



## LEARNING REGIONS IN SLOVENIA FOR THE UNDERSTANDING OF SUSTAINABLE DEVELOPMENT

**Ana Vovk Korže**

*University of Maribor, Slovenia*

### Abstract

*Learning Regions in Slovenia are in place for understanding sustainable development at local and regional level. In recent years, municipalities and various organizations have established over Slovenia at the different settings that need to connect to a joint bid. The school is growing experiential education and increase the usefulness of the knowledge in practice. New challenges in education are emphasized by the European Commission, which encourages Member States to responsibly carry out the educational process. The emphasis is on broad capabilities that open the door to different activities. More attention should be paid to the intergenerational cooperation, where in addition to the practice education and responsibility is also imparted.*

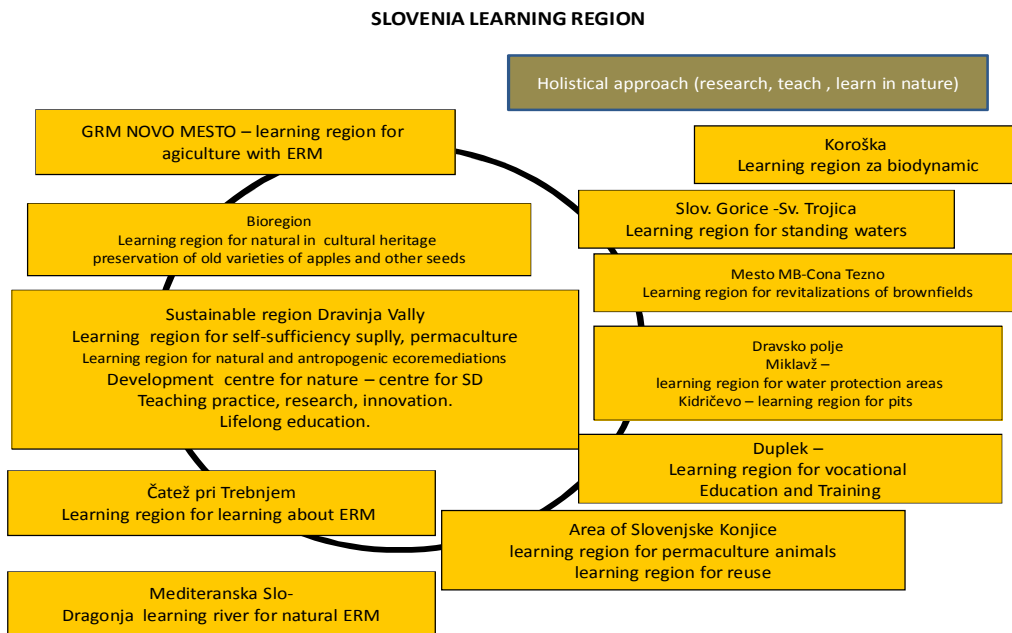
**Key words:** *learning regions, municipalites, self-sufficient supply, sustainable development, Slovenia.*

### Introduction

Regional development should be based on internal sources (Krotscheck, C. 2007). Slovenia has a rich natural and cultural heritage, which was included as a development capital. In line with this reasoning, the University of Maribor, Faculty of Arts, International Centre for Ecoremediation reported in 2009 a project with an innovative approach to education, where we developed the methodology of an outdoor classroom in nature. In Slovenia in the period between 2009 and within the project 2010, an attractive learning regions for all ages was created. The use of knowledge appears nowadays in the labor market as the maximum value of each individual (Pintrich, Schunk, 2002), which is extremely difficult to achieve in the educational process. Although modern trends in education increasingly stress the importance of innovative forms and methods of work in the classroom, teachers particularly those in Eastern and Central Europe, still opt for the classic, frontal lecture, which is based solely on the accumulation and remembering of theoretical facts (Haubrich, 2006). The problem of knowledge acquired solely on the basis of explanation is that the pupils or students cannot check it and therefore soon forget the content. Many experts are therefore placing increasing emphasis on experiential learning in the educational process, providing a problem-based process of knowledge acquisition as well as sustainable knowledge.

