

Questionnaire

Summary of the main activities of a scientific Organisation of the Slovak Academy of Sciences

Period: January 1, 2007 - December 31, 2011

I. Formal information on the assessed Organisation:

1. Legal name and address

Institute of Landscape Ecology SAS
Štefánikova 3, P.O.BOX 254
814 99 Bratislava
Slovakia

2. Executive body of the Organisation and its composition

| Directoriat | name | age | years in the position |
|----------------------|------------------------------|-----|-----------------------|
| director | Ing. Július Oszlányi, CSc. | 68 | 1996 - 2011 |
| deputy director | Mgr. Henrik Kalivoda, PhD. | 42 | 2002 - |
| scientific secretary | Ing. Dagmar Štefunková, PhD. | 52 | 2002 - |

3. Head of the Scientific Board

RNDr. Zita Izakovičová, PhD. (since 2012 director of ILE SAS)

4. Basic information about the research personnel

- i. Number of employees with a university degree (PhD students excluded) engaged in research and development and their full time equivalent work

capacity (FTE) in 2007, 2008, 2009, 2010, 2011 and average number during the assessment period

This information is included into the table 4.ii. – the first row of the table - Organisation in whole

ii. Organisation units/departments and their FTE employees with the university degree engaged in research and development

| Research staff | 2007 | | 2008 | | 2009 | | 2010 | | 2011 | | average | |
|--|------|------|------|------|------|------|------|------|------|------|---------|------|
| | No. | FTE | No. | FTE |
| organisation in whole | 36,0 | 32,9 | 39,0 | 33,9 | 40,0 | 33,9 | 41,0 | 33,7 | 33,0 | 29,8 | 37,8 | 32,9 |
| Department of ecosystem analysis | 14,0 | 13,1 | 16,0 | 13,1 | 16,0 | 13,1 | 14,0 | 10,8 | 9,0 | 7,8 | 13,8 | 11,6 |
| Department of landscape-ecological syntheses | 10,0 | 9,3 | 10,0 | 9,3 | 11,0 | 10,3 | 12,0 | 10,4 | 11,0 | 10,3 | 10,8 | 9,9 |
| Department of diversity of ecosystems and landscape - Branch Nitra | 12,0 | 10,6 | 13,0 | 11,6 | 13,0 | 10,6 | 15,0 | 12,6 | 13,0 | 11,8 | 13,2 | 11,4 |

5. Basic information on the funding

i. Total salary budget¹ of the Organisation allocated from the institutional resources of the Slovak Academy of Sciences (SAS) in 2007, 2008, 2009, 2010, 2011 and average amount for the assessment period

| Salary budget | 2007 | 2008 | 2009 | 2010 | 2011 | average |
|--|----------|----------|----------|----------|----------|----------|
| total salary budget (millions of EUR) | 000,3 57 | 000,3 87 | 000,4 11 | 000,4 23 | 000,4 01 | 000,3 96 |

6. URL of the Organisation's web site

<http://uke.sav.sk/>

¹ Objem mzdových prostriedkov bez odvodov do poisťovni so započítaním sumy miezd pracovníkov THS, ktorú organizácii poskytne ETO Úradu SAV. Rozpočet v Sk prepočítajte na eurá podľa konverzného kurzu 1€ = 30,126. (Podobne aj v ďalších tabuľkách.)

II. General information on the research and development activity of the Organisation:

1. Mission Statement of the Organisation as presented in its Foundation Charter

- ii. The scientific research activities of ILE SAS are oriented toward the development of the theory and methods of research of ecological properties and processes on the systems level. These activities develop the theory and methods of landscape ecology, deal with the problems of ecological processes and the dynamics of the landscape as well as produces models of the optimum ecological use of the landscape. It studies the material and spatial differentiation of biotopes in relation to landscape biodiversity and looks at the question of resources at the ecosystem level of local and spatial systems.
- iii. ILE SAS develops methods of ecologically sound landscape planning and special methods for the application and interpretation of ecological and environmental knowledge in the field of nature and landscape protection as well as in environmental management.
- iv. ILE SAS provides consultancy and other expert services in line with the main field of activity of the institute.
- v. ILE SAS provides PhD opportunities according to national legislation.
- vi. ILE SAS publishes the results of scientific research activity in both the periodical and non-periodical press. Publishing follows the relevant resolutions of the Presidium of SAS.

1. Summary of R&D activity pursued by the Organisation during the assessed period, from both national and international aspects and its incorporation in the European Research Area (recommended 5 pages, max. 10 pages)

The Institute of Landscape Ecology of the Slovak Academy of Sciences in past decades and especially in the period of 2007 to 2011, has established itself as one of the leading scientific organisations in the field of landscape ecology in Slovakia as well as in the European Research Area. The precondition for this was the excellent position of the Institute and institute's scientists who elaborated and developed methods widely accepted by the European community of scientists.

The local environmental and ecological problems of Slovakia, especially connected with human impacts and unwise use of natural resources caused a number of scientific challenges which became the main focus of the scientific work of ILE SAS scientists.

Between 2007 and 2011, our scientific projects have been focused on the following issues:

- Problems in the agriculturally utilised lowland landscape of Slovakia. Here the main types of projects were dealing with specific environmental and ecological problems such as large-scale agriculture and its ecological instability, management of the water catchment in mainly arable fields, water pollution and the influence of fertilisation of agriculturally utilised fields on water bodies in the catchment.
- Changes in agricultural land utilisation in mountainous and vineyard regions. Here, the specific problems caused by re-privatisation of land, land abandonment, land natural reforestation and consequently the changes in species, ecosystems and landscape biodiversity were studied.
- In the forested area influenced by the hydropower plant near Gabčíkovo. Here, the consequences of the decrease or changes of groundwater level on different types of forest ecosystems were studied.
- The protected landscape areas (Malé Karpaty, Biele Karpaty, Záhorie and elsewhere), national nature reserves (Parížske močiare, Jurský Šúr and elsewhere), national parks and UNESCO Biosphere Reserves (Vysoké, Belianske, Západné Tatry, Nízke Tatry, Poloniny and Poľana) served as study areas for the assessment of biodiversity status, changes and models for the future development of land cover, biodiversity and sustainable development.
- In the various parts of the country, in different types of ecosystems, biotopes, the influence of global changes (including climate change) on ecosystem function were studied.
- The selected protected areas of European importance (NATURA 2000 sites) were studied within their surroundings, i.e. the influence of the surroundings on the ecological stability of NATURA 2000 sites was studied and evaluated following land-use changes in the previous decades, based on aerial photos and field studies.
- In the abandoned mountain meadows in the Eastern Carpathians, which are important from a species biodiversity point of view (Eastern Carpathian flora, rare and endemic species), studies on changes in species composition, abundance and scenarios on sound management practices were studied within projects with international participation.
- The integrated management of the landscape was studied on a country-wide scale. Here, all aspects (abiotic, biotic, social) have been studied, evaluated and proposals for science-based integrated management of the landscape were prepared.
- 120 representative geoecosystems covering Slovakia were studied and evaluated in addition to basic characteristics. The scientific information consists of a scientific description of dominant communities, soils, dominant plant species and protected areas. Geoecological regions, covering the whole of Slovakia contain scientific information on land cover, environmental problems, NATURA 2000 components, development potential, protected areas, socio-economic structure and the current landscape structure.

The list of scientific activities is included in this questionnaire. Altogether 23 VEGA projects, 9 APVV project, 6 projects of the 6th and 7th Framework Programme (+ 4 Alter-Net subprojects) and another 29 international scientific projects have been worked on during the assessment period. The scientists of the Institute of Landscape Ecology of SAS have achieved an outstanding position in the area of ecological and environmental sciences within the Central-European region and also in the context of Europe as a whole. The Institute is also well-known in the world-wide scientific community. Apart from important scientific events originating in the earlier period of the Institute's history, such as methodology LANDEP, the foundation of IALE – the International Association of Landscape Ecology, the Prince of Asturias Award and

the Sultan Qaboos Award, the following achievements in the period of 2007 to 2011 are noteworthy:

ILE SAS

- is member of the European Topic Centre for Biodiversity, Paris, 2001
- works for the European Centre for Nature Protection, Tilburg, NL
- works for the European Environment Agency, Copenhagen, DK
- works for UNESCO Headquarters, Department for Ecological Sciences and Earth Sciences, Paris
- works for ILTER (International Long-Term Ecosystem Research)
- was host of the Office for Central and Eastern European ILTER at ILE SAS (till 2009)
- works for DG Environment as assistant and monitor in SK, CZ, PL, HU, RO
- became a Centre of excellence for landscape utilization and protection and for biodiversity
- is the Lead Partner of the Centre (consisting of 6 scientific institutes and 1 university)
- is a founder of the network of scientists S4C – Science for Carpathians (Bratislava, 10 June 2009)

ILE SAS scientists have represented, or are representing the Slovak Republic in the Programme Committee of the European Commission:

- Global Change (including climate change)

ILE SAS was representing the Slovak Republic in the NATO Environment Security Panel, responsible for the evaluations of proposals of scientific projects, till 2009

ILE SAS represents the Slovak Republic in:

- DIVERSITAS, Paris – a word network
- LIFEWATCH – the follow up of the 7th FP project
- EPBRS (European Platform for Biodiversity Research Strategy) in the EU Council Presidency country
- the European Platform for Biodiversity
- Planet Under Pressure
- Scientists of ILE SAS in their personal capacity served or serve as:
- Chair of the Commission for human and social sciences at the 34th General Conference of UNESCO (October, 2007)
- members of the scientific committees of
- The European Environment Agency, Copenhagen, DK, till 2009
- The European Centre for Nature Protection, Tilburg, NL, till 2012
- the World IALE (International Association of Landscape Ecology) Congress, Beijing, (August 2011)
- IUFRO conference (International Union of Forest Research Organizations),
- Landscape Europe
- a member of the Editorial Board of 3 renowned international scientific journals

The excellent international position of ILE SAS can be documented by the following: At present (2011), ILE SAS cooperates with 148 partners within the EU and non-EU countries and with 11 partners elsewhere (USA, Russia, Ukraine, Norway, Island, Switzerland, and Belarus).

The most important partners in the EU are the most important scientific institutes such as:

- ALTERRA, Wageningen, NL
- The Centre for Ecology and Hydrology, Lancaster, UK
- Leibnitz – The Centre for Agricultural Landscape Research, Munchenberg, D
- Instituut voor Natuurbehoed, Brussels, B
- The European Centre for Nature Conservation, Tilburg, NL
- Cemagref, Grenoble, F
- CEH, Lancaster, GB

Nine scientists from ILE SAS (former and present) became, and are the first professors of Ecology in Slovakia, in the assessed period, one ILE SAS scientist served as DG of Environment of the EC in Brussels.

Scientists of ILE SAS are co-authors of the reference book "European Environment-State and Outlook 2010" by The EC and European Environment Agency. They are also providers of scientific information and data as well as co-authors of the EU policy-relevant expertises such as: "Progress towards halting the loss of biodiversity by 2010", "Streamlining European 2010 Biodiversity indicators", „"Assessment for the Belgrade Pan-European Conference" (by The European Environment Agency) and "10 Messages on biodiversity".

Scientists of ILE SAS served as EU experts in plant species diversity, botany, arachnology and landscape diversity during the negotiation process between the EU and at that time the accession countries (RO, BG) in matters of environment and nature protection; they led the Advisory Group (guidance and review of materials).

The international activities of the scientists of ILE SAS have a long lasting and firm position within the institute's activities. Scientific projects of 6th and 7th Framework programme gave the opportunity of permanent contact, cooperation and mutual exchange of knowledge, methods, data and results. Young ILE SAS scientists are, from the very start of their scientific careers, exposed to the work, methods and results of the excellent scientists from prominent and renowned scientific institutions in the European Union and elsewhere.

ILE SAS was the initiator, co-author and is now a member of the Network of Excellence, AlterNet II. It has an outstanding position within the new EU member countries and is involved in the preparation of several projects.

On behalf of the European Commission and DG Environment, ILE SAS scientists monitor and check the scientific and technical quality of ongoing or already completed projects (on nature protection) in the Czech Republic, Slovakia, Hungary, Romania and Poland.

Charged by the European Commission and DG Agri, ILE SAS scientists have participated in several projects, focused on environment changes, biodiversity and nature protection as a result of the Common Agricultural Policy and its implementation in the new EU member states.

UNESCO Headquarters have addressed the Institute in the assessed period several times to solve scientific problems in UNESCO biosphere reserves. Apart from

scientific events, the UNESCO expert study, “The ecological optimal territorial and functional utilisation of the Tatry Biosphere Reserve (2006)” was one of the results. This was an excellent scientific reaction to the wind-storm damaged National Park. In the assessed period, ILE SAS scientists implemented these results in the newly proposed zoning of the High Tatras (2011).

The transfer of scientific knowledge and results of scientific projects into the educational process and environmental policy is also one of the strengths of ILE SAS. Numerous projects, financed from different sources, have focused on pupils of basic schools, teachers, stakeholders, local governments and policy-makers in the rural parts of Slovakia, starting with agricultural lowland areas and ending in the most remote villages in national parks or protected landscape areas. An example of this is the project entitled, “Raising ecological awareness of young pedagogues based on the principles of Biosphere Reserves”.

ILE SAS scientists feel both satisfied and proud of such a broad and intensive impact at local, regional, national and EU levels. It is worth mentioning, that the United Nations University in Tokyo is planning to establish a Research and Training Centre for Landscape and Ecosystems Management in Slovakia. This initiative is directly connected with the tradition, quality and good reputation of landscape ecology in Slovakia, to which ILE SAS scientists have contributed substantially. And not only in previous times, but mainly in the assessed period of 2007 - 2011, when landscape ecology became a science accepted and appreciated as a provider of scientific results, data, scientific arguments and science based expert advice in all developed countries.

2. Concept of R&D activity of the Organisation for the next four years (recommended 3 pages, max. 5 pages)

i. Present state of knowledge and status of ongoing research related to the subject of the Concept, from both international and national perspective

Research of the landscape is very complicated because the landscape is a very complex system which consists of numerous abiotic, biotic and socio-economic aspects.

Landscape ecology as a science has only been established in recent decades. ILE SAS is proud to declare that a high-level standard of landscape ecology in Slovakia has been achieved mainly thanks to the scientific activities of its researchers and scientists. Renowned methods such as LANDEP, a broad spectrum of scientific activities and excellent scientific results have influenced the decisions on environmental policy. Similarly in recent years, the results of scientific projects are broadly utilized in solving many problems connected with nature protection, the wise use of natural resources and landscape planning.

The concept of sustainable development generally accepted in the developed world has also influenced landscape ecology in Slovakia in 3 dimensions - environmental, social and economic. These have become the basis for the environmental program of development at the threshold of the 3rd Millennium. This was declared and accepted at the UN Conference on the Environment and Development at the Earth Summit in Rio de Janeiro in 1992, and later endorsed by the Summit in Johannesburg (2004). Despite the fact that the concept of sustainable development was adopted several years ago, it cannot be claimed that the defined problems in the concept of sustainable development have been solved.

These acute problems must be solved to secure the further existence and development of mankind. At present environmental problems like exhausted natural resources, the declining quality of the environment, the threat to, and loss of biodiversity, the decrease of landscape ecological stability and the increase of negative psycho-social features are overgrowing the purely ecological framework and are already threatening the existence of mankind. To study and to solve the problems of sustainable development is the task arising for pragmatic reasons. This aspect is the driving force for landscape-ecological research at present and in the future. The study of the landscape is, and will be focused on the possibilities of sustainable utilization and development of the landscape, sustainable utilization and use of ecosystems to achieve the ecologically acceptable utilization of the landscape, the wise use of nature, of natural resources, protection of the stability and biodiversity of the landscape and protection of the environment.

The main factors, which have an influence on (or are demanded by) the development of landscape-ecological research at both a national and global level are:

- Insufficient knowledge of species diversity as well as ecosystem and landscape diversity; especially of its spatial pattern and representativeness – its occurrence and degree of preservation, the endangerment and isolation of specific representative ecosystems in specific regions. The issue for research in its current stage, as well as in the coming years will be the insufficient knowledge of the relationship between environmental factors and their influence on biota development.
- A greater need for solutions to global ecological and environmental problems – climate change, overall ozone loss, the rising intensity of natural disasters (earthquakes, erosion processes, floods, fires etc.), changes to the demographic structure and its consequences, land use changes and its consequences, the ineffective use of natural resources etc. These negative processes have an impact on biota endangerment, resources degradation, human health, endangerment and degradation of ecosystems etc. The increase of these global environmental problems will require the securing of sustained monitoring and evaluation of major macroclimatic and hydrological parameters including their relation to biota and ecosystems; the transformation of measures into environmental regulations in various policy sectors including agriculture, water management, forestry urbanization and so on., as well as creating an integrated system of prevention and the elimination of consequences of natural disasters. The elimination of these factors requires a systematic and integrated approach to landscape research and management.
- There are negative influences and pressures from specific socio-economical activities on the natural environment. There is also the influence of stress factors which are caused by the increased pressure of individual socio-economic activities on natural ecosystems. Although there is a noticeable positive trend in the decrease of pollutants, which is mainly the result of the implementation of new technologies in industry and agriculture, there is always the risk of exposure to contaminants. The main problem will be the increase in CO₂ concentration as a consequence of increasing traffic volumes, and an increase of toxic substances such as biphenyls, VOC, etc. The negative influence of contaminants present in other environmental components on biodiversity (especially in the soil, geological substrate, groundwater etc.), as a consequence of old environmental burdens, will be a problem in Slovakia in the coming decade. A persistent problem from the previous period is also the predominance of industrial plants which consume a large amount of energy and mineral resources. Although the post-transition period brought with it positive changes to the influence of agriculture on biodiversity (a

decrease in the use of chemicals and machinery, expansion of grassland management and so on), continuous land abandonment and synatropization could increase the risk of biodiversity loss. A certain risk for the application of ecologically optimized land use is the issue of unsolved land ownership which is causing the promotion of non-organic forms of agriculture enforced by land owners. The land ownership issue could have a negative impact on the biodiversity of forest ecosystems, because the reclamation of forest land to a private person could result in a preference for non-ecological forms of management and a decrease in planting activities. The intensive development of recreational activities caused mainly by spatial pressure on localities which are important from the biodiversity point of view, as well as the negative influence of uncontrolled mass events on specific ecosystems, could be a problem resulting in the loss of biodiversity.

- Duties and requirements resulting from international conventions and agreements ratified by Slovakia, or which will be ratified in connection with the entry of Slovakia into the EU as well as into European and global structures such as NATO and the OECD. Slovakia has broad obligations arising from important international conventions, international agreements, contracts, charters connected with the protection of biodiversity and stability as well as the protection of natural resources and the environment. The fulfilment of these obligations could have a significant influence on the direction of research in the upcoming period.
- Continually increasing pressures on resources and investment pressures on ecologically valuable areas. The spontaneous investment into development without respecting nature, vulnerability and ecological carrying capacity limits; the increase of fragmentation, isolation and vulnerability as a result of the implementation of investment plans (the building of highways, industrial parks etc.) can be a great risk to the functional properties of landscape systems and can cause serious environmental problems.

These are the main topics and challenges of landscape-ecological research for the next period. Based on this, we can identify the main research activities for ILE SAS:

- *The identification of the state of biodiversity components and assuring long-term ecological research.* This will be focused on complex biological and ecological inventories which are aimed at understanding their spatial specification, current status and identification of their trends, database creation and update.
- *Research focused on representative geoecosystems and the evaluation of spatial ecological stability.* This is based on the geoecosystem approach to biodiversity protection. It is focused on understanding the current state of representative geoecosystems, their occurrence in individual regions and the state of their exploitation and protection. The goal of this research is to preserve or restore the fullest possible range of representative geoecosystems and their interconnectedness as a basic condition for preserving the satisfying status of the ecological stability of the country. Numerous representative geoecosystems, particularly in intensively managed lowlands were destroyed and in terms of spatial stability, it is essential for their recovery as well as for the revitalization of existing preserved but disturbed ecosystems.
- *Monitoring and evaluation of processes and effects which affect biological diversity.* The specification of natural (natural disasters, etc.) or anthropogenic induced effects which can negatively affect biodiversity and stability, as well as assessing their impacts. In terms of biodiversity conservation, the anthropogenic factors are mostly treacherous – the unsustainable use of natural resources, the application of inappropriate management practices, the production of dangerous substances - heavy metals, phenols, dioxins, global climate change, the spread of

invasive species, the uncontrolled discharge of genetically modified organisms, fragmentation of the landscape, population isolation, artificial barriers to migration, the abandonment of agricultural land, the increase of synantropization etc.

