Post-carbon cities - a new challenge for European urban development

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Silesian Voivodeship

Area (sq km) : **12,331**km²

Population: **4.700 000**

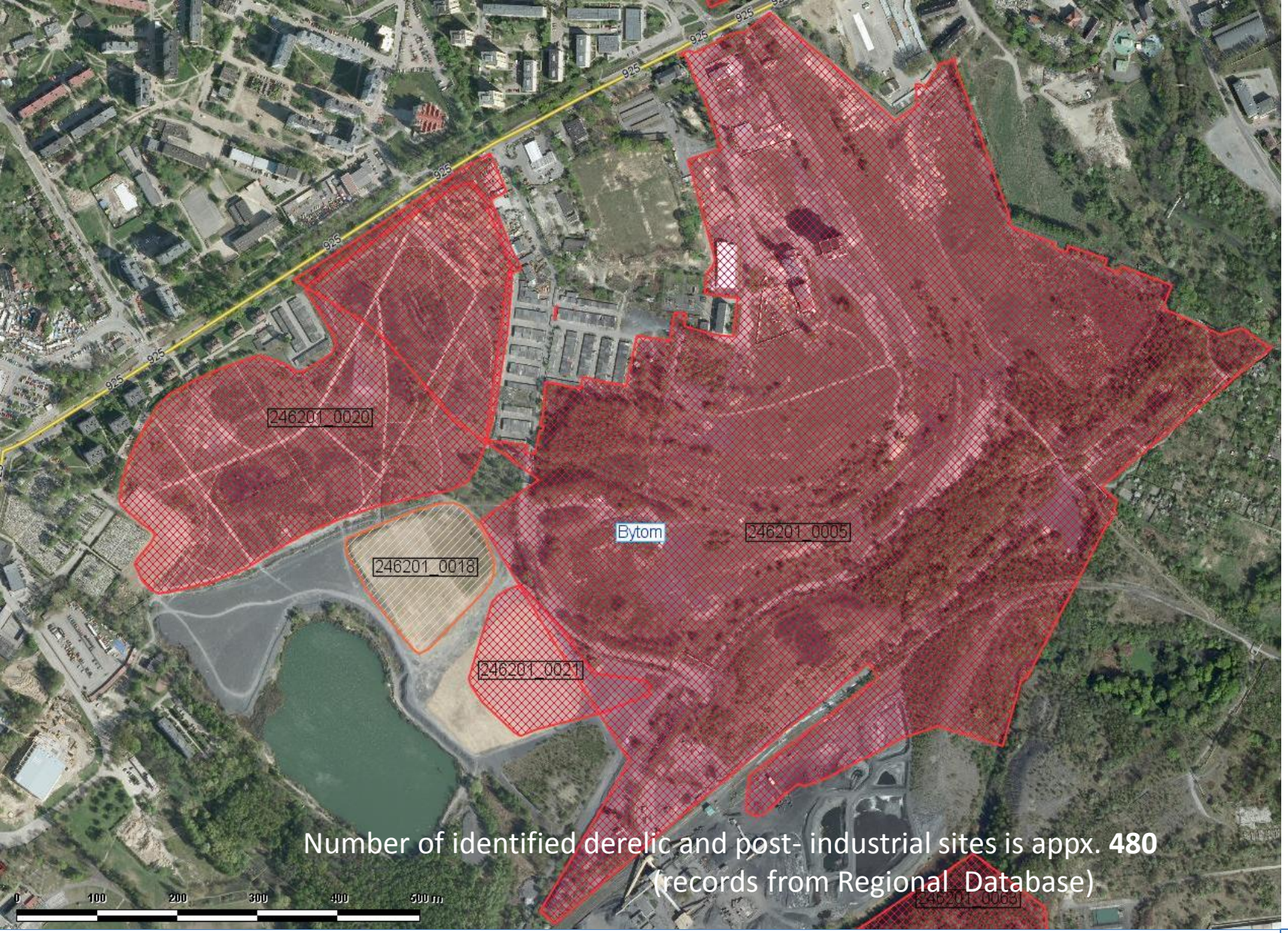
INSTYTUT EKOLOGII TERENÓW UPRZEMYSŁOWIONYCH • KATOWICE •

INSTITUTE FOR ECOLOGY OF INDUSTRIAL AREAS

IETU's focus areas :

- environmental management tools and policies for degraded areas,
- urban revitalisation and strategies for land management,
- solid and hazardous waste management,
- integrated atmospheric protection,
- management of water resources,
- soil and groundwater remediation technologies,
- integrated environmental monitoring and modelling,
- environmental microbiology,
- risk analysis and assessment,
- environmental education

IETU research staff consists of 68 scientists, representing a variety of scientific disciplines:
environmental engineering, chemistry, biology, microbiology, ecology, environmental management,urban planning, computer sciences, mathematics, physics, economy, public communication



Number of identified derelic and post- industrial sites is appx. **480**
(records from Regional Database)