## Learning Regions in Slovenia

In the Dravinja Valley in the eastern part of Slovenia, in the area of Natura 2000 predominance, and where nature is still well-preserved, real natural classrooms were established. In 2010, the Slovenian Ministry of Education and Sport supported the project of establishing educational polygons in Slovenia, with the objective of providing especially young people (without the exclusion of lifelong education) with a holistic approach in research, teaching and learning in nature. The Educational polygon for standing waters in Sveta Trojica, the Educational polygon for groundwater in Miklavž and the Educational environment for natural ecoremediation by the river Dragonja have as yet been only partially established. In addition, the Educational point for constructed wetlands in Dobrna, the Educational polygon for ecoremediation GRM Novo mesto and the Educational point for soil protection in Rakičan are also under construction. Nature's Classroom, which links the above mentioned educational points, includes several educational paths (the municipality of Poljčane alone features 13 educational paths), cycle tracks and observation points. The majority of activities take place at the two educational polygons in the municipality of Poljčane, i.e. in the settlement Modraže, where the emphasis is placed on ecoremediation and self-sufficient supply. The municipality of Poljčane has systemically approached the transformation of the educational infrastructure into a classroom in nature, whose professional management is carried out by the International Centre for Ecoremediation at the Faculty of Arts of the University of Maribor, while the organisational work is undertaken by the Nature Development Centre, which was founded for the purposes of educational tourism.



**Figure 1: Slovenia is a learning region for Europe and the world (made by author, 2013).**

**The educational polygons for ecoremediation** in Modraže provide numerous possibilities for open-air education with their natural and anthropogenic ecosystems. They cover 5 ha of area, and 3 ha are designed for educational purposes. The educational polygon set up numerous educational environments for understanding the ecoremediation. Ecoremediation, which is based on the laws of how nature operates, is used above all in protected areas (for protection) and in the areas where degradation is present (for sanitation). Ecoremediation establishes everyday practice for cleaning water, protecting soil, preventing the spreading of dust particles and erosion, accumulating sediments and improving life quality in general. The educational polygon for ecoremediation is based on innovative approaches, which enable participants to create their own experience and understanding on the basis of their own activity.



**Picture 1. Solar energy for water pumping (photo by author, 2012).**

**The educational polygon for self-sufficient supply** in the settlement of Dole is based on compliance with the principles of permaculture and ecovillage. The educational polygon features a yurt (a mobile nomadic dwelling), where it is also possible to stay overnight. The polygon is grown over with autochthonous plant species, namely chestnut, walnut and fruit trees. The whole principle is based on considering limited natural resources and rational spatial use. The following plantations are shown: a meadow orchard, a forest garden, a field with mixed plants, and a fruit and vegetable garden. There is also a field and an area of natural succession. The elements of a sustainable way of living that are shown include: a solar collector for heating water, photovoltaic modules for electrical energy, a rainwater tank, a constructed wetland for the treatment of spring water and a spring water reservoir. A living building with willows, a fence with berries, a

windward shield and an element of water with plants all serve to enrich the space in terms of landscape and ecosystem. The basic aim of the entire concept of Nature's Classroom is thus to develop and strengthen the capacity of individuals to recognize and understand processes that take place in nature and environment, to form visions and alternative suggestions for solving numerous environmental problems, and to make assessments and decisions in favor of sustainable development, which are also the key principles of the education for sustainable development strategy (Pintrich, Schunk, 2002).



**Picture 2. Permaculture\* systems for agriculture (photo by author, 2013)**

\*Permaculture is a creative approach to abundant and fulfilling lifestyles. It is for everyone wishing to live sustainably and tread more lightly on the Earth.

