

 reviewed paper

Drive Towards Circular Land Use Management

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1 ABSTRACT

Soil is one of the worldwide most important resources. Some scientists are afraid that due to the expected massive urbanization in next two decades, a “soil peak” can be reached because of e.g. urban sprawl and the massive construction of traffic areas. It means that the amount of soil which is in use for agriculture or for natural purposes decreases more and more. One problem is that traditional regulative approaches of spatial planning are failing to deliver a sustainable land use. Urban sprawl supports unsustainable land use with negative economical and ecological effects, like loss of the resource soil, increase of traffic, etc. New integrated land management approaches and policy mixes are needed, to address the stakeholders varied interests in land more comprehensively. The project Circular Flow Land Use Management (CircUse) fosters sustainable land use in Central Europe by promoting the principle “avoid – recycle – compensate”.

12 partners from 6 countries are for 3.5 years implementing the project CircUse Circular Land Use Management principles and concepts. In 6 participating countries these partners promote an integrative policy and governance approaches in respect of the urbanised land utilization.

For the first the CircUse strategy has been developed to illustrate what is necessary to implement the approach of a circular land use management. According to these requirements further steps have been taken by the project partners. The project CircUse has firstly unified the urban land use typologies and then prepared a pragmatic inventory tool, focused on the local/regional land use management. This tool can assist municipalities to become aware, what is the size of their development potential within their urbanised area. On working with such a data management tool further, analyses of the actual accessibility of this urban development potential can be made and mainly measures can be proposed to improve the inner urban development potential accessibility.

Data gathering can usually help to size up an issue and monitor the situation. But the solution of a more effective land use can be only achieved through a coordinated action, which aims to deliver the good intentions, identified in various policies. As a tool which could achieve this, was by the project CircUse chosen the action plan, focused on improving land use effectiveness. Six action plans based on a common template were produced, one per each project CircUse partners’ country. A scale of these action plans varied from a site specific (Piekary) to a city based (Asti, Freiberg) to a peripheral regions based ones (Trnava, Voitsberg) to a NUTS 3 based plan (Ústí Region). In the last three plans the multilevel governance approaches and the stakeholders’ participation were tested. To help municipalities to implement a sustainable land management a guideline for the preparation of a CircUse training course was produced. The guideline consists of 6 learning modules which are: 1. Land consumption – the problem analysis, 2. Principle of CircUse, 3. Land potentials and scenarios, 4. Stakeholders, 5. Instruments and 6. Action plans. Also education materials for secondary school children have been produced and translated into 6 languages as well as the pilot training has been conducted.

A concept of institutional solutions serving the management of circular land use is another important output of the CircUse project. Here two different approaches were employed: one was based on an existing institution, to which additional or specific tasks and competencies have been transferred. This was the case of the Industrial Park – EkoPark in Piekary. Another approach was presented by establishing a new land management agency which was founded in Austria, specifically focused onto the management of circular land use. Both solutions of institutional set ups acting as local operators for management of circular land use can serve as a good practice example for other European towns and regions.

This paper would share various experiences, which partners gained, while implementing the CircUse project common approach of the Circular Flow Land Use Management in their countries.

2 INTRODUCTION

The key urban issues such as land consumption, urban sprawl and brownfields are experienced not only in Central European regions. Majority of the urbanised areas increases are not based on population growth, but they are based on increases of urbanised land per head of population. This puts higher demands on energy consumption and increases the cost of development externalities, which then reduce competitiveness of the cities. An excessive consumption of land for urbanisation also diminishes the soil environmental services capacity and contributes to global climate problems.

The existing tools, policies and forms of governance so far failed to prevent ever increasing consumption of land for urbanization. Also the traditional regulative approaches of spatial planning are failing to deliver the land use sustainability.

Therefore new integrated land management approaches and policy mixes are needed to address the stakeholders varied interests in land more comprehensively. Also new governance approaches are needed, which can reach above the local authorities' jurisdiction and can protect specific public interest in land from a broader regional level. In the past 5-7 years, a search for an optimum solutions resulted in preparation of new national/regional policies, targets and programs, which were supported by collective efforts of many consultants and research teams.¹ But the actual outcome of these new policies and programs in the Central Europe so far, has not yet delivered the desired goals and targets.

Project CircUse – the full title „Circular Flow Land Use Management” is aiming at working out a transnational model of circular land use management. The approach is consistent with sustainable development requirements therefore stakeholders' involvement is an important element in the model implementation. Within the project 6 pilot sites in 6 countries are developed. The main objective is to provide a transnational applicable solution which would enhance counteracting urban sprawl and creation of dispersed land use patterns. Partners of CircUse are developing and implementing a climate friendly land use concepts in coherence with new instruments and pilot actions. The project targets will be reached by a strategic approach to urban and peri-urban development based on the principle of Circular Land Use Management.

