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Designing and Piloting Circular Reconstruction in Ukraine

daniel wyss, skat dwy 29/11/2023

GREEN HOUSING SUPPLY FOR UKRAINE

Skat Consulting Ltd-
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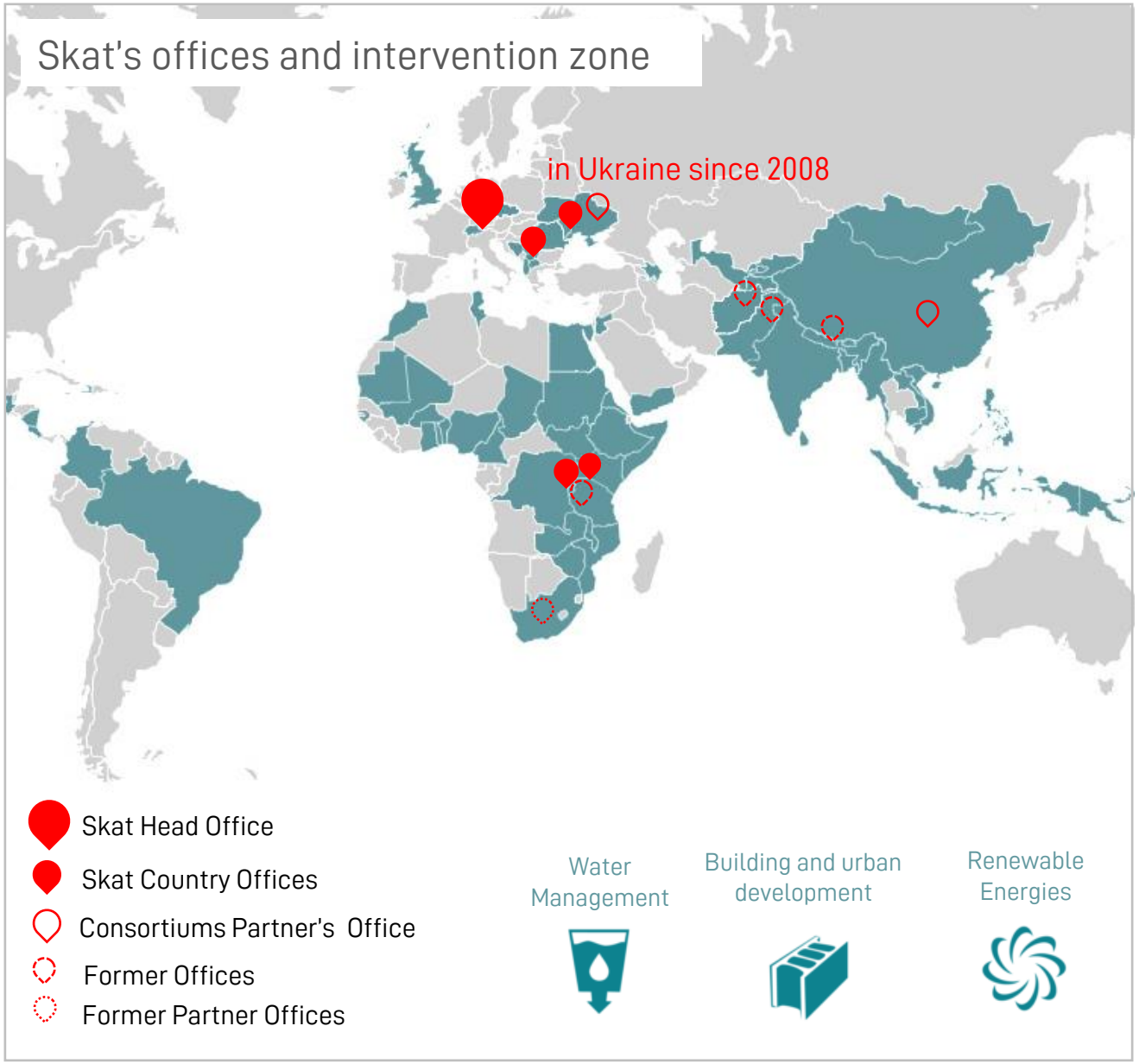