- *Vulnerability and ecological carrying capacity.* Research aimed at environmentally feasible land utilization focused on the prevention of natural hazards and risk occurrence (erosion and accumulation processes mitigation, protection against floods, landslide regulation etc.) as well as the prevention of unacceptable anthropogenic pressures on certain areas which leads to the disruption of ecological stability of certain areas (intensive agricultural areas, basins, heavily urbanized centres, unbearable pressures on mountain ecosystems as a result of recreational activities and so on).
- *The economic valuation of non-production ecosystem services.* Research focused on estimating the monetary value of natural resources, as well as evaluating of their function in the landscape. For example, the economic evaluation of the protective function of forests; the economic evaluation of the protective, productive and environmental functions of wetlands and so on. The transformation of the economic value of resources into production processes, setting and controlling resource consumption limits based on their reasonable values and so on.
- *Ecosystem services assessment.* Research focused on a comprehensive assessment of the ecosystem services to humans, directly or indirectly derived from ecosystem functions related to habitat, biological or system properties or ecosystem processes. Biodiversity and ecosystem services are natural assets and play an important role in future economic strategies focused on development and prosperity. They are the physical link between ecological systems and human economies. Explicit spatial information about ecosystem services is generally derived from classical land use maps where a dominant ecosystem service is displayed.
- *Ecologically optimal land utilization to ensure the protection and rational utilization of natural resources.* Besides the effective utilization of natural resources, land utilization significantly affects the effects of natural risks and hazards. Land utilization is also an essential condition for the spatial ecological stability of an area.
- *An evaluation of legal awareness and the value orientation of people.* It is mainly about shaping the public's environmental awareness, focusing on changing lifestyles in accordance with the protection of biodiversity; a gradual increase in environmental awareness and engaging the public in the process of nature conservation, the protection of the landscape and biodiversity, the rational use of natural resources, environmental protection and so on.

ii. Organisation's role or significance in the overall research effort within the field of the Concept on both the national and international scales

- ILE SAS is not only the founder and initiator of landscape ecology as a science in Slovakia (or Czechoslovakia, since 1965) but it also plays a leading role among similar institutes in the Central European area. The institute is well established in the national as well as European research field. The institute carries out its activities among other environmentally oriented institutions in Central and Eastern Europe as well as in greater Europe. ILE SAS cooperates in the Network of Excellence of the European Commission (project Alter-Net II). The institute also established and operates the Slovak platform for biodiversity (as a representative

of the European platform for biodiversity) as well as the Slovak organization, DIVERSITAS.

- ILE SAS scientists actively coordinate or participate in various national and international research projects including projects of the 6th and 7th Framework Programme. During the evaluation period, ILE SAS participated in a total of six 6 and 7 FP projects. Within these projects, ILE SAS has had altogether 130 partners in EU countries and outside Europe as well.
- The institute is also very involved with Slovak government institutions as well as with the European Commission, mainly DG Environment and DG agriculture. ILE SAS is an expert place of the European Commission for Biodiversity and after 8 years of expert work, the institute has been contracted for the period of 2009-2013 as well. ILE SAS is also the member of European Topic Centre for Biodiversity (ETC BD) representing the expert organisation of the European Environmental Agency (EEA). The consortium consists of 9 organisations mainly active in the field of biodiversity and the implementation of the Biodiversity Directive. ILE SAS scientists participated in the elaboration of the publication "Biodiversity - 10 messages for 2010" published by EEA on the occasion of the International Year of Biodiversity. ILE SAS was mainly involved in the report dealing with agricultural ecosystems, mountain ecosystems and cultural landscapes and biodiversity heritage.
- ILE SAS scientists are also active in expert organisations such as ILTER (International Long Term Ecosystem Research) and EASAC – ESP (European Academies Science Advisory Council – Environment Steering Panel), scientific board of Science for Carpathians, and a member of EBONE (European Biodiversity Observation Network).
- An important initiative is also the representation of the Slovak Republic in the Program committee of the 7th FP in Brussels as well as at UNESCO Headquarters. ILE SAS is the co-founder and active member of the organisation network Science for Carpathians (S4C) and the Danube Knowledge Cluster. ILE SAS scientists represent natural oriented sciences in the EU Danube strategy and its priority area is the achievement of a knowledgeable society through research, education and information technology. Since October 2011, ILE SAS is also the coordinator of the international network Landscape Europe representing an interdisciplinary network of institutions experienced and active in landscape-ecological research and related applications and policy fields.
- On the domestic scene, ILE SAS is the leader in new and modern methodologies and methods of landscape ecology. This can be proved by its initiative towards close co-operation with Slovak universities (with the departments or chairs of landscape ecology), mutual work on common scientific projects and also by the functioning of the Common Department with the University of the Constantine the Philosopher in Nitra. Here, the utilisation of recent scientific results in the educational process at the University secures the direct impact on the quality of the youngest generation of landscape ecologists. There are almost no environmental or ecological problems in Slovakia which have not been touched by ILE SAS scientists. ILE SAS is also the coordinator of the Centre of excellence for Landscape protection, management and biodiversity including 6 other research institutes from the Slovak Academy of Sciences and the Faculty of Natural Sciences of Comenius University in Bratislava.
- ILE SAS has achieved an excellent position, utilising not only its reputation but also a high quality scientists, a high-level of work and intensive co-operation with international scientists in numerous fields. With respect to the above mentioned achievements, an ILE SAS scientist was delegated to coordinate the works on the

Atlas of the Czech Republic, based on the concept of the Landscape Atlas of Slovakia.

iii. Objectives of the Concept

The conception of the Institute of Landscape Ecology of the Slovak Academy of Sciences (ILE SAS) for the upcoming time period fully respects i) the development of landscape ecology ii) the current state of landscape ecology as a science within the European and world-wide sphere as well as iii) the visions and ideas of its future development.

The basic objective of the scientific research of ILE SAS is the field of landscape ecology. The Institution's activities will continually follow its successful previous outcomes and will be in accordance with the development of the theory and methods of landscape ecology. Research of the landscape and its elements, processes and phenomenon occurring in the landscape at different hierarchical levels is one of the main tasks of the Institute as well.

All the scientific outcomes have to be used in the elaboration and evaluation of proposals for ecologically defined social development. European and world-wide trends to a greater extent respect the theories and concepts that the development of society especially in terms of sustainability is possible only if we follow scientific arguments gained through basic ecological and landscape-ecological research.

Landscape-ecological research has to be based on an interdisciplinary foundation. The landscape has to be understood as a geo-system i.e. elements of the landscape and their relationships. The analyses of individual landscape elements as well landscape-ecological synthesis are the basis for the elaboration of proposals for the optimal and rational utilization of the landscape and its elements. The integrated management of the landscape as an inevitable tool of the implementation of sustainable development and should be the most important activity of the Institute.

The Institute will make an effort to build a permanent and up-to-date scientific database for a sustainable society via the following specific tasks:

- Analysis, synthesis and interpretation of abiotic, biotic and socio-economic elements of the landscape
- Impacts of anthropogenous factors (positive and negative) on the landscape and its elements
- Stress factors, landscape-ecological importance and ecological carrying capacity of the landscape
- Evaluation of conflicts of interests, landscape-ecological and environmental problems
- Protection of biodiversity, elaboration of the NATURA 2000 network, territorial system of ecological stability
- Evaluation of ecosystem services
- Territorial system of stress factors, structure of the present landscape structure highly influenced by human factors
- Changes of landscape structure, evaluation of the main factors and impulses of these changes and their impacts
- Modelling of scenarios of development
- Monitoring of landscape changes, ecosystems and biotopes

- Biodiversity and production ecology of forest ecosystems and grasslands mainly under stressful conditions caused by pollution, climate change and tourism
- Management of protected areas
- Elaboration of methods of landscape-ecological planning
- Integrated management of catchments
- Landscape-ecological optimal utilization of specifically high-mountain, agricultural and urbanised landscapes

Global changes, including climate change, sustainable development and ecologization of the human activities are the main challenges which influence the Concept of the Institute both now and in the future.

The ILE SAS concept is built on four basic pillars:

1. Pillar: Development of primary scientific research

Primary scientific research should be the fundamental activity of the all the Institute's activities. It can be achieved by the continual development of methods and methodologies of basic landscape-ecological research, which ensures the unique position of the Institute in the field of research work among other institutions. ILE SAS (as one of the few in Slovakia) carries out complex interdisciplinary landscape ecological research.

The interdisciplinary nature of the institute has to be preserved and this aspect has to be implemented into the structure of the institute: all the professions necessary for complex landscape research have to be within the structure of the institute, proportionally.

The long-term study of ecosystems together with research into abiotic, biotic and socio-economic factors, biodiversity and changes to the landscape will be the main goals of this primary research. Primary research will be carried out in the scope of domestic projects (VEGA, APVV) as well as international projects supported by EU grants (7th FP, Horizont 2020, structural funds of the EU, funds of boundary cooperation etc.). The goal of the institute is to maintain successful participation in international projects, especially in projects of the 7th Framework Programme of the EU and projects of the Horizont 2020 programme. It is necessary to build broad international cooperation as it was in the previous period. This can be achieved by the continual participation of the Institute in international research projects such as ALTER-Net, Landscape Europe etc. as well as the support of permanent research on ILTER localities.

2. Pillar: Development of applied research

The main goal of this pillar is to transfer scientific knowledge into real practise, especially in the field of the elaboration of basic materials and proposals for the process of landscape planning and decision-making and also for the environmental legislation process (landscape planning and land consolidations). The institute is quite experienced in this field at a domestic as well as an international level (providing materials for the NATURA 2000 international network as well as materials and expertise for new legislation etc.). These activities should be developed in the future. The study and evaluation of current ecological and environmental problems, the elaboration of proposals for their elimination and prevention, the elaboration of strategies and management plans for the sustainable utilization of the landscape and its elements, the protection of biodiversity, the stability of the landscape as well as

protection of the environment will be the main activities of the institute in the sphere of applied research. A considerable part of this pillar will be provided for the EU, DG Research, DG Environment, DG Agriculture, for the European Environment Agency and the European Topic Centre for Biodiversity as well as for the State administration and regional and local municipalities. Applied activities will be carried out within contract projects and expertises with the above mentioned institutions. The outcomes should be provided and presented to authorities working in the field of environmental policy.

3. Pillar: Educational activities

Educational activities will be an important component of ILE SAS as well. These activities will be carried out at all levels. Activities in higher education will be implemented through the participation of Institute employees in the educational process at the following universities: Comenius University in Bratislava, The Slovak Technical University in Bratislava, Constantine the Philosopher University in Nitra, The Technical University of Zvolen. Scientific employees of the Institute will give lectures, presentations, study materials, consultations, reviewing diploma work etc. ILE SAS strongly feels it is an honour and duty to continue with the high level education of PhD. students in its Bratislava and Nitra departments as well as through the common department of ILE SAS and the University of Constantine the Philosopher in Nitra.

4. Pillar: Popularisation and presentation of the results

A very important factor of the institute's development and its positive role is the presentation of scientific results to the public. The popularisation concept will be focused on the presentation of scientific knowledge to the public with the aim of developing environmental and ecological awareness and improving the level of acceptance and the application of results of scientific projects. Only an educated society is able to successfully understand environmental and landscape-ecological factors in real life. The following activities are necessary to improve environmental knowledge: press conferences, educational films, contributions to the media including the internet, organizing exhibitions, popularisation activities and workshops with active public participation and carrying out common projects. The above mentioned activities are to be considered as one of the most important tools for raising public awareness of the protection and management of the environment.

We would like to emphasize, that the first pillar i.e. primary scientific research is to be considered as the most important and the highest priority for the Institute's further prosperity and perspective.

iv. Proposed strategies and methods to be applied, and time schedule

The concept of the Institute will be implemented through scientific projects including funding from national and international grants. Projects of the 7th Framework Programme and Horizon 2000 are very important. Participation in these projects enables employees to join international research teams and solve important and current world-wide problems.

ILE SAS is a subsidiary organization i.e. participates in contract projects arising from public demand. The selection of projects will be approved jointly with the scientific board of the Institute. Appropriate personal, equipment and financing for long-term landscape-ecological research is necessary for the implementation of this concept.

Necessary equipment and upgrades:

- Update of IKT and data park (2012 – 2013)

- GIS laboratory update (2012 – 2013)
- Establishment of a monitoring system of landscape changes in Slovakia (2012 – 2014)
- Establishment of a complex information and archiving system for the Institute (2012 – 2013)
- Renewal of the equipment for analysis of the quality of environmental elements (2012 – 2015)
- Establishment of a mobile laboratories and stationary field research stations at LTER localities
- Permanent update of IT equipment (2012 – 2015)
- Modernization of the Field Research Station Východná as a base camp for field work, a place for scientific meetings and small conferences as well as a place for the relaxation and recreation of employees of the Institute (2012 – 2015).

Concerning Human Resources, management of the Institute will focus on improving employee's qualifications, particularly the DrSc. level degree, which will guarantee PhD. study. Two employees should gain a DrSc. degree by 2015.

The publication strategy of the Institute has to be changed due to the evaluation criteria of scientific institutions. Most interest has to be focused on publications included into world databases, less to publications published in proceedings. The Institute will support the publishing of representative scientific monographs, which will represent the outcomes of research. Publication activities are still the most significant indices of an employee's evaluation. The main goal of the Institute is at least two contributions a year published in CC journals.

ILE SAS will continue with its editorial activities (*Ekológia* (Bratislava), *Životné prostredie*, *Ekologické štúdie* and monographs) and make a profound effort to include *Ekológia* (Bratislava) in the current contents of journals (by 2013) and the *Životné prostredie* journal into the SCOPUS database (by 2014).

ILE SAS will also continue organizing international symposia (16th International Symposium on Problems of Landscape Ecological Research, September 2012) and periodical conferences for example, Implementation of Sustainable Development (2012, 2014).

Regarding public acceptance, ILE SAS has to improve its contact and cooperation with governmental as well as non-governmental organisations, regional governments and municipalities i.e. with all the organisations utilizing the scientific output of our Institute (2012 – 2015).

ILE SAS will support cooperation with scientific communities, especially with the Slovak Ecological Society, which works at the Institute and the Slovak Association of Landscape Ecology IALE-SK.

ILE SAS will also support international cooperation. Positive interaction and cooperation with international institutions must be one of the fundamental elements of the institute's activities. Forging contacts and cooperation will be necessary especially with the European Environmental Agency, The Ecological Department of the head office of UNESCO, the European Council as well as the European Centre of Nature Protection. Partnership within landscape- ecological oriented institutions of the V 4 countries should also play a significant role.. ILE SAS will support participation in landscape ecological, ecological and environmental projects within the Danube Strategy and Forum Carpathicum.

III. Partial indicators of the main activities:

1. Research output

i. Principal forms of research outputs of the Organisation

Institute of Landscape Ecology SAS deals with the complex and interdisciplinary research of the landscape ecosystems, therefore as the most suitable type of publication for presentation of the ILE SAS research results is undoubtedly the scientific monograph. This type of publication offers a space for wide expertly oriented representative outputs, interdisciplinary scientific collectives, as well as a publishing of various methodical approaches, databases and imaging based interpretation facilities.

Significant expression form for scientific results and presentation of their competitiveness mainly in term of collaboration in international research teams oriented for narrowly specialised topics, methods and solutions are publications registered in WOS (CCC, SCOPUS) databases, therefore the effort of the ILE SAS scientific staff is driven by increasing of the publication intensity also in this direction and we are successful also with publishing in the most prestigious international scientific journals with high impact factor.

ii. List of the selected publications documenting the most important results of basic research. Total number of publications in the whole assessed period should not exceed the average number of the research employees. The principal science outputs (max. 5) underline

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- [2] AAB KANKA, Róbert. *Forests of the Belianske Tatry Mts. Bratislava (In Slovak) : Veda, publishing house of the Slovak Academy of Sciences, 2008. 249 pp. ISBN 978-80-224-0977-3*.
- [3] AAB BEZÁK, Peter - IZAKOVIČOVÁ, Zita - MIKLÓS, László - MOYZEOVÁ, Milena - ŠPULEROVÁ, Jana - MOJSES, Matej - KOČICKÝ, Dušan - PETROVIČ, František - BOLTÍŽIAR, Martin - HREŠKO, Juraj - HRNČIAROVÁ, Tatiana - ŠATALOVÁ, Barbora - LIESKOVSKÝ, Juraj - LEHOTSKÝ, Milan - ŠTEFUNKOVÁ, Dagmar - DOBROVODSKÁ, Marta - BARÁNKOVÁ, Zuzana - GAJDOŠ, Peter - DAVID, Stanislav - HALADA, Ľuboš - OSZLÁNYI, Július. *Representative landscape types of Slovakia (In Slovak)*. Bratislava: Institute of Landscape Ecology, SAS, 2010. 180 pp. ISBN 978-80-89325-15-3.
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iii. List of monographs/books published abroad

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- [3] HARMENS, Harry - NORRIS, David - MAŇKOVSKÁ, Blanka - OSZLÁNYI, Július. *Spatial and temporal trends in heavy metal accumulation in mosses in Europe (1990-2005)*. Bangor : Centre for Ecology and Hydrology, 2008. 51 p. ISBN 978-1-85531-239-5
- [4] PAVLIČKOVÁ, Katarína - KOZOVÁ, Mária - BELČÁKOVÁ, Ingrid - DRDOŠ, Ján - PAUDITŠOVÁ, Eva - KALIVODOVÁ, Eva. *Stabilisation of river ecosystems*. Brno : CERM, 2007. 353 s. ISBN 80-7204-403-6.

iv. List of monographs/books published in Slovakia

- [1] KANKA, Róbert. *Forests of the Belianske Tatry Mts. Bratislava (In Slovak) : Veda, publishing house of the Slovak Academy of Sciences, 2008. 249 pp. ISBN 978-80-224-0977-3).*
- [2] BEZÁK, Peter - IZAKOVIČOVÁ, Zita - MIKLÓS, László - MOYZEOVÁ, Milena - ŠPULEROVÁ, Jana - MOJSES, Matej - KOČICKÝ, Dušan - PETROVIČ, František - BOLTÍŽIAR, Martin - HREŠKO, Juraj - HRNČIAROVÁ, Tatiana - ŠATALOVÁ, Barbora - LIESKOVSKÝ, Juraj - LEHOTSKÝ, Milan - ŠTEFUNKOVÁ, Dagmar - DOBROVODSKÁ, Marta - BARÁNKOVÁ, Zuzana - GAJDOŠ, Peter - DAVID, Stanislav - HALADA, Ľuboš - OSZLÁNYI, Július. *Representative landscape types of Slovakia (In Slovak)*. Bratislava: Institute of Landscape Ecology, SAS, 2010. 180 pp. ISBN 978-80-89325-15-3.
- [3] KALIVODOVÁ, Eva - PUCHALA, Peter - NEMČEK, Vladimír. *Avifauna of the Stoličný and Gidra creek watersheds: the southern part of the Trnavská pahorkatina hill land (In Slovak)*. Bratislava: Institute of Landscape Ecology, SAS: Administration of the Malé Karpaty Landscape Protected Area, 2010. 118 pp. ISBN 978-80-89325-18-4.