### **Education Polygon for Ecoremediation in Novo mesto**

The project Sustainability Southeast Slovenia ecoremediations established a learning ground for ecoremediation (ERM) as a learning area for sustainable solutions to environmental problems in Southeast Slovenia's ecoremediations. Polygon is the property of Grm Novo mesto - Center of Biotechnology and Tourism. On the ground the pilot learning objects enable the identification of ecoremediation systems. In addition, systems that are built on ground are also natural cleaning systems ([www.erm-jvs.si](http://www.erm-jvs.si)).





**Picture 3. Phytoremediation system for soil and water cleaning (photo by author, 2012)**

### **Learning Gravel Pit Kidričevo**

The municipality Kidričevo has excellent access to highway upgrading, which also enables its development of new activities, of which in the past it did not know. It is therefore ‘Adventures in the municipality Kidričevo’ that offers a new development approach to the local environment on the basis of natural resources and human interest. The LAS project was arranged in gravel pit stubble so that it is already possible to implement the basic educational forms.



**Picture 4. Animation of the intergeneration activities in gravel pit Kidričevo (createt by author, 2013)**

## Reuse Centers



Reuse centers are spread across Slovenia as learning centers and social enterprises. Since Slovenia has a big problem with waste, re-use centers provide assistance in waste management.

**Picture 5. Reuse centre in Slovenia as social company (photo by author, 2010).**

## Koroška Region and Biodynamic

Koroška region has biodynamic, using it to clean the floor. Biodynamic is also a method for the processing of agricultural soils and allows the production of the healthy



food. For these purposes, the pilots build gardens in many places in Koroška.

**Picture 6. Biodynamic activities on the regional level (photo by author, 2013)**

## Education Materials

Prepared materials for innovative research, learning and teaching is an integral part of the compulsory curriculum materials in schools. At the same time all learning programs and educational materials were generated to help teachers in the implementation of the mandatory practices and practical lessons in the scope of the educational program Environmental Preservation Technician as well as to achieve the learning objectives in the context of environmental education for sustainable development. In the context of professional backgrounds for the preparation of educational curricula and modules for classroom practice, field work and excursions, four curricula were prepared, namely: curricula in accordance with the knowledge catalogues for compulsory and elective modules of the Environment Preservation Technician educational program; curricula for research, field work and learning at the established ecoremediation polygon in the field of nature preservation, environmental protection and environmental education, with cross-curricular links to mandatory general education courses, such as biology, geography and chemistry, as well as elective courses in subjects such as beekeeping and environmental chemistry, and preparation and implementation of educational curricula for natural science days and field work within primary education, focusing on the environmental subjects (1. triad of the 9-year primary education), natural science and technology (2. triad); biology and geography (3. triad) and in particular on the elective course environmental education at all stages of primary education.

The scientific bases for the preparation of curricula for practical lessons for Biotechnical schools, research, field work and excursions provide an overview of the content and learning objectives that will be achieved through implementation of individual learning programs within the 'classroom in nature'.

In accordance with the strategy for lifelong learning in Slovenia and the strategy for education for sustainable development as well as development of catalogues of knowledge and curricula, the purpose of these learning programs is to upgrade and supplement knowledge gained through theory with direct experience in nature. The key purpose of preparing these programs is to emphasize experiential learning and through a combination of learning paths in the Dravinja Valley and the ecoremediation learning polygon prepare curricula and modules that will help teachers to implement natural science days, project days, field work, required obligatory practice and practical lessons for those Biotechnical schools that implement the educational programs Nature and Environment Preservation Technician. In creating the background for preparation of the learning programs and materials, three practical training sessions for teachers were also carried out.