SKAT - Founded in 1978 in Switzerland

- Project Implementation
- Innovation and Design
- Technical Advice

45 years of experience in:

- Green Building, -Industry and –Urbanisation
- Water Supply, Sanitation, Waste Management
- Renewable Energies

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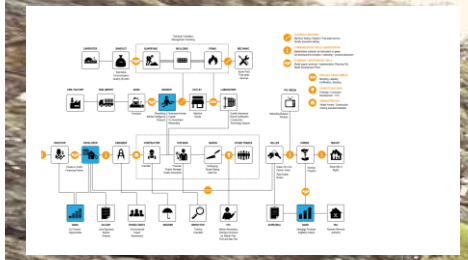
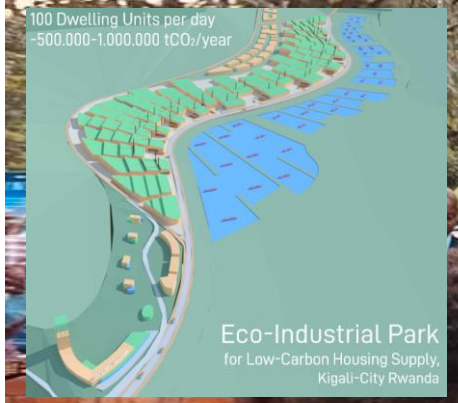
ABOUT SKAT





Inauguration of the Swiss Cube Model Building at the UN Habitat HQ

Establishing green supply-chains for affordable housing for emerging Megacities

- Resource effective use of local resources
- Low-carbon technologies for the building material industry
- Easy-to-build construction systems
- Eco-industrial Parks for mass-scale supply
- Participatory urban transformation models

SKAT'S KEY COMPETENCE

Transform Ukraine's damaged areas into dynamic modern neighbourhoods

- Human-centred
- Dynamic
- Affordable
- Energy-efficient (15minCity)
- Climate-responsive

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OUR MISSION FOR UKRAINE

Skat supports Ukraine's Municipalities for more than 15 years

- Managing water supply systems and key-resources
- Managing the operation of public infrastructure
- Managing maintenance and
- Facilitating the repair of war related damages, jointly with Helvetas and DESPRO

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HELVETAS Swiss Intercooperation

ГРОМАДСЬКА ОРГАНІЗАЦІЯ ДЕСПРО

WATER SUPPLY MANAGEMENT - SINCE 2008

Facilitating the repair of damaged houses and water supply schemes

- Locations: Kyiv (Bucha Rajon); Kharkiv
- Cash-for-Repair, for houses with light and medium damages
- Repair of multi-apartment buildings
- Repair and upgrading of collective accommodation of IDPs

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ГРОМАДСЬКА ОРГАНІЗАЦІЯ
ДЕСПРО

HOUSING REPAIR - SINCE 2022

Large-scale repair and upcycling of damaged multi-apartment buildings

- Thousands of Khrushchevka-buildings are still damaged
- Many are waiting demolition
- Even more can be repaired
- All of them contain valuable material, that could be upcycled and re-injected the supply chain for reconstruction

OUR OBJECTIVE

Developing solutions compatible with the new Ukraine Facility's Pillar 2

- Bankable reconstruction solutions
- A rollout mechanism through local banks
- Largely private sector-driven PPP
- Highly climate responsive housing
- Creating thousands of building jobs
- Demonstrating circular construction

