



D.T2.2.8: REPORT ON DEVELOPMENT OF ACTION PLANS FOR INTEGRATED ENVIRONMENTAL MANAGEMENT IN 7 PROJECT FUAS

Final Transnational Concept of Action
Plans: Content, Process and Guide for
Application

Version 1
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1. Transnational Concept for Action Plans and More Liveable Places

1.1. Connections to LUMAT WP T1

The methodology for Functional Area Integrated Environmental Management Strategies (FAIEMS) in Work Package (WP) T1 presents considerations which on the one hand mirror the common problems and challenges for all partner countries and on the other hand provide guidelines for the adaptation of these plans with local, regional and national specifics. The results are common yet locally based strategies for FUA improvement. WP T1 considerations connect the importance of eco-system services and land management.

As recognized in WP T1, Action Plans focus on the efficient implementation of planned interventions (e.g. investments, regulations, subsidies.) and the harmonization of activities by different stakeholders of FUA development. The Action Plans are not formal instruments but rather efficient tools for following the interest of the wide range of stakeholders present. Action Plans interconnect strategic planning and operational programming by linking sustainable strategic urban management with concerns of practical implementation and the involvement of stakeholders.

As the next step, LUMAT WP T2 created a methodology for Action Plan development in the project (D.T2.1.1 “Draft transnational concepts of action plans - content, process and guide for application”). The common transnational format of action plans defines the LUMAT approach to enhance the integrated environmental management of Functional Urban Areas (FUAs) in Central Europe. The experience and knowledge of the project partners in strategy development and carrying out actions in 7 FUAs is compiled into this document.

1.2. What is “More Liveable” in a Functional Urban Area?

The common LUMAT goal in all FUA areas is to achieve sustainable development and more liveable places. However, making “more liveable places” is a goal that is constantly being pursued everyday by many people.

From the view of urban planners, new “more liveable places” are being created every day and all year long. Everything involved in the construction of new settlement areas is defined “more liveable” in terms of the priority given to new settlement and traffic areas all over Central Europe. These construction projects for “improvements” mostly take place in outer city zones and outside of the already existing settlement structure. According to the general public, “more liveable places” are places where they can live in newly built up outer zones and where they are able to realize their own satisfaction there, can realize their own desires of a “normal” and “successful” life. From the view of commercial developers, “more liveable places” are places where it is easily possible to use economic services in the outer urban zones and there is a highway within close reach and accessibility is performed. For decades these views have been the standard rule of living in growing FUAs with its urban and peri-urban components. We are people living in the FUAs of Central Europe. And we have our standards of life. And these standards are correlated with a type of consumption which is not sustainable.

1.3. “Change” the Standards of Development

The goal of LUMAT is to make places more liveable through implementing sustainable land use. For this, a new approach to management is necessary to reduce land consumption. More focus needs to be directed



towards the areas in FUAs that have been ignored by others. LUMAT wants to address threatened areas that are vacant, left behind and forgotten. Threatened areas are to be mapped for FUAs, evaluated in their importance, and prioritized for future actions to take place there first. To be done are actions for revitalisation, environmental compensation and the improving of living conditions for FUA residents. By placing importance on threatened areas, LUMAT looks to make more liveable places in a manner different than that which has been pursued by others in the past.

Brownfield sites are a social, economic and environmental burden upon the surrounding community. They hinder soil functions from performing, for example water retention or climate regulation, due to unnecessary soil sealing for an urban use which is no longer in need. The same applies to sprawling settlement structures, which cut into landscapes and consume natural and agricultural land resources with new infrastructure and streets. Technical infrastructure can even become a financial threat upon communities, especially if they are shrinking in population and there are fewer people expected in the future to pay for their maintenance. The danger of flooding is raised when more land is consumed and made impermeable through construction activities. The deficiency of urban green in urban cores due to speculative building can create over warming and heat island effects which can negatively affect the health of residents. There are many types of threats to land and soil which have come to exist today.

Threatened land, when properly revitalised, can provide vital eco-system services to areas most in need and also can remove a barrier to realizing improved living conditions. LUMAT wants to implement sustainable land use management that recognizes the potentials offered by threatened sites to realize more “more liveable places” in FUAs. For example, the development of a brownfield site into a green urban site is not only a speculated site development. It is also a development for the people living in the area and the FUA. It can improve the quality of eco-system services which residents can experience directly in front of their house door. Addressing threatened sites can directly improve the sustainability of land use and the unsustainable consumption of land.

1.4. The LUMAT Action Plan Approach

The LUMAT approaches to making “more liveable places” in FUAs of Central Europe are manifold. The figure below summarizes the main aspects being pursued in each FUA area of the LUMAT project. Though the actions are specific to the FUA character of the partner regions, each and every one of the actions leads to the LUMAT goal of making “more liveable places” by addressing the threats that exist in the FUAs and the sustainable use of land resources.

