

« Improving the recovery of construction and demolition waste »

November 16th 2016

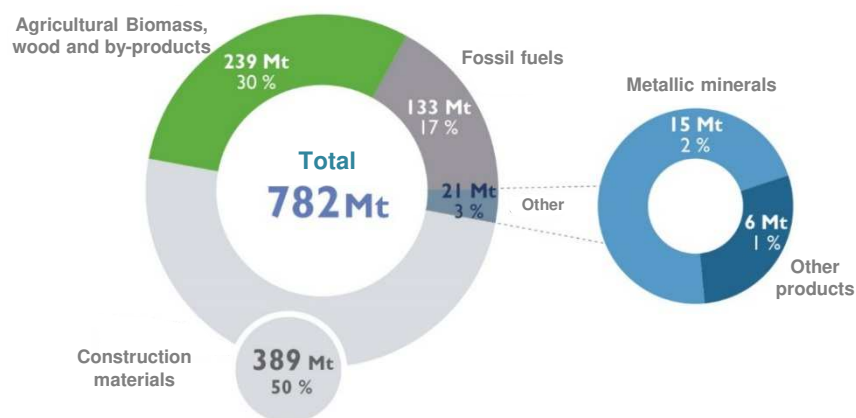
Workshop: Recovery technologies for construction and demolition
waste

16-17 November 2016 Vienna University of Technology Vienna, Austria



Construction and demolition waste: Key figures in France

Domestic Material Consumption in 2012



Source : SSR, Agreste - Unicem - Sessi, 2008 - Douanes françaises - Eurostat - Traitements : SOeS, 2014.



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France Waste Production in 2012



* Déchets des activités économiques (DAE) collectés par le service public

Source : RSD, 2012 - ADEME- Enquête collecte 2013 - Estimations IN NUMERI

Ces données ont été actualisées par rapport au RSD, pour tenir compte de la dernière version de l'enquête collecte, en accord avec le ministère du Développement durable.



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French construction sector

French construction sector issues:

- Recovery plan for the construction sector with a target of 500 000 new residential construction per year.
- Energy renovation plan with a target of 500 000 residential construction per year, by 2017.
- Build city on city – The era of metropolization and densification.