- [4] PUCHEROVÁ, Zuzana - BOLTIŽIAR, Martin - DERNEŠ, Stanislav - HREŠKO, Juraj - MIŠOVIČOVÁ, Regina - RUŽIČKA, Milan - TUHÁRSKA, Katarína. *Secondary landscape structure: a methodical guide to mapping* (In Slovak): Nitra: Faculty of Natural Sciences, Constantine the Philosopher University in Nitra, 2007. 124 pp. ISBN 978-80-8094-191-8.
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- [12] BOLTIŽIAR, Martin. *The impact of georelief and morphodynamical processes on the spatial arrangement of the Tatra alpine landscape structure* (In Slovak). Nitra: Faculty of Natural Sciences, Constantine the Philosopher University in Nitra: Institute of Landscape Ecology, SAS, 2009. 168 pp. ISBN 978-80-8094-544-2.
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- [18] GARAJ, Bernard - CHRASTINA, Peter - BOLTIŽIAR, Martin - ČUKAN, Jaroslav - JÁREK, Marián - LENOVSÝ, Ladislav - MICHALÍK, Boris - ŠUSTEKOVÁ, Ivana. *Butín: Cultural traditions of Slovaks in the Romanian region of Banát* (In Slovak):. Nitra: Constantine the Philosopher University in Nitra, 2008. 254 pp. ISBN 978-80-8094-323-3.
- [19] KOZOVÁ, Mária - HRNČIAROVÁ, Tatiana - FINKA, Maroš - HREŠKO, Juraj - HUBA, Mikuláš - IZAKOVIČOVÁ, Zita - JAMEČNÝ, Ľubomír - KANKA, Róbert - MIDRIAK, Rudolf - MIŠÍKOVÁ, Pavlína - PETLUŠ, Peter - OSZLÁNYI, Július - OŤAHEL', Ján - PICHLEROVÁ, Magdaléna - RUŽIČKA, Milan - ŠPULEROVÁ, Jana - ŠTĚPÁNKOVÁ, Roberta - ZAUŠKOVÁ, Ľubica. *History and Current State of Landscape Ecology in Slovakia: contribution of Slovak Landscape Ecologists to the 8th IALE WORLD CONGRESS 2011*. Bratislava : Slovak Association for Landscape Ecology, 2011. 34 s. ISBN 978-80969801-1-6.
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- [22] RUŽIČKA, Milan. *The place in space and time: autobiography and documents* (In Slovak). Nitra: Constantine the Philosopher University in Nitra, 2009. 280 pp. Prírodovedec, 360. ISBN 978-80-8094-495-7.
- [23] *Conversations about man and nature IV.: a collection of essays* (In Slovak):. Editor Milan Ružička. Nitra: FPV UKF, 2007. 154 pp. Prírodovedec, č. 248. ISBN 978-80-8094.
- [24] ŠTEFUNKOVÁ, Dagmar - DOBROVODSKÁ, Marta - KANKA, Róbert - KRNÁČOVÁ, Zdena - BEZÁK, Peter - BOLTIŽIAR, Martin - DAVID, Stanislav - DRAMSTAD, Wenche - ĎUGOVÁ, Oľívia - FJELLSTAD, Wendy - GAJDOŠ, Peter - HALADA, Ľuboš - HREŠKO, Juraj - IZAKOVIČOVÁ, Zita - KALIVODA, Henrik - KALIVODOVÁ, Eva - KENDERESSY, Pavol - KRIŠTÍN, Anton - MAJZLAN, Oto - MOYZEOVÁ, Milena - PETROVIČ, František - STAŠIOV, Slavomír - ŠTEFFEK, Jozef - VAGAČOVÁ, Martina. *Attractiveness of the Malé Karpaty Mountain. landscape with an emphasis on historical agricultural structures and biodiversity* [electronic source - In Slovak]:. Bratislava: Institute of Landscape Ecology, SAS, 2011. 184 pp. The name is taken from CD title. ADOBE READER is required. ISBN 978-80-89325-22-1.
- [25] IZAKOVIČOVÁ, Zita - MOYZEOVÁ, Milena - BEZÁK, Peter - DOBROVODSKÁ, Marta - GROTKOVSKÁ, Lucia - HRNČIAROVÁ, Tatiana - KENDERESSY, Pavol - KRNÁČOVÁ, Zdena - MAJERČÁK, Ján - MIKLOŠOVIČOVÁ, Zuzana - MOJSES, Matej - PAVLÍČKOVÁ, Katarína - PETROVIČ, František - ŠPULEROVÁ, Jana - ŠTEFUNKOVÁ, Dagmar - VÁLKOVCOVÁ, Zuzana. *Evaluation of the agricultural landscape in the transition economy* (In Slovak). Bratislava: Institute of Landscape Ecology, SAS, 2008. 297 pp. ISBN 978-80-89325-01-6.

v. List of other scientific outputs specifically important for the Organisation

Other important scientific results published in journals registered in WOS and SCOPUS databases:

- [1] ADCA SCHRÖDER, W. - HOLY, M. - PESCH, R. - HARMENS, H. - ILYIN, I. - STEINNES, E. - ALBER, R. - ALEKSIAYENAK, Y. - BLUM, O. - COSKUN, M. - DAM, M. - DE TEMMERMAN, L. - FROLOVA, M. - FRONTASYEVA, M.V. - GONZALEZ MIQUEO, L. - GRODZIŃSKA, K. - JERAN, Z. - KORZEKWA, S. - KRMAR, M. - KUBIN, E. - KVIETKUS, K. - LEBLOND, S. - LIIV, S. - MAGNÚSSON, S. - MAŇKOVSKÁ, Blanka - PIISPANEN, J. - RÜHLING, A. - SANTAMARIA, J. - SPIRIC, Z. - SUCHARA, I. - THÖNI, L. - URUMOV, V. - YURUKOVA, L. - ZECHMEISTER, H.G. Are cadmium, lead and mercury concentrations in mosses across Europe primarily determined by atmospheric deposition of these metals. In *Journal of Soils and Sediments*, 2010, vol. 10, no. 8, p. 1572-1584. (2010 - Current Contents), (2.613 - IF2009). ISSN 1439-0108
- [2] ADCA HOLY, M. - PESCH, R. - SCHRÖDER, W. - HARMENS, H. - ILYIN, I. - ALBER, R. - ALEKSIAYENAK, Y. - BLUM, O. - COSKUN, M. - DAM, M. - DE TEMMERMAN, L. - FEDORETS, N. - FIGUEIRA, R. - FROLOVA, M. - FRONTASYEVA, M.V. - GOLTSOVA, N. - GONZÁLES-MIQUEO, L. - GRODZINSKA, K. - JERAN, Z. - KORZEKWA, S. - KRMAR, M. - KUBIN, E. - KVIETKUS, K. - LARSEN, M. - LEBLOND, S. - LIIV, S. - MAGNÚSSON, S. H. - MAŇKOVSKÁ, Blanka - MOCANU, R. - PIISPANEN, J. - RÜHLING, A. - SANTAMARIA, J. M. - STEINNES, E. - SUCHARA, I. - THÖNI, L. - TURCSÁNYI, G. - URUMOV, V. - WOLTERBEEK, B. - YURUKOVA, L. - ZECHMEISTER, H.G. First thorough identification of factors associated with Cd,

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- [3] ADDA LICHNER, Ľ. - HALLETT, P.D. - FEENEY, D. - ĎUGOVÁ, Olívia - ŠÍR, M. - TESARĚ, M. Field measurement of soil repeciency and its impact water flow under different vegetation. In *Biologia : journal of the Slovak Academy of Science*, 2007, vol. 62, no. 5, p. 537-541. (0.213 - IF2006). (2007 - Current Contents). ISSN 0006-3088.

Other important scientific results in scientific journals published abroad:

- [5] ADEB IZAKOVIČOVÁ, Zita - BARÁNKOVÁ, Zuzana - BABICOVÁ, Daniela - MOYZEOVÁ, Milena. Sustainable development strategies and indicators in the Slovak Republic. In *The Finnish Environment*, 2011, no. 4, p. 51-64. ISSN 1238-7312
- [6] ADEB HRNČIAROVÁ, Tatiana. Spatial organisation of agricultural landscape and soil conservation. In *Acta Scientiarum Polonorum : Formatio Circumiectus. Kształtowanie srodowiska*, 2007, vol. 6, no. 3, p. 9-18. ISSN 1644-0765.
- [7] ADEB BOWMAN, William D. - CLEVELAND, C.C. - HALADA, Ľuboš - HREŠKO, Juraj - BARON, J.S. Negative impact of nitrogen deposition on soil buffering capacity. In *Nature geoscience*, 2008, vol. 1, no. 11, p. 767-770. ISSN 1752-0894.
- [8] ADEB MAŇKOVSKÁ, Blanka - OSZLÁNYI, Július. Mosses and foliage of forest tree species as biomonitors of nitrogen pollution. In *International Journal of Environmental Studies*, 2008, vol. 65, no. 3, p. 379-389. ISSN 0020-7233.

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- [10] ABD BUBLINEC, Eduard - KUKLOVÁ, Margita - OSZLÁNYI, Július. Phytometry and energy distribution in beech ecosystems. In *Beech and beech ecosystems of Slovakia* (In Slovak). Bratislava : Veda, 2011, s. 289-327. ISBN 978-80-224-1192-9.
- [11] ABC IZAKOVIČOVÁ, Zita. Environmental evaluation of the industrial region of the Slovak Republic - the Žiar basin region. In *A sustainable supply of minerals for Europe - from waste to resources*. - Wrocław : European KGHM CUPRUM Ltd. Research and Development Centre, 2007, p. 17-26. ISBN 83-922065-6-8.
- [12] ABC PANIGAJ, Ľubomír - KULFAN, Miroslav - KULFAN, Ján - KALIVODA, Henrik. Butterflies. In *Tatras - Nature* (In Slovak). - Praha: Miloš Uhlíř - Baset Publishing, 2010, s. 479-490. ISBN 978-80-7340-115-3.
- [13] ABC BOLTIŽIAR, Martin - OLAH, Branislav. Changes in land use UNESCO biosphere reserve in Slovakia. In *Czech and Slovak landscape in the current research* (In Czech). - Brno: Masaryk University Brno, 2011, s. 126-179. ISBN 978-80-210-5420-2.

vi. List of patents registered abroad, incl. revenues

- a.
- b. ...

vii. List of patents registered in Slovakia, incl. revenues

- a.
- b. ...

viii. Table of research outputs

*Table **Research outputs** shows research outputs in number of specified entries; these entries are then divided by FTE employees with a university degree (from Tab. Research staff) for all Organisation at the respective year; finally these entries are divided by the total salary budget (from Tab. Salary budget).*

| Research outputs | 2007 | | | 2008 | | | 2009 | | | 2010 | | | 2011 | | | total | | | |
|--|--------|-----------|---------------------|--------|-----------|---------------------|--------|-----------|---------------------|--------|-----------|---------------------|--------|-----------|---------------------|--------|--------------------------|---------------|-------------------------|
| | number | No. / FTE | No. / salary budget | number | No. / FTE | No. / salary budget | number | No. / FTE | No. / salary budget | number | No. / FTE | No. / salary budget | number | No. / FTE | No. / salary budget | number | averaged number per year | av. No. / FTE | av. No. / salary budget |
| chapters in monographs, books published abroad | 9 | 0,27 | 25,18 | 0 | 0,00 | 0,00 | 1 | 0,03 | 2,44 | 6 | 0,18 | 14,19 | 2 | 0,07 | 4,99 | 18 | 3,6 | 0,11 | 9,10 |
| chapters in monographs, books published in Slovakia | 15 | 0,46 | 41,96 | 10 | 0,29 | 25,86 | 11 | 0,32 | 26,80 | 19 | 0,56 | 44,94 | 6 | 0,20 | 14,98 | 61 | 12,2 | 0,37 | 30,84 |
| WOS publications | 1 | 0,03 | 2,80 | 3 | 0,09 | 7,76 | 1 | 0,03 | 2,44 | 7 | 0,21 | 16,56 | 4 | 0,13 | 9,98 | 16 | 3,2 | 0,10 | 8,09 |
| scientific publications indexed by other databases (Current Contents*) | 1 | 0,03 | 2,80 | 2 | 0,06 | 5,17 | 0 | 0,00 | 0,00 | 1 | 0,03 | 2,37 | 2 | 0,07 | 4,99 | 6 | 1,2 | 0,04 | 3,03 |
| scientific publications indexed by other databases (**) | 3 | 0,09 | 8,39 | 10 | 0,29 | 25,86 | 8 | 0,24 | 19,49 | 7 | 0,21 | 16,56 | 7 | 0,23 | 17,47 | 35 | 7,0 | 0,21 | 17,69 |
| scientific publications in other journals | 44 | 1,34 | 123,09 | 41 | 1,21 | 106,04 | 41 | 1,21 | 99,87 | 63 | 1,87 | 149,00 | 49 | 1,64 | 122,30 | 238 | 47,6 | 1,45 | 120,32 |
| publications in proc. of international scientific conferences | 46 | 1,40 | 128,68 | 44 | 1,30 | 113,80 | 63 | 1,86 | 153,47 | 60 | 1,78 | 141,91 | 34 | 1,14 | 84,86 | 247 | 49,4 | 1,50 | 124,87 |
| publications in proc. of nat. scientific conferences | 53 | 1,61 | 148,27 | 99 | 2,92 | 256,05 | 32 | 0,94 | 77,95 | 42 | 1,25 | 99,34 | 45 | 1,51 | 112,31 | 271 | 54,2 | 1,65 | 137,00 |
| active participations at international conferences | 92 | 2,79 | 257,37 | 38 | 1,12 | 98,28 | 30 | 0,88 | 73,08 | 54 | 1,60 | 127,72 | 43 | 1,44 | 107,32 | 257 | 51,4 | 1,56 | 129,92 |
| active participations at national conferences | 60 | 1,82 | 167,85 | 87 | 2,56 | 225,01 | 61 | 1,80 | 148,59 | 59 | 1,75 | 139,54 | 11 | 0,37 | 27,45 | 278 | 55,6 | 1,69 | 140,54 |
| patents registered in Slovakia | 0 | 0,00 | 0,00 | 0 | 0,00 | 0,00 | 0 | 0,00 | 0,00 | 0 | 0,00 | 0,00 | 0 | 0,00 | 0,00 | 0 | 0,0 | 0,00 | 0,00 |
| patents registered in abroad | 0 | 0,00 | 0,00 | 0 | 0,00 | 0,00 | 0 | 0,00 | 0,00 | 0 | 0,00 | 0,00 | 0 | 0,00 | 0,00 | 0 | 0,0 | 0,00 | 0,00 |

* exopt WOS publications (former row)

**publications indexed by Scopus, Zoological Record, Cambridge Scientific Abstracts, ProQuest, Niscsa Databases, CrossRef

ix. List of patents and patent applications

- a.
- b. ...

x. **Supplementary information and/or comments on the scientific output of the Organisation**

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Notice: List of all research outputs of monitored assessment period of structure of the Organisation's annual report is included in the separate annex

2. **Responses to the scientific output**

Table **Citations** shows specified responses to the scientific outputs; these entries are then divided by the FTE employees with a university degree (from Tab. Research staff) for all Organisation at the respective year; finally these entries are divided by the total salary budget (from Tab. Salary budget).

| Citations | 2006 | | | 2007 | | | 2008 | | | 2009 | | | 2010 | | | total | | | |
|---|--------|-----------|---------------------|--------|-----------|---------------------|--------|-----------|---------------------|--------|-----------|---------------------|--------|-----------|---------------------|--------|--------------------------|---------------|-------------------------|
| | number | No. / FTE | No. / salary budget | number | No. / FTE | No. / salary budget | number | No. / FTE | No. / salary budget | number | No. / FTE | No. / salary budget | number | No. / FTE | No. / salary budget | number | averaged number per year | av. No. / FTE | av. No. / salary budget |
| Web of Science | 23 | 0,7 | 0,0 | 28 | 0,8 | 0,0 | 44 | 1,3 | 0,0 | 91 | 2,7 | 0,0 | 82 | 2,8 | 0,0 | 268 | 53,6 | 1,6 | 0,0 |
| SCOPUS (if not listed above) | 37 | 1,1 | 0,0 | 16 | 0,5 | 0,0 | 15 | 0,4 | 0,0 | 52 | 1,5 | 0,0 | 43 | 1,4 | 0,0 | 163 | 32,6 | 1,0 | 0,0 |
| Zoological Record, Cambridge Scientific Abstracts, ProQuest, Niscsa(if not listed above) | 0 | 0,0 | 0,0 | 0 | 0,0 | 0,0 | 0 | 0,0 | 0,0 | 0 | 0,0 | 0,0 | 3 | 0,1 | 0,0 | 3 | 0,6 | 0,0 | 0,0 |
| in monographs, conf. proceedings and other publications abroad (if not listed above) | 0* | ##### | ##### | 0* | ##### | ##### | 0* | ##### | ##### | 0* | ##### | ##### | 0* | ##### | ##### | 0 | ##### | ##### | 0,0 |
| in monographs, conf. proceedings and other publications in Slovakia (if not listed above) | 0* | ##### | ##### | 0* | ##### | ##### | 0* | ##### | ##### | 0* | ##### | ##### | 0* | ##### | ##### | 0 | ##### | ##### | 0,0 |

0* - not registered data

Citations not registered in citation indexes - 1743

i. List of 10 top-cited publications and number of their citations in the assessment period (2006 – 2010)

- [1] ADDA RUŽIČKA, Milan - MIKLÓS, László. Landscape-ecological planning (LANDEP) in the process of territorial planning. In *Ekológia (ČSSR) : časopis pre ekologické problémy biosféry*, 1982, vol.1, no. 3, p. 297-312. ISSN 1335-342X. (95 citations)
- [2] AAB RUŽIČKA, Milan. *Landscape-ecological planning - LANDEP I.* (In Slovak) Bratislava : Združenie Biosféra, 2000. 120 s. (84 citations)
- [3] AAB MIKLÓS, László - IZAKOVIČOVÁ, Zita. *Landscape as a geosystem* (In Slovak). Bratislava : Veda, vydavateľstvo SAV, 1997. 153 s. (68 citations)
- [4] AAB BOLTIŽIAR, Martin. *Structure of the Tatra Mountains Alpine Landscape (large-scale mapping, analysis and evaluation of changes using remote sensing data)* (In Slovak). Nitra : Fakulta prírodných vied Univerzity Konštantína Filozofa v Nitre, 2007. 248 s. ISBN 978-80-8094-197-0. (54 citations)
- [5] AAB *Landscape Atlas of the Slovak Republic* (In Slovak). Hlavná redaktorka: Tatiana Hrnčiarová. Bratislava : Ministerstvo životného prostredia SR ; Banská Bystrica : Slovenská agentúra životného prostredia, 2002. 342 s. ISBN 80-88833-27-2. (50 citations)
- [6] ADCA KARNOSKY, D.F. - ZAK, D.R. - PREGITZER, K.S. - AWMACK, C.S. - BOCKHEIM, J.G. - DICKSON, R.E. - HENDREY, G.R. - HOST, G.E. - KING, J.S. - KOPPER, B.J. - KRUGER, E.L. - KUBISKE, M. - LINDROTH, R.L. - MATTSO, W.J. - MCDONALD, E.P. - NOORMETS, A. - OKSANEN, E. - PARSONS, W.F.J. - PERCY, K. - PODILA, G.K. - RIEMENSCHNEIDER, D.E. - SHARMA, P. - THAKUR, R. - SOBER, A. - SOBER, J. - JONES, W.S. - ANTONEN, S. - VAPAAVUORI, E. - MAŇKOVSKÁ, Blanka - HEILMAN, W. - ISEBRANDS, J.G. Tropospheric O-3 moderates responses of temperate hardwood forests to elevated CO₂: a synthesis of molecular to ecosystem results from the Aspen FACE project. In *Functional Ecology*, 2003, vol. 17, no. 2, p. 289-304. ISSN 0269-8463. (48 citations)
- [7] AAB *Biotops of Slovakia: the mapping guide and catalog of habitats* (In Slovak) Editori Helena Ružičková, Ľuboš Halada, Ladislav Jedlička, Eva Kalivodová. Bratislava : Ústav krajinnej ekológie SAV, 1996. 192 s. ISBN 80-967527-1. (44 citations)
- [8] AAB OLAH, Branislav - BOLTIŽIAR, Martin - PETROVIČ, František - GALLAY, Igor. *Development of land use of Slovak UNESCO Biosphere Reserves* (In Slovak) Zvolen: Technická univerzita vo Zvolene, 2006. 139 s. ISBN 80-228-1695-7. (33 citations)
- [9] AAB IZAKOVIČOVÁ, Zita - MIKLÓS, László - DRDOŠ, Ján. *Landscape conditions for sustainable development*. Bratislava : Veda, 1997. 186 s. ISBN 80-224-0485-3. (27 citations)
- [10] ACB DRDOŠ, Ján - MIKLÓS, László - KOZOVÁ, Mária - URBÁNEK, Ján. *Basics of Landscape Planning: teaching texts* (In Slovak). Zvolen : Technická univerzita, 1995. 172 s. ISBN 80-228-0472-X. (26 citations)

ii. List of top-cited authors from the Organisation (at most 10 % of the research employees) and their number of citations in the assessment period (2006 – 2010)

[1] M. Boltžiar (437)

[2] M. Ružička (404)

[3] L. Miklós (404)

[4] Z. Izakovičová (243)

iii. Supplementary information and/or comments on responses to the scientific output of the Organisation

3. Research status of the Organisation in the international and national context

• International/European position of the Organisation

i. List of the most important research activities documenting international importance of the research performed by the Organisation, incl. major projects (details of projects should be supplied under Indicator 4). Collective membership in the international research organisations, in particular within the European Research Area

Main international research projects:

[1] A Long-Term Biodiversity, Ecosystem and Awareness Research Network - ALTER-Net - 6 FP programme, project coordinator - Centre for Ecology and Hydrology, UK ; responsible person in ILE SAS: J. Oszlányi, R. Kanka

The main goal of the project ALTER-Net is to assess the present state of the biodiversity and its changes according to sustainable development. The goal is achieved by complex integration of Network of Excellence. Project develops integrated approaches focused on unification and classification of indicators, driving forces and pressures related to biodiversity on European level.

Biodiversity differences between managed and unmanaged forests: Meta-Analysis of Species Richness in Europe. *Conservation Biology*, Vol. 24, No. 1, 2007 (R. KANKA as co-author)

Land cover change in Europe between 1950 and 2000 determined employing aerial photography. *Progress in Physical Geography* 34, 183-205. 2010 (BUGAR, G., HALADA, L., BEZAK, P., BOLTIZIAR, M., KOLAR, J. - co - authors)

[2] Sustainability Impact Assessment: Tools for Environmental, Social and Economic Effects of Multifunctional Land Use in European Regions (SENSOR) - 6 FP programme; project coordinator Leibniz-Centre for Agricultural Landscape and

Land Use Research, Germany; responsible person in ILE SAS: J. Oszlányi, P. Kenderessyi

SENSOR was an integrated project designed to substantiate the impact assessment process. It brought together 39 research partners from 15 European countries, China, Brazil, Argentina and Uruguay. SENSOR developed a broad view across policy arenas and land use sectors, which allows the user to simulate the impacts of fundamental changes of policy orientation, such as the complete redirection of Common Agricultural Policy financial support towards research and development.

- [3] Research and maintaining of biodiversity in historical structures of agricultural landscape of Slovakia, partner - Norwegian Forest and Landscape Institute; ILE SAS is the leader of project, project coordinator: M. Dobrovodská; ILE SAS

The main object of the investigation was traditional agrarian landscape - the mosaic of small scale arable fields, meadows and pastures. The main goal was to examine the extend of presence and state of such historical structures of agricultural landscape (HSAL) in Slovakia and what is their importance from biodiversity point of view. Based on the analysis of satellite images, combined with field investigation, over 3000 areas with presence of HSAL were recorded. Detailed interdisciplinary research carried on 3 basic types of HSAL, served the basis for elaboration of the Strategy of optimal management. The Strategy was then offered to be negotiated with local stakeholders and local authorities in 3 pilot areas.