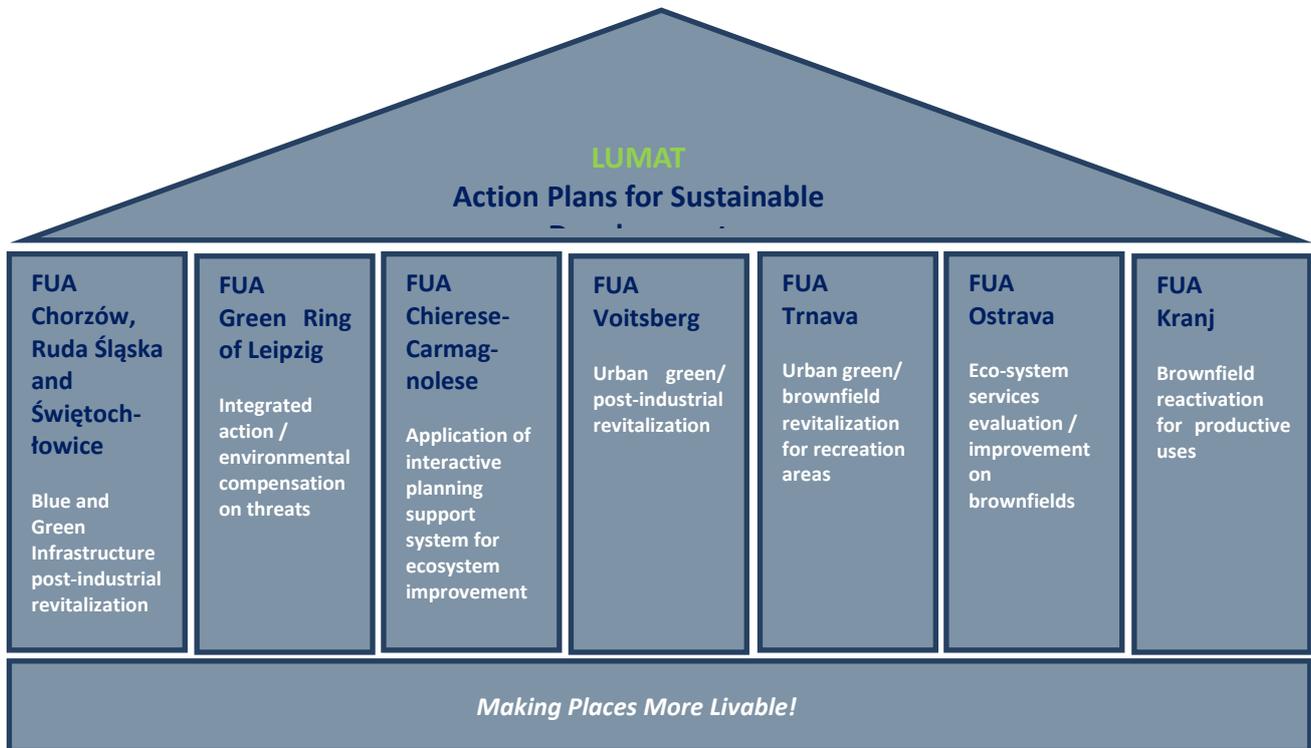


Figure 1: Common concept of action plans in the LUMAT project.

All LUMAT partners have also identified the soil and land threats existing in their regions.

Table 1: LUMAT Common Threats

THREATS AND THREATENED SITES on Soil and Land in Partner FUA	Evaluation all LUMAT Partners	FUA Chierese-Carmagnolese (IT)	FUA Kranj (SI)	FUA Green Ring Leipzig (DE)	FUA Ostrava (CZ)	FUA Voitsberg (AT)	FUA Chorzów, Ruda Śląska and Świętochłowice (PL)	FUA Trnava (SK)
Soil Sealing on Land	COMMON	X	X	X	X	X	X	X
Brownfield Sites	COMMON	X	X	X	X	X	X	X
Contamination Sites	COMMON	X	X	X	X	X	X	X
High Water / Flood Hazard on Land	COMMON	X	X	X		X	X	
Over-fertilisation Land	Medium	X	X	X				X
Overwarming Sites	Individual			X				X
Soil Erosion Land	Individual		X					X
Loss of Soil Biodiversity	Individual	X						
Air Pollution	Individual				X		X	
Soil Compaction	Individual							X
Loss of Organic Matter	Individual							X



It can be seen that common threats which are present in the Central European FUA regions are: new soil sealing, brownfield sites, contaminated sites and flooding hazards. These are central themes of the LUMAT approach and define the action plan content. The evaluation of these threats and the potential for addressing them to make places more liveable will have to take place on a local basis since the means for evaluation vary according to the needs of political, economic, social and environmental aspects.