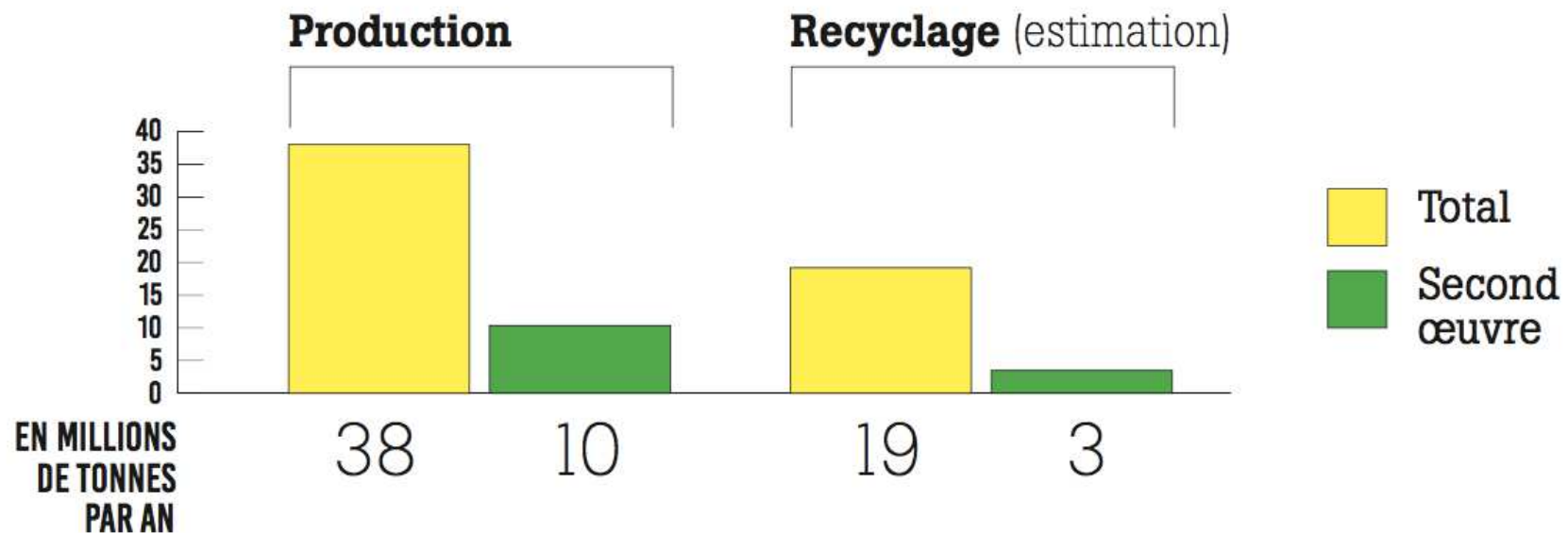


Finishing waste

🕒 38 millions tons/year with a recovery rate of about 50%

➔ Including 10 millions tons of finishing work with a recovery rate below 35% (source ADEME)

Les déchets du bâtiment



What is DEMOCLES ?

- ④ DEMOCLES (The keys of demolition) is a 2 years collaborative project involving more than 40 French stakeholders of construction sector : Authorities, National environment agency, building owners, project managers, demolition companies, waste management companies, building material and equipment manufacturers ...
- ④ The aim of DEMOCLES was to study with pragmatic approach what to do to increase finishing waste recycling without increasing projects global cost, nor administrative burden.
- ④ 6 renovation/demolition projects (residential, offices, hotel ..), accurately followed and about 20 projects feedback analysis
- ④ DEMOCLES was financed by :



Finishing work wastes (FWW), what are we talking about ?

10 millions de tons / year

48%
inert
wastes



Bricks



Ceramics



Sanitary furniture

47%
non
hazardous
wastes



Gypsum based
products



Floor covering



Windows /
Doors



Technical ceiling



Insulation

5%
hazardous
wastes



Gas discharge lamps



Treated wood



Electrical
equipment



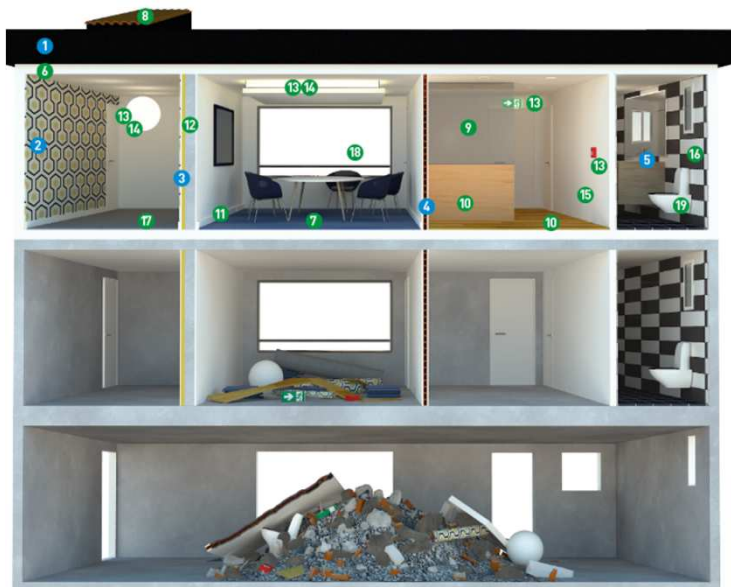
Asbestos



Lead



Finishing work waste (FWW), what are we talking about ?



Renovation

5 kg de déchets / m² *

Refurbishment

20 kg de déchets / m² *

Refashion/demolition

50 kg de déchets / m² *

Finishing work wastes represent about 25% of all construction and demolition wastes



(*) : Floor surfaces

Recovery could be much higher than it is !

