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# Circular Flow Land Use Management

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## 1 ABSTRACT

The project CIRCUSE - Circular Flow Land Use Management is financed from the program CENTRAL EUROPE. 12 partners are preparing the concept of Circular Land Management, which represents an integrative policy and governance approach. This would presuppose a changed land use philosophy with regard to land utilization. Such modified land use philosophy can be expressed with the slogan “avoid – recycle – compensate”. Similarly to the recycling-based principles, which have become commonplace in recent years in areas such as waste and water management, the “circular land use management” should become an established policy in sustainable land utilization. Materials cycles can serve as a model for circular land use management. The project CirCuse reviewed the current key instruments, which have in all the 6 parnters countries affected the governance in the areas planning, information, organization and cooperation, funding and budget, marketing and arrangements.

Based on theise findings, project considered new potential instruments, while accounting for regional differences in framework conditions. One of such instruments is an Integrated Action Plan. The integrated action plans for urban region circular land use management represent a package of measures, which can be implemented or initiated locally. They can contribute to brownfield redevelopment and promote land utilization. The packages of such measures usually aim at reducing zoning undeveloped land and exploiting the potential of existing land on previously developed sites. Integrated action plans for urban region circular land use management are informal instruments to establish circular land use management in the short- and mid-term. They result from discussions on land use policy aims for urban regions, analysis of how existing governance instruments help to regulate land utilization are employed. Assessments of spatial and organizational shortcomings are carried out.

This leads to specifiing a package of measures necessary in the short and mid-term to make headway towards accomplishing city and urban region land policy aims. These measures are normally closely linked with established instruments of formal and informal spatial planning. However the action plans also list stakeholder responsibilities, aspects of organizational and management processes, as well as performance reviews and time schedule for implementation. Integrated action plans are extremely implementation oriented. They cannot and should not replace current planning, instead the measures depicted in the action plans should be meshed with spatially relevant formal and informal planning or existing sectoral planning and draft planning. This paper disusses and compares experiences and barieras of crearíong such action plans in min. 3 partenrs countries.

## 2 THE RECYCLING OF URBAN LAND

Land for development is at a premium in Central Europe, particularly in urban & peri-urban areas. In order to secure land for development, protect non-urbanized land and encourage more sustainable land-use, regions and cities in the Central European area are facing common problems, which when not addressed correctly manifest themselves with sprawl, greenfield depletion, increasing sealing and extensive brownfield land. However, reusing the previously used sites often had complex social, environmental, economic, policy & legislation issues. But massive urban sprawl, the current economic crisis and the effects of the demographic change could lead to land use patterns, which are neither competitive (e. g. in attracting viable economies, efficiently providing infrastructures) nor sustainable. Dispersed land use patterns with their high demands of land and energy also accelerate the process of climate change. Furthermore Central Europe’s cities are facing social (e.g. segregation and social tension), economic (e.g. unemployment) and environmental problems (e.g. pollution, noise, traffic congestion) related to urban development. They therefore need suitable and urban and planning policies and implementation tools to cope with them. Many of these issues are transnational, where corporate developers and investors are seeking opportunities to acquire sites. They very often enter areas, which pose least resistance to sustainable development principles. Those developers who would wish

to champion sustainable development merits then miss standard process to benchmark, evaluate & reward sites across the EU.

Many Central European cities have been developed (or are fastly going to be developed) into regional agglomerations. But the available planning methods, institutional structures and the associated management tools have not progressed fast enough to cope with the increasing scale, interconnectivity and complexity, which this growth has generated. The "traditional" planning visions is still applied, despite that it can no longer deliver integrated planning for modern cities, which are facing the demographic changes and challenges presented by the need to react on climate change.

The integrated approach for land use management including public and private stakeholders in Central European Regions is still missing. Existing local, regional, national and European instruments did not succeed to solve this process in the past period. They even had adverse impacts on the former accession states, by distributing grants (ERDF) mainly on Greenfield sites. The problem is of specific relevance for regional and local authorities dealing with land management, allocations of land relevant European and regional funding and investments.