1.5. Stakeholder Management

LUMAT is creating change in 7 FUAs through implementation. Important is the identification of who is responsible for implementing sustainable land management in the FUA. Sustainable land management is influenced by many different types of stakeholders: citizens, sectoral agencies, regional and local planners, scientist, etc. An action plan must manage the wide range of interests present with stakeholders for pursuing sustainable land management. In practice, this requires meetings and discussions to develop action plans in a participative manner. Once the stakeholder interests are managed and a vision is agreed upon, the responsibility to then to carry out the action plan ideas should be incorporated into existing administrative structures and organizational duties in the FUA. Stakeholder management widens the support for implementing an action plan.

The following table details out the stakeholders which were involved in the drafting of the action plan content in the LUMAT pilot FUA regions and present an initial idea as to who can be involved in implementing sustainable land management.



Table 2: LUMAT Stakeholder Management for Action Plan Drafting

FUA	Stakeholders Involved
FUA Voitsberg (AT)	<ul style="list-style-type: none"> ▪ Mayors, heads of city administrations in the “Lipizzanerheimat” region ▪ Local mining company ▪ Cooperation within the regional project “Stadtregionales Flächenmanagement (SRFM)” (City-regional land management) ▪ Land owners and local enterprises
FUA Ostrava (CZ)	<ul style="list-style-type: none"> ▪ the Regional Council ▪ Work group - Department of Land Use Planning and Building Regulations (Land Use Planning Section), Department of Regional Development and Tourism (Regional Development Section), Department of the Environment and Agriculture, Regional Development Agency ▪ Consultation group - municipality, investor, public ▪ Specific - Multi-resort platform (including the Ministry of Industry, Ministry of Regional Development, Ministry of Agriculture, Ministry of Environment)
FUA Green Ring of Leipzig (DE)	<ul style="list-style-type: none"> ▪ Sectoral Agencies responsible for environmental management - Saxon State Office for Environment, Agriculture and Geology (Department for Soil, Contaminated Sites, State Flooding Center), Agency for Central Land Management Saxony ▪ Mayors from 12 FUA communities, as represented by the Green Ring of Leipzig organization for inter-municipal cooperation <ul style="list-style-type: none"> ○ City Administrative Departments - Department for Environmental Protection, Department for Urban Green and Waterways ▪ General public
Chierese-Carmagnolese (IT)	<ul style="list-style-type: none"> ▪ FUA Political Assembly 22 Mayors coordinated by the FUA “SpokeMayor” ▪ Committee & Working Group (Technical of FUA Municip.) for the implementation of the integrated environmental management of the FUA ▪ Citizens and stakeholders
FUA Chorzów, Ruda Śląska and Świętochłowice (PL)	<ul style="list-style-type: none"> ▪ Representatives and the mayors of the three cities Świętochłowice Chorzów and Ruda Śląska in the FUA
FUA Kranj (SI)	
FUA Trnava (SK)	<ul style="list-style-type: none"> ▪ Representatives and mayors of 16 municipalities of Trnava FUA including Trnava City as the biggest municipality in Trnava FUA thus representing also citizens of these municipalities ▪ Representatives of technical departments of the Trnava City Office: Department of Spatial Planning and Strategies as well as the Department of Projects Management ▪ Representatives of ZOMOT association as a key authority for inter-municipal cooperation in Trnava FUA



2. Summaries of Action Plans in 7 Functional Urban Areas

Action plans should focus on the general and individual situation of FUAs and be developed regarding the common and specific circumstances. This includes the necessary background information, a description of the challenges to be addressed and establish the reason why a specific action has to take place. Having done this, a future orientation should be discussed in the document; the goals which are to be reached in the future and the concretization of these goals through objective setting should be presented. Actions and/or pilot projects should be agreed upon by stakeholders to reach sustainable land management.

Action plans with stakeholder involvement have been created in all of the LUMAT FUAs and these documents:

- support existing spatial planning policies and sustainable development goals in a region
- include interdisciplinary content,
- engage in stakeholder processes of elaboration,
- gather and organize scientific inputs on governance and ecosystem services, and
- detail the use of innovative decision support tools.

2.1. Austria - FUA Voitsberg

Several individual meetings with mayors, heads of city administrations in the “Lipizzanerheimat” region, as well as with representative from local mining company have been held so far for the development of the Action Plan in the Austria LUMAT FUA. These meetings focused on the need to:

- harmonize the vision/mission of the action plan with the new planning strategy of the “Styrian Central Region” (2016-06),
- establish the ideas for the action plan together with the representatives of the municipalities, and
- develop the concrete actions.

At the same time a close co-operation with a new implemented project by the region “Stadtregionales Flächenmanagement (SRFM)” (City-regional land management) is running which is a condition of the mayors (Regional Development Association). In November 2017 two intensive workshops with land owners and local enterprises were organized to inform and discuss the LUMAT approach.

