

## **LIFELONG LEARNING NETWORKS FOR SUSTAINABLE REGIONAL DEVELOPMENT**

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### **ABSTRACT**

Sustainable regional development is a participatory, multi-actor process, involving a diversity of societal stakeholders, administrators, policy makers, practitioners and scientific experts. In this process, mutual and collective learning plays a major role as participants have to exchange and integrate a diversity of perspectives, interests and types of knowledge and expertise in order to arrive at innovative, jointly supported solutions. The design of ICT-based tools to support such learning processes is a major focus of the Lifelong Learning Network for Sustainable Development (3-LENSUS) project. The aim is to design lifelong learning networks that can bring universities and public and private sector actors together to develop sustainable solutions to complex regional problems. Lifelong learning in this context includes the acquisition of relevant new knowledge and skills by individual participants in the learning network as well as the co-production of new, transdisciplinary knowledge and solutions by (heterogenous) groups of participants. With learning networks we mean ensembles of actors, institutions and learning resources (in any form) which are mutually connected and supported by ICT, in such a way that the network largely self-organizes and gives rise to effective learning. The characteristic of these networks is that they try to make optimum use of social web-based software applications, also known as web 2.0 technologies, which enable a much more active and interactive way of learning. We will present the outcomes of a recent needs assessment regarding learning network design among practitioners from five European regions. Also, we will discuss the major challenges and opportunities that emerge in an on-going pilot in learning network design for a Euregional project in sustainable urban neighbourhood development.

### **INTRODUCTION**

The thrust of sustainable development is to achieve progress without shifting the costs to another domain, social group, area or future generation. This implies that in decision making on development issues, not only economical, but also ecological and social aspects must be considered, as well as effects at different spatial and temporal scales. To deal with this complexity, the development of sustainable solutions requires the integration of knowledge from different disciplines and types of expertise. Moreover, implementation of these solutions

will not be successful without the collaboration and support of the many different stakeholders involved in the issue. These stakeholders are more likely to support a solution when their perspectives, values and interests have been taken into account, or, in other words, when they have co-constructed the solution. Integrating a diversity of perspectives from different scientific disciplines, areas of expertise and stakeholder groups in the planning process may also enrich the problem definition and broaden the range of options considered, which is likely to result in better solutions. Therefore, sustainable development processes are often shaped as participatory, multi-actor processes, involving a diversity of scientific experts, practitioners, administrators, policy makers and societal stakeholders (Hisschemöller et al., 2001).

To generate adequate, widely supported solutions with such a diverse group requires intensive and effective communication and collaboration across the boundaries that divide the different perspectives. These are boundaries between different scientific disciplines, between scientific and practical knowledge, between different cultural or national points of view, between local and global perspectives, between short and long-term views et cetera. Such cross-boundary communication and collaboration often results in mutual learning, at the level of the individual participants as well as at group level. Individual participants can learn from one another about the perceived causes of the problem and about potential solutions, about interests at stake or the importance of different values and goals. At the level of the group, changes in the perspective of the participants on the problem ('what actually is the problem') and its solutions ('what are effective and acceptable solutions') may begin to converge. This process of convergence is often called 'social learning'. It ideally results in the collective development of new and wider problem definitions ('reframing'), produces solutions that maximize joint gain ('win-win solutions'), and creates a basis of support for concerted action and implementation (Van de Kerkhof, 2006).

In this paper, we will focus on a major need that stems from the central role of multi-actor processes in the development of sustainable solutions to complex societal problems: the need for innovative approaches to learning support. The design and development of methods and ICT-tools to support learning in transdisciplinary multi-actor approaches to sustainable development is a major focus of the Lifelong Learning Network for Sustainable Development project.

