water management, *landscape and vegetation, *heat mitigation, *public and children access

II. Different techniques of soil construction:

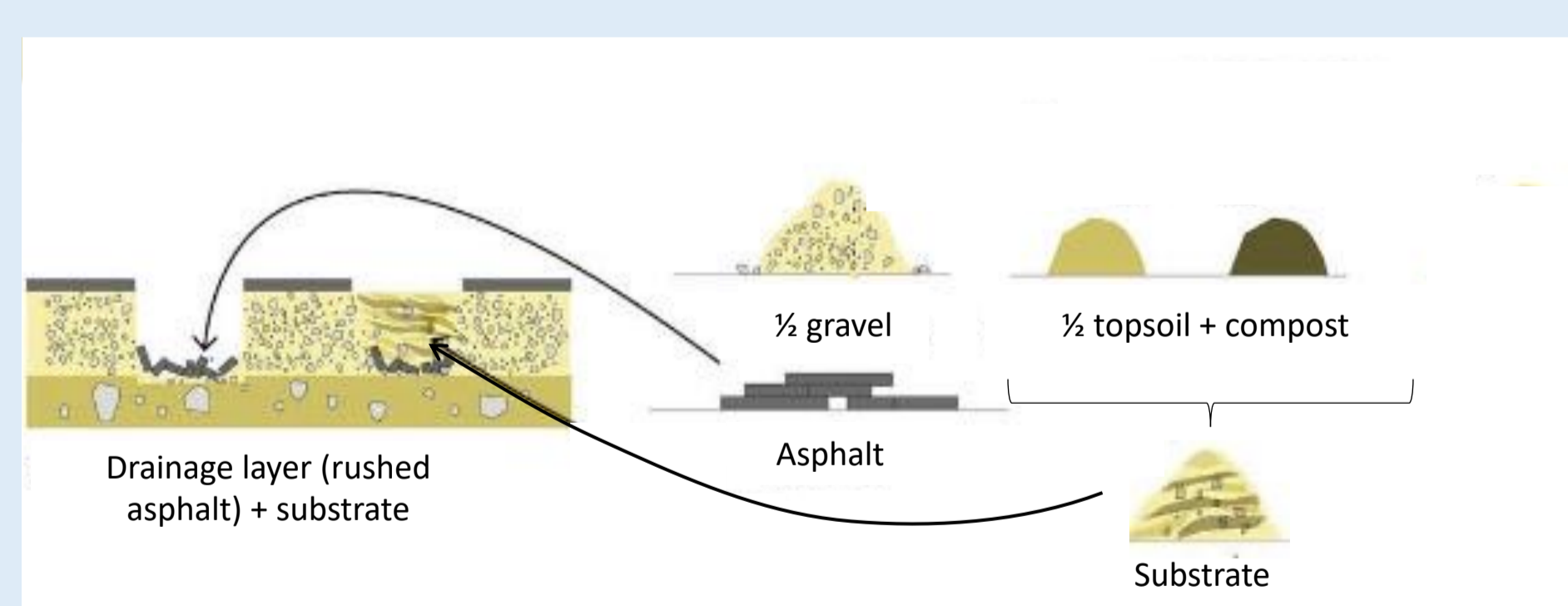
Overall removal of impervious materials (asphalt or concrete)