## 2.1 The principle of reuse and phases of land use

Similarly to the recycling-based principles, which have become commonplace in recent years in areas such as waste and water management, "circular land use management" should become an established policy in sustainable land utilization. Materials cycles serve as a model for circular land use management: the constructed city is understood as a system with a structural makeup which is subject to various usage phases and where, in certain instances, entire districts and industrial areas are dismantled and made suitable for subsequent use, whereby the total area of land used should remain unchanged. Structures no longer fit for reuse are demolished or renaturalized; infill measures are implemented in areas with high settlement pressure. The idea of a "circular" of use thus seizes upon the notion of a use cycle of the allocation of building land, development, use, abandonment and reuse

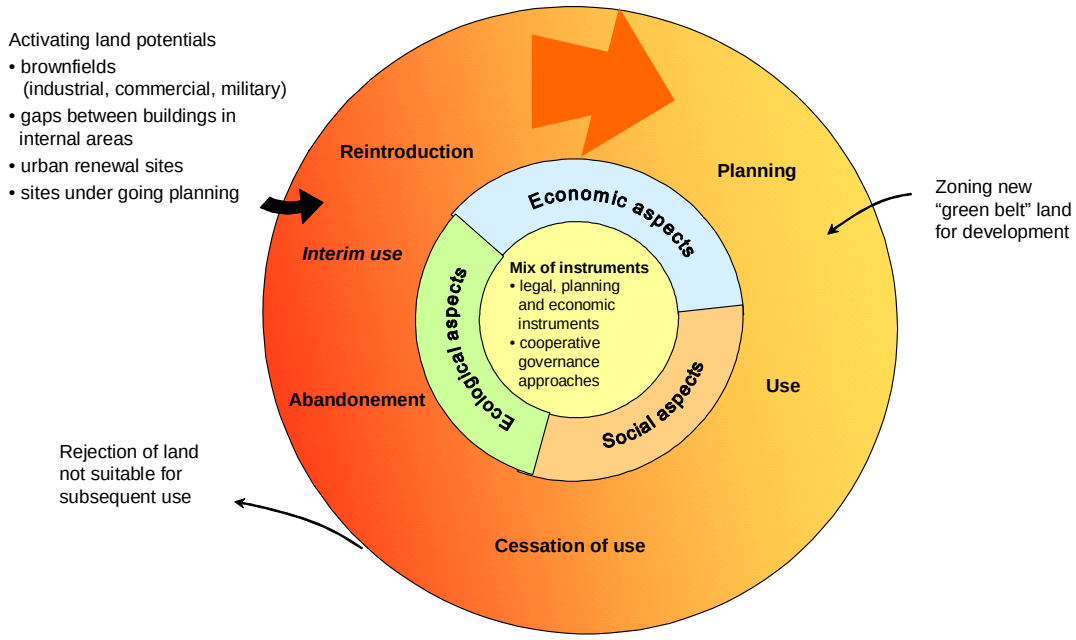



Fig. 1: Phases and potentialities of circular land use management *

## 2.2 Potential of circular land use management

A strategy of this nature primarily and systematically seeks to exploit the potential to develop existing building sites and reuse derelict land. It focuses solely on internal development (recycling abandoned sites, higher density development, infill development, multiple use, etc.). The entire use cycle, from planning to utilization, disuse, dereliction, and building and land recovery forms the core of the strategy. The ultimate aim is dynamic site preservation. If an ideal scenario for this vision would be realized, only land which is

currently in use would be utilized for new settlement initiatives. However, zoning small areas of new land for development is not categorically ruled out, assuming that as mitigatory measures abandoned sites are being reused in other areas. **Circular land use management, therefore, aims to minimize zoning of "Greenfield" land (for development) and promote activation of existing building land, including, derelict land, gaps between buildings and also exploiting possibilities for infill development** (cf. Table 1).