## **LEARNING NETWORKS**

The Lifelong Learning Network for Sustainable Development (3-LENSUS) is a project funded by the European Union's Lifelong learning programme (2009-2011). The project consortium consists of five universities representing the VCSE Network<sup>1</sup> and two of the European Regional Centres of Expertise on Learning for Sustainable Development (RCEs): Rhine-Meuse and Graz-Styria (Rikers & Hermans, 2008; Mader et al., 2008). A major focus of the project is the design and development of lifelong learning networks linking European

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<sup>1</sup> Virtual Campus for a Sustainable Europe, see: [www.vcse.eu](http://www.vcse.eu)

universities with actors from the public and private sectors in the region to promote sustainable development.

The term 'learning network' requires some clarification, as it has different meanings in different contexts. In literature on sustainable regional development, a learning network often refers to a network (alliance, partnership) of actors aiming at innovation through knowledge sharing or collaborative knowledge development. In terms of participants, these networks vary from quite homogeneous with only industry representatives included to very heterogeneous with representatives from the industry, NGOs, consultancies, government agencies, local authorities et cetera (e.g., Guijt & Proost, 2002; Manring & Moore, 2006; von Malmberg, 2007). The elements of the network are people, usually representing organizations, and physical meetings are important in establishing the connections in the network. In contrast, in literature on learning and educational technology development, learning networks are defined as "ensembles of actors, institutions and learning resources (in any form) which are mutually connected and supported by ICT" (Koper et al., 2005). Yet also in this field, learning networks come in many different shapes and sizes. Important dimensions in which learning networks differ are the degree of self-organisation, the focus on individual or group, and the extent to which online communication is blended with face-to-face meetings. Inspired by the massive popularity of web-based social software through which individual users 'spontaneously' form online social networks and communities, the current trend is towards self-organising, individual-based, online learning networks (Downes, 2005, 2007). Social software applications have made world-wide web usage distinctively more creative, more participatory and more socialising than before (Blees & Rittberger, 2009). Hence the term Web 2.0, the 'new version' of the web. Weblogs and wiki's allow web users to (co)create content, they can make their voices heard through rating and feedback systems, easily collect and filter information with RSS feed technology and they can share their lives with others through generic social networking sites (Facebook, MySpace) and specialized applications for sharing of media (e.g., YouTube, Flickr) and favourite bookmarks (e.g., Delicious). Synchronous online group meetings are easily arranged with free audio or video conferencing applications (e.g., Skype). A major difference with the previous generation of communication software (mailing lists, discussion forums, chat rooms) is that the current social software scales much better: the more participants, the better it works, thus producing 'the wisdom of crowds' (Dron, 2007). Understandably, in education and in particular in the open educational sector, there's a strong interest to incorporate the features, applications and tremendous resources of Web 2.0 into learning networks that foster creativity, use of open web-based sources, participation and social networking far better than the more traditional e-learning courses and knowledge exchange platforms. Downes (2007) listed four principles for such learning networks: diversity, autonomy, interactivity and openness. Diversity in points of view and types of knowledge and expertise of the participants is essential, as in a learning network each individual is in principle both a 'provider' and a 'consumer', thus enabling non-hierarchical mutual and collective learning. Also the principles of autonomy and interactivity contribute to this type of learning. Autonomy refers to the voluntary and self-motivated nature of participation and contribution of content in online networks. Interaction and exchange between these autonomous participants is obviously required for mutual and collective learning. Independent individual initiatives in

participation and interactivity on the basis of shared interests are the foundations of self-organising networks. Both autonomy and interactivity are greatly facilitated by current social software for producing, bookmarking, rating, annotating, tagging, sharing and discussing resources (Wigman et al., 2009). Openness finally, is what makes diversity, autonomy and interactivity possible. Barriers to participate in the network, to contribute to the network, and to access web-based resources must be minimized. Again, recent social software greatly helps to achieve this goal.