A Conventional technique of soil construction after desealing



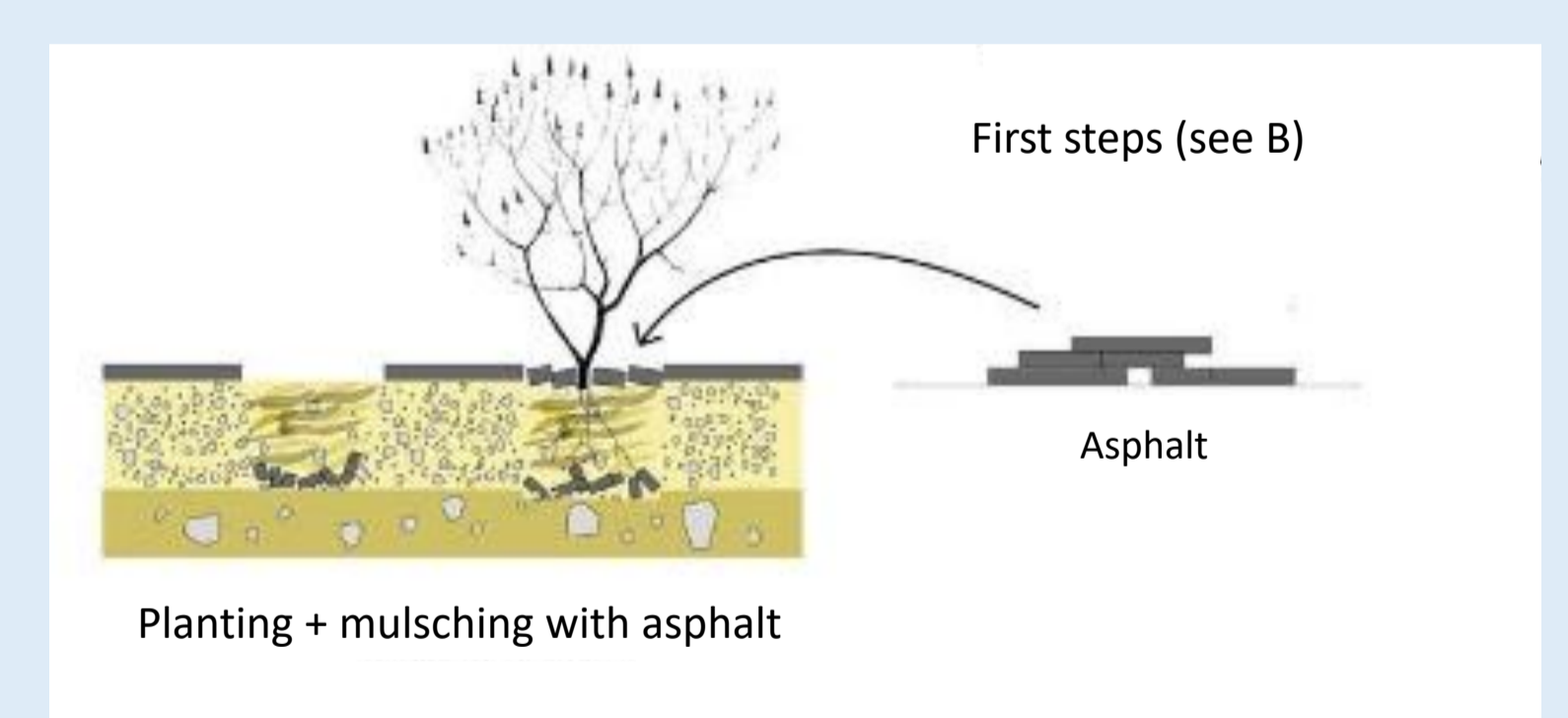
- Use of exogenous material (non-renewable soil)
- High environmental impact and economical cost (destruction of arable lands and transportation of materials)

B Innovative technique of soil construction with recycled technical layer



- Mix of exogenous materials and recycled materials from desealing operation (gravels, asphalt, etc)
- Re-use of crushed materials as a deep technical layer for drainage

C Soil construction with two recycled layers of re-used materials



- Similar to B but with re-use of crushed impervious materials as mulching for soil coverage and conservation of soil moisture

Conclusion : more than 60 case studies of desealing initiatives were documented. This helped build a typology of desealing projects. The results will help guiding the conception of future projects as long as experiments on desealed soils.

Ready for Desert ? The Desert (« Desert ») research program aims at better understanding the practices of desealing and characterize the functioning of desealed soils for green spaces. This program will further investigate the practices of soil desealing in urban areas with fields and lab' experiments to designing tools for stakeholders.