Recent IETU's project referring to the issue of Post-Carbon Cities are:

1) **BRIDGE**- SustainaBle uRban plannIng Decision support accountinG for urban mEtabolism *(Collaborative Project / 7FP),*

2) **CircUse**- Circular Flow Land Use Management *(Interreg)* ongoing

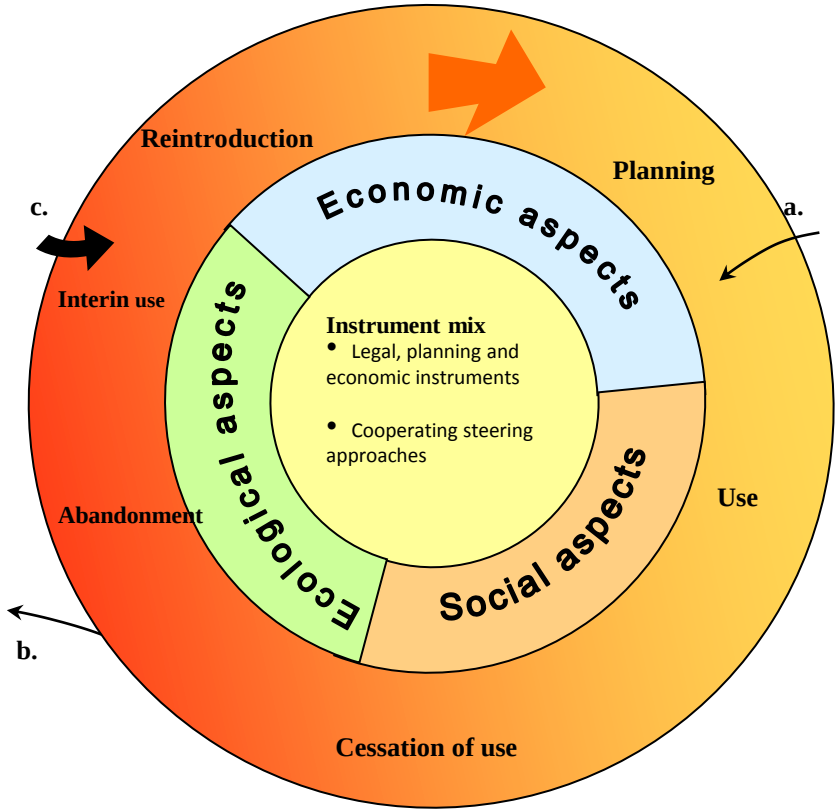
BRIDGE- SustainaBle uRban plannIng Decision support accountinG for urban mEtabolism *(Collaborative Project / 7FP)*

BRIDGE: a research project aimed at evaluating the sustainability of planning actions in the urbanised land.

To fulfil this aim, **BRIDGE** was going to interact with urban planners in 5 different cities in Europe, in order to analyse specific projects and to evaluate them in terms of urban sustainability.

BRIDGE's main goal has been to develop a decision support system (DSS) and propose modifications on the metabolism of urban systems towards sustainability.

Circular Flow Land Use Management (CircUse)- Strengthening sustainable urban land management by using circular land use approach in order to make land a renewable resource.