There are currently a variety of projects which are being discussed for the pilot actions in the region:

- A detailed plan for the further development of the municipality of Maria Lankowitz as a wedding site, with the first step being to start with the creating of flower gardens.
- Preparation for the application to a Styrian funding program related to village renewal projects (Dorferneuerung).
- The use of geothermal energy for vegetable planting (greenhouses) on former mining areas in Rosental is being intensively discussed and solutions with the land owner (the mining company) are trying to be solved.
- An agreement between the region Lipizzanerheimat and the mining company for the whole region is to be prepared on the political level.
- The first contacts with local gardening firms have been organized and a second step will include inviting gardening firms from Graz and Vienna as well.



- With the municipalities of Baernbach and Voitsberg an eco-garden concept based on a non-profit approach is in discussion; the municipalities are very interested to support this concept.

On the regional level, all the pilot gardens and parks within the pilot region LUMAT will be involved in the planning phase for the new conception of bike path within the 5 municipalities of the “Kernraumallianz”. This will open up an important recreational area both for the region and for the Graz area.

2.2. Czech Republic - FUA Ostrava

The Action Plan titled „Action Plan for integrated environmental management for Ostrava FUA” for the Czech Republic LUMAT pilot FUA will mainly facilitate the regeneration or re-use of brownfield sites. Specific targets include improving the possibility of temporary brownfields utilization as well as preventing new brownfields emergence through private and public sector support. At the same time, an increase in awareness of the extent of the potential risks arising from the existence of historically used sites will be aimed for.

By achieving the main objective of brownfield regeneration, the region will also concurrently pursue other partial goals:

- Improving the environment,
- Reduction of loss of agricultural land,
- Local reduction of air pollutant concentrations by increasing the share of green areas,
- Reduction of potential hazards resulting from historic yet only partially acknowledged contamination of the soil, and
- Reintroduction of unused localities into functions of the municipalities/cities,

Objectives for the implementation of the Action Plan are:

- Action 1 - Use of the legislative initiative to create a legislative environment to support brownfield regeneration.
- Action 2 - A dedicated brownfields regeneration fund.
- Action 3 - Mapping brownfield sites and managing their databases, mapping sites with predicted contamination and prioritizing solutions.
- Action 4 - Initiation and activation of owners and promotion of brownfields for the public.
- Action 5 - Promoting human capital in brownfield regeneration.

Affecting the development of the Action Plan Ostrava are the following current trends in the FUA:

- The regional level of government has prepared new support for brownfield regeneration and a discussion of legislative changes and possibility to increase brownfields regeneration has been opened.
- The Office of the Government Commissioner has implemented some activities which were identified in the Action Plan into a special program RE:START (program for supporting regional development of Moravian Silesian, Ustecky and Karlovarsky regions).
- The Action Plan was introduced to a multi-resort platform (Ministry of Industry, Ministry of Regional Development, Ministry of Agriculture, Ministry of Environment). There was an open discussion about the implementation of some objectives mentioned in the action plan into the National Brownfield Strategy.



- The introduction of the Action Plan has already opened up a wider discussion with the public and especially with some of the municipal government which are in the FUA Ostrava.
- Through the interactive tool the public was asked for help in the realization of brownfield mapping.

The Czech Republic Action Plan is proposed for the Moravian-Silesian Region, and therefore the implementation group was designed with respect to the structure of the regional authority and the Moravian-Silesian Region organization.

The Ostrava Action Plan is prepared for the needs of the Moravian-Silesian Region. The Regional Council is responsible for its implementation, with the preparation of a “Working Group” on the basis of its knowledge and experience, and on the basis of suggestions from the “Consultative Group”.

The Regional Council is the executive body of the region in the area of independent competence. The Council prepares proposals and documents for meetings of the regional government; therefore it is most suitable for its own implementation.

The Working Group is an executive branch which prepares background documents for the Council. The Working Group is proposed to take into account the current organizational structure of the region, with the change of agenda in the succession department in case of change. The Working Group will be composed of representatives of the Department of Land Use Planning and Building Regulations (Land Use Planning Section), Department of Regional Development and Tourism (Regional Development Section), Department of the Environment and Agriculture as well as the Regional Development Agency.

The task of the Working Group will be to specify measures and activities to be decided by the Council. At the same time, it will fulfil its tasks as a result of the Council’s decision. It will monitor the results of already implemented activities and measures. This information will be forwarded to the Council of the region. The Working Group will also be in contact with the Consultative Group.

The Consultative Group prepares suggestions for a working group. It will consist of citizens, non-profit organizations, private business spheres, experts and public administrations (municipalities, associations of municipalities, regions). The main task of the Consultative Group is to monitor the impacts of the actions already undertaken and to propose modifications and amendments to the Action Plan in relation to the current situation.