| | |
|---|---|
| **Expansion opportunities** (outlying land which has yet to be developed) | Theoretical development reserves with no (specific) planning status |
| | Regional planning reserves (anticipated building land) |
| | Preparatory land use plan reserves (building land awaiting development) |
| | Legally binding land use plan reserves which are fundamentally reclaimable (raw building land) |
| **Internal development opportunities** | Gaps between buildings (land prepared for building/building land) within the ambit of settlement-expanding legally binding land use plans |
| | Gaps between buildings within the ambit of legally binding land use plans using pre-existing developments and unplanned interior areas. |
| | Scarcely developed lots/opportunities for infill |
| | Brownfields |
| | Vacant buildings |
| | Land which will be abandoned in the foreseeable future |

Table 1: Expansion and internal development opportunities of land[1]

## 3 PROJECT CIRCUSE

Based on these theoretical principles the project CircUse was conceived and submitted to the programme CENTRAL EUROPE by partnership of 12 partners from 6 countries: Austria, Czech Republic, Germany, Italy, Poland and Slovakia. The basic idea of this proposal was born during the REVIT/CABERNET conference 2007in Stuttgart and was based on the presentation of the new German BBR concept of "Circular Land Management". The discussion about the specific situation in the Central European states showed the high rate of urban sprawl and increasing brownfields stocks together with the lack of coherent policies and instruments to ensure sustainable land management. A working group was created and a first preparation workshop including the feedback from the JTS was organised in Vienna. The partnership needed consolidation and to be linked to mainstream funding. The final concept was approved at the Prague Workshop. Project started in March 2010 and it would run for 36 months. Project outputs and main CircUse papers would gradually appear on the public site of the project web www.curcuse.eu.

The CircUse project is concerned about the shape and form of urban living, economy, climate and environment. In particular it concentrates on problems related to urban sprawl and land use economy, with a special focus on compact and polycentric urban development. This is increasingly seen as an important component of sustainable and competitive development of cities and regions. Significant impacts are evident in the economic and social transformation of Central European cities and regions. This is often due to the loss of a number of historical industries, military conversion and demise of various social other uses, which manifested themselves in a vast amount of brownfields. The social changes, such as inner-urban segregation, migration and demographic changes also had a spatial impact. Concentrated urban development and urban regeneration can help to address some of these changes. But concepts of revitalising urban areas and brownfields will fail if they are not part of an integrated land management system, covering many aspects also including the Greenfield developments! Recently the rapid suburbanisation processes were halted by the effects of financial crisis, which had increased the reluctance of new investors to take on long term urban regeneration projects and related development risks. An outcome of which, would likely be investors´ increased interest in simpler Greenfield developments, causing further poorly integrated and unsystematic land use. Additional to that are the inefficient development policies, which are ever increasing the land–related conflicts in densely urbanised regions. CircUse aims to improve this and also to modernise the historic land use typologies in Central Europe strongly "printed" on one hand by the mixed use structures of

[1] Source: German Institute of Urban Affairs, own diagram

the 19th century, and on the other hand by modern visions on separated functions, preferred in the after war period.

By capitalising on past initiatives as CABERNET or REFINA, CircUse is expected to bring a long term benefits for internal cooperation of regional and local stakeholders, where different problems as well as good ideas are focused together. The project aims to define a **CHARTA ON LAND USE** in Central Europe. CircUse is also enhancing the quality of environment, with helps to better territorial development in a balanced and sustainable way, improve quality of the environment and enhance competitiveness and attractiveness of cities and regions. It prevents depletion of the renewable resources by reducing land consumption and traffic. CircUse is also strongly influenced by the goal to create climate beneficial land use structures – either by passive contributions by lowering energy consumption from traffic, natural soil protection or actively by production energy on brownfield land integrated in temporal or final land use options. Produced spatial concepts and instruments not only support urban structures, but they would also enhance the quality of the local environment by promoting creation of open space on former brownfields. CircUse promotes polycentric settlement structures as alternatives to urban sprawl and helps to achieve more attractive cities and regions.

