

Recycling oriented dismantling
with a special focus on reuse

BauKarussell

Beschäftigung & Kreislaufwirtschaft

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Graz, 12.9.2019

Agenda

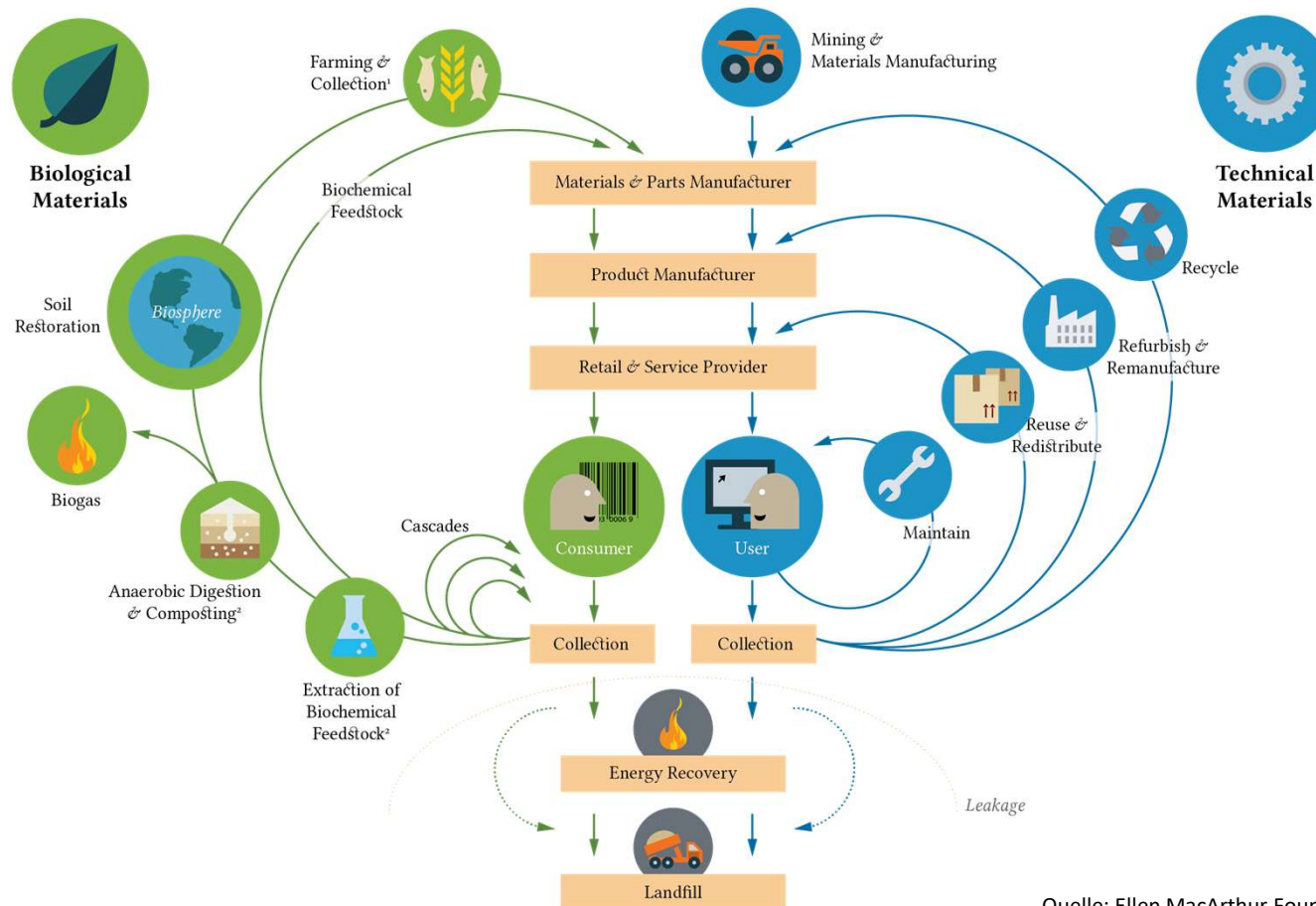
- Circular economy and construction
- Circular economy and the construction & demolition sector
- The approach of BauKarussell
- Examples of actions
- Conclusions and challenges

Circular Economy

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Biological
cycles

Technical
Cycles



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mzt

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weniger Mist
Eine Initiative der Wiener Umweltstadträtin

Quelle: Ellen MacArthur Foundation

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Circular Economy – how to realise?