2.3. Germany - FUA Green Ring of Leipzig

The Action Plan for the FUA Green Ring Leipzig will look into the linking of compensation measures as required by German law as well as actions on threatened land to the revitalisation of brownfield sites through the development and implementation of a tool that supports the inter-municipal cooperation activities. For this, a wide range of stakeholders have been collectively managed in terms of their needs and interest in integrated environmental management. The threats which have been agreed upon by the stakeholders will be mapped out in the entire area of the Green Ring of Leipzig. This information will be used for the identification sites in need of action based upon an initial integrated environmental evaluation. Actions related to land management and implementation of sustainable reuses of unused sites are to be elaborated upon by the responsible stakeholders. The actions which will be pursued in the Green Ring of Leipzig include:

1. Revision and update of the brownfield register in the Green Ring of Leipzig.
2. Development and publishing of the LUMATO 1.0 Tool.



3. Support inter-municipal land management through the LUMATO 1.0 Tool in the Green Ring of Leipzig with stakeholders.
4. Creation of pilot projects in the Green Ring of Leipzig for sustainable brownfield redevelopment.

Prioritisation of brownfield sites to be deconstructed and/or revitalized will use a stakeholder agreed upon evaluation system. This will support the steering of the FUA area to sustainable land management which is implementable and desirable for the context of Leipzig and its surrounding communities.

2.4. Italy - FUA Chierese-Carmagnolese

The vision being pursued in the Italian FUA of the LUMAT project is to implement sustainable land use thought integrated environmental management model at FUA level. This sets priority on:

- Protection and enhancement of ecosystem services,
- Management of land uses conflicts,
- Involvement of citizens and stakeholders, and
- Definition of strategies and solutions for the FUA level.

The objective is to define a model able to manage conflicts between possible transformation and re-naturalization of brownfield and the protection of green areas at the metropolitan level. In LUMAT a model for integrated environmental management will be designed that works in the FUA and that takes advantage of structures already existing (offices and staff) and which is replicable to other FUAs. The FUA of the Chierese-Carmagnolese had been identified for the initial testing and application of the LUMAT method; the entire CMT area could be addressed by the methodology in the future. LUMAT will use tools and methods to build/improve the capacity of CMT administrators and technicians on integrated environmental management. Various meetings with stakeholders have already been carried out (for example with the public, city authorities and other stakeholders) and will continue in the future. The model and guidelines for the management of FUA structures will foresee:

- The preliminary statistic, territorial and environmental analysis of the FUA,
- SWOT analysis for the items of interest,
- Projects and sites for the implementation of green urban areas and brownfield revitalization,
- Capacity building through the use of LUMAT training materials, and
- InViTo use for the involvement of citizens and municipalities.

The result will be an Integrated Territorial Program of Environmental Actions for the FUA (ITPEA).

2.5. Poland - FUA Chorzów, Ruda Śląska and Świętochłowice

The “Action plan According to Enhancement and Development of Green Infrastructure in Functional Urban Area of Chorzów, Ruda Śląska and Świętochłowice with Analysis and Assessment of Ecosystem Services Related to the System Implementation” is proposing the integrated environmental management of chosen green areas. According to the needs which have resulted from consulting the stakeholders, two main elements of the Action Plan have been identified. These entail the creation of green areas on post-industrial sites and the creation of bicycle and footpaths. The Action Plan provides cooperation in management, complementary investments and develops a common responsibility for the status of the nature among stakeholders. Ecosystem services (both priority and supporting eco-system services have been identified) play an important role in the action plan. Future development and upkeep of selected



areas by identified stakeholders should support the needs of these services. To reach the targets, a number of tool types are recommended: remediation, phytostabilization, the enhancement of biodiversity, support for natural succession, social participation, ecological education, healthy and friendly way of life. Proper projects and designs for open space development are to be prepared and existing infrastructure to be protected. One important potential for the planned infrastructure development are railway embankments which may provide safe pathways separated from the existing road system. Most of these areas are currently out of use and are under considerable risk from investment pressure.

Currently a pilot project is under construction where agreed targets of the action plan are being implemented.

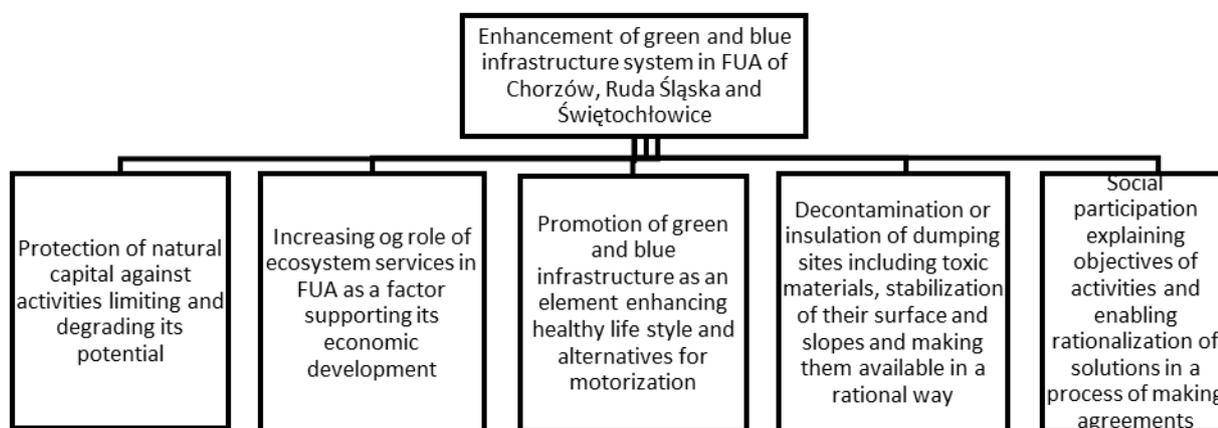


Figure 2: Objectives of the Action Plan in the FUA Chorzów, Ruda Śląska and Świętochłowice