CircUse is generating tools, which support the concept of Circular Land Use Management as an integrative policy and governance approach. It is producing integrated development strategies and institutional development delivery frameworks for the urban/regional development, which can be employed for an effective use of the future ERDF funding by local and regional stakeholders, in the 2014 – 2020 periods. In the pilot projects the public interventions and funding are coordinated and investments are directed onto Greenfield, Grayfield or brownfield sites. CircUse also provides viable frameworks, action plans and pilot projects focused on land use management, as precondition for private investments. CircUse thus contributes to competitiveness and capability of regions by building up a regional vision on competitive/climate friendly land use co-operatively developed by key stakeholders.

The interregional land use data-bases, which are being created in all participating countries, would support local decision makers on their land use options. They help to monitor the impacts on the polycentric development and also implement knowledge and new solutions for R&D expenditures and new technologies (ICTs). Better access to knowledge and information helps to create effective concepts for: supporting public authorities´ decision making, intensifying land use changes, reducing land consumption and increasing private investment in urban locations.

### 3.1 Main Aims

Main aims of CircUse are:

- Support sustainable land use change (e.g. by new concepts and information tools),
- Reduce land consumption (e.g. by integration of soil protection tools and brownfield revitalisation),
- Increase private investment in urban locations (e.g. by risk transparency),
- Coordinate public interventions and funding (e.g. by local investment task forces),
- Co-ordinate investment on Greenfield, grayfield and brownfield sites to insure cost efficient settlements (e. g. by local and regional planning).

Main Outputs

Main outputs of CircUse are:

- Overall strategy towards circular land use management: Policy and Action Plans on land management in Central Europe (including concepts of climate friendly/ competitive land use)
- Tools and instruments of Circular Land Use Management: Trans-national land use database, a user friendly and GIS-based data management tool for local and regional authorities, manual on tools and instruments for Circular Land Use Management
- Pilot Projects: The final conference of the project CircUse would take place in Katowice in October 2012.

## 3.2 CircUse Pilots

Cities and regions are facing challenges of climate and demographic changes. Both of these typologies need strong interventions and restructuring in order to secure sustainable options for our future. New policies and tools are needed to be developed here and the CircUse addresses this though its pilot projects. Pilot actions demonstrate in selected areas various innovative and efficient practical solutions. All the pilot projects support in an interrelated way activities, which complement sustainable development of concerned territories by reducing disparities and promoting competitiveness through an applications of an innovative solutions. Pilot projects offer possibilities of implementing new concepts of land use and land management, which could be applied to other areas and urban spaces after validating pilot project's results. CircUse strategies and tools would therefore contribute to competitiveness and capability of the pilot regions and help them to build up regional visions on competitive/climate friendly land use co-operatively developed by key stakeholders.

These pilots would also coordinate planed public interventions and funding, help to implement new solutions and promote a better access to knowledge and information. They create concepts for intensifying land use changes, reducing land consumption, increasing private investment in urban locations and help to up skill public authorities. 6 Central European municipalities or regions would produce integrated Action Plans on sustainable land management and realise pilot projects demonstrating practical solutions by local and regional stakeholders.

### 3.2.1 Pilots introduction

***PILOT 1-Austria/The region Voitsberg, Steiermark***. The Austrian Pilot region is an alliance of five communities (Gemeindeverbund Voitsberg) and represents a shrinking region; i.e. decreasing number of inhabitants, break-down of former coal mining industry but continuous increase of land consumption at the same time. The implementation of the CIRCUSE method shall reduce land consumption and soil sealing and provide the region with a long-term concept for land management. The pilot in Voitsberg is to address the future use of large derelict mining areas (development of bio fuel combustion technologies). In this context the potential to establish pilot biomass plantations at former derelict mining areas shall be explored and tested.

