

COST Project MINEA
WG 1: “Resource potential of C & D waste”
Odense, 30th October 2018

**CONSTRUCTION MATERIALS FLOWS AND STOCKS
STUDIES IN PARIS REGION :
FROM RESEARCH TO POLICIES AND PROJECTS**



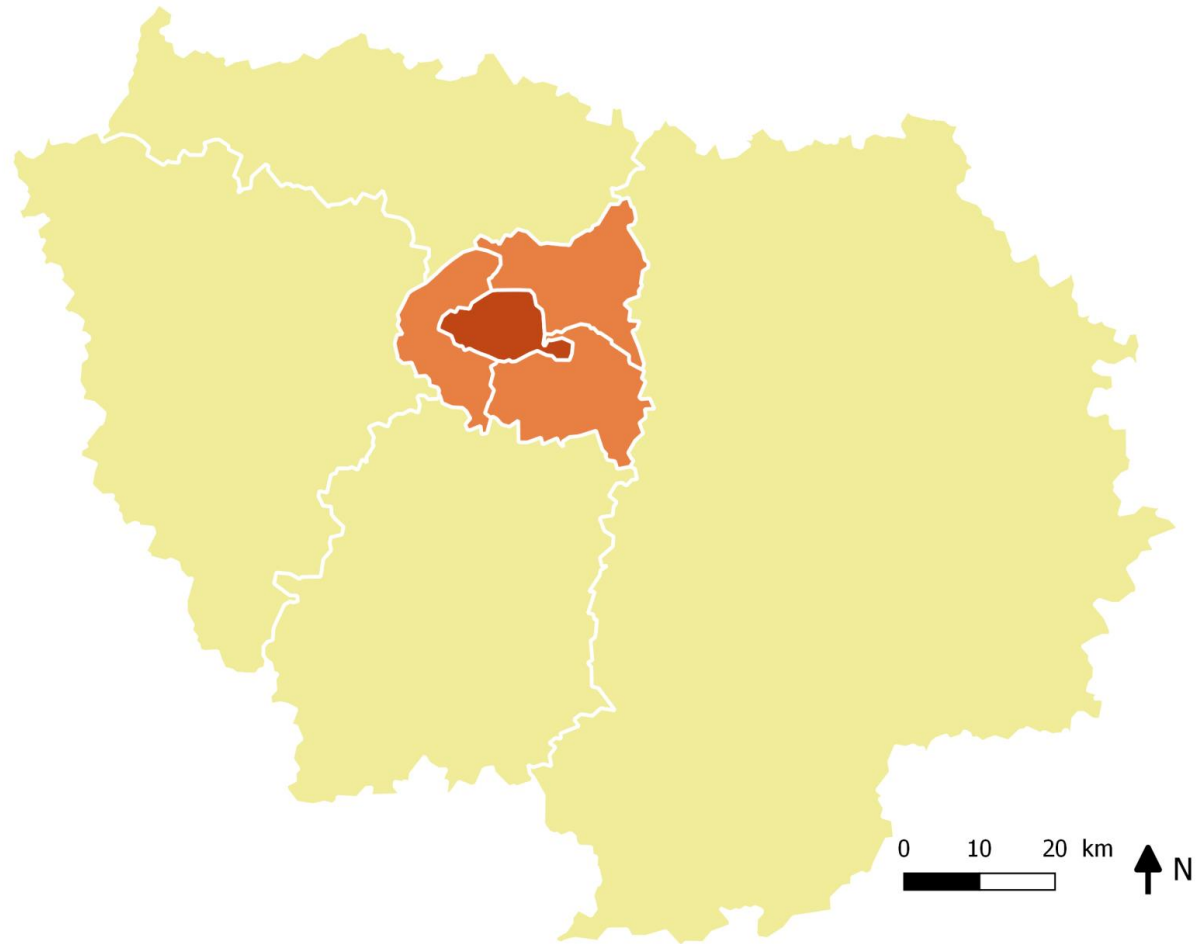
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Previous research

2014 – 2017 :

research on
Paris region

focus on the link between
urbanisation processes
and construction
materials flows (buildings
and networks)



Previous research

An assessment of secondary resources in today's stock through a bottom-up and static approach

GIS data (volumes, surface areas, lengths)

matched with **local tax records** (construction years, activities, materials in the wall structures of buildings)

data from **networks managers**

material intensities adapted from Rouvreau *et al.* (2012)

Previous research

Flows analysis through the crossing of top-down and bottom-up approaches :

top-down approach :

Eurostat MFA adapted by Barles (2009)

freight database, quarries extraction, waste estimates

bottom-up approach :

buildings construction & demolition from a **comparison of local tax records** (2009-2014)

refurbishment, networks development and renewal from **local statistics** converted into ratios and applied to the stock

Regional C&D waste management plan

January to July 2018 :

flows assessment in 2015 and forecasting until 2032
for the regional C&D waste management plan

Regional council (*Région Ile-de-France*)



Bottom-up approach (materials removed from stocks, construction waste, excavated materials) :

complementary to the 2 methods used by Paris Region to carry out C&D waste assessment :

- survey on waste management sites activity

- survey of waste generated by a panel of building companies and use of a ratio by turnover or number of employees

- city scale and estimate by built work types and materials

- forecasting based on construction objectives

Regional C&D waste management plan

Limits :

high degree of uncertainty, all the more at a reduced spatial scale

local tax records : uncertainty about surfaces (especially for non-residential buildings) and latency in records

no reliable data on excavated materials and dissipative use of aggregates

uncertain data on construction and insufficient data on network development

data needed to forecast flows are limited, with scenarios on future residential housing construction only available

planning of road and rail networks development projects poorly informed and changing

Regional C&D waste management plan

Answers to those limits :

energy and water networks not taken into account

excavated materials : total flows considered unchanged since 2010 (according to experts)

demolished surfaces : inconsistent values for cities were capped according to regional average

results expressed in low and high ranges

Neighborhood or city scale study needed to better analyse data uncertainty

Toward statistics on demolition ?