The main results of the project are:

- overall strategy towards circular land use management including policy and action plans,
- tools and instruments of circular land use management: transnational land use data base produced for each pilot case
- manual on tools and instruments,
- education materials,
- CircUse compendium,
- pilot projects.

The project consortium consists of 12 partners from 6 countries: Austria, Czech Republic, Germany, Italy, Poland, Slovakia (see. www.circuse.eu)

3 CIRCUSE STRATEGY

One of the most significant project outputs was the circular land use management strategy. The strategy is presenting characteristics of the approach of circular land use management by 9 theses which constitute features and conditions of successful implementation of this methodology.

Thesis 1: Common problems and diversity of national and regional frameworks could be faced by a common strategy of circular flow land use management

Thesis 2: The setting of quantified and qualified targets is a necessary requirement for successful implementation of a management strategy according to circular flow land use management.

¹ See for an example the German programme "Research for the Reduction of Land Consumption and for Sustainable Land Management (REFINA)" funded by the Federal Ministry of Education and Research (BMBF) (www.refina-info.de)

Thesis 3: Circular flow land use management needs a comprehensive definition of land types (incl. greenfield and brownfield areas)

Thesis 4: The development and application of information instruments and data management for registration and monitoring of space oriented potentials is one of the key activities towards a circular flow land use management.

Thesis 5: Circular land use management in urban regions cannot be driven by the actions of a single primary stakeholder but can only be achieved through the coordinated efforts of the various public and private stakeholders who, as planners, property owners and land developers, influence or govern how land is used.

Thesis 6: The implementation of circular flow land use management needs an integrated course of action which encompasses the wider spectrum of policies and activities providing a package of instruments (policy mix). In this instance current and potential new instruments should be pooled according to regional differences in framework conditions.

Thesis 7: The implementation of action plans need the selection of an applicable policy mix, stakeholder institutions, financing sources that meet the regional demands.

Thesis 8: In general new forms of organization need to be implemented by the stakeholders of a circular flow land use management. There are wide opportunities for institutional solutions in the EU.

Thesis 9: Permanent knowledge acquisition and awareness of circular land use management are crucial preconditions for a successful implementation of a strategy for reducing land take and strengthening inner development.

4 ACTION PLANS

Action plans present examples of implementation of the project approach to circular land use management with all required features. They also integrate instruments, activities and materials developed as other project outputs. The universal unified contents concerning action plans for each of six cases has been proposed by partners and according to it, the documents of action plans have been worked out. These documents include the elements constituting the realization of the concept.

These are:

- description of the area with areas of impact, constraints definition of areas of impact
- vision mission and process of creating the AP,
- management structure with stakeholders, education activities, division of responsibilities,
- action plan itself with budget, time schedule, monitoring and outcomes for local and regional beneficiaries.

For each case the proposed structure was followed and it was a basis for general conclusion on practical steps which have to be made to develop an instrument supporting sustainable land management in the region or municipality.

4.1 Action Plan for Asti

The Municipality of Asti has to face the management of many abandoned areas, with very different locations and characteristics. The restoration of former Way-Assauto area, one of the biggest and most problematic ones, has been included in the Development Plan of the Municipality of Asti: this is a strategic plan that involves all brownfields areas and abandoned buildings. The aim is the integration of multi-task actions to reuse derelict areas in the city with the participation of various stakeholders.

With reference to the current need to provide decision-making support for those problems concerning the development, transformation and management of the urban and territorial system by means of a sustainable approach, a key role is played by the Spatial Decision Support Systems (SDSS) developed by the second Italian partners within the project CircUse. The SDSS are tools for the analysis of complex systems in the field of spatial semi-structured decision problems. The public decision support system on land use planning would benefit from the application of a SDSS, as it could reduce the decision time and increase the accuracy and consciousness of individual decision-makers (analysis of variance, the study of solidity and sensitivity variables, application of multi-criteria analysis).

The former Way-Assauto area is an interesting pilot case, as in the past years it has been contaminated by a chemical shedding that reached the underground water level. A chemical reclamation plan for the site is in existence and reclamation is on going as a remediation of a brownfield site implies the removal of all known contaminants to levels considered safe for human health. Redevelopment can only take place after all environmental health risks have been assessed and removed. Remediation can be expensive and complex, and this needs to be seriously considered before purchasing brownfield land. Not all sites are deemed suitable for remediation, particularly if the costs exceed the value of the land after development. In the last few years several new remediation technologies started to emerge. These are proving to be relatively low-cost compared to traditional processes, with the benefit of protecting and preserving the environment. With the CircUse project, the Municipality of Asti is interested in an update of this plan by the participation of the University of Turin.