2.6. Slovakia - FUA Trnava

Trnava FUA Action Plan aims to be mid-term strategic document with a view to 2030, proposing integrated sustainable development of Trnava FUA already in process of spatial planning and emphasizing integrated environmental management of land use and exploitation of environmental services. Analytical and design approaches are both described in the Action Plan. The analytical aspect will mainly provide detailed environmental SWOT analysis of Trnava FUA, analysis of its potential with regard to ecosystem services as well as inventory of all investment intents and development projects with a view to 2030 having impact on land and ecosystem services use. Background information for example on the location of valuable soils and areas of environmental stress are to be also evaluated with respect towards eco-system services (provisioning, supporting and cultural). On the basis of this inventory, key parts of the Action Plan will be the identification of conflicts of interests and mutual synergies and drafting measures reducing these conflicts and supporting these synergies.

Stakeholder management with the ZOMOT association, the mayors of the FUA municipalities as well as members from the sectoral departments in the city administration of the city Trnava has taken place. Their interest and needs from an analysis of eco-system services are gathered in the Action Plan.

As an example of the content, the Štrky revitalization site located in the northern part of Trnava city will be remediated into a green urban space for recreational use for the FUA residents. This action supports the LUMAT goal of creating more livable spaces on a land parcel that represents a threat to the environment because of the historical deposit of contamination on the site. The site will be upgraded so that it plays an important role in the recreational offerings in the FUA.

Within the analytical part of the Action Plan the most important ecosystem services were selected as evaluated as follows:



- Biomass for food production - providing of harvest of agricultural crops (including gardening),
- Water for drinking and for technical purposes - provision of drinking water, irrigation, industry, etc.,
- Air quality regulation - improving the quality of air, filtration benefits,
- Water quality regulation - improving the quality of groundwater and surface water,
- Water flow control, flood protection - water retention and drainage control,
- Micro and regional climate regulation - local climate regulation,
- Support of natural soil composition - erosion regulation, and
- Support for biodiversity, life cycles, pest control - protection of biotope, biodiversity, etc.

Furthermore, within the analytical section, key endangering and supporting factors (i.e. conflicts of interest and synergies) have been identified including primary and secondary stress factors and natural stress factors.

The most significant environmental problems / threats have been identified in the Trnava FUA are as follows:

- Threats to spatial stability created by a spatial collision of stress factors with the elements of territorial systems of ecological stability and other eco-stabilizing elements of the landscape,
- Threats to ecosystem services created by a spatial collision of stress factors with individual natural resources, and
- Threats to the environment created by a spatial collision of stress factors with human activities.

Within the design part of the Action Plan, groups of key measures have been drafted to mitigate identified conflicts of interest and support mutual synergies:

- Measures in terms of landscape and nature protection,
- Eco-stabilizing measures to ensure ecosystem services,
- Measures improving the quality of the environment, and
- Measures for reduction of stress factors effects.

As the main target group is the ZOMOT association and its municipalities, the Trnava FUA Action Plan has been elaborated in Slovak language with concise summary in English. Moreover, 13 GIS maps have been added to visually illustrate the most important textual information in both Slovak and English versions.

2.7. Slovenia - FUA Kranj

The Action Plan “FUA Kranj, a generator of circular economy in Gorenjska region” is based on the sustainable development of society and the concept of a circular economy. The purpose served is to improve the competitiveness of the economy through effective land management and to serve as a foundation for the implementation of new EU guidelines related to land use development (“zero land take”).

The Action Plan focuses on spurring inner urban development, preventing greenfield development and urban sprawl from taking place and searching for synergies within the FUA municipalities with public and private stakeholders.

Priority objectives include:



- Efficient management of business zones, and
- Encouraging the renovation of degraded and underused areas.

(Sub)-objectives include:

- Conservation and efficient management of natural resources,
- Ensuring the quality of the living and working environment,
- Integrated management of business and economic zones,
- Re-activation of degraded and underused areas and prevention of new brownfields,
- Promoting sustainable mobility for business zones,
- Restrictive approach to greenfield developments and supporting approach to brownfields, and
- Supporting the consolidation of ownership structure in zones with fragmented ownership.