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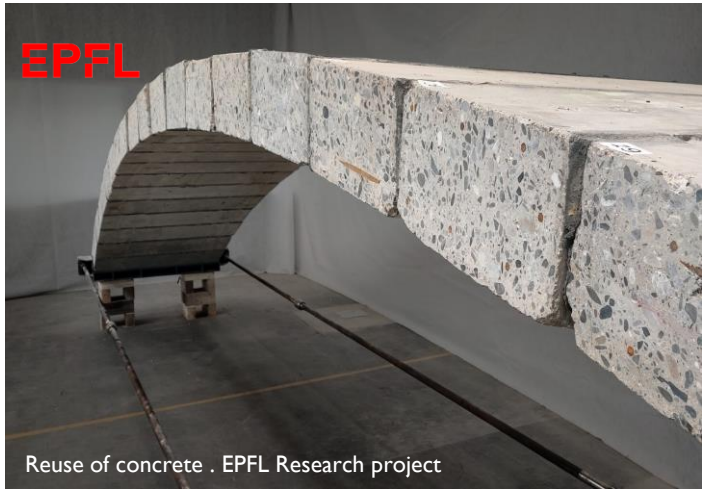
TOWARDS A LARGE SCALE ROLLOUT

Dr Karen Scrivener, LC3 Project (Low Carbon Concrete)