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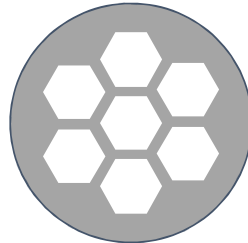
Ecodesign



- longlasting
- modular
- separable
- replaceable
- repairable
- ...

z.B. ClickBrick (bricks without mortar)

New bussines models



- Leasing („use not own“)
 - Remanufacturing
 - Reverse logistics
 - Service providers
 - ...
- z.B. Pay per Lux (light as service)

Collaboration



- BIM („Building Information Modeling“)
 - Bauteilbörsen
 - Industrial Symbiosis
 - Circular Supply Chains
 - ...
- z.B. BauKarussell

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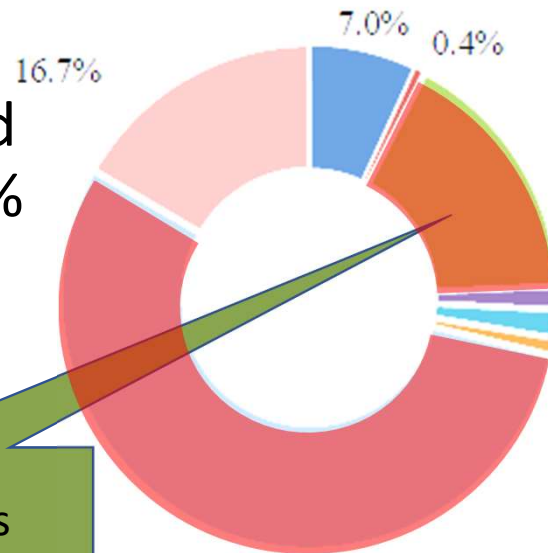


Construction & demolition sector – Waste

Incl. Excavated material >70 %

(42 Mio. t of 60 Mio. t)

App. 10 Mio. tons
Construction and
demolition waste (2015)



- Municipal waste from households and similar establishments
- Municipal sewage sludge and faecal sludge
- Construction and demolition waste
- Wood waste
- Ashes, slag from thermal waste treatment and from combustion plants
- Green waste, catering waste, street sweepings
- Excavated materials
- Other waste