Life cycle of land (***source: Research group „Flache im Kreis", 2005)***

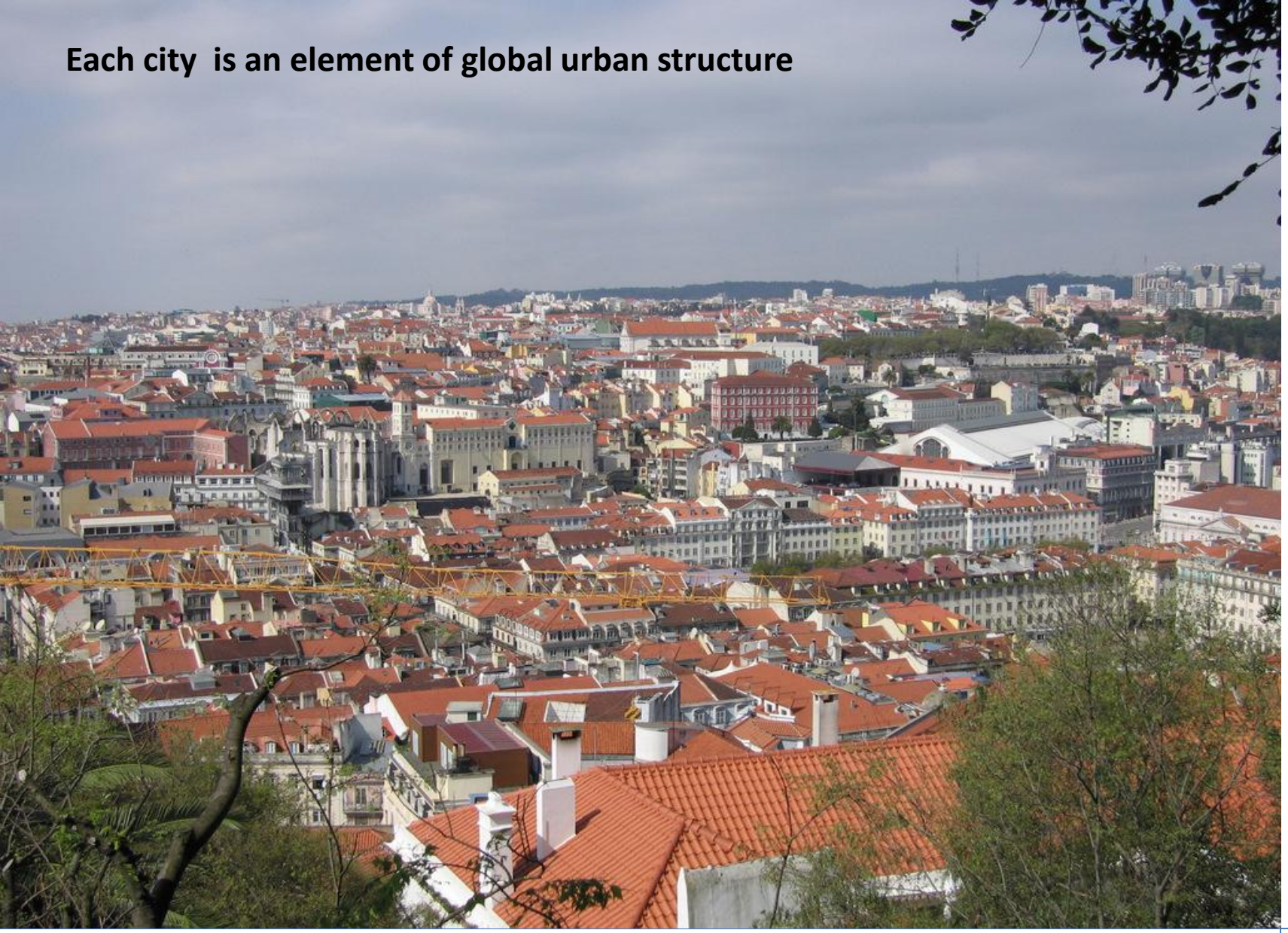
CircUse - Project is focused on urban land recycling in the context of improving the urban management.
Circular land use is an innovative management approach curbing urban sprawl. It is a different philosophy of land use, expressed by motto: „avoid – recycle – compensate".
www.circuse.eu

Both projects, BRIDGE and CIRCUSE has been related to the new challenge – urban transition to the post-carbon cities as adapting European urban structure to climate change:

1)By the defining objectives related to the principal components of urban metabolism (energy, water, carbon and pollutants) and by preparing scenarios and urban planning alternatives for better living conditions.

2)By introducing land recycling which is an important part of any land use management strategy, and by promoting this concept as the way of ecological footprint reduction, as well as urban sprawl prevention.

Each city is an element of global urban structure



The past century saw unprecedented growth in population, energy consumption and food & goods production. The population shifted from rural to urban, and cities become the heart of most economic and social activities, as well as the places of many environmental threats.

Present cities overuse the natural capacity of their environment and generates many environmental threats and everyday living obstacles:

excessive CO_2 emission, climate extreme (flood, heat island, smog), everyday regular travel (urban sprawl)


Climate change / Urban threats
-Urban sprawl
-Urban metabolism disorder
-Climate extremes and technological disasters

The city can no longer be defined as a built space but as a living organism with a metabolism which should be controlled. Its metabolism is based on dynamic cycle of flows-water, energy, biomass.

These factors will play important role in the process of urban transition and adopting to the climate change.

Energy is one of the most significant aspects of urban metabolism, it is a connecting link between ecology and economy. In this context all activities related to the urban footprint reduction are an adequate direction of post-carbon cities development.

In order to prepare for this challenge we have to sensitize decision makers (local authorities), architects, urban planners and inhabitants at new urban perspective through below presented activities:

- Planning and managed urban space economically,
- Support local economy (SME), especially food production,

  and „ green”energy production and distribution,
- Introduce low-energy solutions (zero-energy buildings,
- Reuse inner-city space and derelict areas for new functions,
- Developed an optimal transportation system (public transport,

  park- and- ride, urban railways, bicycle paths).

It requires new perception of urban development and new vision of city's pattern.

Urban development directions:

1. Reducing investment pressure on suburban and open green areas (legal instruments and economic incentives),

2. Advantageous layout of urban structure (adequate matching of new functions to the urban land- structures minimizing energy consumption and decreasing GHG emission),

3. Optimizing and increasing efficiency of urbanized areas use (implementing urban balances (water-energy- biomass) monitoring, environment and climate changes simulations, modelling and foresight,

4. Innovative social approach, relevant mechanism of governance (based on good practice), rising awareness through social movements and new communication platforms.

Thank you for your attention

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