## **LIFELONG LEARNING NETWORKS FOR SUSTAINABLE REGIONAL DEVELOPMENT**

Learning networks characterized by diversity, autonomy, interactivity and openness offer great opportunities for lifelong learning. Lifelong learning "refers to all general education, vocational education and training, non-formal education and informal learning undertaken throughout life, resulting in an improvement in knowledge, skills and competences within a personal, civic, social and/or employment-related perspective."<sup>2</sup> In our view, lifelong learning in the context of sustainable regional development includes the acquisition of relevant new knowledge and skills by individual participants in the learning network as well as the co-production of new, transdisciplinary knowledge and solutions by (heterogenous) groups of participants. Stimulation of such learning is central to the mission of RCEs, which focus on the creation of infrastructures and mechanisms that bring local institutes of higher education and societal stakeholders and citizens together around shared regional challenges, across the traditional divide between scientific experts and non-experts (Fadeeva, 2007). This ambition is shared by the members of the VCSE Network, who aim to enhance the university's contribution to the sustainable development of the region where it is based. Learning networks appear to represent an innovative and powerful means to achieve these ambitions. In the 3-LENSUS project universities and RCEs jointly explore the potential of new and recent online learning network technology to support lifelong learning in regional networks for sustainable development.

As participation in a learning network is in principle voluntarily, a key aspect in designing such networks is the inclusion of mechanisms that encourage active participation and collaborative behaviour of the participants in the network (Sloep, 2008). Therefore, it is crucial to know what the needs and ambitions of the intended users are. A needs assessment regarding learning networks among representatives of five European RCEs yielded a number of key requirements, such as 'open and accessible', 'high quality and practical knowledge', 'variety of functionalities, accommodating individual, mutual and collaborative learning', 'active matching of knowledge users and providers', and 'theme-based, for defined target groups'. It was also concluded that a regional learning network should be a blend of face-to-face and on-line interactions. The major challenges the group identified concerned the quality assurance of the knowledge provided and produced in the network, the continuity of the interactions within the network and the incentives for knowledge sharing and participation in knowledge production.

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<sup>2</sup> [http://ec.europa.eu/education/programmes/llp/guide/glossary\\_en.html](http://ec.europa.eu/education/programmes/llp/guide/glossary_en.html)

## **CASE STUDY PROJECT: SUN**

A concrete case that may serve well to illustrate the needs and challenges for a regional learning network for sustainable development, is the SUN-project, initiated by the Local Environment Management & Analysis group of the University of Liège (LEMA) with support of the RCE Rhine Meuse. SUN (Sustainable Urban Neighbourhoods)<sup>3</sup> is a European Interreg IVa project for the Euregion Rhine Meuse, comprising parts of the Netherlands, Belgium and Germany. The project aims to start a learning process across borders, between local government officials, neighbourhood inhabitants, professionals in neighbourhood renovation and community activities, and scientific experts in sustainable urban development. The end goal of this Euregional learning process is to enhance the sustainability and liveability of existing urban neighbourhoods of the region. The project also includes very concrete targets with respect to the neighbourhoods' economic development (establishment of new companies, creation of new jobs), living environment (development of green public spaces) and energy use (insulation of houses). The participants and topics in the learning process range from inhabitants of neighbourhoods acquiring a sense of Euregional awareness through intercultural exchanges and local government officials learning from scientific experts about integrated approaches to urban neighbourhood renewal and from professional experts on practical ways to implement these, to academics learning about the underlying processes that lead to sustainable urban development. A series of on-the-ground activities and events is combined with a web-based platform for exchange of knowledge and information, in order to develop SUN into a vast action-research project on sustainable neighbourhood development.