© Fed. Waste Management Plan 2017

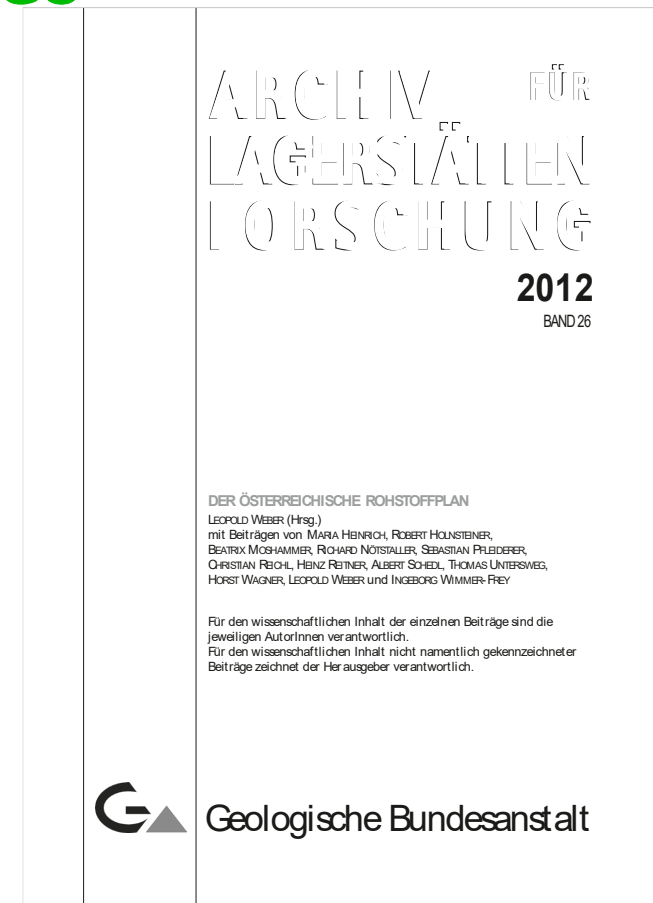
Construction sector - resources

>70 % share of resources

(150 Mio. t of 200 Mio. t)

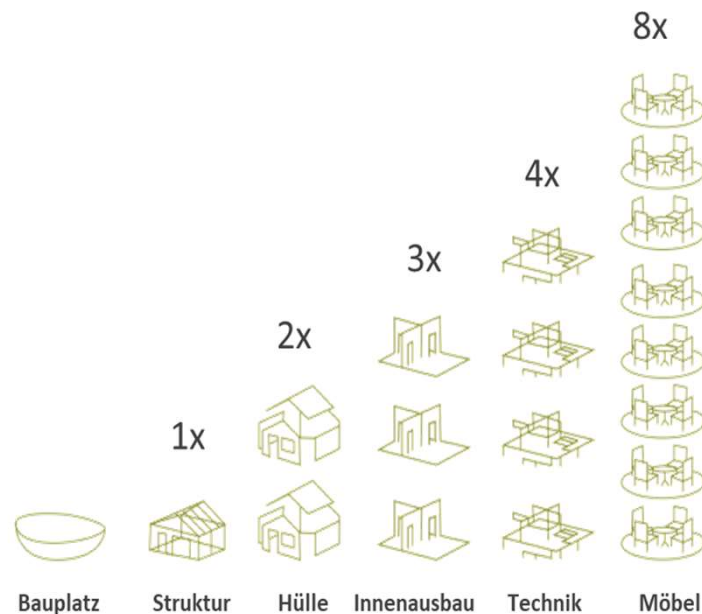
- 55 % sand and gravel
- 20 % steel, wood, lime, clay, gypsum...