- ④ Technically / economically wise, many FWW could be recycled or reused:
 - ④ Glass, windows, doors, electrical equipment, plastic (PVC), gypsum, floor covering, insulation material, wood, metals, ceramic ...
- ④ But they are not due to a lack of:
 - ④ Will/knowledge from building owners and projects managers
 - ④ Coordination between all actors
 - ④ Knowledge about what can be operationally recycled or not
 - ④ Appropriate packaging to allow FWW proper recovery
 - ④ Transparency in waste traceability

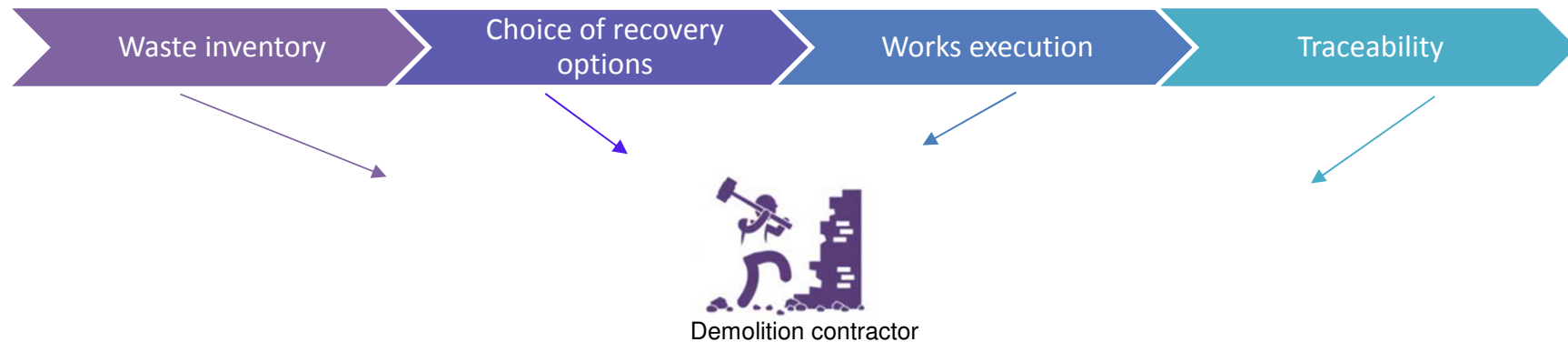


DEMOCLES conclusions to increase FWW recovery rate

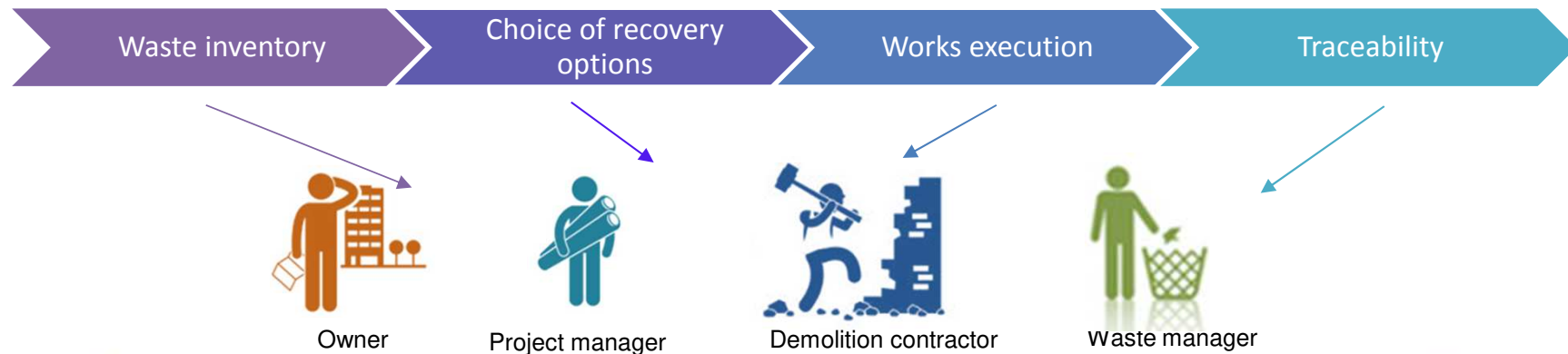


1/ Clarify actors responsibilities

🔄 Switch from a responsibility on demolition companies only



.... to a responsibility shared by all actors, starting with building owners :



