
LUMAT – integrated environmental management of land for enhancement of urban areas resilience to climate change

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Abstract:

LUMAT project (Implementation of Sustainable Land Use in Integrated Environmental Management of Functional Urban Areas) financed by INTERREG CENTRAL EUROPE Programme – is concerning enhancement of integrated environmental management of land resources in functional urban areas by using ecosystem services approach. Cases of the LUMAT project functional urban areas in 7 countries present solutions of integrated environmental management which can be considered as activities contributing to enhancement of urban resilience to climate change. The project has applied the methodology of ecosystem services analysis and assessment. This approach includes services connected with climate change resilience which is an important element of adaptation of urban areas to climate change.

Key words: urban land management, ecosystem services, urban land resources



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1. Introduction

The presented material is based on the work of the whole partnership of LUMAT – it is 13 partners from 7 countries. They represent regions, functional urban areas and also research and consulting institutions who have contributed to building the common methods and tools for strengthening integrated environmental management of urban land resources.

Two assumptions have been stated presenting the idea of the project:

- First it was the statement that the urban land is a valuable and limited **environmental resource** (as Europe has also noticed and it is reflected in the European documents).
- Second was that land management and planning is closely connected with all development activities: economic, social and environmental ones by locating them in space.

Therefore it has been found that since the land is an environmental resource then the land management should be supported with environmental management methods and tools applied in relation to land.

2. Project Action Plans

For the needs of the project seven regions have been selected in Poland, Czech Republic, Slovakia, Germany, Austria, Italy and Slovenia) presenting various types of functional urban areas which are representative for other regions in Central Europe. The project results therefore will be useful and applicable to other regions and FUAs.

In the project the main land use conflicts and threats have been identified as the basis for formulating solutions in form of action plans and pilot actions. These threats included brownfields, urban sprawl and soil sealing as well as climate change.

The project answer to these issues was developing ideas and concepts of action plans which could support the integrated land management in functional urban areas. These concepts were based on the common structure developed by the partnership including:

- Diagnosis of main specific issues/threats in FUA,
- Technical, financial and organizational actions
- Tools supporting the actions
- Pilot actions as examples of the action plans implementation.

The technical actions concerned:

- Concepts of green and blue infrastructure strengthening and development,
- Program of brownfields revitalization,

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- Program of integrated site compensation,
- Program of business development on degraded areas as inner city development,
- Program of re-using post-mining sites,
- Integrated, sustainable management of functional city area in the process of spatial planning with an emphasis on integrated management of environmental protection and integrated land use,
- FUAs' environmental and territorial issues management model as contribution to metropolitan strategic planning and metropolitan general spatial planning.

Within the action plans also organizational actions were planned connected with public involvement by using tools developed in LUMAT as well as management structures which had to be

established as units responsible in the future for implementation of the action plans. Also trainings of environmental and planning professionals were included concerning ecosystem services approach, FUA identity, land use conflicts reduction and using innovative tools for public involvement.

The action plans have been presented at public meetings with participation of various groups of stakeholders and using tools in form of application available in mobile phones.

Establishing management structures is one of the most important visible project results. They should guarantee further implementation of the action plans especially in the aspect of applying for financial means.

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3. Pilot Actions

3.1 Investments in the project

Other visible results are two investments financed by the project. They are located in Slovakia and Poland. These two investments are pilot actions of the project. The remaining pilot actions in the other 5 countries will constitute parts of action plans showing how to implement the proposed actions.

The investment in Slovakia involves restoration of neglected natural park for sport and recreation zone in location Štrky in Trnava, aiming at securing overall rehabilitation of currently abandoned area of Štrky, suffering from many burdens, for which it could be considered as a "green brownfield".

On one hand, through this restoration an original natural value will be brought back to this biocenter of local importance and will be strengthened as well as

3.2 Other Pilot Actions in the Project

Other creative ideas have been proposed as pilot actions. They constituted parts of the project Action

increase of ecological stability of this area will be achieved. And on the other hand, overall rehabilitation will open up this area for broad public of Trnava City and Trnava FUA offering possibilities for sport, leisure and relax activities in natural environment.

The investment in Poland is consisting in rehabilitation of the brownfield site located in the middle of the Ruda Śląska city. The place is a post-zinc wastes dumping site of 6,5 ha, surrounded by dwelling houses areas. Therefore, at first, to make the place safe the phyto-stabilization technology has been used to immobilize metals in the ground. The investment will create an available open space of a natural, "half-wild" character; due to the progressive greening it will achieve the character of a sub-regional park. The place will become the walking and biking route connection of two districts as key element of the peri-urban infrastructure.

Plans showing how to implement them in the future. Among others the following should be distinguished:

- concept of industrial symbiosis (IS). IS defines the integration of traditionally separate

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industries into a common approach involving the physical exchange of materials, energy, water, and/or byproducts to achieve a competitive advantage. The concept will be applied in the functional urban area of Kranj (Slovenia).

- Concept of compensation planting within the brownfields management system in the Leipzig functional urban area (Germany). The effects will be development of green infrastructure and soil de-sealing.

4. Climate change adaptation aspects

Methodology of ecosystem services assessment applied in LUMAT is concentrated on descriptive way of defining benefits gained from the environment as a result of action plans implementation.

The benefits connected with climate change adaptation aspects concern *strengthening of urban areas resilience to climate change impact*. These are activities related to:

- development and enlargement of green and blue infrastructure
- de-sealing of surface of urban areas.

5. Conclusion

Land is an important environmental resource. It is limited therefore we should find the ways of making it renewable resource. The methods offered by LUMAT support achieving the European target of no net land take by 2050. LUMAT offers also practical solutions of strengthening urban areas resilience to climate change effects.

References

www.lumatproject.eu