For a learning network designed to support this Euregional learning process, two of the major challenges mentioned above appear to have been addressed in the SUN-project: quality assurance is explicitly defined as a role of the academic partners in the project, and there are clear incentives for participation stemming from either a professional need or from a direct benefit as inhabitants of the neighbourhoods included in the project. It is questionable however, whether these arrangements are optimal or even adequate. The type of knowledge developed in a sustainable development project must not only meet scientific quality standards but should also be 'socially robust'. In a learning network with rating and annotating functionalities it may be relatively easy to organize an 'extended peer review' (Funtowicz & Ravetz, 1993) including non-scientists. As to the issue of incentives, being a partner in the project may as such be insufficient to motivate active participation in the learning network. Moreover, if the learning network is meant to continue after the lifetime of the project, there must be other incentives anyway. Insufficient benefits as compared to those of alternative activities form the largest obstacle for academics to participation in regional sustainable development initiatives (Zilahy & Huisingsh, 2009), and this will most likely apply to all other types of participants. Obviously, in the design of a learning network for the SUN-project the incentives for active participation should all but be taken for granted. A

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<sup>3</sup> <http://www.lemalu.ac.be/research/SUN/index.php>

very relevant question in this respect concerns the contribution of the activities in the learning network to the very concrete project targets described earlier.

Closely associated with the issues of quality assurance and incentives for participation is the distribution of roles in the learning network. Ideally, a learning network is characterized by non-hierarchical interactions between autonomous participants, but this ideal is in stark contrast with what we now know about the role of power relations and vested interests in multi-actor networks from socio-political analyses. When these are taken into account, role differentiation in a learning network can contribute strongly to its effectiveness (cf. Von Malmborg, 2007). Thus, to ensure inclusive and constructive participation it appears necessary to gain an understanding of the dynamics of networks and their potential impacts on the learning process (such as politicization or technization of the discussions). A helpful theory in this respect may be Callon's 'sociology of translation' (Callon, 1986), which offers an analytical framework to study collective problem definition and interpretation processes.

There are still more challenges. First of all there is the issue of integration of face-to-face events and the 'virtual meeting place'. The learning network should support a truly blended approach with continuity between and after face-to-face events, instead of just providing announcements and reports of these events on a web site. A second issue is the interaction between scientific experts and practitioners. The learning network should support a dynamic two-way interaction or co-creation of knowledge and solutions, instead of a unidirectional transfer of academic knowledge. The same challenge of establishing a two-way interaction applies to the partners from the different countries, which are separated by different languages and cultures. Finally, a third issue concerns the engagement of the inhabitants of the neighbourhoods. The learning network should support a substantial upscaling in terms of number of inhabitants involved, as compared to the relatively limited number that will be able to engage in on-the-ground events. The challenge for the learning network here is to foster social cohesion, collective self-confidence and commitment to neighbourhood development.

## **PERSPECTIVE**

These needs and ambitions call for an innovative design with solutions that make the most of what current social software technology has to offer. Discovering the shared interest of all participants and giving it a central place in the design is crucial. In the SUN-project, access to monitoring data combined with the opportunity to participate in the construction of indicators, in the definition of protocols and in the interpretation of the results could be this shared interest. Experiences with homogeneous as well as heterogeneous actor networks for sustainable development indicate that monitoring can serve well to trigger social learning (e.g., Guijt & Proost, 2002). In a learning network, participants can jointly define and construct relevant indicators for sustainable neighbourhood development, determine needs for monitoring data (ranging from measurements of energy use to consultation of online citizen forums), establish protocols for data collection, store and present monitoring data, discuss trends in indicators and contribute to subsequent decision-making. Inhabitants can see how their neighbourhoods fare, local government officials can observe the effect of

policies, professional experts are informed about the performance of solutions in different contexts, and scientific researchers can perform integrated analyses. Moreover, they can all share their interpretations and reflections with each other and engage in a dialogue on the meaning and implications of the data. In the terminology of science & technology studies, the monitoring data will thus function as 'boundary objects' (Star & Griesemer, 1989), also known as 'objets intermédiaires' (Vinck, 1999). The role and relevance of monitoring is not unique to the SUN-project but similar in most regional development initiatives<sup>4</sup>. Therefore, it may be expected that the experiences to be gained in learning network design and implementation with this particular project will yield more general insights into the potential of learning networks to contribute to sustainable regional development.

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<sup>4</sup> See for example: <http://www.defra.gov.uk/sustainable/government/progress/data-resources/regional.htm>

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