The pilot actions for the Kranj FUA are split into 4 thematic groups: management of business zones, financial instruments, sustainable spatial development instruments and finally legal instruments. In the FUA, the Regional Development Programme and the Regional Spatial Development Strategy (new spatial legislation, 2017) are being prepared and the Action Plan developed in the LUMAT project will support these activities, as well as other local development documents. This will ensure the longer term impact of the Action Plan after the end of the LUMAT project.



3. Transnational Comparison for the Content, Process and Application of Action Plans

3.1. Content

The content of the LUMAT Action Plans in Central Europe is focused on the analysis and use of brownfield potentials for the improvement of eco-system services. This can be seen in the example from the Czech Republic with the analysis of the reuse of brownfields as green spaces to add more air purification to the FUA or by the example in Italy for the protection of green spaces in the landscape through the re-naturalisation of brownfields. Opportunities for brownfield regeneration also include the efficient steering of business interests in a FUA to unused and underused sites, as is being pursued in the Slovenian FUA of Kranj with the adaptation of the circular flow land management concept. Further threat analysis and the items to be addressed are being looked into by all partner organizations.

Table 3: Summary of Content in the Partner Action Plans

LUMAT Country	Action Plan Content
AT	Recognition of the opportunities present in each village of the FUA region and how these could best improve on their existing character and present eco-system services. Involvement of the mining company in the region to determine sustainable after uses of former mining land.
CZ	Regeneration of brownfield sites for improved air purification through eco-system services (agricultural soil protection) and also improving land recycling processes in the FUA through aimed for active management responsibilities and support for new legislation and education.
DE	Analysis of multi-sectoral threats to eco-system services present in the FUA and evaluating this information in a specially developed tool with stakeholder involvement. Also, content includes evaluating the potentials which are offered by brownfield sites for the protection of soil resources and the minimization of threats.
IT	Transformation and re-naturalisation of brownfield sites for improving the green infrastructure in the FUA. Also, green spaces are to be protected in the area through sustainable planning designations /land management and stakeholder management.
PL	Use of the potentials offered by post-industrial sites for the creation of blue and green infrastructure, for example through the use of brownfield sites for the creation of bicycle network systems. Also, the investment in the implementation of a brownfield revitalisation in a residential area which includes the stabilization and upgrading of an abandoned heap site for future recreational use.
SI	Sustainable development of the FUA through the application of a circular economy concept that pushes for effective land management of underused and unused sites and contributes towards a zero net land take objective.
SK	<p>Analysis of threats present in the region to soil and land resources and their mapping for the region and the integrated evaluation of these threats with the FUA stakeholders. Also, a planned investment in the revitalisation of a contaminated site into a new recreational opportunity for the residents in the FUA.</p> <p>The main parts of the Trnava FUA Action Plan:</p> <ul style="list-style-type: none"> ▪ Introduction (basic complex characteristic of the area, brief SWOT analysis, overview of current environmental management processes, rough vision of integrated environmental management in the Trnava FUA) ▪ Analytical part (analysis of Trnava FUA potential on the basis of ecosystem services methodology, inventory of current and planned investment activities of FUA municipalities, identification and detailed overview of conflicts of interests and mutual synergies) ▪ Design part (action plan of measures contributing to mitigation of identified conflicts of interests and



	<p>strengthening mutual synergies, more detailed vision and capacity building of integrated environmental management)</p> <ul style="list-style-type: none"> ▪ Conclusions (comprehensive summary of the most important findings) ▪ Comprehensive Summary in English (complex summary of the whole document in English language) <p>Annexes (13 GIS maps in both Slovak and English versions).</p>
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3.2. Process

The processes for Action Plan development are heavily dependent upon the management of the stakeholders in the FUA. This is because the interests that they represent require a specifically tailored approach to reach the desired objectives. In Austria, the intensive discussions with the various members of the surrounding communities is important in coordinating the projects that are to take place on former mining areas; the process being pursued in Austria allows for a greater differentiation and strategic use of the sites. In all partner FUAs, an evaluation of the eco-system services and the use of this information to prioritise future actions are all central to the process.