ŠPULEROVÁ, Jana - DOBROVODSKÁ, Marta - LIESKOVSKÝ Juraj et al. Inventory and classification of historical structures of the agricultural landscape in Slovakia. *Ekológia(Bratislava)*

BARÁNKOVÁ Zuzana – DOBROVODSKÁ Marta – ŠTEFUNKOVÁ Dagmar – BABICOVÁ Daniela – MOYZEOVÁ Milena – Petrovič František. Participation of local people on identifying the landscape values and future development in historical agricultural landscapes. *Ekológia(Bratislava)*

- [4] Policy Influence of Indicators - POINT, 7FP programme; project coordinator University of Aarhus The Netherlands; responsible person in ILE SAS: Z. Izakovičová

The project will focus on indicator sets that were specifically designed to influence policies. This will include indicators for sector integration of environment, indicators for policy instruments such as sustainable development strategies, and ex-ante impact assessments of policy suggestions including research and innovation, but also indicators and indices, which are used by various stakeholders for policy influence. The work was carried out at two levels: national and supra-national (EU).

BARÁNKOVÁ, Z. - HALADA, L. - IZAKOVIČOVÁ, Z.. *Use and influence of agri-environmental indicators on policy development*. In Landscape ecology - methods, applications and interdisciplinary approach. 2010

Rhetoric and Reporting of Public Participation in Landscape Policy. In *Journal of Environmental Policy & Planning*, 2010 (BARÁNKOVÁ, Z., IZAKOVIČOVÁ, Z. - co-authors)

IZAKOVIČOVÁ, Zita - BARÁNKOVÁ, Zuzana - BABICOVÁ, Daniela - MOYZEOVÁ, Milena. Sustainable development strategies and indicators in the Slovak Republic. In *The Finnish Environment*, 2010

- [5] The Global Observation Research Initiative in Alpine Environments - GLORIA - Project 2008, coordinator of project - University of Vienna, Faculty of Life Sciences, Department of Conservation Biology, Vegetation and Landscape Ecology, responsible person in ILE SAS: P. Barančok

The purpose of GLORIA is to establish and maintain a world-wide long-term observation network in alpine environments. Vegetation and temperature data collected at the GLORIA sites will be used for discerning trends in species diversity and temperature. The data will be used to assess and predict losses in biodiversity and other threats to these fragile alpine ecosystems which are under accelerating climate change pressures. Until now more than 100 study sites were included into observation network on 6 continents. The field investigation period carried in 2008, was in 2009 and 2010 followed by the complex analysis of data obtained from 18 European regions and comparison of these data with initial data obtained in 2001. The changes in species composition, coverage in European alpine regions, vegetation thermophilisation and loss or increase of species amount were assessed.

Weak and variable relationships between environmental severity and small-scale occurrence in alpine plant communities. *Journal of Ecology*; 12 pp. 2007 (R. KANKA - co-author)

Continent-wide response of mountain vegetation to climate change. *Nature Climate Change*, 2, 2012 (R. KANKA - co-author)

- [6] European Biodiversity Observation Network: Design of a Platform for an Integrated Biodiversity Observing System in Space and Time - EBONE, project coordinator - Alterra (Belgium) - 7RP, responsible person in ILE SAS: Ľ. Halada

The project aimed in development of the fully integrated system for study and monitoring of biodiversity, based on key biodiversity indicators, fully integrated in space and time. The interlink and intercalibration between remote sensing and field monitoring was in a special focus of the project. We participated in the development and field testing of the methodology for the monitoring of habitats and landscape. The satellite data (MODIS - MOD09GQ) we used for the time series analysis of the vegetation index NDVI, grassland types and their management detection. The project represents an European contribution to the programme GEO-BON (part of GEOSS – Global Observation System of Systems).

The European Biodiversity Observation Network – EBONE. – In: J. Hřebíček, J. Hradec, E. Pelikán, O. Mirovský, W. Pillmann, I. Holoubek, T. Bandholtz (eds.): TOWARDS eENVIRONMENT: Opportunities of SEIS and SISE: Integrating Environmental Knowledge in Europe. Proceedings of conference, 25.-27.3.2009, Praha, 2009: 177-188. (Ľ HALADA - co-author)

HALABUK, Andrej - MOJSES, Matej - OSZLÁNYI, Július. *Using of Quickbird and landsat TM Satellite images for the classification and change assessment of reed marshes*. In International symposium on advanced methods of monitoring reed habitats in Europe. Editors Elmar Csaplovics, Jana Schmidt. - Dresden : Technische Universität Dresden, 2011, p. 29-41. ISBN 978-3-941216-78-5.

Collective membership of international research organisations, particularly within the European Research Area

- [1] ILE SAS - a member of the CONNECT consortium partnering prominent scientific institutes in the field of ecology.
- [2] ILE SAS - a member of PLANTA EUROPA – an international organization for plant protection.
- [3] ILE SAS - a member of the Network of Excellence within the Alter-net II project.
- [4] ILE SAS - the main coordinator and secretariat of Landscape Europe (from October 2011).

- [5] The Bureau for Long-term Ecological Research in Central and Eastern Europe was established at ILE SAS on 01/09/2002 and operated until 2007. Its activity ceased after the bureau was established for the whole of Europe (on 14/6/2007).
- [6] ILE SAS - an initiator and leader of Slovak platform for biodiversity
- [7] ILE SAS - an initiator and leader of ILTER - International Long-Term Ecosystem Research – a world-wide organization
- [8] ILE SAS - an initiator and leader of DIVERSITAS – an international collaborative project for science and biodiversity – a world-wide organisation
- [9] is a founder of the network of scientists S4C – Science for Carpathians (Bratislava, 10 June 2009)

ILE SAS as an expert institute for the management and decision making bodies of the EÚ

- [1] Since 2001, the Institute of Landscape Ecology SAS is an expert institute of the European Environmental Agency based in Copenhagen, Denmark. The institution is directly under the European Commission.
- [2] ILE SAS is an expert institute of the European Commission for biodiversity. After 8 years of activity, this position was extended till 2013. Within the consortium of the European Centre for biodiversity, it will provide the European Commission with scientific outputs related to ecosystems, habitats, animal and plant taxa from Central and Eastern Europe (for the European Environmental Agency and DG Environment).
- [3] ILE SAS works as an expert for the evaluation and assessment of project outputs funded by LIFE+ for Poland, the Czech Republic, Hungary, Romania and Slovakia (2009 – 2013); employees of ILE SAS completed 16 expert studies and reports for DG Environment.
- [4] ILE SAS is highly active regarding Slovak governing bodies and bodies of the European Commission (mainly the following Departments: Environment, Research and Innovation, Regional Policy and Development, Agriculture and Rural Development)

ii. List of international conferences (co-) organised by the Organisation

- [1] Creation of Unified Monitoring on the Basis of a Spatial Information System in the Ipeľ River Watershed, Dudince, Slovakia, 9/2010 (J.Oszlányi).
- [2] Research and management of the historical agricultural landscape, 3/2011, Viničné, Slovakia (M. Dobrovodská)
- [3] Forum Carpaticum. Integration of Nature and Society for Sustainable Development, 9/2010 Krakow, Poland (Ľ. Halada)
- [4] Assurance of the Permanent Provision of Ecosystem Services in the Alps and Carpathians, 6/2009, Bratislava, Slovakia (Ľ. Halada)
- [5] Science for the Carpathians: constituting seminar S4C, 6/2009; Bratislava, Slovakia (Ľ. Halada)

- [6] POINT workshop, 5/2009, Smolenice, Slovakia (Z. Baránková)
- [7] Use and Impact of Indicators in Sector Policies, 1/2009; Smolenice, Slovakia (Z. Baránková)
- [8] International conference EUROMAB “Work Together – Learn Together”, 10/2009, Stará Lesná, Slovakia (A. Kubáčková)
- [9] Annual conference of the UNESCO Slovak Commission, 6/2008 (J. Oszlányi)
- [10] Arachnological Research in Central Europe with a Focus on Arachnid Biodiversity; 9/2008, Východná, Slovakia (P. Gajdoš)
- [11] Landscape - Theory and Practise, 16th International Symposium on the Problems of Landscape Ecological Research; 9-10/2009 (O. Ďugová)
- [12] ILTER Network conference on Ecosystems Services and Climate Change Adaptation; Stará Lesná, Slovakia; 8/2008 (J. Oszlányi)

iii. List of journals edited/published by the Organisation:

1. WOS (IF of journals in each year of the monitoring period)

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2. SCOPUS

“Ekológia (Bratislava)”

3. other database

-

4. not included in the databases

“Environment” (Životné prostredie) - Revue for theory and care of the environment

“Ecological Studies” (Ekologické štúdie)

iv. List of edited proceedings from international scientific conferences and other proceedings

- [1] *EuroMAB 2009 : doing together, learning together : book of abstracts, Stará Lesná, 27 - 30 October 2009.* Editor Zuzana Baránková. Bratislava: Veda, Publishing House of the Slovak Academy of Science, 2010. ISBN 978-80-89325-14-6.
- [2] *Research and management of the historical agricultural landscape: Proceedings from international conference Viničné, 14 - 16th March 2011, Slovakia.* Marta Dobrovodská, Jana Špulerová, Dagmar Štefunková. Bratislava: Institute of Landscape Ecology Slovak Academy of Sciences, 2011. 228 p. ISBN 978 - 80 - 89325 - 19 - 1.
- [3] *Implementation of landscape ecology in new and changing conditions: Proceedings of the 14th International symposium on Problems of landscape ecology research. 4-7 October 2006 Stará Lesná, High Tatra Mts., Slovak*

Republic. Editor: Martin Boltžiar. Nitra: Institute of Landscape Ecology of the Slovak Academy of Sciences, Bratislava, Branch Nitra, 2008. 512 pp. ISBN 978-80-89325-03-0

- [4] *International Conference Priorities for conservation of biodiversity in biosphere reserves in changing conditions. Proceedings from the conference Stará Lesná, Tatry Biosphere Reserve, Slovakia, 2.-6. June 2007*. Ed.: Z. Guziová. Bratislava: Institute of landscape ecology SAS, 2007, 135 p. ISBN 978-80-89325-00-9.

- **National position of the Organisation**

- i. **List of selected most important national projects (the EU Structural Funds, Slovak Research and Development Agency (APVV), State Research Programmes, Scientific Grant Agency of the Slovak Academy of Sciences and the Ministry of Education (VEGA), Centres of Excellence, National Reference Laboratories and others)**

Most important national projects.

- [1] Center of Excellence for Protection and Use of Landscape and Biodiversity (The EU Structural Funds project) - project coordinator: H. Kalivoda.

ILE SAS is the leader of project (partners - 6 institutes of SAS and Faculty of Natural Sciences of Comenius University Bratislava) The unique network of field offices focusing on ecology and "green biology" within Slovak Republic. It was published a monothematic issue of the journal "Životné Prostredie" dedicated to the project ("Životné prostredie" Vol. 44, no. 6, 2010).

- [2] Research, development and application of advanced methods of geoinformatics, remote sensing and methods of parallel computation based on advanced hardware and software instruments, which enable parallel processing Biodiversity (The EU Structural Funds project) - project coordinator – ABmerit Trnava, Slovakia, responsible person in ILE SAS: A. Halabuk

We analyze the added value of novel remote sensing techniques and new satellite data available in order to promote using of remote sensing for radiation transfer modelling and assessment of annual impacts of nuclear power plants through radiation dose assessment. During the first years of the project we tested two massively available satellite platforms (Landsat and Terra MODIS) for operational crop monitoring at annual time step in the buffer zones of nuclear power plants. The results were presented at the 1st project workshop to the concerned public.

- [3] Model of the representative ecosystems on the regional level (APVV project) , project coordinator: Z. Izakovičová

MIKLÓS, L., IZAKOVIČOVÁ, Z. a kol. 2006: *Atlas of representative geoecosystems of Slovakia*. Bratislava: ÚKE SAV, 124 pp. + 6 map. II. Doplnené vydanie. ISBN 80-969272-5-6

ŠTEFUNKOVÁ, D., DOBROVODSKÁ, M., 2009: Preserved European cultural heritage in agrarian landscape of Slovakia. *Tájökölógiai Lapok* 7 (2). p. 238-290.

IZAKOVIČOVÁ, Z., OSZLÁNYI, J., 2009: Sustainable landscape management of the Tatry Biosphere reserve of UNESCO. *Ekológia (Bratislava)*. International journal of the biosphere. Vol. 29. N. 4. p. 333-345. ISSN 1335-342X.

MIKLÓS, L., ŠPINEROVÁ, A., 2009: The environmental conditions in Carpathian basin and the environmental policy of European Union. *Acta Universitatis Sapientiae, Agriculture and Environment*, 1 (2009), Cluj-Napoca, p. 89-98.

- [4] Landscape changes of the Biosphere Reserve Tatra in recent 200 years in relation to changing natural and socio-economical conditions (APVV-LPP project) project coordinator: J. Oszlányi

BOLTÍŽIAR, Martin. *Structure of the Tatra Mountains Alpine Landscape (large-scale mapping, analysis and evaluation of changes using remote sensing data)* (In Slovak). Nitra: Faculty of Natural Sciences, Constantine the Philosopher University in Nitra, 2007. 248 pp. ISBN 978-80-8094-197-0

- [5] Phytocoenological and ecological characteristic of the timberline forests of the Western Carpathians high mountains – Swiss stone pine - spruce forests - (VEGA project) project coordinator: P. Barančok

KANKA, Róbert. *Forests of the Belianske Tatry Mts. Bratislava* (In Slovak) Veda, publishing house of the Slovak Academy of Sciences, 2008. 249 pp. ISBN 978-80-224-0977-3).

- [6] Changes in the biodiversity and the structure of the forest ecosystem after 30 years: The research site of BAB; (VEGA project) project coordinator: P. Gajdoš

KALIVODOVÁ, Eva. Comparison of bird community of oak-hornbeam forest in Báb (West Slovakia) after 40 years (In Slovak). In *Tichodroma*. ISSN 1337-026X, 2008, roč. 20, s. 97-101. (podiel: 1)

Rosalia 21: proceedings of the results published by the Ponitrie Landscape Protected Area Headquarters. Editors: Michal Ambros, Peter Gajdoš. Bratislava : ILE SAS, 2010. 197 p. ISBN 978-80-970672-1-2.

- [7] Phytocoenological and ecological characteristic of natural and man-affected forest and non-forest biotopes at the chosen parts of Western Carpathians high mountains P. Barančok, VEGA - 2/0192/09

BARANČOKOVÁ, Mária - BARANČOK, Peter. *Geoecological assessment of the Belianske Tatry Mts.* In: Barančoková, M., Krajčí, J., Kollár, J., Belčáková, I. (Eds.), *Landscape ecology – methods, applications and interdisciplinary approach*. Bratislava: Institute of Landscape Ecology Slovak Academy of Sciences, 2010, p. 387-424. ISBN 978-80-89325-16-0.

PISCOVÁ, Veronika. *Vegetation changes in the Tatry Mts. at selected sites affected by human activity* (In Slovak): VEDA - publishing house of the Slovak Academy of Sciences, 2011. 300 pp. ISBN 978-80-224-1220-9.

- [8] The rural agricultural landscape and its biodiversity in transforming socio-economic environment, Ľ. Halada

The aim was the elaboration of database and map of the agi-environmental programs (AEP) in Slovakia and the assessment of the AEP contribution to the biodiversity and natural resources conservation in the national scale. The maps of 3 types of high nature value farmland areas of Slovakia were developed. We prepared also the list of habitats of the European importance depending on agricultural practices.

HALADA, Ľ., EVANS, D., ROMAŇ, C. PETERSEN, J.E., 2011: Which habitats of European Importance depend on agricultural practices? – *Biodiversity and Conservation* 20: 2365-2378

HALADA, Ľ., RUŽIČKOVÁ, H., DAVID, S., HALABUK, A., 2008: Semi-natural grasslands under impact of changing land use during last 30 years: Trollio-Cirsietum community in the Liptov region (N Slovakia). – *Community Ecology* 9 (Suppl.): 115-123

ii. List of national scientific conferences (co)-organised by the Organisation

- [1] Conservation and management of the agricultural landscape, 6-7/2008 Modra - Harmónia, Slovensko (J. Špulerová)
- [2] 9th Arachnological conference, Východná, 9/2011; Slovakia (P. Gajdoš)
- [3] Environmental Education in Terms of Sustainable Development, 4/2008, Suchá nad Parnou, Slovakia (Z. Izakovičová)
- [4] The Use of the Representative Geoecosystem Model in Nature Conservation, 1/2008, Suchá nad Parnou, Slovakia (Z. Izakovičová)
- [5] The use of Indicators of Sustainable Development in the Political Process; 3/2009; Smolenice, Slovakia (Z. Izakovičová)
- [6] 7th Arachnological conference, Východná, Slovakia; 9/2009 (P. Gajdoš)
- [7] Non-production Functions of Soil and the Landscape in Regions Impacted by Anthropogenous Activities, 9/2009; Michalovce, Slovakia (M. Boltžiar)
- [8] 10th Conference on Plant Population Biology, 10/2009; Nitra (L. Halada)
- [9] Typization of Slovakian Landscape; 10/2010, Smolenice (Z. Izakovičová)
- [10] Protection and Management of the Biodiversity of the Historical Agricultural Landscape, 6/2009, Bratislava (M. Dobrovodská)
- [11] Scenarios of the Development of the Representative Ecosystems of the Slovak Landscape in the Context of Global Changes, 5/2009; Kyselica (Z. Izakovičová)
- [12] New Trends in the Formation of Representative Geoecosystems of the Slovak Republic, 11/2010; Smolenice (Z. Izakovičová)
- [13] The Call of Smolenice IV – Cultural Landscape as an Object of Research on Sustainable Development; 10/2008; Smolenice (Z. Izakovičová)
- [14] The Festival of Landscape, 6/2009; Smolenice (M. Moyzeová)
- [15] Science, Education and Policy, Smolenice, 1/2009 (Z. Izakovičová)
- [16] The Role of UNESCO Biosphere Reserves for Biodiversity Protection; 10/2010 Hriňová (J. Oszlányi)

iii. List of edited proceedings of national scientific conferences/events

- [1] Ecological studies VII.: proceedings published on the occasion of the 5th Ecological days (Nitra, April 3rd, 2007), Editor: M. Boltžiar. Nitra: Slovak Ecological Society, 2008, 232 p., ISBN 978-80-968901-5-6.
- [2] Environmental education in terms of sustainable development: proceedings from the seminar held on the occasion of Earth Day 2008 in Suchá nad Parnou, April 22nd 2008. Editor: Z. Izakovičová, Bratislava: ILE SAS, 2008, 306 p., ISBN 978-80-89325-05-4.
- [3] Protection and management of the agricultural landscape: conference proceedings. Editors: Jana Špulerová, Tatiana Hrnčiarová. Bratislava: Ústav krajinej ekológie SAV, 2008, 306 s. ISBN 978-80-89325-05-4
- [4] Smolenická výzva IV. The cultural landscape as an object of research with the principles of Sustainable Development. Proceedings. Smolenice 9.-10.10.2008. Editors: Zita Izakovičová. Bratislava: ILE SAS, 2008, 159 p. ISBN 978-80-89325-04-7.
- [5] Live in Soil IX.: proceedings from the international seminar held on 30.-31.

January 2008, Bratislava. Editors: Olívia Ďugová. Bratislava: ILE SAS, 2008, 273 p. ISBN 978-80-89325-02-3.

- [6] Rosalia 21: proceedings of the results published by the Ponitrie Landscape Protected Area Headquarters. Editors: Michal Ambros, Peter Gajdoš. Bratislava : ILE SAS, 2010. 197 p. ISBN 978-80-970672-1-2.

- **International/European position of the individual researchers**

- i. **List of invited/keynote presentations at international conferences, documented by an invitation letter or programme**

- [1] DOBROVODSKÁ, M.: A Pilot survey in the High Tatras region. 9. Workshop of ALTER-net RA5. Grenoble (France), 23.-26.10.2007.
- [2] DOBROVODSKÁ, M., ŠTEFUNKOVÁ, D., ŠPULEROVÁ, J.: The state of the art in Agricultural landscape data in Slovakia. 2nd Eucaland Workshop ALDSA: Agricultural Landscape Data State of the Art. Cambridge (Great Britain), 3.- 4.4. 2007.
- [3] HALADA, Ľ.: Agri-environmental schemes in Europe and their implementation in Slovakia. A workshop of the ALTER-Net subproject on Ecological effectiveness and cost-effectiveness of conservation measures in the context of agri-environmental schemes: a comparison of methods. Bad Schandau (Germany) 22.-23.9.2007.
- [4] IZAKOVIČOVÁ, Z., OSZLÁNYI, J.: Sustainable development in the Slovak Republic. International conference EASY-ECO 2008-2010 Evaluation of Sustainability. Brussels (Belgium), 7.6.2007.
- [5] HALADA, Ľ.: Agri-environmental schemes in Europe and their implementation in Slovakia. A workshop of ALTER-Net subproject Ecological effectiveness and cost-effectiveness of conservation measures in the context of agri-environmental schemes: a comparison of methods. Bad Schandau (Germany) 22.- 23.9.2007.
- [6] MAŇKOVSKÁ, B. OSZLÁNYI, J. PERCY, K.E. KARNISKY, D.F.: The influence of greenhouse gas on epicuticular waxes of *Populus tremuloides* Michx.: results from open-air exposure and a natural O₃ gradient. 20th Task Force Meeting of the UNECE ICP Vegetation. Dubna (Russia), 5.-9.3.2007.
- [7] OSZLÁNYI, J.: Current state and planned activities of the Slovak National Platform for Biodiversity. 7. RP BIOSTRAT project meeting. Vilnius (Lithuania), 11.10.2007.
- [8] OSZLÁNYI, J.: The situation of biosphere reserves in the Slovak Republic. International conference on Redesigning the Biosphere Reserve of Neusiedler See. Illmitz (Austria), 18.10. 2007.
- [9] OSZLÁNYI, J., GAJDOŠ, P., HALABUK, A.: 40 years of scientific research in an oak-hornbeam forest in Báb (Slovakia). International Conference on Long – Term Ecosystem Research. Beijing (China), 22.-23.8.2007.
- [10] OSZLÁNYI, J., HALADA, Ľ., BOLTIŽIAR, M.: The Carpathians – large-scale transformation versus conservation. IALE 2007 world congress. Wageningen (Netherlands), 8.-12.7.2007.