4.2 Action Plan for Saxony

The development plan 2012 of Saxony indicates “Efficient land use and reducing of land consumption”. The significance of land consumption and the need of land management are increasing. Since 2008 the Free State of Saxony is working on the goal on the reduction of land consumption. In 2009 the government noticed this action programme and defined the target for Saxony to reduce the daily land consumption under 2 ha until 2020. To reach this goal an “inter ministerial working group (IMAG)” has been established. The region of Saxony and the city of Freiberg, as one of the leading cities of innovative environmental actions and research, supports the principle of Circular Land Use Management and will be a model city for the regional development targets of Saxony. Support to the inter-ministerial working group is provided by the introduction of circular flow land use management as a tool for sustainable city development, climate and soil protection in the context of the management of demographic change. The implementation of the CircUse land management system is planned in the City of Freiberg. Based on a pooled inventory usage scenarios will be developed of the pilot site – former porcelain factory in Freiberg – and a development plan will be submitted as part of CircUse.

4.3 Action Plan for Trnava

The Municipality of Trnava has had to face the problems of a very dynamic development of its economic basis bringing thousands of new working places into the city and at the same time a critical situation with exhausted capacities of social infrastructure, housing and leisure-time activities as well as internal sources of available land for their further development. This led to strong flow of population towards the sub-urban areas looking for price-friendly housing possibilities and using the infrastructure of the city, causing extraordinary load on transport and other urban services. On the other side, the city and surrounding municipalities have to deal with many abandoned areas of very diverse characteristics, looking for their new functional use and structural refurbishment. This determined the idea to cope with this very complex problem by development and implementation of a joint strategy of Trnava and surrounding suburban micro-region municipalities. By using the possibilities of joint know-how and experience exchange various actions were implemented in the frame of EU funded project CircUse.

The common agreed vision is the development of functioning, efficient and flexible cooperation structure and interlinks between different aspects of micro-regional development, different actors and interests in one interlinked strategy as a reaction to existing problems with brownfields, abandoned buildings and growing requirements concerning new capacities of public services and land for private investments. The aim is to integrate multi-task actions to re-use derelict areas in the city and municipalities and involving various stakeholders into the planning, decision making. Implementation of the joint strategy as gives a new chance to improve the quality of life in Trnava and other municipalities in the micro-region. This new approach of the joint strategy and actions is the core philosophy of the Trnava action plan and at the same time of the development towards participative governance as the new quality in municipal politics.

By optimizing the development localization from the micro-regional perspective it will both maximize use of existing potential of individual communities. It would as well minimize the take of un-built territory reflecting thus the limiting factor for extensive development throughout the region of high quality agricultural land and environmental protection. Optimising the location of functions on micro-regional level would also make the movement of population within the Trnava micro-region more efficient. It would also

help with effectiveness of operational services, with particular emphasis on services provided by public sector. Therefore it would contribute to saving municipal finances. Given the considerable similarity of the range of problems perceived by the local population (lack of green spaces, low services by public transport, incomplete services, long-term unemployment) it opens a possibility for using the cooperation within the Trnava micro-region also for the associated projects financed from structural funds, respectively from social EU funds.

4.4 Action plan for Usti Region

The Ústi Region (UR) Action Plan (AP) preparation preceded a concentrated action of both Czech partners of CircUse project to increase regional stakeholders' know-how on matters of circular land use management principles. For the ÚR stakeholders' use the CircUse strategy, the CircUse education materials and the land use typologies were translated into Czech. The course materials were also adapted for ÚR use by inclusion of regional particulars. Parallel to this action, extensive analyses were performed on the regional and national policies and legal frameworks, which addressed the regional land use. These materials were introduced to the ÚR stakeholders and were followed by a seminar, encouraging stakeholders to share experiences, opinions and barriers, they have encountered in their attempts to steer land use effectiveness. The goals and priorities of the AP were discussed, main activities outlined, commitments to AP were pledged and means how the AP could be financed and implemented were addressed and considered.

The action plan activities can be divided into 3 main groups. The first group supported local communities with gathering urban land qualitative data and evaluation of the accessibility level of the local urbanised land inner development potential. The second group supported mitigation measures (regional demolition program, proposals for amendments to national legal framework, etc.). The third group have focused on increasing public awareness of the issue. As the key source for financing the AP initial activities the INTERREG A Cross Border Program Saxony – Czech Republic was identified. Preparation of this new project is now taking place.

4.5 Action Plan for Voitsberg

The region of Voitsberg is a traditional former coal mining area and is facing the structural transition since the 1990ies. Therefore numerous unused brownfields are available for revitalization in the region. The principle of Circular Land Use Management shall be implemented in the region via a land management Agency. In spite of a wide range areal spatial reserves because of former mining or industrial activities there is a wide land take of agricultural greenland for areas zoned for economic activities and housing. To reduce the land consumption in the future the principle of Circular Land Use Management shall be implemented in the region via a land management agency.