Table 4: Summary of Process in the Partner Action Plans

LUMAT Country	Action Plan Process
AT	Stakeholder meetings with the decision-makers and citizens in the FUA as well as from the local mining company to harmonize a vision and to agree upon actions that are tailored to the local communities in the FUA.
CZ	Adaptation to current trends in Czech Republic for the dealing of brownfield issues by taking into account the legislative changes planned and the funding schemes available for brownfield revitalisation. Also, an inter-sectoral discussion with stakeholders from various ministries has taken place to diversify the input. A special seminar has been held with representatives from municipalities, NGOs, the public, experts, public bodies, etc.
DE	Implementation of inter-municipal cooperation and stakeholder management for sustainable land management and integrated environmental analysis by using the existing platform for inter-municipal cooperation in the area to pursue common action. Creation of feasibility studies to guide actions and to learn from what is required for brownfield revitalisation in the FUA Leipzig. Creation of a tool with the stakeholders to address their needs for integrated environmental management.
IT	Involvement of stakeholders for an entire FUA and the identification and management of land use conflicts among 22 communities in the FUA.
PL	Ecosystem analysis, prioritisation of eco-system services in integrated environmental management with the stakeholders of the region and city administrations.
SI	Management of business zones for efficient use and the stakeholder management needed for this in the FUA. Encourage the use and renovation of degraded and underused areas.
SK	Involvement of stakeholders for an entire FUA for the management of land use conflicts among the communities in the FUA has been the main process in the Action Plan development. Two main meetings on 27.11.2017 and on 26.2.2018 took place in ZOMOT premises also with presence of external company responsible for the Action Plan development. Many expert discussions between technical departments of the Trnava City Office and this external supplier have taken place in the fine-tuning of particular parts of the Action Plan as well as its final content. Also on 26.2.2018 there has been intensive discussion on future responsibilities in integrated environmental management of the Trnava FUA and a role of ZOMOT association in this process. Definitely this will need to be further detailed and considered since the involvement of ZOMOT association in such a field will be pilot activity.



3.3. Application

The methods of application of the LUMAT Action Plans are described in the following table. Beyond the planned investments in the pilot sites in Poland and Slovakia, there are tools and management structures that will come to fruition thanks to the LUMAT project. For example the LUMAT partners in the German FUA are creating such a tool that allows stakeholders to identify the existing potentials for revitalisation and integrated environmental management actions on brownfield sites. The InViTo tool from the Italian LUMAT partners will be used for the direct collection of input from stakeholders regarding the improvement of living conditions and integrated environmental management. Finally, many of the applications in the LUMAT project will look to influence the existing legislative landscape present in the partner countries, mainly in regards to the reuse of brownfields and the reduction of soil consumption.

Table 3: Summary of Application in the Partner Action Plans

LUMAT Country	Action Plan Application
AT	Pilot projects that are tailored to the needs of the stakeholders present in each village, for example: flower gardens for wedding sites, eco-garden concepts using geo-thermal energy, establishing a bike path connection between the communities, and other possible projects.
CZ	Creation of new responsibilities in existing structures in the FUA to carry out actions on brownfield sites. This Action Plan is prepared for the needs of the Moravian-Silesian Region. The regional Council is responsible for its implementation, with the preparation of a “Working group” on the basis of its knowledge and experience, and on the basis of suggestions from the “Consultative Group”. Specific activities include for example the creation of a position for a “brownfield manager”, creation of an interactive database with information on brownfield potentials and solutions for reuse as well as carrying out of public awareness activities.
DE	The application of the standardized tool (LUMATO 1.0) to identify the threats to land and soil resources present in the FUA. The tool will provide an initial evaluation and prioritisation for action on these sites for stakeholders to consider. Feasibility studies for the reuse of brownfields will help determine the structure of the tool by showing the type of information that has to be available for successful brownfield regeneration.
IT	Use of existing structures for implementation of responsibilities (staff and offices) for integrated environmental management and the protection of eco-system services. Creation of an Integrated Territorial Program of Environmental Action (ITPEA). Applying an interactive tool (InViTo) for the gathering of stakeholder feedback in-situ for the improvement of living conditions.
PL	Site specific actions. Management of interests in various municipalities of the FUA for the improvement of blue and green infrastructures with a focus on cultural and supporting eco-system services.
SI	Supporting the current development of the Regional Development Programme and the Regional Spatial Development Strategy in the Kranj FUA for a longer term impact of the LUMAT project in the area. Management of business zones, financial, spatial and legal instruments.
SK	Application of goals on an example site for revitalisation (Strky) to re-introduce and strengthen recreational uses in the FUA for residents to enjoy. Furthermore, in the Action Plan a set of measures has been proposed in key fields such as: coordination of the usage of brownfields and greenfields, climate change adaptation measures, flood protection measures, water and sewage management, development of web GIS map application for integrated environmental management on the municipal level, development of plan for sustainable regional mobility by 2025, etc. It can be expected that these measures will be implemented incrementally, depending on the availability of municipal financial sources and external co-financing, mainly from the EU funds.



3.4. Making Central European Places More Liveable

The central theme of the Action Plans is to make FUAs more liveable according to the needs and interest of the stakeholders present. By looking beyond the municipal boundaries at the FUA level, the LUMAT partners have been able to identify new potentials for eco-system improvement as well as a wide range of stakeholders which are to be involved in making integrated environmental management a reality. New synergies are formulated that could not have come to fruition within a single city administrative borders. The analysis, stakeholder management, scientific evaluation and the identifications of visions, goals and objectives are all collectively gathered in the partner Action Plans. Important to note is the agreement among the partners regarding the importance of the revitalisation of brownfields in all of the FUAs. These sites have a variety of unrealized potentials for the realisation of sustainable land use through pilot actions. The actions towards sustainable land management are to be implemented in the next Work Package of the LUMAT project, WP T3.