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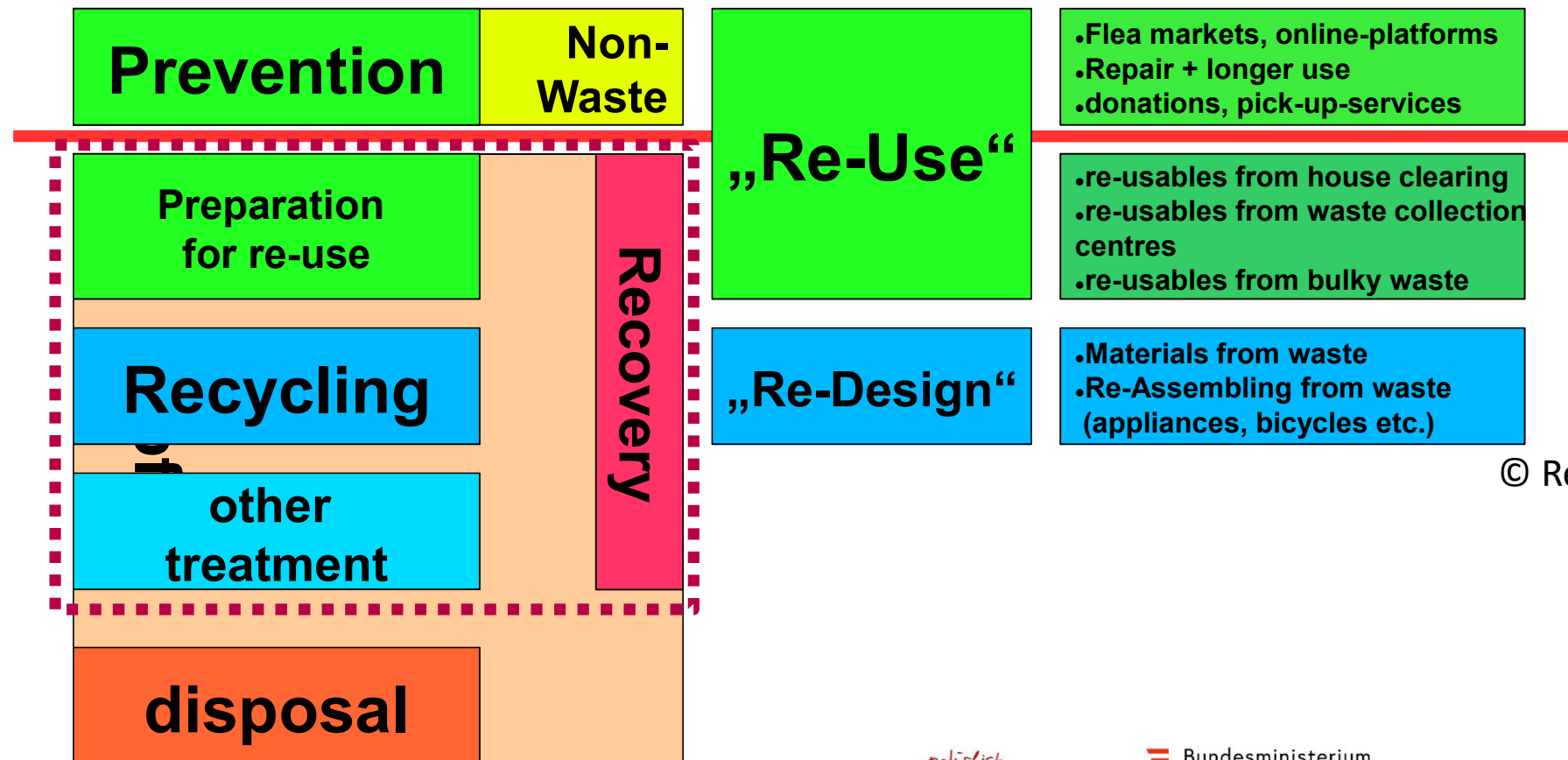
Layer concept (Duffy, Brand)

„A building properly conceived is several layers of longevity of built components.“



site	Place of the building
strucure	Basic structure of the building
envelope	Facade and exterior design
Interior construction	Interior (doors, windows, etc.)
Technical	Technical building systems (electricity, heating, water supply)
Furniture	Furniture

Reuse as part of the waste hierarchy **BauKarussell**



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The Austrian Recycled Construction Materials Ordinance

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Addresses the building owners.

- §4. (3) „Within the **pollutant and impurities survey** ...also elements/materials should be listed, that can be handed over for a **preparation for reuse.**“
- § 5. (1) „... Those elements that can be handed over for a **preparation for reuse** and that are addressed by potential purchasers have to be removed in a way that a following preparation for reuse is not impeded....“

standard ON B 3151 “Dismantling of buildings as a standard method for demolition” BauKarussell

Regulates the organisational and technical areas for dismantling of buildings. Amongst others:

- **Pollutant and impurities survey**
- **Dismantling plan**
- Clearing out before the dismantling
- Removal of **pollutants and impurities**

BauKarussell uses the ordinance and the mandatory standard to link to the value chain.