Waste recycling in urban projects



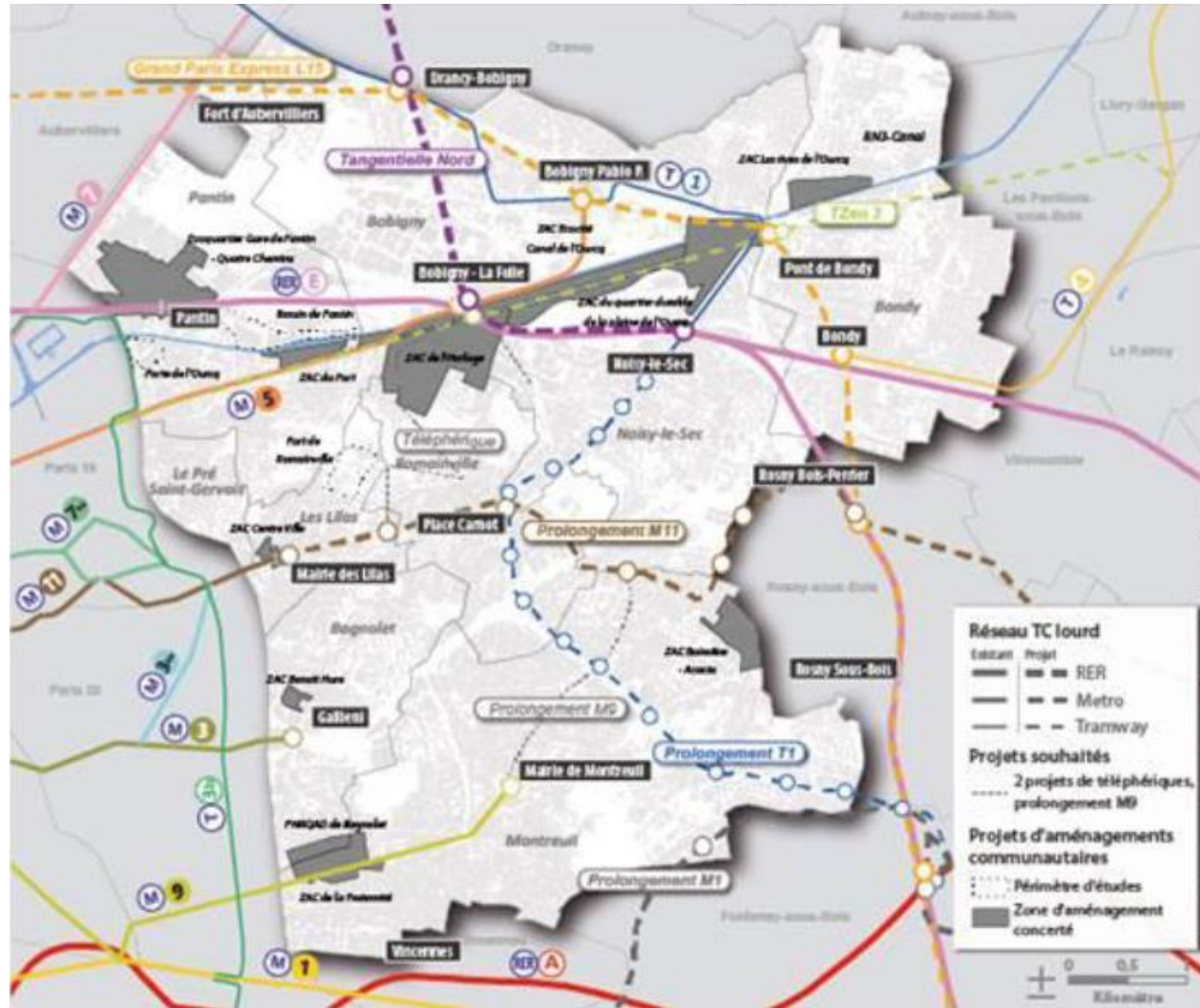
Est Ensemble
Grand Paris

9 cities

12 urban renewal
projects (NPNRU)

1 800 000 m² to be constructed

2 000 – 3 000 dwellings
to be demolished



Waste recycling in urban projects

anticipate inflows and outflows of construction materials that will result from construction and demolition projects, so as to plan and **promote** waste recycling

use of previous flows and stocks assessments (available data)

limits :

data on material composition by building type insufficient to assess recycling potential

since the main limit of recycling or reuse of secondary materials is insurance issues, characterising secondary materials is required (quality)

Waste recycling in urban projects

Answers to those limits :

Association with a company which has a strong field expertise so as to :

- produce more accurate data
- define recommendations
- characterise secondary materials



Our task :

- designing a GIS database that will indicate inflows and outflows from 2018 to 2030 for each building plot
- with data that will first result from our previous studies and will be then be refined
- + identify temporary storage sites

Outlook

Will data on construction projects be available and adapted ?

What will be the impact of that study (as well as the C&D waste management plan) ?

Focus on waste recycling (which has some strong limits) :
what about materials consumption and waste reduction ?

From managing waste or finding materials for construction or urban projects to
designing those projects considering materials issues ?

Further research on using construction materials flows and stocks analysis in circular
economy projects or policies (comparison between different European cities) ?