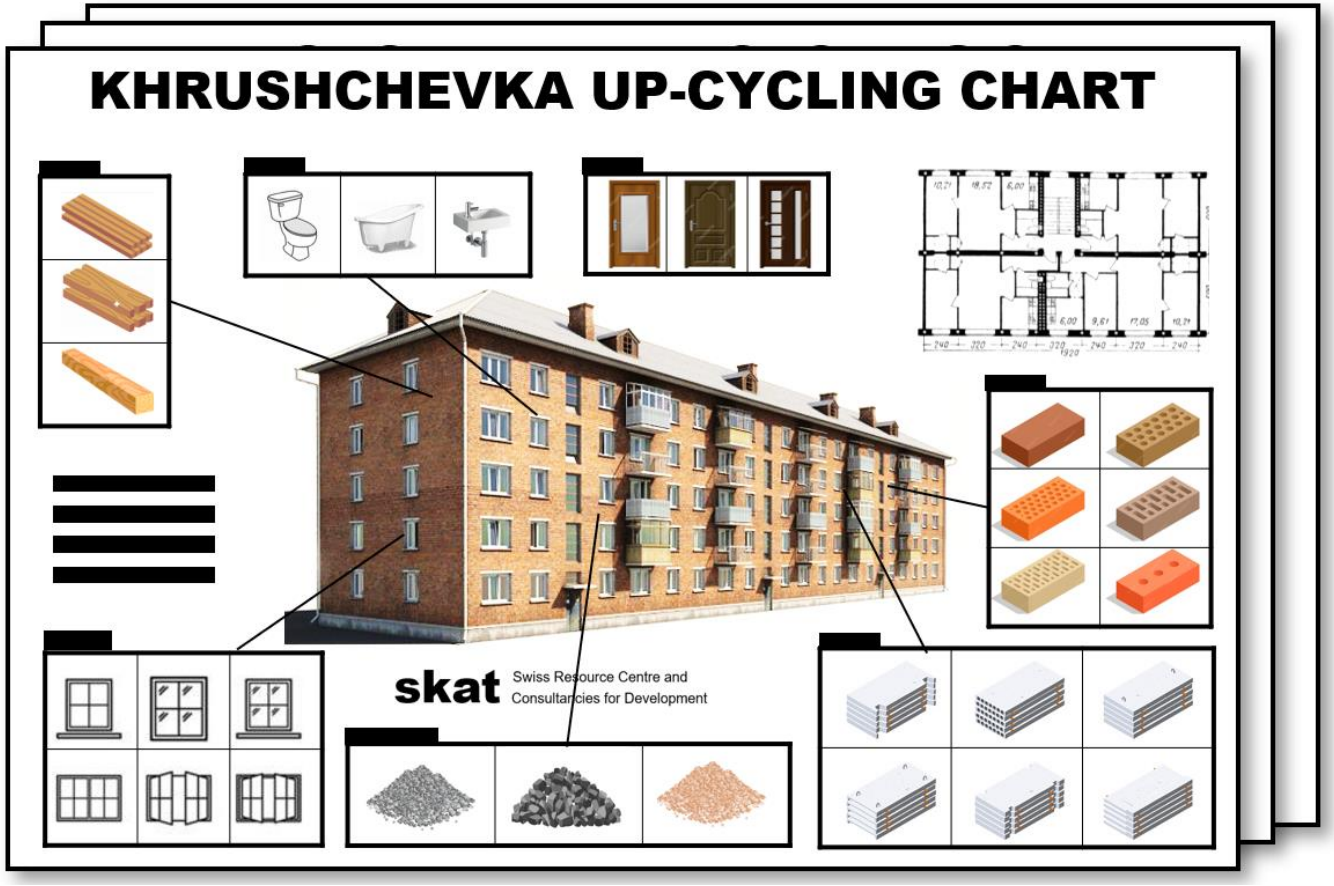


Reuse of concrete . EPFL Research project

Selected collaboration partners from past anc ongoing projects:

- EMPA (ETHZ) in the research of zero emission builidg solutions
- EPFL: Low Carbon Concrete “LC3” And The reuse of concrete
- MIT Leventhal Centre For Advances Urbanism (Housing+)
- Lucerne University Of Applied Science
- Contacts with the Kharkiv School of Architecture

RESEARCH COLLABORATION



Inventorying and testing available and reusable building material

- Hundreds of fully damaged buildings
- Thousands need upgrade or transformation
- The Khrushchevkas' standardised designs allow for cost-effective upcycling or upgrading
- The local authorities can guide the transformation process
- The local private sector and drive it

A Building Material Centre outside Kharkiv

(A component of a project by Helvetas, SDC and SwS)

- Bulking reusable material from damaged buildings
- Sorting and testing their quality
- Demonstrating walling and slab system for a smart and climate responsive-re-use of bricks and concrete
- Exchanging experiences with similar efforts in the South East Europe (SDC, HEKS)

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ГРОМАДСЬКА ОРГАНІЗАЦІЯ ДЕСПРО

PILOTING RE-USE AND UP-CYCLING

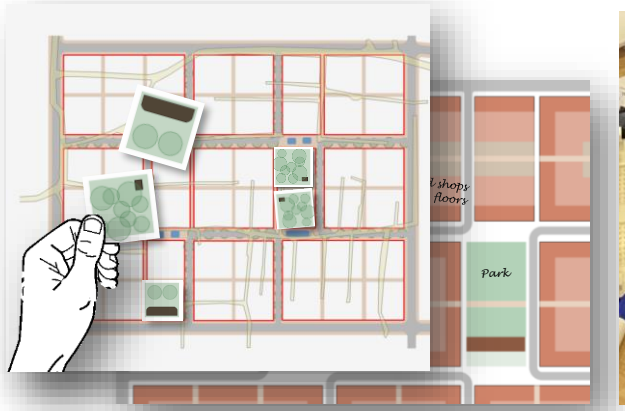
Identifying reference business cases for the industrial upcycling

- High-tech upcycling & recycling of concrete
- The “vintage brick” industry in the USA
- Upcycling technologies from the Netherlands
- Sorting methods from the Balkans
- Cleaning tools from the Great Lakes Region

TOWARDS MATERIAL UPCYCLING AT MASS-SCALE

Preparing methods for participatory re-design of war-affected neighbourhoods

- Community mobilisation
- Neighbourhood re-animation planning
- Updating urban development plans
- Participatory neighbourhood design
- Engaging the local private sector



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HEKS EPER Bread for all

VOICE OF ROMA, ASHKALI AND EGYPTIANS IN KOSOVO

INCLUSIVE URBAN REGENERATION

Demonstrating (Re-) Construction based on circular economy, with an housing block

Demonstrating

- strength and durability
- architectural quality
- affordability
- scalability
- environmental benefits
- the impact on energy supply (simulation)