- [11] OSZLÁNYI, J. MAŇKOVSKÁ, B. FRONTASYEVA, M. et al.: Atmosphere loading of the Carpathian Mountains - Slovak part by means of the *Bryophyte* technique. 20th Task Force Meeting of the UNECE ICP Vegetation. Dubna (Russia), 5.-9.3.2007
- [12] OSZLÁNYI, J., ŠTEFUNKOVÁ D., DOBROVODSKÁ, M.: Cultural landscape of the Carpathians and the value of landscape diversity. IALE 2007 world congress. Wageningen (Netherlands), 8.-12.7.2007.
- [13] BARANČOK, Peter, OSZLÁNYI, Július, KOLLÁR, Jozef, KANKA, Robert, BARANČOKOVÁ, Mária. Long-term ecosystem research in Slovakia and in the Carpathians. LTER-Europe & Scientific Site Coordinator Conference. Sevilla - Doñana (Spain), 21.-25.1. 2008.
- [14] HALADA, Ľuboš. Outline of biodiversity, ecosystem, and land cover research in the Carpathians. Science Conference for the Carpathians. Kraków (Poland), 27.-28.5.2008.
- [15] HALADA, Ľuboš, OSZLÁNYI, Július. LTER network in Slovakia, overview of research. ILTER Science Meeting. Stará Lesná (Slovakia), 19.-20.8.2008.
- [16] ŠPULEROVÁ, Jana: Application of GIS in Landscape Ecology in Slovakia. A training course: GIS, GPS and RS Application in Rural Development. The National Institute of Rural Development, Hyderabad (India). 4.2.-18.3. 2008.
- [17] DOBROVODSKÁ, Marta. Knowledge production in the Tatras region. Alternet RA5 project workshop. Helsinki (Finland), 12.-14.3.2008.
- [18] DOBROVODSKÁ, Marta. Landscape differentiation. Alternet RA5 project workshop. Edinburgh (Great Britain), 21. - 24.10.2008.
- [19] KANKA, Robert. G3 Biodiversity Questionnaire - analysis and synthesis. ALTER-Net, WP RA2 project workshop. Rome (Italy), 23.-26.11.2008.
- [20] KANKA, Robert, KOLLÁR, Jozef, ŠIMONOVÍČ, Vojtech. Some selected results of the Slovak trampling experiment. ALTER-Net, WP RA3 project workshop. Debrecen (Hungary), 5.-8.2.2008.
- [21] Izakovičová, Z., Oszlányi, J.: "Representative geo-ecosystems – theory and practice". INNOLAND project workshop. Evore-Castelo de Vide (Portugal), 4.-6. 2. 2009.
- [22] OSZLÁNYI, J. - HALADA, Ľ.: Partners in environmental preservation: towards building international environmental networks. How to encourage environmental research world-wide Workshop. Budapest (Hungary), 7.11.2009.
- [23] OSZLÁNYI, J. - KALIVODA, H.: The Morava floodplain landscape - status, trends and challenges. European IALE Conference 2009. European landscapes in transformation challenges for landscape ecology and management. Salzburg (Austria), 12.-16.7.2009.
- [24] BOLTÍŽIAR, M.: Landscape perception in history – the historical landscape of the Slovak enclave Békešská Čaba. Events from the scientific point of view. Slovak House, Békéscsaba (Hungary), 24.11.2010
- [25] Halada, Ľ.: Ecosystem services of mountains - an urgent research area. – In: Ecosystem services and Biodiversity: what is the link between the two? ALTER-Net conference, Vienna (Austria), 3.-4.11.2010
- [26] Izakovičová, Z.: Utilisation of the sustainable development indicators in policy. Case study Slovakia. POINT Workshop. London (Great Britain), 13.–15.9. 2010

- [27] Izakovičová, Z.: Sustainable development indicators in Slovakia. POINT Workshop. Copenhagen (Denmark), 9.–11.6.2010
- [28] IZAKOVIČOVÁ, Z. – OSZLÁNYI, J.: Sustainable development of the Danube region. International Conference on IU Strategy for the Danube Region. Budapest (Hungary), 25.-26.2.2010
- [29] OSZLÁNYI, J.: Scientific research in the UNESCO Biosphere Reserve, Východné Karpaty Mts. University of Muscat, Muscat (Oman), 11.1.2010
- [30] IZAKOVIČOVÁ, Zita. Trnava LTER locality – evaluation of conflicts resulting from conflicts of interests. ER-Net workshop: Long term socio-ecological research: What do we know from science and practice? Helsinki (Finland), 14. – 17. 6. 2011.
- [31] BARÁNKOVÁ, Zuzana et al: Participation of local people in identifying the landscape values and future development in historical agricultural landscapes, International conference: Research and management of the historical agricultural landscape, Viničné (Slovakia), 14.-16. 3. 2011.
- [32] BEZÁK, Peter, DOBROVODSKÁ, Marta. Stakeholder responses to management of the traditional agricultural landscape (3 case studies), International conference: Research and management of the historical agricultural landscape, Viničné (Slovakia), 14.-16. 3. 2011.
- [33] DOBROVODSKÁ, Marta et al. Introduction to the project “Research and management of the historical agricultural landscape”, International conference: Research and management of the historical agricultural landscape, Viničné (Slovakia), 14.-16. 3. 2011.
- [34] GAJDOŠ, Peter. Spiders of Biosphere reserves in Slovakia. Increasing the ecological awareness of young pedagogues based on biospherical reserve principles (Slovakia), 24. 10. 2011
- [35] IZAKOVIČOVÁ, Zita, MOYZEOVÁ, Milena. Education through the project – We are learning together. Increasing the ecological awareness of young pedagogues based on biospherical reserve principles (Slovakia), 24. 10. 2011
- [36] IZAKOVIČOVÁ, Zita, MOYZEOVÁ, Milena. New non-traditional forms of environmental education. Increasing the ecological awareness of young pedagogues based on biospherical reserve principles. Stakčín (Slovakia), 24. 10. 2011
- [37] GAJDOŠ, Peter. Methodology of biodiversity assessment in historical structures of the agricultural landscape (study from 3 pilot areas), International conference: Research and management of the historical agricultural landscape, Viničné (Slovakia), 14.-16. 3. 2011.
- [38] KANKA, Róbert. Diversity of vascular plants in the historical structures of the agricultural landscape in Slovakia. 6th Planta Europa Conference on the conservation of wild plants. Kraków (Poland), 23.-27.5.2011
- [39] KANKA, Róbert. Ecosystem services in Slovakia. Workshop: The Biodiversity and Ecosystem Services Science-Policy Interface. Berlin (Germany), 15.8.-18.8.2011
- [40] KANKA, Róbert. Habitats and vegetation of the historical agriculture landscape structures on the model area of the town of Svätý Jur, International conference: Research and management of the historical agricultural landscape, Viničné (Slovakia), 14.-16. 3. 2011.

- [41] LIESKOVSKÝ, Juraj, KANKA, Róbert, BEZÁK, Peter, ŠTEFUNKOVÁ, Dagmar, PETROVIČ, František, DOBROVODSKÁ, Marta. Abandonment of vineyards in Slovakia after the change to the market economy assessed by global and local driving forces, International conference: Research and management of the historical agricultural landscape, Viničné (Slovakia), 14.-16. 3. 2011.
- [42] ŠPULEROVÁ, Jana, DOBROVODSKÁ, Marta, LIESKOVSKÝ, Juraj, BAČA, Andrej et al. Inventory and classification of the historical structures of the agricultural landscape in Slovakia, International conference: Research and management of the historical agricultural landscape, Viničné (Slovakia), 14.-16. 3. 2011.
- [43] ŠTEFUNKOVÁ, Dagmar et al. Strategy for the protection and management of historical structures of the agricultural landscape at pilot areas, International conference: Research and management of the historical agricultural landscape, Viničné (Slovakia), 14.-16. 3. 2011.

ii. List of employees who served as members of the organising and/or programme committees for international conferences

- [1] A. Ábrahánová 1x organising committee
- [2] A. Bača 2x organising committee
- [3] A. Jablonická 3x organising committee
- [4] A. Kubačková 2x organising committee
- [5] D. Babicová 2x organising committee
- [6] D. Štefunková 1x organising committee
- [7] E. Adamčeková 2x organising committee
- [8] J. Hreško 3x programme committee
- [9] J. Kollár 1x organising committee
- [10] J. Krajčí 2x organising committee
- [11] J. Špulerová 1x organising committee
- [12] M. Barančoková 1x organising committee
- [13] M. Moyzeová 1x organising committee
- [14] O. Ďugová 1x organising committee
- [15] P. Barančok 1x organising committee
- [16] P. Gajdoš 1x organising committee
- [17] Piscova 1x organising committee
- [18] R. Kanka 4x organising committee
- [19] S. David 1x organising committee
- [20] Z. Baránková 2x organising committee
- [21] Z. Izakovičová 2x organising committee
- [22] Z. Miklošovičová 2x organising committee

iii. List of employees who served as members of important international scientific bodies (e.g. boards, committees, editorial boards of scientific journals)

- [1] M. Boltížiar
Geografie (editorial board member): 2009 - 2011
- [2] O. Ďuřgová
Phytopedon Journal of Soil Science (editorial board member): 2007 – 2011
- [3] P. Gajdoš
Ekológia (Bratislava) (editorial board member): 2007 - 2011
- [4] P. Bezák
Ekológia (Bratislava) (editorial board member): 2007 - 2011
- [5] A. Halabuk
Ekológia (Bratislava) (editorial board member): 2007 – 2011
- [6] Ľ. Halada
Ekológia (Bratislava) (editorial board member): 2007 – 2011
- [7] Z. Izakovičová
Ekológia (Bratislava) (editorial board member): 2007 - 2011
TEKA (editorial board member): 2009 – 2011
- [8] J. Špulerová
Ekológia (Bratislava) (editorial board member): 2007 - 2011
- [9] A. Janitor
Plant Protection Science (Praha), (editorial board member): 2007
- [9] P. Gajdoš
International Society of Arachnology, Chicago, USA (member): 2007 - 2011
Société Européenne d'Arachnologie, Paris, France (member): 2007 - 2011
Society for Conservation Biology, Arlington, VA, USA (member): 2007 - 2011
Suddeutsche Arachnologische Arbeitsgemeinschaft (SARA) Basel, Switzerland (member): 2007 - 2011
- [10] Ľ. Halada, CSc.
Society for Conservation Biology (member): 2007 - 2011
Science for Carpatians (member of scientific steering committee): 2011
- [11] J. Hreško
International Association for Landscape Ecology (secretary): 2007, (chair member) 2008 – 2009
- [12] T. Hrnčiarová
International Association for Landscape Ecology (vice - chairman): 2007 – 2009,

Editorial board of the Landscape Atlas of the Czech Republic (cartographic encyclopaedia) in 2004 – 2008 (a member)

- [13] Z. Izakovičová
International Association for Landscape Ecology (main committee member): 2007 – 2009,
NATO Environmental Security Panel, Brusel (member): 2007
national delegate for the Slovak Republic on the Panel for the Environment and Climate Change of the EU, 7th Framework Programme
- [14] H. Kalivoda
Ekológia (Bratislava) (editorial board member): 2007 - 2011
- [15] A. Janitor
French Society for Phytopathology (honorary member): 2007 - 2011
- [16] R. Kanka
Ekológia (Bratislava) (editorial board member): 2007 – 2011
- [17] H.Kalivoda, PhD.
Butterfly Conservation Europe (Slovak delegate): 2008 – 2011
- [18] J. Oszlányi.
Ekológia (Bratislava) (chief editor): 2007 - 2011
Folia oecologica (editorial board member): 2007 - 2011
International Journal on Environment and Waste Management, USA (editorial board member):
2007 - 2011
Tájökológiai lapok, H (editorial board member): 2007 - 2011
- [19] M. Ružička
Ekológia (Bratislava) (honorary editor - in- chief): 2009 - 2011
Ekológia (Bratislava) (honorary chairman of the editorial board): 2009 - 2011
- [20] F.Kubiček
ISRR (International Society of Root Research), Upssala, Sweden (Committee Member): 2007 – 2010
- [21] J. Oszlányi
Central European Academy of Sciences and Art, Timisoara (Member): 2007
CONNECT, Wageningen (Directors Consortium Member): 2007
ECNC - European Centre for Nature Conservation, Tilburg (Vice-chairman of Scientific Board) 2007 – 2009
European Environmental Agency, Copenhagen (Scientific Board Member): 2007 – 2008
European Academy of Arts and Sciences, Salzburg (Member): 2009
ILTER - International Long-Term Ecosystem Research (Member of the Executive Committee for the Central and Eastern Europe): 2007
IUFRO-International Union of Forestry Research Organization, Viedeň (Member): 2007

UNESCO Department for Ecological Awareness FEE TU Zvolen (Member of international Scientific Board): 2007

International Coordinating Committee for the UNESCO MaB programme (member): 2007

NATO Environmental Security Panel, Brusel (a delegate from the Slovak Republic): 2007 – 2008

Slovak commission for UNESCO - an advisory body to the Slovak Government (a vice president). 2007

After election of the Slovak Republic to the International Co-ordinating Council for the UNESCO program Man and Biosphere - a representative for the Slovak Republic on the council (on the authority of the Ministry of Foreign Affairs of the Slovak Republic, 2007 – 2011)

Central European Academy of Sciences, Literature and Art, Paris (member): 2009

Chairman of the Committee for Social and Human Sciences at the 34th General UNESCO conference, 22/10/ – 02/11/2007, Paris

a member of the Science and Policy board within the LifeWatch project (Seventh Framework Programme).

iv. List of international scientific awards and distinctions

- [1] "Sultan Qaboos Award" (UNESCO) for long-term work in the protection and preservation of biodiversity, awarded by the general secretary of UNESCO, K. Maatsura, 10 November, Budapest (at the World Science Forum) – J. Oszlányi
- [2] "Service Award IALE" (the International Association for Landscape Ecology) at the World Congress of IALE, July 2007, the Netherlands – L. Miklós
- [3] Diploma of the Mendel University in Brno (the Czech Republic) for the development of science and education – M. Ružička
- [4] 1st place for the Atlas of "Landscapes of the Czech Republic" within the exhibition of the International Cartographic Association (theme – Atlases), Paris, France - T. Hrnčiarová
- [5] Prize "Map of the Year 2010" (category: Atlases, collections and editions of maps) awarded by the Cartographic Society of the Czech Republic for the Atlas of Landscapes of the Czech Republic – T. Hrnčiarová

v. List of employees with the highest H – index indicating field of science by WOS

- [1] Maňkovská - 10
- [2] Oszlányi - 6
- [3] Halada - 5
- [4] Kubíček - 5
- [5] Kanka - 4

- **National position of the individual researchers**

- i. **List of invited/keynote presentations at national conferences documented by an invitation letter or programme**

- [1] HRNČIAROVÁ, T.: The impact of the change of conditions of diversity on the environmental quality in Bratislava. International and national conference on The Sustainable development of cities and mitigating the climate change impacts on the quality of life and the state of the environment in cities. (In Slovak: Zmena diverzity podmienok na kvalitu prostredia Bratislavy. Medzinárodná a národná konferencia Udržateľný rozvoj miest a zmiernenie negatívnych vplyvov klimatických zmien na kvalitu života a stav životného prostredia v mestách) Bratislava, 28.-29.5.2007.
- [2] HRNČIAROVÁ, T.: Diversity of the cultural landscape in a historic context. X. international scientific conference of PhD. students and young scientists (In Slovak: Diverzita kultúrnej krajiny z historického aspektu. X. medzinárodná vedecká konferencia doktorandov a mladých vedeckých pracovníkov) Nitra, (Slovakia), 2.4.2009
- [3] ŠTEFUNKOVÁ, D.: Fragments of historical vineyard structures in the landscape scenery. Landscape in the landscape Workshop. (In Slovak: Fragmenty historických vinohradníckych štruktúr v obraze krajiny" Seminár Krajina v krajine) Budiná (Slovakia), 3.-5.9. 2009
- [4] BOLTÍŽIAR, M.: Landscape area analysis of the dry retention reservoir of Beša polder (Východoslovenská nížina lowland) in 1770-2009. XIV. District water days in Michalovce (In Slovak: Analýza zmien krajinného priestoru suchej retenčnej nádrže poldra Beša (Východoslovenská nížina) v rokoch 1770-2009. XIV. okresné dni vody v Michalovciach) Michalovce (Slovakia) 8.-9. 4.2010
- [5] HREŠKO, J.: The Contemporary problem of land use and nature protection of TANAP. Faculty of natural sciences in Nitra and the National Centre for the Popularisation of Science and Technology in Society. „Science in the Centre" (In Slovak: Súčasný problémy využívania krajiny a ochrany prírody TANAPu. Fakulta prírodných vied Univerzity Konštantína Filozofa v Nitre a Národné centrum pre popularizáciu vedy a techniky v spoločnosti „Veda v Centre") Nitra (Slovakia) 23.9.2010
- [6] HRNČIAROVÁ, T.: Secondary landscape structure(land use and real vegetation). Scientific conference Landscape, nature, biosphere at the occasion of the posthumous birthday anniversary of prof. RNDr. Pavol Plesník, DrSc.ciences (In Slovak: Druhotná krajinná štruktúra / využitie krajiny a reálna vegetácia /. Vedecká konferencia Krajina, príroda, biosféra pri príležitosti nedožitého významného životného jubilea prof. RNDr. Pavla Plesníka, DrSc.) Bratislava (Slovakia) 17.3.2010
- [7] IZAKOVIČOVÁ, Z.: Management of the sustainable use proposal of REPGES of Trnava district. New trends in the creation of representative geoecosystems of the Slovak Republic (In Slovak: Návrh manažmentu trvalo udržateľného využívania REPGES okresu Trnava. Nové trendy v tvorbe reprezentatívnych geoeosystémov Slovenskej republiky), Smolenice (Slovakia) 8.-9.11.2010
- [8] IZAKOVIČOVÁ, Z.: Representative geoecosystem evaluation on a regional level. New trends in the creation of representative geoecosystems of the Slovak Republic (In Slovak: Hodnotenie reprezentatívnych geoeosystémov na regionálnej úrovni. Nové trendy v tvorbe reprezentatívnych geoeosystémov Slovenskej republiky) Smolenice (Slovakia) 8.-9.11.2010

- [9] MIKLÓS, L.: REPGES conception. New trends in the creation of representative geoecosystems of the Slovak Republic (In Slovak: Konceptia REPGES. Nové trendy v tvorbe reprezentatívnych geoeosystémov Slovenskej republiky) Smolenice (Slovakia), 8.-9.11.2010
- [10] MIKLÓS, L.: REPGES conception use in nature and landscape protection. New trends in the creation of representative geoecosystems of the Slovak Republic (In Slovak: Využitie koncepcie REPGES v ochrane prírody a krajiny. Nové trendy v tvorbe reprezentatívnych geoeosystémov Slovenskej republiky), Smolenice (Slovakia) 8.-9.11.2010
- [11] MOYZEOVÁ, M.: Positive phenomenon evaluation. New trends in the creation of representative geoecosystems of the Slovak Republic (In Slovak: Hodnotenie pozitívnych javov. Nové trendy v tvorbe reprezentatívnych geoeosystémov Slovenskej republiky) Smolenice (Slovakia), 8.-9.11.2010

ii. List of employees who served as members of organising and programme committees of national conferences

- [1] E. Adamčeková – 9x organising committee
- [2] D. Babicová – 2x organising committee
- [3] A. Behílová – 1x organising committee
- [4] P. Bezák – 1x organising committee
- [5] M. Boltžiar – 1x programme committee
- [6] M. Dobrovodská – 2x organising committee
- [7] P. Gajdoš – 2x organising committee
- [8] Ľ. Halada – 1x programme committee, 1x organising committee
- [9] T. Hrnčiarová – 1x programme committee
- [10] Z. Izakovičová – 2x programme committee, 9x organising committee
- [11] P. Kenderessy – 1x organising committee
- [12] Z. Miklošovičová – 2x organising committee
- [13] L. Miklós – 2x organising committee
- [14] M. Moyzeová – 1x programme committee, 9x organising committee
- [15] J. Oszlanyi – 2x programme committee, 1x organising committee
- [16] H. Ružičková – 1x programme committee
- [17] B. Šatalová – 2x organising committee
- [18] J. Špulerová – 2x organising committee
- [19] D. Štefunková – 5x organising committee
- [20] Z. Valkovcová – Baránková – 4x organising committee

iii. List of employees serving in important national scientific bodies (e.g. boards, committees, editorial boards of scientific journals)

- [1] P. Barančok
Spravodajca SEA/EIA (editorial board member): 2010 – 2011
- [2] M. Boltžiar
Ekologické štúdie (chief editor): 2008 – 2009 (executive editor): 2010 - 2011
Geografické informácie (editorial board member): 2009 - 2011
Geografické štúdie (executive editor): 2009 - 2011
Geografie (editorial board member): 2009 - 2011
Geoinformation (executive editor): 2009 - 2011
Rosalia (editorial board member): 2009 - 2011
Sekos bulletin (executive editor): 2010 – 2011
- [3] S. David.
Rosalia (Nitra) (editorial board member): 2007 – 2011
- [4] P. Gajdoš.
Ekologické štúdie (editorial board member): 2011
Rosalia (Nitra) Zborník S CHKO Ponitrie (editorial board member): 2007 – 2011
- [5] J. Hreško
Rosalia (Nitra) Zborník S CHKO Ponitrie (editorial board member): 2007
Životné prostredie (editorial board member): 2010 – 2011
- [6] T. Hrnčiarová
Životné prostredie (editorial board member): 2007 (chief editor): 2008 – 2011
- [7] Z. Izakovičová
Ekologické štúdie (chairman of the editorial board): 2010 - 2011
Enviromagazín (editorial board member): 2007 - 2011
SEKOS BULLETIN (funkcia: predseda): 2010 - 2011
Spravodajca SEA/EIA (editorial board member): 2009 - 2010
- [8] A. Janitor
Biodiverzita hypogických húb (editorial board member): 2007
Biotas Journal of biodiversity Slovakia (editorial board member): 2007
Bulletin Slovenskej spoločnosti pre vedy poľnohospodárske, lesnícke, potravinárske a veterinárske (chief editor): 2007 (funkcia: predseda): 2008 - 2011
Výživa a zdravie (editorial board member): 2007 – 2011
- [9] H. Kalivoda
Správy Slovenskej zoologickej spoločnosti (chief editor): 2007 – 2011
- [10] E. Kalivodová
Záhorie (editorial board member): 2007 – 2011
- [11] Z. Krnáčová
ACTA ENVIRONMENTALICA UNIVERSITATIS COMENIANAE (editorial board

member): 2007 – 2011

[12] M.Moyzeová

Ekologické štúdie (editorial board member): 2011

SEKOS BULLETIN (editorial board member): 2009 – 2011

[13] J. Oszlányi.