***PILOT 2-Czech Republic/ Usti Region***, ***Ústí nad Labem:*** For the last 8 years the city had benefited by some growth and urbanized land expansion where the population trends were differentiated into expanding and contracting locations. The present economic climate had placed more reality into the whole land use and development situation in the city. Investors, owners, politicians and administrators are becoming more receptive to consider new approaches. Recent legal changes and program tools are forcing the regions and communities to collect land use related data. The pilot in Ústí nad Labem is a Development action plan aimed at one of 3 large brownfields areas in the city.

***PILOT 3-Germany /The region of Saxony***: Saxony is confronted with the ongoing economic and demographic change. Despite of the shrinking population land consumption is increasing and historic centres and locations are losing their functions and population. Important effects are 7.000 ha of brownfields in Saxony, high costs of maintaining underused infrastructure and high cost of urban interventions. The pilot in Region of Saxony will initiate a coherent approach to land consumption and urban renewal.

***PILOT 4-Italy/ Piedmont, Asti city*****:** Asti is a medium sized city, seat of the Provincial government of Asti, in an area where agriculture has still a great importance, as the wine production has become a leading sector in the economic asset. Located in the city centre is an important degraded area, now abandoned. The pilot in Asti is Analysis of the city needs and the development dynamics is needed in order to identify the best suitable new function for the area. The aim of this pilot is to apply the Circular Land Use Management approach, taking into account all the inputs coming both from the local context and from the expectation of stakeholders and future users, in order to set up the re-use and new functions for the area.

***PILOT 5-Slovakia/Trnava:*** The Trnava sub region of is confronted by the intensive sub-urbanisation caused by fast economic growth and ensuing rapid spatial transformation. Trnava is a city of regional significance, which has in a short period of time it undergone a very dynamic development. The number of citizens has doubled in the last forty years. In the last decade the city development is closely connected with the automotive industry (Peugot, Citroen). There is a growing demand especially for housing development in the

surrounding suburban settlements The pilot consist of an establishment of a consortium by the city of Trnava and the surrounding communes based on the concept of co-operation. This co-operation will be oriented to effective spatial utilisation of the given region potential and implementation of the CIRCUSE strategic approach.

***PILOT 6-Poland/Piekary Slaskie***: City is location within the Upper Silesian Metropolitan Union. Pilot site is a part of an a post industrial area in the middle of town, which is due to develop for economic use within a new function - instead of reaching to new green areas. The pilot main focus will be a circular land use of a contaminated area. Remediation solution should be chosen basing on risk assessment in addition to a land use plan. Activities would be based on a strategic tools and action plans. The new use of this pilot brownfield would be a public wooded area.


Fig.2 Czech pilot area Krásné Brezno, Ústí nad Labem

## 4 THE CZECH PILOT

When the development potential of Czech regions and cities is compared, the Ústí region and the city Ústí nad Labem, lag on a lower end of the development opportunities ladder. Because the Ústí region is one of the most urbanized and was one of the most industrial regions, there is a high number of brownfields land within the urban fabric. Also the open cast mining had a devastating effect on the regional landscape, which is only slowly being remediated. The region as yet does not have a political will and an integrated strategy, how to approach all this remediated land, or the climate changes, which such remediation would bring. Similarly the city of Ústí nad Labem lacks political will and an adopted strategy, how to approach nearly 12% of

brownfield land in its build up area. A pilot of project COBRAMAN[2] in 2010 had produced very detailed analyses of the city's´ brownfield situation and also a strategy. The strategy identified 3 key brownfields areas, which would need some sort of an intervention to be returned to a beneficial use. In all the 3 instances, one of the key land owners are state owned railway companies, which are historically difficult and slow to deal with. The Ústí city centre was improved by an intervention of the 2004-06 ERDF, which produced substantial private investments, but only in the city centre. The second wave of the ERDF had improved public facilities, again solely in the city centre. The ERDF funds were not channelled into any of the 3 key vast brownfield areas for several reasons:

- the city had not owned much land there and felt powerless to do anything about it,
- planning is not too helpful to lever a solution,
- owners as well as the city, have not understood that they would need to cohere to address redevelopment of these areas,
- there is still not an understanding, that an intervention and delivery vehicles are needed to address sites of such a nature,
- ERDF regional program had produced such conditions, that addressing medium and long term development proposals, which had an initial low spending, was not possible.