The overall task of the agency is to support a sustainable and ecological compatible development of brownfields (former industrial, commercial and coal mining areas) in the pilot region „Kernraum Voitsberg“ (consisting of five municipalities: Koeflach, Voitsberg, Baernbach, Rosental und Maria Lankowitz) according to the concept of Circular Land Use Management (this is an integrative strategic approach which primarily and systematically seeks to exploit the development of existing building sites and reuse derelicted land).

To achieve the goals of the agency the development of an action plan (masterplan) for the next years for the pilot region Voitsberg (Kernraum) by the Telepark Bärnbach is necessary. To get a significant feedback by the target groups of the region, several meetings were organized and a questionnaire (online) was developed and distributed to the specific target groups. The outcome of the definition of the areas of impact differs when considering recycling of brownfields and new sustainable land use. The definition of the points of contacts, the formulation of the principles (political, economic) and the identification of dependencies is described in the new agency framework requirements. The management structure includes also the description of roles and responsibilities. The developed Action Plan considers activities in two phases a) until the end of the project CircUse and b) in the first phase after CircUse is finished.

The Action Plan List covers the following:

Action 0: Joint actions – deliverables of CircUse as basic tools for the local implementation.

Action A: Establishment of the agency: the establishment of the agency is part of the CircUse project.

Action B: Day by day activities of the agency: Building up of database and website as well as the production of PR-material is still part of the project. All other activities are started during the project and continued by the agency.

Action C: Analysis and actualization of existing concepts: The analysis and actualization of the projects has been started in summer 2012, after the end of the project these activities will part of the agency tasks.

Action D: Project development: Project development as a long term measure has been started in autumn 2012 and after the end of the CircUse project the activities will be continued according to the business plan of the agency.

4.6 Action plan for Piekary

The Action Plan prepared for the selected location is an example of implementing the circular land use management in areas of a typical district of Silesian municipality, a district, where the environmental, social and economic problems have succeeded previous intensive industrial activities (with all their negative consequences). The aim of the Brzeziny Śląskie district Action Plan was to restore the natural value of degraded areas, followed by regional economic development, ensured by provision of favourable conditions enhancing the commencement of the new projects as well as assistance in their implementation. Therefore within the Action Plan of Brzeziny Śląskie district the following categories of activities were included:

- feasibility studies (analyses, examination of the ground contamination, detailed stock-takings of the ground),
- analyses and concept (analyses and concepts of the possible land use management),
- project activity (technical projects relating to communication and territorial development),
- marketing operations (the preparation of offers for potential investors),
- support of investors' activities (advisory),
- investment activities (implementation of the „incubator for the enterprise” project, realization of the pilot project regarding greenfield development),
- activities focusing on social issues and communication.

The action plan was followed up by the pilot investment project. The CircUse Polish pilot project is placed on a highly exposed brownfield site in the Brzeziny district of the Piekary Śląskie Municipality. The size of the pilot area is approximately 14 ha and this Polish investment was planned in the framework of the CircUse project.



Picture 1: Illustration of preparation work for planting at the Brzeziny district pilot project, photo by authors

The Brzeziny district pilot project has focused on a systematic “re-greening” of a part of the post- industrial site and on upgrading of an overall image of the local landscape. The pilot project was set up to demonstrate the innovative example of a possible remediation action, which as an added value has a sustainable financial support for its future maintenance. This is an example that can be easily transferred to other regions, in other countries. The strategy of the land use management within which the investment was implemented also demonstrates an innovative long term thinking of the circular land use, which is the key idea promoted by the CircUse project. This pilot investment is consisting of planting trees and shrubs on the site located in-between an industrial area and a residential area. But two separate functions are being realized by this one action on the pilot area. On one side an insulation zone is being created, shading the neighbouring housing from the industrial site and on the other side a tree belt of public space is being created – a kind of park – which could serve for leisure and recreation activities of the neighbourhood. On the picture 1 above the results of work already done are presented.

5 CONCLUSION

The work on action plans following the framework discussed and adapted by all the project partners has shown the reality of a concept implementation with participation of various groups of stakeholders. It has been the most difficult step but at the same time the most satisfying when the agreement was achieved. This experience is very special, since the CircUse project has given the opportunity and the platform for meeting and discussion between various parties on the necessity for further common steps and common actions serving for common needs. It has evidenced and convinced that it is worth (simply economically) to act together in land use management which could be more efficient and sustainable. And it is may be the most important unmeasurable value of the CircUse project.

6 REFERENCES

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