Životné prostredie (editorial board member): 2007 – 2011

[14] M. Ružička

Životné prostredie (funkcia: chief editor): 2007(chairman of the editorial board): 2008 – 2011

[15] J. Špulerová

Ekológia (Bratislava) (editorial board member): 2007 - 2011

iv. List of national awards and distinctions

- [1] 2006 Scientific and Professional Literature Award awarded by the Literature Fund (category: Natural and Technical Sciences) for the publication - Landscape-ecological conditions of the development of Bratislava (20/9/2007) - T. Hrnčiarová et al.
- [2] 2006 Scientific and Professional Literature Award awarded by the Literature Fund (category: Biological and Medical Sciences) for the publication of the Atlas of Representative Geo-ecosystems of Slovakia (20/9/2007) - L. Miklós, Z. Izkovičová et al.
- [3] “Golden Sickle Award” at the Agrokomplex 2007 exhibition for the publication of the Atlas of Representative Geo-ecosystems of Slovakia - L. Miklós, Z. Izkovičová et al.
- [4] Letter of thanks from the Faculty of Natural Sciences, Comenius University in Bratislava – Institute of Landscape Ecology SAS
- [5] Letter of thanks to J. Oszlányi at the 34th General Conference of UNESCO (15/12/2007) delivered by the Minister of Foreign Affairs of the Slovak Republic
- [6] Letter of thanks to A. Janitor from the Union of Slovak Journalists
- [7] Award of the Slovak Academy of Sciences (SAS) for the popularization and propagation of science – A. Janitor
- [8] Letter of thanks from the Literature Fund (Section for journalism and press photography) – A. Janitor
- [9] Medal of SAS for the development of Science – H. Ružičková
- [10] Medal of SAS for the development of Science – A. Janitor
- [11] Award of the Presidency of SAS in the contest of young scientists up to 35 years of age – M. Boltížiar
- [12] Memorial plaque of SAS - M. Ciranová-Imrová
- [13] Memorial plaque of SAS – K. Kis-Csáji
- [14] Memorial plaque of SAS – J. Mechurová

- [15] Award of the Rector of the University of Constantine the Philosopher in Nitra for the scientific monography "The structure of the Alpine Landscape of the Tatra Mts." – M. Boltížiar
- [16] Letter of thanks from the Ministry of Education of the Slovak Republic for involvement in the Scientific Grant Agency VEGA - Z. Krnáčová
- [17] Commemorative diploma from the Institute of Forest Ecology SAS – J. Oszlányi
- [18] Commemorative medal "Holuby" from the Slovak Botanical Society – H. Ružičková
- [19] Commemorative diploma from the Institute of Forest Ecology SAS – Institute of Landscape Ecology SAS
- [20] Award of the Presidency of SAS to the team of authors: Z. Izakovičová, M. Moyzeová, D. Štefunková, L. Miklós, E. Adamčeková
- [21] Memorial plaque of honour of Dionýz Štúr for her contribution in Natural Sciences – Z. Izakovičová
- [22] Acknowledgement as a "Significant Member of SAS" – E. Kalivodová
- [23] Award of the Rector of the University of Constantine the Philosopher in Nitra for publication activities of the publishing house of the University – J. Hreško
- [24] Commemorative medal of the Faculty of Natural Sciences (the University of Constantine the Philosopher in Nitra) – J. Hreško
- [25] Award of the Municipality of Zvončín – Z. Izakovičová
- [26] Acknowledgement for a "Centre of excellence", awarded by the Ministry of Education of the Slovak Republic - the Institute of Landscape Ecology SAS (H. Kalivoda)
- [27] Commemorative medal from the Faculty of Natural Sciences (the University of Constantine the Philosopher in Nitra) – J. Oszlányi
- [28] Title "Doctor Honoris Causa" awarded by the Technical University of Zvolen – M. Ružička
- [29] Commemorative medal and diploma from the Faculty of Natural Sciences (the University of Constantine the Philosopher in Nitra) – M. Ružička
- [30] Commemorative medal from the Faculty of Natural Sciences (the University of Constantine the Philosopher in Nitra) – M. Ružička
- [31] Commemorative medal from the Horticulture and Landscape Engineering Faculty (Slovak University of Agriculture in Nitra) – M. Ružička
- [32] Diploma of the National Jury of Agrofilm 2010 for the video-programme "The Landscape and its sustainable development" - Z. Izakovičová, M. Moyzeová, L. Miklós, D. Štefunková, E. Adamčeková
- [33] Regular membership in the European Academy of Sciences and Arts, Salzburg – J. Oszlányi
- [34] Memorial plaque from SAS – Ľ. Halada
- [35] Commemorative medal from the Chairman of the Trnava Self-Governing Region – Z. Izakovičová

v. Supplementary information and/or comments documenting international and national status of the Organisation

- [1] P. Gajdoš, Ľ. Halada: worked as an experts on the European Commission for plant and animal taxa listed in the Annexes to the bird and habitat directives.
- [2] J. Oszlányi, H. Kalivoda: long-term involvement in the preparation of a document for the European Commission within the activities of the European Platform for Biodiversity Research Strategy.
- [3] J. Oszlányi: cooperation with the Ministry of Education to implement the aims of the European Strategy Forum on Research Infrastructures in the scientific field of “biodiversity”.
- [4] H. Kalivoda: cooperation with Butterfly Conservation Europe, a IUCN Species Programme and IUCN Regional Office for Pan-Europe in the preparation of this publication: Van Swaay, C., Cuttelod, A., Collins, S., Maes, D., Lopez Munguira, M., Šašić, M., Settele, J., Verovnik, R., Verstrael, T., Warren, M., Wiemers, M. and Wynhof, I. 2010. European Red List of Butterflies Luxembourg: Publications Office of the European Union, 47 pp.

National level – ILE SAS and activities for the Slovak Government, the National Council of the Slovak Republic, central bodies of the state administration and others

- [5] ILE SAS is a compiler, leader and coordinator of the Centre of Excellence for the Protection and Use of the Landscape and Biodiversity (using Structural funds)
- [6] ILE SAS is involved in the Program of Landscape Revitalization and Integrated Management of River-basins and rural areas in Slovakia, approved by decree of the government of the Slovak Republic No. 774 issued on 27/10/2010. J. Oszlányi was designated as a member of the commission of the government plenipotentiary for self-government and integrated river-basin and landscape management.
- [7] ILE SAS cooperated with the National Council of the Slovak Republic in the public presentation of the study: BEZÁK, Peter - IZAKOVIČOVÁ, Zita - MIKLÓS, László et al.: Representative landscape types of Slovakia.
- [8] Ľ. Halada is a member of Slovak Ramsar Committee
- [9] Z. Izakovičová and J. Oszlányi: participation in the creation of the Danube Strategy
- [10] J. Oszlányi: a member of the Council of the Government of the Slovak Republic for Science and Technology (function: expert in the field of Agricultural Sciences)
- [11] T. Hrnčiarová and Z. Izakovičová: the members of the Working Group for Integrated Landscape Management at the Ministry of the Environment of the Slovak Republic.
- [12] T. Hrnčiarová: a member of the Commission of the European Landscape Convention at the Ministry of the Environment of the Slovak Republic.
- [13] Z. Izakovičová: a member of the Council of the Government of the Slovak Republic for Sustainable Development.

- [14] Z. Izakovičová: a chairman of the commission for the accreditation of specialized skills for the processing of documentation of nature protection at the Ministry of the Environment of the Slovak Republic.
- [15] Z. Izakovičová, H. Kalivoda: members of the working group for the preparation of a new law on nature and landscape protection at the Ministry of the Environment of the Slovak Republic.
- [16] Z. Izakovičová and P. Barančok: members of the working group for the zoning of the Tatra National Park (at the Ministry of Environment of the Slovak Republic).
- [17] Z. Izakovičová: expert for the Parliamentary Committee for the Environment (at the National Council of the Slovak Republic).
- [18] Z. Izakovičová: member of the Danube Knowledge Cluster (a group for the integrated management of river-basins).
- [19] H. Kalivoda: member of the action team for biodiversity at Danube Knowledge Cluster
- [20] T. Hrnčiarová: member of the interdepartmental advisory committee at the Ministry of Agriculture of the Slovak Republic for The United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification (from 2003).
- [21] T. Hrnčiarová: a member of the permanent committee of experts established for the evaluation of tasks performed in the implementation of the Water Framework directive No. 2000/60/ES at the Department of Water Protection of the Ministry of the Environment of the Slovak Republic (from 2004).
- [22] T. Hrnčiarová: a member of the working group of the accreditation commission for the scientific fields of "Environment and ecology" (advisory body of the Slovak Government at the Ministry of Education.
- [23] J. Oszlányi: a member of the committee for Agricultural Sciences of the Agency for Science and Research Support.
- [24] Ľ. Halada: a member of the Agency for Science and Research Support, working group 3.
- [25] S. David is a member of the expert group for the NATURA 2000 annex species at the State Nature Conservancy of the Slovak Republic.
- [26] T. Hrnčiarová: a member of the advisory body of the advisory commission of the agency of the Ministry of Education of the Slovak Republic for EU structural funds.
- [27] J. Oszlányi works in cooperation with the Ministry of Education of the Slovak Republic to realize the aims of the European Strategy Forum on Research Infrastructures in the scientific field of "biodiversity".

4. Project structure, research grants and other funding resources

- **International projects and funding**

- i. **List of major projects within the European Research Area – 6th and 7th Framework Programme of the EU, European Science Foundation, NATO, COST, INTAS, CERN, etc. (here and in items below please specify: type of project, title, grant number, duration, total funding and funding for the Organisation, responsible person in the Organisation and his/her status in the project, e.g. coordinator, work package leader, investigator)**

Projects of 7th Framework Programme of the EU

[1] ***European Biodiversity Observation Network: Design of a Plane for an Integrated Biodiversity Observing System in Space and Time (EBONE)***

| | |
|-------------------------------|--------------------------------|
| Responsible person ILE SAS: | Ľuboš Halada |
| Duration: | 1.2.2008 / 31.1.2012 |
| Number: | 212322 |
| Project coordinator: | Alterra, The Netherlands |
| Funding for the organisation: | 341 326 € - EC, 44 018 € - SAS |
| Total funding: | 3 434 000 € |

[2] ***Policy Influence of Indicators (POINT)***

| | |
|-------------------------------|-------------------------------|
| Responsible person ILE SAS: | Zita Izakovičová |
| Duration: | 1.3.2008 / 28.2.2012 |
| Number: | 217207 |
| Project coordinator: | University of Aarhus, Denmark |
| Funding for the organisation: | EC: 110 640 €, SAS: 8 236 € |
| Total funding: | 1 917 238 € |

[3] ***LIFEWATCH***

| | |
|-------------------------------|--|
| Responsible person ILE SAS: | Július Oszlányi |
| Duration: | 1.2.2008 / 31.12.2012 |
| Number: | 211372 |
| Project coordinator: | University of Amsterdam, The Netherlands |
| Funding for the organisation: | EC: 7 680 €, SAS: 2 561 € |
| Total funding: | 6 431 521 € |

Projects of 6th Framework Programme of the EU

[4] ***A Long-Term Biodiversity, Ecosystem and Awareness Research Network - ALTER-Net***

| | |
|-------------------------------|--|
| Responsible person ILE SAS: | Július Oszlányi |
| Duration: | 1.4.2004 -31.3.2009 |
| Number: | GOCE-CT-2003-505298 |
| Project coordinator: | UK Environment Change Network, Centre for Ecology and Hydrology, Lancaster, United Kingdom |
| Funding for the organisation: | EC: 221 918 €, SAS: 20 745 € |

Total funding: 2 500 000 €

a) *Threat to biodiversity through invasive non-native species – a long-term monitoring network*

Responsible person ILE SAS: Peter Gajdoš
 Duration: 1.9.2006 - 1.9.2007
 Number: GOCE-CT-2003-505298 - ALTER-Net subproject
 Project coordinator: FERC/UNIGOE, Forest Ecosystems Research Center and Inst. of Silviculture, Germany

b) *Urban lifestyle and urban biodiversity*

Responsible person ILE SAS: Peter Bezák
 Duration: 1.10.2006 - 30.9.2007
 Number: GOCE-CT-2003-505298 - ALTER-Net subproject
 Project coordinator: Dr. Lars Kjerulf Petersen, NERI - National Environmental Research Institute

c) *Indicators to monitor changes and conservation in Natura 2000 sites: A focus on drivers, pressures and states*

Responsible person ILE SAS: Ľuboš Halada
 Duration: 09/2005-02/2007
 Number: GOCE-CT-2003-505298 - ALTER-Net subproject
 Project coordinator: Cemagref, France

d) *Improved description and mapping procedures for the monitoring of habitats and biodiversity on a pan-European scale*

Responsible person ILE SAS: RNDr. Ľuboš Halada, CSc.
 Duration: 10/2005-06/2007
 Number: GOCE-CT-2003-505298 - ALTER-Net subproject
 Project coordinator: Research Institute for Nature and Forest, Belgium

[5] ***Developing the EU Biodiversity Strategy -BIOSTRAT***

Responsible person ILE SAS: Július Oszlányi
 Duration: 1.1.2006 – 30.10.2009
 Number: GOCE 036 847
 Project coordinator: Institute of Ekology and Botany of Hungarian Academy of Sciences, Hungary
 Funding for the organisation: EC: 30 100 €, SAS: 6 273 €
 Total funding: 771 000 €

[6] ***Sustainability Impact Assessment: Tools for Environmental, Social and Economic Effects of Multifunctional Land Use in European Regions (SENSOR)***

Responsible person ILE SAS: Július Oszlányi
 Duration: 1.12.2004 / 31.5.2009
 Number: 003874-2
 Project coordinator: Leibniz-Centre for Agricultural Landscape

and Land Use Research
 Funding for the organisation: EC: 154 480 €, SAS: 17 227 €
 Total funding: 12 346 610 €

Multilateral projects within the frame COST, INTAS, EUREKA, ESPIRIT, PHARE, NATO, UNESCO, CERN, IAEA, ESF scientific programs and others.

[7] ***European culture expressed in agricultural landscapes (EUCALAND)***

Responsible person ILE SAS: Marta Dobrovodská
 Duration: 15.11.2007 / 14.11.2009
 Number: 0199
 Project coordinator: University of Cambridge, United Kingdom
 Funding for the organization: EC: 5 000 €, SAS: 9 393 €

[8] ***ASTRALE 8 - Assistance and technical support for the tasks related to actions under the LIFE Programme***

Responsible person ILE SAS: Július Oszlányi
 Duration: 1. 7. 2007 – 31. 12. 2007
 Number: LIFE/2008/S12.509966/ATA
 Project coordinator: Astrale GEIE – Torino, Italy
 Funding for the organisation: EC DG Environment: 47 000 €
 SAS: 3 319,00 €

[9] ***ASTRALE 9 - Assistance and technical support for the tasks related to actions under the LIFE Programme***

Responsible person ILE SAS: Július Oszlányi
 Duration: 1. 1. 2008 – 30. 9. 2008
 Number: LIFE/2008/S12.509966/ATA
 Project coordinator: Astrale GEIE – Torino, Italy
 Funding for the organisation: EC DG Environment: 63 425 €
 SAS: 3 319,00 €

[10] ***ASTRALE 10 - Assistance and technical support for the tasks related to actions under the LIFE Programme***

Responsible person ILE SAS: Július Oszlányi
 Duration: 1.10.2008 / 30.6.2009
 Number: LIFE/2008/S12.509966/ATA
 Project coordinator: Astrale GEIE – Torino, Italy
 Funding for the organisation: EC DG Environment: 72 007,33 €, SAS: 3 319,00 €

[11] ***ASTRALE A - Technical and administrative assistance for tasks related to implementation of projects under the LIFE+ and under the LIFE III programme***

Responsible person ILE SAS: Július Oszlányi
 Duration: 1.1.2009 / 30.6.2009
 Number: 07.01.04.01./2008/S12.512307/MAR/E4
 Project coordinator: ASTRALE GEIE - Torino
 Funding for the organisation: EC DG ENVI - 69 628,63 €, SAS: 3 319,00 €

[12] ***ASTRALE B - Technical and administrative assistance for tasks related to implementation of projects under the LIFE+ and under the LIFE III***

programme

Responsible person ILE SAS: Július Oszlányi
 Duration: 1.7.2009 / 30.6.2010
 Number: 07.010401/2009/SI.534923/MAR/E4
 Project coordinator: ASTRALE GEIE - Torino
 Funding for the organisation: EC DG-ENVI: 175 669,00 €
 SAS: 4 000 €

[13] *Astrale C - Technical and administrative assistance for tasks related to implementation of projects under the LIFE+ and under the LIFE III programme*

Responsible person ILE SAS: Július Oszlányi
 Duration: 1.7.2010 / 30.6.2011
 Number: 07.010401/2010/SI2.566906/MAR/E4
 Project coordinator: ASTRALE GEIE – Torino
 Funding for the organisation: EC DG ENVI: 266 824,00 €,
 SAS: 4 000,00 €

[14] *Astrale D - Technical and administrative assistance for tasks related to implementation of projects under the LIFE+ and under the LIFE III programme*

Responsible person ILE SAS: Július Oszlányi
 Duration: 1.7.2011 / 30.6.2012
 Number: 07.010401/2011/SI2.596063/MAR/E4
 Project coordinator: Soges,S.p.A., Torino, Italy
 Funding for the organisation: EC DG ENVI: 338 721,00 €
 SAS: 4 000,00 €

[15] *European Topic Centre on Biological Diversity – ETC BD - 07*

Responsible person ILE SAS: Ing. Július Oszlányi, CSc.
 Duration: 1.1.2005 – 31.12.2008
 Number: No 3333/B2005.EEA-ETC/BD
 Project coordinator: MNHN Paris, France
 Funding for the organisation: MNHN: 849 221 SKK, SAS: 100 000 SKK
 Total funding: 222 550 €

[16] *European Topic Centre on Biological Diversity –ETC/BD 08*

Responsible person ILE SAS: Július Oszlányi
 Duration: 1.1.2008 / 31.12.2008
 Number: 3333/B2005.EEA-ETC/BD
 Project coordinator: Museum National d'Histoire Naturelle,
 France
 Funding for the organisation: MNHN: 46 415 €, SAS: 100 000 Sk
 Total funding: 1 223 510 SKK

[17] *European Topic Centre on Biological Diversity - ETC/BD 09 -*

Responsible person ILE SAS: Július Oszlányi
 Duration: 1.1.2009 / 31.12.2009
 Number: EEA/BSS/08/01-Lot 1
 Project coordinator: ETC/BD, Museum Nationale d'Histoire
 Naturelle, Paris, France
 Funding for the organisation: MNHN :13 607 €
 SAS: 6 639 €