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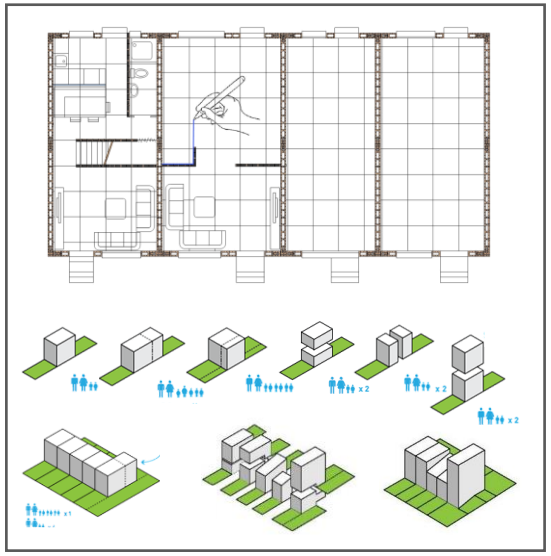
A PILOT CITY BLOCK IN 2024?



The Swiss Cube: A green and affordable modular housing system designed for emerging megacities

- Affordable for mainstream markets
- Modular, customisable, flexible
- Easy-to-build for SME-scale contractors
- Made of locally available material
- Using almost carbon neutral bricks

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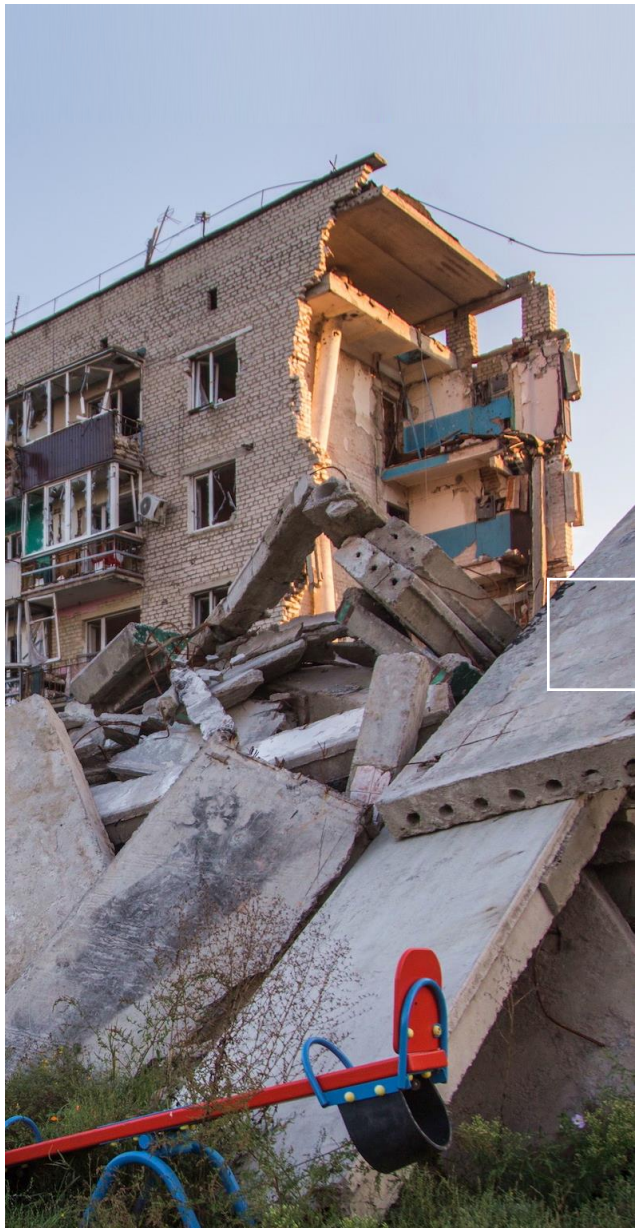
OUR SIGNATURE PRODUCT: THE SWISS CUBE



Market-driven and climate-responsive reconstruction

1. Is an group effort of strong and smart partners
2. Requires highly committed pioneers
3. An enabling policy/institutional environment
4. Innovative Public Private Partnerships
5. Finance partners and donors for innovation

LET'S JOIN HANDS

Thank you for your attention