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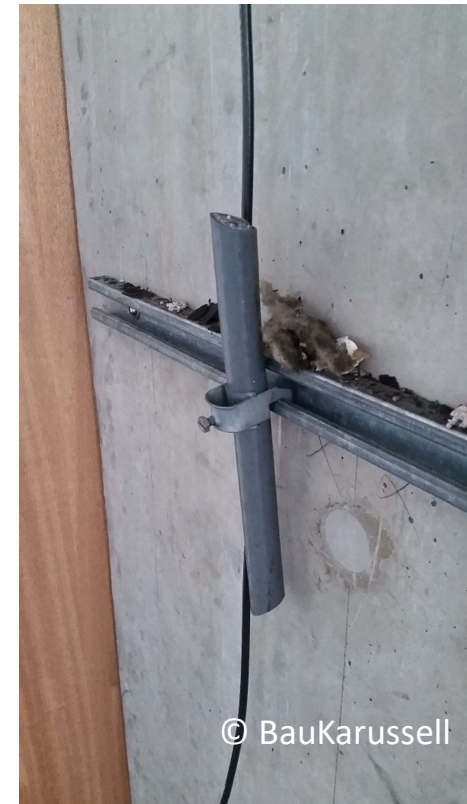
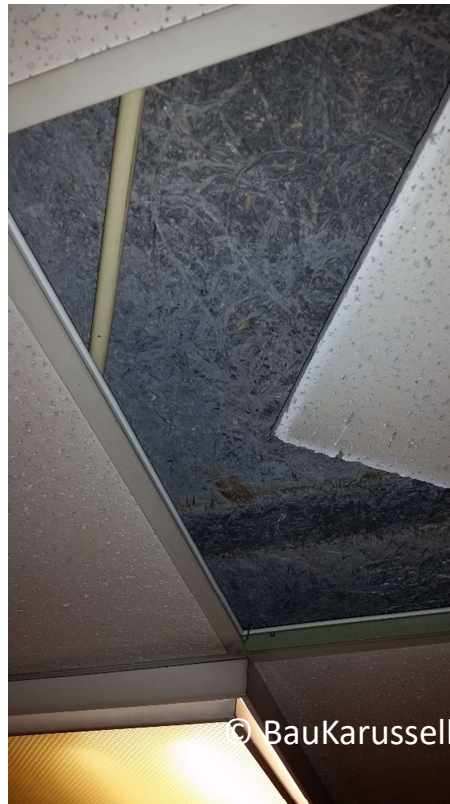
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Pollutant and impurities survey

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Preliminary dismantling

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Mechanical dismantling and demolition

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 **KATCH-e**

Basic assumption for BauKarussell

Dismantling, environmental benefits and positive effects on the labour market are compatible.

BauKarussell's first challenges:

- Operational dismantling and deconstruction of pilot objects
- Preparing the internal framework for a continuous cooperation between the partners.

So far we conclude, that a combined service of re-use, investigation of harmful and disruptive substances and consulting in the planning phase can be economically feasible linked to the value chain of dismantling and demolition. The legal basis is the „Recycling Construction Material Ordinance“ and the standard ON B 3151 “Dismantling of buildings as a standard method for demolition”.

BauKarussell?

BauKarussell acts as an organisation in planning and operation and cooperates with social businesses to realise dismantling of buildings as a standard method for demolition.

We address owner of buildings and all stakeholders, that plan and develop buildings.

©Mission Statement (Draft)

The partner of BauKarussell

- **Caritas Wien - carla:** second hand shops. Since 1990 app. 80.000 t of products sold. App. 3.100 persons reintegrated into the labour market
- **Demontage & Recycling-Zentrum:** an department of the Wiener Volkshochschulen GmbH; treatment of app. 1.200 t WEEE of the City of Vienna
- **Bidding consortium ROMM/MZT ZT:** architect and planer of dismantling processes
- **RepaNet** ReUse- und Reparaturnetzwerk Austria
- **pulswerk** GmbH, the consulting organisation of the Austrian Institute of Ecology