Total funding: 343 681 €

[18] European Topic Centre on Biological Diversity - ETC/BD 10

Responsible person ILE SAS: Július Oszlányi
 Duration: 1.1.2010 / 31.12.2010
 Number: EEA/BSS/08/01-Lot 1
 Project coordinator: ETC/BD, Museum Nationale d'Histoire Naturelle, France
 Funding for the organisation: MNHN: 53 865 € , SAS: 4 000 €
 Total funding: 1 641 752 EUR

[19] European Topic Centre on Biological Biodiversity - ETC/BD 11

Responsible person ILE SAS: Július Oszlányi
 Duration: 1.1.2011 / 31.12.2011
 Number: EEA/BSS/08/01-Lot 10
 Project coordinator: Museum National D'Histoire Naturelle, France
 Funding for the organisation: MNHN: 59 046 €, SAS: 4 000 €
 Total funding: 1 521 146 €

Bilateral projects

[20] Natura 2000 - preparatory actions (4 lots)

Responsible person ILE SAS: Július Oszlányi
 Duration: 1.2.2007 / 30.4.2008
 Number: ENV B.2/SER/2006/0059
 Project coordinator: Institute for European Environmental Policy, UK
 Funding for the organisation: IEEP: 5 000 €, SAS: 67 000 Sk

[21] Natura 2000 Preparatory Actions - Lot 2

Responsible person ILE SAS: Július Oszlányi
 Duration: 1.9.2008 / 30.6.2009
 Number: 070307/2007/484411/MAR/B.2
 Project coordinator: Alterra b.v., The Netherlands
 Funding for the organisation: ALTERRA: 2 000 €, SAS: 3 884 €

[22] Landscape Europe

Responsible person ILE SAS: Peter Bezák
 Duration: 1.1.2011 / 31.12.2011
 Number: 347
 Project coordinator: Ústav krajinej ekológie SAV
 Funding for the organisation: Landscape Europe network: 522 €
 Total funding:

Projects arising from interinstitutional agreements

[23] Rising of Ecological Awareness of Young Pedagogues Based on Principles of Biosphere Reserves

Project coordinator:/ responsible person ILE SAS: Július Oszlányi
 Duration: 1.1.2011 / 30.11.2011

Funding for the organisation: UNESCO HQ: 21 015 €, SAS: 3 667 €
 Total funding: 24 682 €

[24] ***EuroMAB Conference 2009, Doing together- learning together***

Responsible person ILE SAS/ Andrea Kubáčková
 Project coordinator:
 Duration: 2.9.2008 / 30.11.2009
 Number: ERC/RSC/PP/08/EU2/SLO/L.786
 Funding for the organisation: UNESCO: 21 015 € , SAV: 3 054 €
 Total funding: 24 069 €

Bilateral projects resulting from intergovernmental agreement on scientific and technical cooperation

[25] ***The Global Observation Research Initiative in Alpine Environments - GLORIA-Project 2008***

Responsible person ILE SAS: Peter Barančok
 Duration: 1.6.2008 / 31.12.2008
 Number: ZP0209
 Project coordinator: University of Vienna, Faculty of Life Sciences, Austria
 Funding for the organisation: University of Vienna: 10 710 €
 SAS: 67 000 SKK

[26] ***Landscape Atlas of the Czech Republic***

Responsible person ILE SAS: Tatiana Hrnčiarová
 Duration: 1.12.2004 / 31.12.2009
 Number: 0133
 Project coordinator: The Silva Tarouca Research Institute for Landscape and Ornamental Gardening, Czech Republic
 Funding for the organisation: The Silva Tarouca Research Institute for Landscape and Ornamental Gardening, Czech Republic : 164 000 Sk

[27] ***Natura 2000 Děčín***

Responsible person ILE SAS/ Henrik Kalivoda
 Project coordinator:
 Duration: 30.3.2008 / 30.5.2009
 Number: ZP 0206
 Funding for the organisation: Star; a.s.; Hořovice; Česká republika - 40964 EUR
 Total funding: 40964 €

[28] ***Producers Organisation Fruits and Vegetable Sector in Europe***

Responsible person ILE SAS: Július Oszlányi
 Duration: 1.12.2007 / 28.2.2009
 Number: 30EC-0159637/00-04
 Project coordinator: Oreade-Brèche, France
 Funding for the organisation: EC DG Agri : 2 480 €, SAS : 7 302 €

[29] ***Research and maintaining of biodiversity in historical structures of***

agricultural landscape of Slovakia

Responsible person ILE SAS/ Project coordinator: Marta Dobrovodská, ILE SAS
 Duration: 10.9.2009 / 30.4.2011
 Number: SK 0088
 Funding for the organisation: ILE SAS, NFM, FM EHP -421 061,00 €
 ŠR-FM EHP, ŠR-NFM - 14750 €
 5333 € - SAS
 Total funding: 458933 €

[30] Development scenarios of representative landscape ecosystems in the Slovak Republic considering global changes

Responsible person ILE SAS/ Project coordinator: Zita Izakovičová, ILE SAS
 Duration: 1.10.2008 / 30.10.2010
 Number: SAV-FM-EHP-2008-03-09
 Funding for the organisation: FM EHP - 172912 €, 1000 € - SAS
 Total funding: 172912 €

[31] Developed of IT-based unified environment monitoring system in the catchmen are of Ipoly

Responsible person ILE SAS: Július Oszlányi
 Duration: 1.10.2009 / 30.9.2010
 Number: HUSK0801/2.1.2/162
 Project coordinator: Inspectorate for the Environment, Nature and Water Protection of the Middle- Danube valley Region, Budapest
 Funding for the organisation: 98528 € - EU, 3000 € - SAS

Other projects financed from foreign sources**[32] Mapping of main sources of pollutants and their transport in the Visegrad space**

Responsible person ILE SAS: Ing. Július Oszlányi, CSc.
 Duration: 1. 11. 2006 – 15. 10. 2007
 Number: CZ-11007-2006
 Project coordinator: The Silva Tarouca Research Institute for Landscape and Ornamental Gardening, Czech Republic
 Funding for the organisation: V4 fund: 103 200 SKK, SAS: 120 000 SKK

[33] Cross Compliance Evaluation of environmental Limits in EU

Responsible person ILE SAS: Ing. Július Oszlányi, CSc.
 Duration: 1. 7. 2006 - 31. 5. 2007
 Number: IEEP Project reference 753
 Project coordinator: Institute for European Environmental Policy, London UK
 Funding for the organisation: IEEP: 59 142,40 SKS, SAS: 151 000 SKK

[34] ***Inventory of terrestrial ecosystems dependent on underground water bodies in the upper Hron valley***

| | |
|--|--|
| Responsible person ILE SAS/ Project coordinator: | Mgr. Andrej Halabuk, PhD. |
| Duration: | 9/2005 - 10/2007 |
| Number: | ZP 0158 |
| Total funding: | 3027 EUR, Project Management Ltd Dublin, IR |
| Funding for the organisation: | 3027 € |

[35] ***Priorities for Conservation of Biodiversity in Biosphere reserves UNESCO in Changing Conditions***

| | |
|--|--|
| Responsible person ILE SAS/ Project coordinator: | Ing. Július Oszlányi, CSc. |
| Duration: | 1.1.2007-30.10.2007 |
| Number: | UNESCO 375441 01 SLO |
| Funding for the organisation: | UNESCO HQ: 1 070 000 SKK SAS: 100 000 SKK |

[36] ***GLORIA- Methodentest Kampagne***

| | |
|--|---|
| Responsible person ILE SAS/ Project coordinator: | RNDr. Peter Barančok, CSc. |
| Duration: | 1.6.2007 – 31.10.2007 |
| Number: | 59s2 |
| Funding for the organisation: | 193 128 SKK, SAIA – Austria-Slovakia Action |

ii. **List of other international projects incl. total funding and funding for the Organisation**

[1]

[2] ...

iii. **List of other important projects and collaborations without direct funding**

[1]

[2] ...

• **National projects and funding²**

i. **List of State Research Programmes, and their funding**

[1] -

[2] ...

² Excluding projects for the popularisation of science

ii. List of project supported by APVV

| Start | Project title | Project number | Duration in months | Funding for the Organisation (EUR) | Role of the Organisation |
|--------------|--|-----------------------|---------------------------|---|---------------------------------|
| 2007 | Quantification of selected no-production functions of soil in polder Beša | APVV-0477-06 | 32 | 14937 | partner |
| | Landscape changes of the Biosphere Reserve Tatra in recent 200 years in relation to changing natural and socio-economical conditions | LPP-0236-06 | 34,000 | 31063 | coordinator |
| | Conservation and management of non-forest habitats in the agrarian landscape | LPP-0135-06 | 35,000 | 39501 | coordinator |
| | Integrated Landscape Management | APVT-51-037202 | 58,000 | 140609 | coordinator |
| | Creation of environmental limits for sustainable development of the territory | APVT-18-035102 | 58 | 56164 | coordinator |
| 2008 | Model of the representative geosystems on the regional level | APVV-0240-07 | 30 | 220774 | coordinator |
| | | | | | |
| 2009 | | | | | |
| | | | | | |
| 2010 | | | | | |
| | | | | | |
| 2011 | The study of contamination mining landscape by toxic elements in the selected copper deposits and its remediation options | APVV-0663-10 | 39 | 217159 | partner |
| | | | | | |
| | | | | | |

iii. Number of projects supported by the Scientific Grant Agency of the Slovak Academy of Sciences and the Ministry of Education (VEGA) for each year, and their funding

| VEGA | 2007 | 2008 | 2009 | 2010 | 2011 |
|----------------------------------|-------------|-------------|-------------|-------------|-------------|
| number | 9 | 10 | 12 | 12 | 8 |
| funding in the year (EUR) | 44745 | 45608 | 54666 | 67624 | 72180 |

- **Summary of funding from external resources**

| External resources | 2007 | 2008 | 2009 | 2010 | 2011 | total | average |
|---|-------|-------|-------|-------|-------|-------|---------|
| external resources (milions of EUR) | 0,371 | 0,678 | 0,250 | 0,236 | 0,551 | 2,086 | 0,417 |
| external resources transferred to cooperating research organisations (milions of EUR) | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 |
| ratio between external resources and total salary budget | 1,038 | 1,754 | 0,609 | 0,558 | 1,375 | - | 1,067 |
| overall expenditures (milions of EUR) | 1,184 | 1,451 | 1,172 | 0,975 | 1,30 | 6,082 | 1,216 |

iv. List of projects the EU Structural Funds

- **Summary of external resources of the EU Structural Funds (ERDF/ESF)**

| Year | Project title | Project number | Duration in months | Funding for the Organisation (EUR) | Role of the Organisation |
|------|--|----------------------|--------------------|------------------------------------|--------------------------|
| 2007 | | | | | |
| 2008 | | | | | |
| | | | | | |
| 2009 | Center of Excellence for Protection and Use of Landscape and Biodiversity | ITMS: 26240120014 | 30,000 | 452484,000 | coordinator |
| 2010 | Research, development and application of advanced methods of geoinformatics, remote sensing and methods of parallel computation based on advanced hardware and software instruments, which enable parallel processing Biodiversity | ITMS: 26220220071 | 47,000 | 12293,000 | partner |
| 2011 | | | | | |
| | | | | | |

v. Supplementary info and/or comments on research projects and funding resources

-

5. Organisation of PhD studies, other pedagogical activities

- i. List of accredited programmes of doctoral studies (as stipulated in the previously effective legislation as well as in the recently amended Act on the Universities). Period of validity of accredited scientific disciplines, characterization of perspectives of PhD study on the Organisation

[1] 4.3.1 Landscape protection and landscape utilisation (as in the recently amended Act on the Universities)

Laws of the PhD study assigned to ILE SAS in 2010 are performed by using of valid Act. That fact, also the promising qualification structure of scientific researchers establishes conditions in successful implementation of the PhD study for ILE SAS.

- ii. Summary table on doctoral studies (number of internal/external PhD students; number of students who completed their study by a successful thesis defence; number of PhD students who quitted the programme)

| PhD study | 31.12.2007 | | | 31.12.2008 | | | 31.12.2009 | | | 31.12.2010 | | | 31.12.2011 | | |
|---|------------|-----------------|------------------|------------|-----------------|------------------|------------|-----------------|------------------|------------|-----------------|------------------|------------|-----------------|------------------|
| number of potential PhD supervisors | 14 | | | 14 | | | 14 | | | 14 | | | 10 | | |
| PhD students | number | defended thesis | students quitted |
| internal | 12 | 0 | 1 | 5 | 2 | 1 | 2 | 5 | 0 | 5 | 0 | 0 | 8 | 1 | 0 |
| external | 22 | 2 | 10 | 17 | 0 | 0 | 10 | 6 | 1 | 3 | 4 | 3 | 2 | 1 | 0 |
| supervised at external institution by the research employees of the assessed organisation | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

- iii. Postdoctoral positions supported by

a) external funding (specify the source)

Projects APVV-LPP focused to the creation of postdoctoral positions

Conservation and management of non-forest habitats in the agricultural landscape

project leader: Doc. RNDr. Tatiana Hrnčiarová, CSc.,
 postdoctorand: RNDr. Jana Spulerová, PhD. funding (year
 2007-2009): 37209,- EUR

Project APVV-LPP focused to the creation of postdoctoral positions

**Landscape changes of the Biosphere Reserve Tatra in recent 200 years
 in**

relation to changing natural and socio-economical conditions

project leader: Ing. Július Oszlányi, CSc., postdoctorand:
 RNDr. Martin Boltziar, PhD. funding (year 2007-2009):
 31063,- EUR

*b) internal funding - the Slovak Academy of Sciences Supporting Fund of
 Stefan Schwarz*

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iv. Summary table on pedagogical activities

| Teaching | 2007 | 2008 | 2009 | 2010 | 2011 |
|--|------|------|------|------|------|
| lectures (hours/year) ³ | 605 | 323 | 642 | 258 | 252 |
| practicum courses (hours/year) ³ | 224 | 200 | 330 | 104 | 88 |
| supervised bachelor thesis (in total) | 3 | 4 | 3 | 2 | 3 |
| supervised diploma thesis (in total) | 40 | 10 | 14 | 15 | 10 |
| supervised rigorous thesis (in total) | 0* | 0* | 0* | 0* | 0* |
| members in PhD committees (in total) | 9 | 6 | 5 | 6 | 8 |
| members in DrSc. committees (in total) | 0 | 0 | 0 | 0 | 0 |
| members in university/faculty councils (in total) | 4 | 4 | 4 | 6 | 7 |
| members in habilitation/inauguration committees (in total) | 3 | 2 | 1 | 1 | 1 |

* - not registered data

³

v. List of published university textbooks

[1] PETROVIČ, František - IZAKOVIČOVÁ, Zita - MEDERLY, Peter - MOYZEOVÁ, Milena. *Environmental aspects of sustainable development: (educational texts)*

³ Do not include time spent with bachelor, diploma or PhD students during their supervising

(In Slovak). Second extended edition. Nitra: Constantine the Philosopher University in Nitra, 2009. 126 pp. ISBN 978-80-8094-605-0.)

- [2] BOLTIŽIAR, Martin. *Geographical information systems for geographers I.: (educational texts)* (In Slovak). Nitra : Constantine the Philosopher University in Nitra, 2007. 96 pp. ISBN 978-80-8094-196-3.)
- [3] BOLTIŽIAR, Martin - OLAH, Branislav. *The landscape and its structure (Mapping, changes and evaluation)* (In Slovak). Nitra: Constantine the Philosopher University in Nitra, 2009. 160 pp. ISBN 978-80-8094-552-7.
- [4] PAVLÍČKOVÁ, Katarína - KOZOVÁ, Mária - BELČÁKOVÁ, Ingrid - DRDOŠ, Ján - PAUDITŠOVÁ, Eva - KALIVODOVÁ, Eva. *Landscape Ecology in Environmental Impact Assessment* (In Slovak). Bratislava: Univerzita Komenského, 2009. CD ROM. ISBN 978-80-223-2736-7.
- [5] PAVLÍČKOVÁ, Katarína - KOZOVÁ, Mária - MIKLOŠOVIČOVÁ, Alexandra - ŽARNOVIČAN, Hubert - BARANČOK, Peter - LUCIAK, Milan. *Environmental Impact Assessment: university educational text* (In Slovak). Editor Katarína Pavlíčková, Mária Kozová. Bratislava: Comenius University, 2009. CD ROM. ISBN 978-80-223-2734-3.)
- [6] HREŠKO, Juraj - PETROVIČ, František - BUGÁR, Gabriel. *The use of GIS and remote sensing in landscape ecology* (In Slovak). Nitra: Constantine the Philosopher University in Nitra, 2008. 96 pp. ISBN 978-80-8094-271-7.
- [7] KRNÁČOVÁ, Zdena - HREŠKO, Juraj - ĎUGOVÁ, Olívia. *The basics of soil sciences for ecologists and environmentalists* (In Slovak). Nitra: Constantine the Philosopher University in Nitra, 2008. 190 pp. ISBN 978-80-8094-393-6.

vi. Number of published academic course books

- [1]
[2] ...

vii. List of joint research laboratories/facilities with the universities

Joint research laboratory (used name: Common Department) with the Department of Ecology and Environmental Sciences at the Faculty of Natural Sciences of the Constantine the Philosopher University in Nitra.

The staff of the Institute of Landscape Ecology participates in pedagogical activities of the department, namely in teaching, consultations for Master and PhD students, supervision of seminars and diploma theses, organizing field courses and in Master and PhD examination committees.

viii. Supplementary information and/or comments on doctoral studies and pedagogical activities

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6. Applied research

(Applications of results)

i. List of the most important results of applied research projects

- [1] Mapping of main sources of pollutants and their transport in the Visegrad space. (B. Maňkovská, J. Oszlányi, P. Kenderessy, J. Lieskovský)

The projects represents complex bioindication of atmospheric pollution in Visegrad space. In total, there were 499 samples of bryophyte taken in all V4 countries and the concentration of 53 elements was measured. This information was then transformed into geodatabase and processed using GIS technology. Concentrations of individual elements were spatially interpolated and published in the form of 53 thematic maps describing the localization of sample points, concentration and spatial distribution of polluting elements. All results were also published in the form of web application.

SUCHARA, I. – FLOREK, M. – GODZIK, B. – MAŇKOVSKÁ, B. – RABNECZ, GY. – SUCHAROVÁ, J. – TUBA, Z. – KAPUSTA, P. (GRAPHICAL PROCESSION OF MAPS: LIESKOVSKÝ, J., KENDERESSY, P.) Mapping of main resources of pollutants and their transport in the Visegrad space. Part I: Eight toxic metals. Report of the expert group on bio-monitoring the atmospheric deposition loads in the Visegrad countries. Project 11007-20006-IVF. Průhonice: Výzkumný ústav Sila Taroucy pro krajinu a okrasné zahradnictví, 2007. 127 p. ISBN 978-80-85116-53-3.

- [2] Wildflower meadows. Natural wealth of Slovakia (H. Ružičková, H. Kalivoda)

Popularisation of research results concerning the state and development trends of seminatural wet, mezophile and semidry meadows of Slovakia. The publication is assigned to general public as well as to decision makers and authorities responsible for nature protection and management.

RUŽIČKOVÁ, Helena - KALIVODA, Henrik. Flowery meadows: a natural wealth of Slovakia (In Slovak). Bratislava: Veda, 2007. 133 pp. Svet vedy, 7. ISBN 978-80-224-0953-7.

- [3] Xerotherm biotops of Slovakia. (S. David et al.)

The characterisation, importance, threats and protection of xerotherm biotopes in combination with soils and parent material, flora and fauna with representatives of 17 taxonomic groups and their extend in Slovakia. The factors affecting these biotops, the level of protection with focus on NATURA 2000 are also the subject of investigation. The results are targeted to state authorities in nature protection as well as to experts and general public.

DAVID, Stanislav - KALIVODA, Henrik - KALIVODOVÁ, Eva - ŠTEFFEK, Jozef - BULÁNKOVÁ, Eva - FEDOR, Peter - FENĎA, P. - GAJDOŠ, Peter - HREŠKO, Juraj - KAUTMAN, J. - OLŠOVSKÝ, T. - ORSZÁGH, I. - ROLLER, Ladislav - VIDLIČKA, Ľubomír. Xerothermic biotopes of Slovakia (In Slovak). Bratislava: Biosféra, 2007. 74 pp. Biosféra A3. ISBN 978-80-968030-8-8.)

- [4] Landscape-ecologically optimal spatial and functional utilisation of the territory of the Tatry Biosphere Reserve (Z. Izakovičová et al.)

Based on scientific knowledge and information the study “Landscape-ecologically optimal spatial and functional utilization of UNESCO Biosphere Reserve Tatry” was elaborated. It was submitted to Governmental Committee for Revitalization and Development of High Tatras Mts. (20. 12. 2005). The outcome was the proposal of Landscape-ecologically optimal utilization of Tatras Biosphere Reserve in new, changed conditions which resulted from wind calamity. The

outcomes of project (landscape-ecological study) represent basic documents to authorities decision making process.