But the city in 2007 have paid for an urban vision to be presented for the brownfield location Krásné Březno and Neštěmice, which envelopes for several kilometres the main rail line to the Czech Republic and lies alongside the river Elbe. This study was done at the prime of development optimisms and introduced an image of vast development volumes. The sobering of recent recession had produced development halt of most private investments. The elections autumn 2010 have brought new political garniture, which hast to start from square one to learn to perceive the solution. Meanwhile, the city budget is more and more stressed and in difference to previous two decades, city does not have any more much property to sell.

The pilot would take place in the area of Krásné Březno. It would suggest, how to approach the development of this site, evaluates its´ real estate potential and produce an Action plan, which would address the methods, the means and the program how best to progress development in this area.

## 5 THE POLISH PILOT

The district of Brzeziny in the City of Piekary Śląskie constitutes the pilot area in the CircUse project. The area is a subject of analysis from the view-point of circular land use management. The district is covered to a large extent with post-industrial sites after deep mining exploitation, non-ferrous metallurgical plants, and solid wastes dumping heaps. There are also old buildings with flats of low standard, which constitute an important category of sites presenting problems of physical and social degradation. There are also sites of previous agricultural activity which now are abandoned areas with a category of "un-used land" in the local land use plan of the city. According to the methodology of circular land use management an integrated action plan is one of the project outputs as a model approach to an area of such conglomerate of problems. It results from the analysis of brownfields issue in Europe that this model will be useful for a number of cases in various countries.

In the framework of the project there is one pilot site, where an investment is planned. The pilot investment will focus on a highly visible and exponated brownfield site in the Brzeziny district of the city of Piekary. This post-industrial area is a part of a newly established Industrial Park. Areas for the planned investment are either property of the Piekary Śląskie municipality or the State Treasure.

The final territorial range of the pilot area will be 16,5ha.

The investment foresees systematic "regreening" of the post- industrial site and upgrading of the overall image of the local landscape.

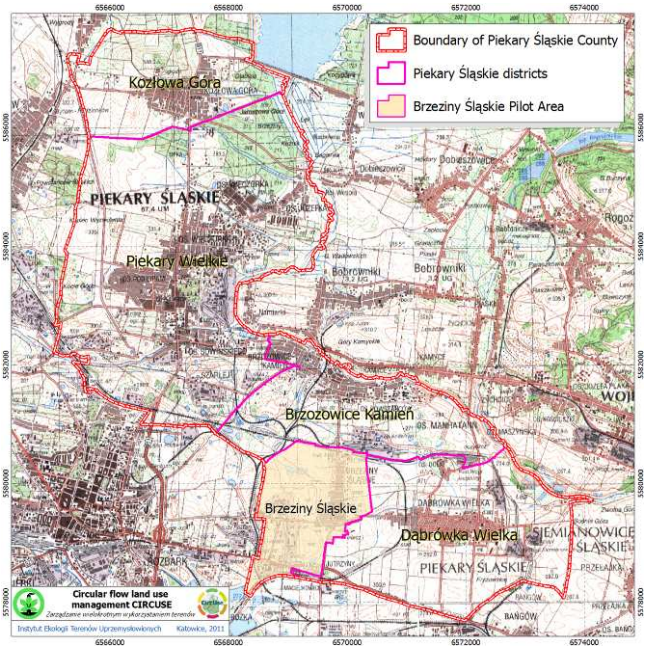
Investments' objective includes the transformation of the degraded terrains and developing them partly into a city park fulfilling the following functions:

[2] http://www.cobraman-ce.eu/

- the function of buffer vegetation separating the areas intended for industrial use and warehousing operations – from the residential areas of Brzeziny district,
- the functions of the ordered vegetation – park and recreational landscaping for the public use, consisting a supplement and extension of the existing city park in the close neighbourhood, in particular with the bike trails, Nordic walking tracks, rollerblades and skateboard tracks, that are attractive for the city dwellers and the guests arriving from the outside, along with the structural landscaping and designed greenery.