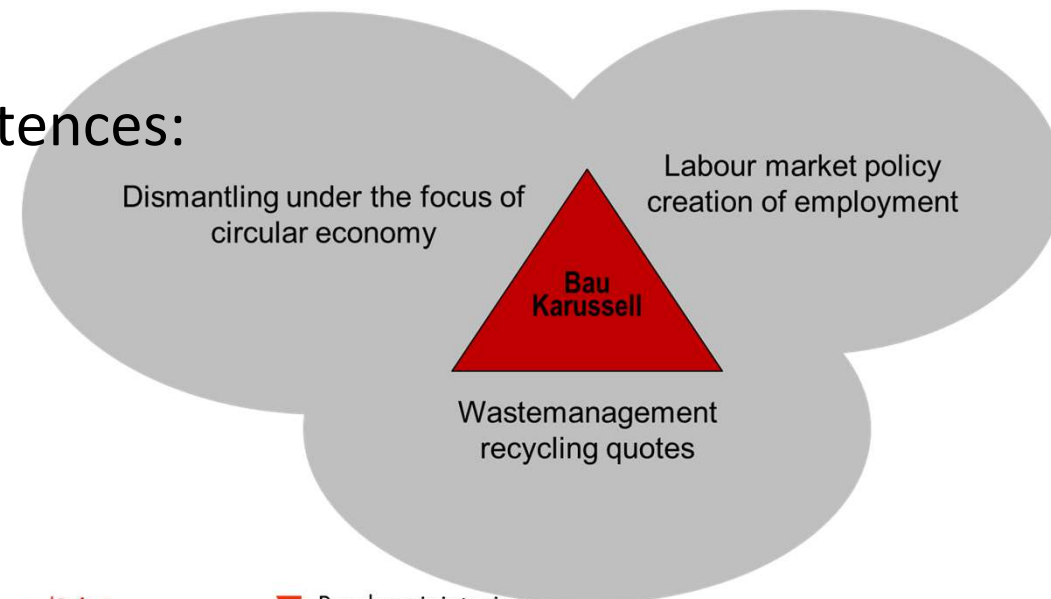
BauKarussell is a social economic player

BauKarussell

BauKarussell creates jobs and supports unemployed people to reintegrate them into the first labour market. It creates the necessary structures to act as the potential purchaser in the sense of the Recycled Construction Materials Ordinance.

BauKarussell combines several competences:

- Civil engineer
- Social enterprise
- Authorized waste treatment operator
- Project developer



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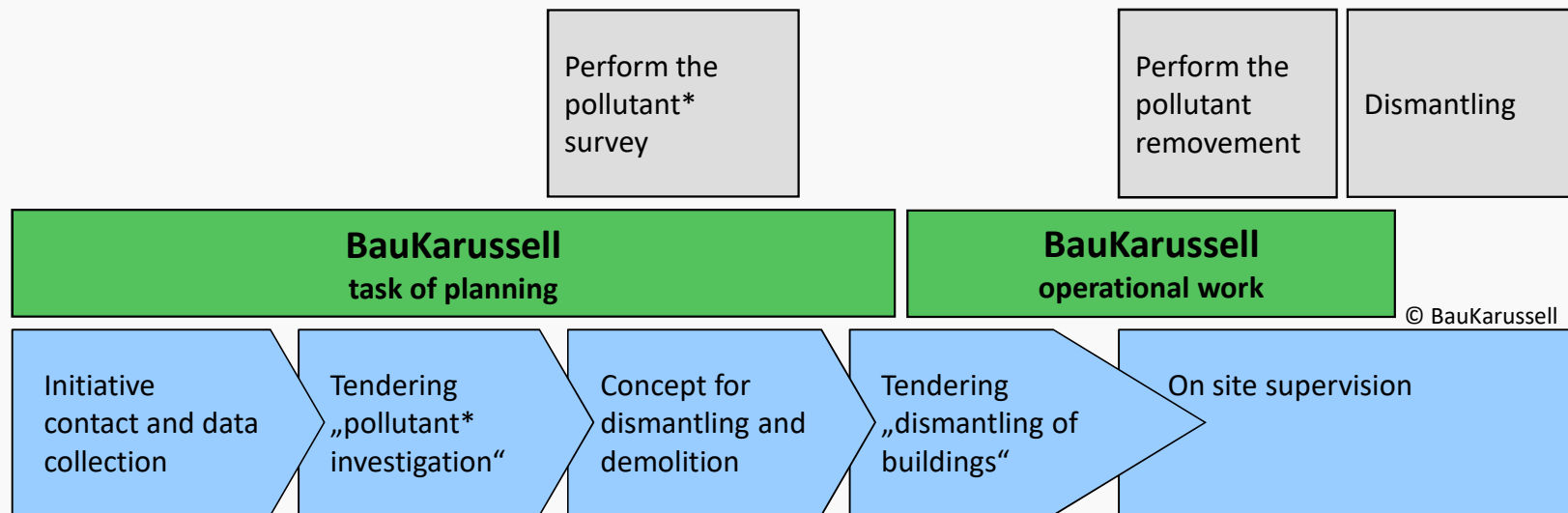
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Circular economy in the dismantling of buildings