2/ Building owner/client must express its will



- ④ Building owner at the very beginning of the project (building refashion or demolition) must:
 - ④ Express his will to achieve reuse/recycle/recovery targets due to regulation pressure, quality standards (HQE, LEEDS, BREEAM ...) ...
 - ④ Anticipate in the project the necessary time to perform a proper finishing work removal
 - ④ Create in the tender process a demolition work package dedicated to a demolition contractor which is directly liable for the reach of the recovery target
 - ④ Apply financial penalties in case reuse/recycle/recovery targets are not reached



3/ Project manager must prepare and follow up



🔄 Project manager must:

- 🔄 Conduct a pre demolition audit in order to evaluate before the selection of demolition contractor, the quantity and quality of each waste stream generated by the building refashioned or demolished (Mandatory in France above 1,000 m² of demolition).
- 🔄 Provide to demolition contractors competing for the contract, the pre demolition audit for relevant demolition works quotation.
- 🔄 Set a waste management plan, to share it with all contractors and to adapt it all the project long to take into consideration potential modifications.
- 🔄 Collecte evidence of proper reuse/recycle/recovery of each waste stream and compare them with pre demolition audit data.



4/ Demolition contractor must be a FWW specialist



Demolition contractor must:

- Be a specialist with all necessary tools/skills to remove and dispose FWW in a safe manner for human beings.
- Provide with its quote all details regarding the future of each FWW identified in the waste audit.
- Use appropriate containers/packaging to allow recovery



No
need
to
sort.

Just
don't
mix !



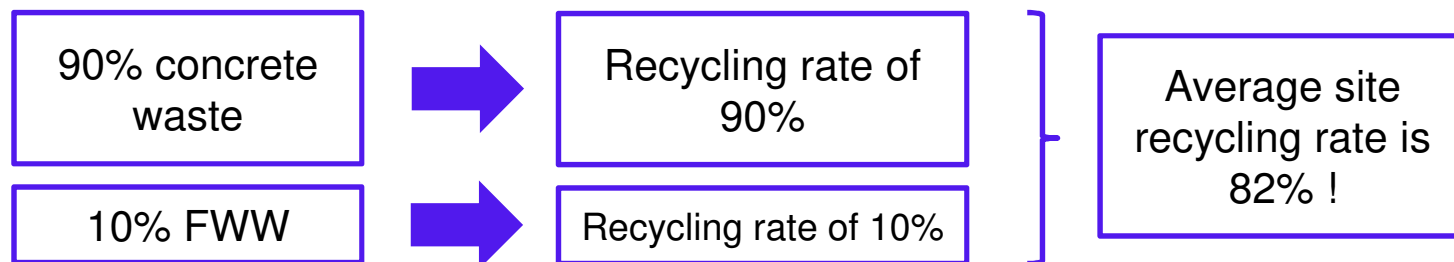
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5/ Wastes manager must be transparent



Wastes manager must:

- Stop to say that all FWW collected in bulk with a dumper truck will be sorted and recycled !
- Provide relevant FWW pick-up logistics to allow proper and efficient recovery.
- Publicize the list of FWW they can recycle or prepare for recycling with detailed quality criteria for waste acceptance.
- Provide to their clients relevant recycling rate per waste stream and not their average recycling rate for all demolition wastes received.



**If all this is done,
finishing work wastes will be recycled more than 80%
without any significant cost* for building owners !**

THANK YOU !

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To know more about DEMOCLES :

www.recylum.com/democles