The approach to choosing the area for "regreening" and the innovative way of sustainable financial support of its future maintenance can be transferred to other regions in other countries. The strategy of land management within which the investment will be implemented is demonstrating an innovative long term thinking of land circular use, which is the idea of CircUse. This innovative strategic approach has a transnational character transferable as an innovation in thinking of the future management of land in other regions of Europe.


Location of Piekary Śląskie in Poland




Location of Brzeziny Śląskie in Piekary Śląskie


Location of the Pilot Investment Site in Pilot Area

Degraded landscape of Brzeziny Śląskie

## 6 CONCLUSION

The concept of Circular Land Use Management represents a new integrative policy and governance approach. This would presuppose a changed land use philosophy with regard to land utilization, an introduction of Circular Land Use Management strategies and taking up the steps necessary for the implementation. But reusing derelict land and lowering Greenfield development requires cooperative efforts both of the public and of the private sectors. This can only be achieved through a constructive collaboration and participation of a wide spectrum of stakeholders. It would rely on stakeholders´ability to cooperate, on creating appropriate cooperative structures, on focused communication and a wide information dissemination, and also on use of PR and mediation services. The Circular Land Use Management key to success is vested in accepting using some of the Greenfields sites under specific conditions. But primarily it relies on seeking and utilising the potential of all existing and already urbanized sites, including gaps and brownfields. The Circular Land Use Management intends to provide an integrated political and governance approach throughout a whole spectrum of policies areas and throughout various fields of activity.

These activities need to be implemented on local and also on regional levels. The Circular Land Use Management approach has to be integrated into the local urban and the regional land development policies. But the Circular Land Use Management land cycles also rely on interplay between number of other strategies and various instruments in different fields of activities. They rely on a suitably comprehensive deployment of tools (instrument mix) from various areas, which include especially: planning, land information systems, cooperation, organisation and management, investment and support programmes, suitable legislation and marketing of the land recycling concept. And they also rely on real estate markets absorbtion. But the main driving force of the Circular Land Use Management is always the public sector. There is however a need for better inter-sectoral, inter-actor (public and private sector, NGOs, households, property owners…) collaboration.

A collaboration across all the administrative levels (federal, state, region, municipality) is necessary for achieving targets of Circular Land Use Management. On a local level, there is a need for better land use data and better site specific information (e.g. data on land use potential of gaps and brownfield sites). The spatial planning on regional and municipal level needs to be coordinated and the land use has to be qualified (e.g. land consumption targets, transparent identification of land use requirements est.). From a national level, legal framework support is needed for sound instruments and new organisational forms (e.g. development agencies, funds for redevelopment or renaturation of brownfield sites, toping interest rate grants for private investments, cost-benefit-survey for land use development projects ex ante and ex post…).

The INTEREG CENTRAL EUROPE project CircUse will reviewed the current key instruments which have in the 6 partners countries affected the governance in the areas planning, information, organization and cooperation, budget funding and marketing. An overall strategy towards circular land use management in the Central EU will be proposed and policy and an Action Plans on Land Management in Central Europe would be developed by the project. These plans would also outline the Circular Land Use Management implementation, recommending adopting various measures and reforms of planning and economic tools and instruments. For the transnational use a transnational data base concept would be presented. The Pilot Projects will reflect first steps in for land use cycle management and show new orientations for the European policy 2014+.

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