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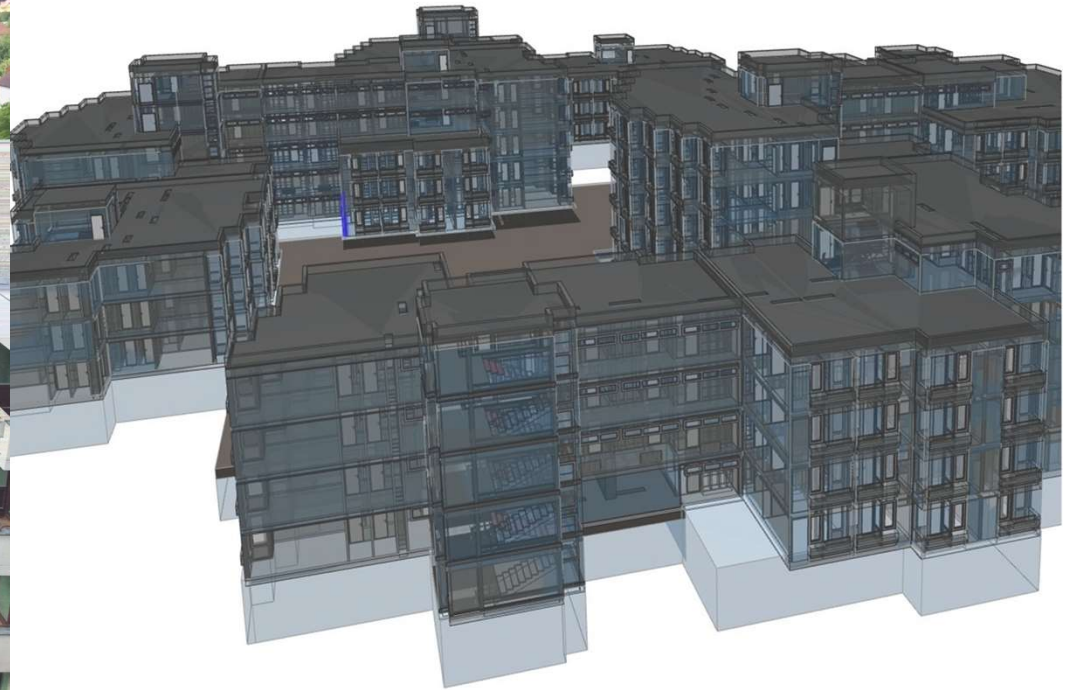


*Pollutant = pollutants and impurities

Additional layer for circular building: The field of soil and excavated material

example: partner in a consortium for a competition for property developers

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Windows – useable? – reuseable?



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example: (new headquarters of BUWOG)

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- Securement of valuable materials and removal of disruptive substances in multilevel buildings
- Removal of non-ferrous metals (open book), celaring out and dismantling of double floors



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example: commercial greenhouse

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example: floor covering

Wooden parquet, never
refurbished, removed as waste.



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Textile tiles. age of 6months
and removed as waste.



Conclusions after three years

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operational
start

Employment
for social
businesses

Competencies
construction
sector

Educational
offers

Linked to
planning

Individual
economic
assessment

Evolve
Legal Frame

Change

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challenges

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trainings

business
cases

buildings

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Beschäftigung & Kreislaufwirtschaft

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