The evaluation of arrangements according to the sustainability criteria shows that we are achieving a high level of sustainability (taking into account the model of sustainability), since the established arrangements respect nature, tradition, history and the local population (Vovk Korže, 2011). The prepared educational programs, worksheets, e-learning materials and other learning materials are designed for applied research. Users visit the region to learn about useful approaches that can be immediately applied in practice. Learning materials are an important enrichment mainly in terms of utility, since users can connect theory with practice. Achieving sustainability dimensions in the learning region is an example of good practice for climate change adaptation,



reduced attenuation of biodiversity and increased individual responsibility for natural resources and energy. Modern e-learning approaches also strive for education in nature.

In accordance with the strategy for lifelong learning in Slovenia and the strategy for education for sustainable development as well as development of catalogues of knowledge and curricula the purpose of these learning programs is to upgrade and supplement knowledge gained through theory with direct experience in nature ([www.ucilnicavnaravi.si](http://www.ucilnicavnaravi.si)). The key purpose of preparing these programs is to emphasize experiential learning and to prepare through a combination of learning paths in the Dravinja Valley and the ecoremediation learning polygon curricula and modules that will help teachers to implement natural science days, project days, field work, required obligatory practice and practical lessons for those Biotechnical schools that implement the educational programs Nature and Environment Preservation Technician. In creating the background for preparation of the learning programs and materials, three practical training sessions for teachers were also carried out.

Pupils and students have the opportunity to check out the theory in practice; learn to think critically about a particular phenomenon or process and additionally to imagine processes, based on their own understanding (Radej, 2000). Based on experience they can form their own view of a phenomenon and their own position, which will affect their attitude and behavior towards that phenomenon or process in the future. Taking into account these facts, we at the International Centre for Ecoremediation, University of Maribor have decided to provide the conditions for in-depth, innovative education, based on useful knowledge that will also ensure the promotion of sustainable development (<http://www.ff.uni-mb.si/>). As a prerequisite for achieving quality in the learning process, we have set ourselves the original goal of ensuring adequate on-site infrastructure, offering a variety of tools, gadgets and equipment for field work. The establishment of the polygon was also the first step to ensure appropriate conditions for the implementation of experiential learning; at the same time it is a fundamental pillar, ensuring sustainability and societal awareness.

According to the feedback from users of the learning region, the concept is excellent, and continuation of those conditions for future experiential education also in other parts of Slovenia and in the international arena. With the support of local authorities, the regional and local population and EU policy, the creation of learning regions can be one of the exits from the crisis situation. Combining knowledge, transferring of experience between generations, reviving old practices and their relationship to innovation and, above all, their own active involvement are the ways to self-change. This is the foundation of a new way of thinking and acting.

## **Conclusions**

Ecoremediation, permaculture and biodynamic are approaches to achieve sustainability. It is the answer to the science, that an unlimited use of natural resources is not possible and that we are approaching the limits of growth (Prugh, Assadourian, 2003). Despite some doubts about the unsustainable use of resources on our planet and the exploitation of people, for sure, we will have to continue to work and live differently than we have so far. Therefore, by imitating nature (ecoremediation) and sound design humankind



is already lowering the cost of erosion, flooding, loss of rare plant and animal species. However, since such approaches to education are insufficient the learning experience is necessary. Professional is dealing with these approaches in the International Centre for ecoremediation on the learning polygon for self-care and permaculture in the municipality Poljčane (<http://www.ff.uni-mb.si/>).

Slovenia has the natural and cultural attractions and excellent strategic position. Also has organized school system and thus great potential to become a learning region for Europe and the world. Bologna study programs require particular in the first instance the practical experience that students are already receiving in learning regions. Even compulsory education is a learning polygons. Slovenia will never be able to compete in post-production with Europe and the world with the knowledge it can be. Development of a new experiential knowledge needed to address the environmental, social and economic problems.

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**Ana Vovk Korže**

Leader of the International Centre for Ecoremediation, Faculty of Arts, University of Maribor, Koroška c. 160, 2000 Maribor, Slovenia.

Phone: +386 51 622 766.

E-mail: [ana.vovk@um.si](mailto:ana.vovk@um.si)

Website: <http://www.ff.um.si/centri/erm>