IZAKOVIČOVÁ, Zita a kol. (Bolžiari Martin, Celer Slavomír, David Stanislav, Dítě Daniel, Gajdoš Peter, Hreško Juraj, Ira Vladimír, Grotkovská Lucia, Kenderessy Pavol, Kozová Mária, Oszlányi Július, Petrovič František, Válkovicová Zuzana, Vološčuk Ivan). Landscape-ecologically optimal spatial and functional use of the Tatry UNESCO Biosphere Reserve, ILE SAS Slovak National Committee for programme UNESCO Man and Biosphere (MAB). Bratislava: Veda Publishing, 2008, 196 s. + prílohy. ISBN 978-80-224-0998-8.

[5] Flora and fauna of the sand dunes of Slovakia (E.Kalivodová et al.)

Sand dunes represent one of the most endangered biotopes of European importance. Long term degradation of sand dunes resulted significant reduction of extend of such biotopes in some regions. The book focuses mainly on eolian sand dune biotopes and represents a great asset for expert community as well as to general public.

KALIVODOVÁ, Eva - BEDRNA, Z. - BULÁNKOVÁ, Eva - DAVID, Stanislav - ĎUGOVÁ, Olívia - FEDOR, Peter - FENĎA, P. - GAJDOŠ, Peter - GAVLAS, Vladimír - KALIVODA, Henrik - KOLLÁR, Jozef - KRIŠTÍN, Anton - KUBÍČEK, Ferdinand - KÜRTHY, Alexander - LUKÁŠ, J. - MAGIC, D. - OLŠOVSKÝ, T. - PASTORÁLIS, G. - SVATOŇ, J. - SZABÓOVÁ, A. - ŠTEFFEK, Jozef - ŠTEPANOVIČOVÁ, O. - ZALIBEROVÁ, Mária. Flora and fauna of the drifting sands in Slovakia (In Slovak). Bratislava: Veda, 2008. 255 pp. ISBN 978-80-224-0968-1.

[6] Festival of Landscape (Z. Izakovičová et al.)

The main objective was to assess the present state of environmental education concerning the topic of sustainable development on elementary and high schools as well as elaboration of didactic materials Educational video „Landscape and its sustainable development“. The movie was dedicated to general public and its main role was the popularisation of topic of sustainable development. The movie was distributed to selected schools and showed also on movie festival Agrofilm in Nitra and Envirofilm in Banská Bystrica. English version of the movie was also distributed trough the Bureau of Slovak Commission for UNESCO M&B Programme in Central and Eastern Europe.

IZAKOVIČOVÁ, Zita - MOYZEOVÁ, Milena - CIBIRA, Peter - MASARYKOVÁ, Ida - MIKLÓS, László - ŠTEFUNKOVÁ, Dagmar - ŠKULTÉTYOVÁ, Ľubica. Methodological guidelines for environmental education: Topic: Sustainable Development. Bratislava : Institute of Landscape Ecology SAS, 2008. 85 s.

IZAKOVIČOVÁ, Zita - MOYZEOVÁ, Milena - ŠTEFUNKOVÁ, Dagmar - CIBIRA, Peter - MIKLÓS, László. Landscape and its sustainable development (In Slovak) [electronic source]. Production: Marián Kňažko. Bratislava : Institute of Landscape Ecology SAS, 2009. 1 DVD. Project LPP-0346-06.

[7] ETC/BD 2010 - European Tematic Centre on Biodiversity (L. Halada, J. Oszlányi et al.)

European Tematic Centre on Biodiversity (ETC BD) represents expert organisation of European Environmental Agency (EEA). The role of ILE SAS was to assess national reports concerning the protection species and biotopes of European importance. In total 254 reports concerning biotopes, 250 reports concerning plant species and 518 reports concerning animal species elaborated. The results were included into central database of ETC BD in Paris and final report was sent to DG Environment.

Most significant reports:

Biala, Katarzyna - Makarewicz, Karina - Zisenis, Marcus - Richard Dominique (eds.). 10 messages

for 2010. Agricultural ecosystems. - Copenhagen: European Environment Agency, 2010, 13 pp.

HALADA, Ľuboš - GAJDOŠ, Peter - OSZLÁNYI, Július. Mountain species and habitats linked to the EU Habitats Directive. In: Europe's ecological backbone: recognising the true value of our mountains. - Copenhagen: European Environment Agency, 2010, p. 143-152. ISBN 978-92-9213-108-1.

[8] Development scenarios of representative landscape ecosystems in the Slovak republic considering global changes (Z. Izakovičová et al.)

The target of the project aimed to elaborate the methodological procedure for creation and evaluation of representative landscape ecosystems of Slovakia (RLES) in order to prepare the effective strategy of biodiversity protection and the management proposal of sustainable development of RLES (landscape types) that will ensure maintenance of all RLES considering recent global changes in the landscape.

BEZÁK, Peter - IZAKOVIČOVÁ, Zita - MIKLÓS, László a kol. Representative types of Slovakia landscape. Bratislava : Institute of Landscape Ecology SAS, 2010. 180 s. ISBN 978-80-89325-15-3

ii. List of the most important studies commissioned for the decision-making authorities, the government and NGOs, international and foreign organisations

Studies processed for European Environment Agency

- [1] ZISENIS, Marcus - RICHARD, Dominique - CONDÉ, Sophie - EVANS, Doug - TORRE-MARIN, Amor - JONES-WALTERS, Lawrence - DELBAERE, Ben - HALADA, Ľuboš - GAJDOŠ, Peter - OSZLÁNYI, Július. 10 messages for 2010 : Cultural landscapes and biodiversity heritage. Copenhagen: European Environment Agency, 2010. 13 s.
- [2] ZISENIS, Marcus - RICHARD, Dominique - BAILLY-MAITRE, Jérôme - HALADA, Ľuboš - GAJDOŠ, Peter - OSZLÁNYI, Július - HERKENDELL, Josef. 10 messages for 2010 : Forest ecosystems. Copenhagen: European Environment Agency, 2010. 16 s.
- [3] ZISENIS, Marcus - CHRISTIANSEN, Trine - RICHARD, Dominique - BAILLY-MAITRE, Jérôme - MAC SHARRY, Brian - ČIVIĆ, Kristijan - JONES-WALTERS, Lawrence - MO, Giulia - AGNESI, Sabrina - TUNESI, Leonardo - YÜKSEL, Eyüp - HALADA, Ľuboš - GAJDOŠ, Peter - OSZLÁNYI, Július. 10 messages for 2010: Marine ecosystems. Copenhagen: European Environment Agency, 2010. 13 s.
- [4] ZISENIS, Marcus - RICHARD, Dominique - PRICE, Martin - TORRE-MARIN, Amor - JONES-WALTERS, Lawrence - HALADA, Ľuboš - GAJDOŠ, Peter - OSZLÁNYI, Július. 10 messages for 2010 : Mountain ecosystems. Copenhagen: European Environment Agency, 2010. 13 s.
- [5] ZISENIS, Marcus - MEINER, Andrus - RICHARD, Dominique - CONDÉ, Sophie - BAILLY-MAITRE, Jérôme - SNETHLAGE, Mark - ÇİL, Aysegül - JONES-WALTERS, Lawrence - DELBAERE, Ben - MO, Giulia - AGNESI, Sabrina - TUNESI, Leonardo - YÜKSEL, Eyüp - MANAP, Emrah - HALADA, Ľuboš - GAJDOŠ, Peter - OSZLÁNYI, Július. 10 messages for 2010: Coastal ecosystems. Copenhagen: European Environment Agency, 2010. 17 s.
- [6] BIALA, Katarzyna - MAKAREWICZ, Karina - ZISENIS, Marcus - RICHARD,

Dominique - EVANS, Doug - BAILLY-MAITRE, Jérôme - ELLMAUER, Thomas - MOSER, Dietmar - HALADA, Ľuboš - GAJDOŠ, Peter - OSZLÁNYI, Július. 10 messages for 2010: Agricultural ecosystems. Copenhagen: European Environment Agency, 2010. 13 s.

- [7] HALADA, Ľuboš - GAJDOŠ, Peter - VIGNAULT, Marie-Paule - ZISENIS, Marcus. Species of community interest related to High Nature Value (HNV) farmland. Paris: European Topic Centre on Biological Diversity, 2011. 16 p.
- [8] HALADA, Ľuboš - GAJDOŠ, Peter - VIGNAULT, Marie-Paule - RICHARD, Dominique. Species listed in annexes to the Habitat Directive of relevance for mapping High Nature Value Farming areas on a European scale: Draft. Paris; Nitra : European Topic Centre on Biological Diversity : Institute of landscape ecology Slovak Academy of Sciences, 2011. 15 p.

Studies processed for local and regional government and authorities of state nature protection

- [9] BARANČOK, P. et. al.: Natural condition of High Tatras pilot area. Basis for land-use planning documentation preparation of High Tatras. Processed for municipality of High Tatras city. 2010, non paged.
- [10] BARANČOK, P. et. al.: Evaluation of the basic components of the Bratislava city environment in six selected directions for further development. Basis for land-use planning documentation preparation of Bratislava city. Prepared for municipality of Bratislava city. 2010, non paged.
- [11] IZAKOVIČOVÁ, Z. et. al.: Method proposal of slovak landscape typology (in sense of Euroepan Convention implementation in Slovakia). Processed for Ministry of Environment. 2010, non paged.
- [12] PETROVIČ, František - MOJSES, Matej, DOBROVODSKÁ, Marta a kol. Strategy of the research and management of the historical structures of agricultural landscape in the model area of Hriňová. (In Slovak) Bratislava: Ústav krajinej ekológie SAV, 2011. 158 s.
- [13] ŠPULEROVÁ, Jana - DOBROVODSKÁ, Marta a kol.: Strategy of the research and management of the historical structures of agricultural landscape in the model area of Liptovská Teplička. (In Slovak) Bratislava: Ústav krajinej ekológie SAV, 2011. 152 s.
- [14] ŠTEFUNKOVÁ, Dagmar , DOBROVODSKÁ, Marta , KANKA, Róbert - a kol. Strategy of the research and management of the historical structures of agricultural landscape in the model area of Svätý Jur. (In Slovak) Bratislava: Ústav krajinej ekológie SAV, 2011. 183 s.

iii. List of licences sold abroad, incl. revenues

- [1]
[2] ...

iv. List of licences sold in Slovakia, incl. revenues

- [1]
[2] ...

v. List of contracts with industrial partners, incl. revenues⁴

[1]

[2] ...

vi. List of research projects with industrial partners, incl. revenues⁴

[1]

[2] ...

vii. Supplementary information and/or comments on applied activities

| | 2007 | 2008 | 2009 | 2010 | 2011 | total |
|---|------|------|------|------|------|-------|
| studies for the decision sphere, government and NGOs, international and foreign organisations | 2 | 20 | 1 | 9 | 7 | 39 |

7. Popularisation of Science (outreach activities)

i. List of the most important popularisation activities

[1] The traditional agricultural landscape of Hriňová, Lipt. Teplička and Svätý Jur – how to preserve it? – a series of workshops with local stakeholders and local authorities from regions with a presence of historical structures of the agricultural landscape. Workshops were focused on raising awareness concerning the preservation and optimal management of these cultural-historical and ecological phenomena of the Slovak landscape (Dobrovodská, et al., 2010-2011).

[2] Public presentation of the book “Representative landscape types of Slovakia”, in cooperation with the National Council of the Slovak Republic (Izakovičová, et al., 2010; with the presence of the Norwegian ambassador and representatives of the Ministry of Environment, the Slovak Academy of Sciences, the National Council and other public institutions, Bratislava castle, 2010).

[3] J. Oslányi, interview (TA3, independent news channel).

[4] Educational video “the Landscape and its sustainable development”. A presentation in 6 cities during the event “Agrofilm for practice”, (M. Moyzeová, et al., 2010).

[5] The Biodiversity of Historical Structures of the Agricultural Landscape (Slovak

⁴ If not included in documentation of projects in chapter 4 (Projects structure, research grants and other funding resources).

radio – Regina, M. Dobrovodská, 2010).

- [6] “How to prevent mushroom poisoning”, “Which regions of Slovakia are interesting for mushroom diversity” and other; together 5 presentations on the TA3 independent news channel, (A. Janitor, 2009).
- [7] Science and Technology Week – an exhibition of Centres of excellence in research and technology, Incheba, Bratislava – all 7 partners of the Centre of excellence for Landscape protection, management and biodiversity, (H. Kalivoda, et al., 2009)
- [8] CONECO exhibitions (2007 – 2011) – presentation of research outputs of ILE SAS concerning the implementation of Landscape convention, territorial systems of ecological stability etc. (M. Moyzeová, E. Adamčeková)
- [9] AGROCOMPLEX exhibitions (2007-2011) - presentation of research outputs of ILE SAS concerning the protection and optimal management of the landscape in line with the principles of sustainable development, evaluation of landscape potential and carrying capacity, degradation factors etc.; “Zlatý kosák” award in 2007. (Z. Izakovičová, M. Moyzeová, E. Adamčeková)

ii. Summary of outreach activities

| Outreach activities | 2007 | 2008 | 2009 | 2010 | 2011 | total |
|--|------|------|------|------|------|-------|
| articles in press media/internet popularising results of science, in particular those achieved by the Organization | 7 | 34 | 8 | 6 | 8 | 63 |
| appearances in telecommunication media popularising results of science, in particular those achieved by the Organization | 11 | 13 | 23 | 16 | 5 | 68 |
| public popularisation lectures | 13 | 65 | 7 | 4 | 21 | 110 |

iii. Supplementary information and/or comments on popularisation activities

-

8. Background and management. Staffing policy and implementation of recommendations from previous assessments

i. Summary table of personnel

| Personnel | 2007 | 2008 | 2009 | 2010 | 2011 |
|--|------|------|------|------|------|
| all personnel | 58 | 63 | 65 | 64 | 56 |
| research employees from Tab. Research staff | 0 | FTE | FTE | FTE | FTE |
| FTE from Tab. Research staff | No. | No. | No. | No. | No. |
| average age of research employees with university degree | 41 | 48,8 | 46,5 | 46,7 | 43,9 |

ii. Professional qualification structure (as of 31.12. 2011)

| FEMALE | AGE | | | | | | | | | |
|----------------------------------|-----------|------|---------|---------|---------|---------|---------|---------|---------|------|
| | Number of | < 30 | 31 - 34 | 35 - 39 | 40 - 44 | 45 - 49 | 50 - 54 | 55 - 59 | 60 - 64 | > 65 |
| DrSc. / prof. ⁵ | | | | | | | | 1 | | 1 |
| II.a / Assoc. prof. ⁶ | | | | | | 4 | | | | 1 |
| other researchers PhD./CSc. | | 3 | 4 | 2 | 1 | | | | | |
| doc./Assoc. prof. | | | | | | | | | | |

⁵ ⁶
,

iii. Professional qualification structure (as of 31.12. 2011)

| MALE | AGE | | | | | | | | | |
|----------------------------------|-----------|------|---------|---------|---------|---------|---------|---------|---------|------|
| | Number of | < 30 | 31 - 34 | 35 - 39 | 40 - 44 | 45 - 49 | 50 - 54 | 55 - 59 | 60 - 64 | > 65 |
| DrSc. / prof. ⁵ | | | | | | 1 | | | 1 | 1 |
| II.a / Assoc. prof. ⁶ | | | 2 | | | 2 | 1 | | | |
| other researchers PhD./CSc. | 1 | 1 | 6 | 1 | | | | | | |
| doc./Assoc. prof. | | | 1 | | | | 1 | | | |

⁵ Responsibility to organize PhD study

⁶ Responsibility to be a supervisor of PhD study

iv. Status and development of research infrastructure incl. experimental, computing and technical base (description of the present infrastructure, premises, and material and technical resources. Infrastructure, instrumentation and major technical equipment necessary for the achievement of the objectives specified in the research Concept)

The Institute of Landscape Ecology SAS is an independent legal entity. As a grant organization, it shows long-term positive financial results. The Institute is located in a building in the centre of Bratislava and in the academic part of the City of Nitra (a branch). The buildings in Bratislava and Nitra are the property of SAS. The seat of the Institute is in Bratislava and there is a library and conference room here as well as in Nitra. Each room in Bratislava and Nitra is equipped with at least one computer, which is connected to an updated local computer network. A high-speed internet connection of 100 Mb/s is provided via a high-speed optical cable from the server at the Computing Centre of SAS.

There are 56 computers/work-stations in use, 24 of them are high-powered work-stations for fluent running of GIS software and complicated graphics output processing. The Slovak Academy of Sciences started to use the economic software SOFTIP from 1.1.2007 and there was the need to buy an HP ProLiant ML150 server for this software. SOFTIP was changed to PACKET to PROFIT in 2010 working on a Citrix platform, the HP ProLiant ML150 was re-installed as a data server. There are also 26 notebooks available, 1 micro-book, 4 scanners, 8 copy machines, 8 LaserJet colour printers, 20 monochrome printers, 3 data projectors, 14 PDA Trimble Juno SB with Windows Mobile, 17 GPS Garmin devices, 1 GPS Glofish device, 4 Dictaphones, a digitizer and a backup generator, 5 digital cameras, 2 faxes, 5 external discs, 1 switch (5 ports), 4 switches (10 ports), 3 switches (20 ports). In 2010, a new telephone network was installed and 56 IP telephones were installed. There are LTER sites operated by ILE SAS and 36 data loggers measuring soil temperature at a depth of 10 cm which are used since 2001. Additionally, a SM 300 Hygroscope was bought.

Software equipment is structured by the individual needs of employees. All work-stations and notebooks run on an operation system from Microsoft: Windows XP Home – 24 licenses, Windows XP Professional - 23, Windows Vista Home – 2, Windows Vista Business – 10 and Windows 7 Professional - 24. The servers run on Windows Server 2003. Other software includes Microsoft Office 2003 Professional – 15 licenses, Microsoft Office 2003 Standard – 40, Microsoft Office 2007 – 16, Microsoft Office 2010 – 10 and Open Office 3.0.3 – 2. PC security has been solved by the purchase of 60 licenses of ESET Smart Security 5.0 and 23 licenses of NOD 32 Antivirus. Each employee has an individual e-mail account using Outlook Express, Outlook and Mozilla Thunderbird clients. An important integral part of ILE SAS software equipment are licenses for specialized GIS software - ArcView 3.1, 3.2, ArcGIS 8.1, 8.3, 9.3, IDRISI Kilimanjaro and ERDAS. Employers of ILE SAS use a wide spectrum of other licensed software, for example: PC Translator, Adobe Acrobat Photoshop 7.0 and 8.0, Adobe Creative Suite CS, CS2, CS3, Photoshop 7 and 8, Corel Draw 9, 11 and 12. For statistical analyses and calculations Statistica CZ, Syntax, CANOCO 4.0, Turbowin and SPSS 15 are used.

In 2011, the Centre of Excellence, using money from structural funds, established a computing laboratory containing 2 servers, 3 high-powered work-stations, 3 scanners, a Xerox machine and an A1 plotter. Two computers, Adobe CS5 Collection, 3 licenses for Microsoft Office 2010 Plus and Surfer 10 have been installed. The purchase of the newest ArcGIS software has been planned; however the complicated and slow public

procurement system hindered this process. The contract was signed and it is possible to buy the GIS software.

The equipment for terrain research and basic laboratory analyses has been slightly renewed over the last 4 years. There are 3 new binoculars, a pedological drill and hexangular glass-houses, however the old equipment is still in use for biomass dehydration and measuring biomass production. Three motor-cars are used in terrain research. A Škoda Octavia estate car, a Volkswagen Caddy and a new Toyota off-road vehicle for research in difficult terrain was bought.

v. Infrastructure, instrumentation and major technical equipment necessary for the achievement of the objectives specified in the research Concept

The main objectives of the research for the next 4 years are:

Based on the proposed objectives for the institute's development, it is necessary to obtain enough grant money for research projects in order to provide the infrastructure for quality scientific research.

The primary objectives for improving the infrastructure, instrumentation and technical equipment of the institute compatible with the research concept are:

- to purchase the current version of the Slovakia ortho-photo map
- to purchase and update special software and hardware for processing remote sensing data and GIS maps
- to establish a central site for archiving research data (buying a server and special software, operator training, rebuilding the internal network)
- to establish a stationary terrain station on the LTER localities

Further objectives stemming from the aim of the institute are mainly:

- to equip the sites in Bratislava and Nitra with instrumentation for biotic analyses (driers and microscopes for plant and animal species determination)
- to buy a new car usable in difficult terrain for field research (2 of the 3 currently used cars are old with an operational life of a maximum of 2 more years).
- to modernise hardware and software equipment for all scientific employees, to provide training of employees in internal courses and also at special external courses.

vi. Describe how the results and suggestions of the previous assessment were taken into account

As ILE SAS is a Contributory Organization, its big effort is concentrated on gaining projects of different kind, the preparation of which, including planning, proposals elaboration and permanent load of work connected with them, is very demanding and exhausting.

On the other hand, these projects, mainly the EU funded projects, enabled the scientists to work in numerous landscape-ecological projects of basic character in close cooperation with top scientific institutes in Europe or under their coordination respectively. The strong competition environment enables the establishment especially of young scientists in the European Research Area. Along with the engagement in the EU scientific projects, the ILE SAS scientists did a lot in the improvement of their

scientific qualification in the assessment period. This criterion was commented in the previous accreditation (2003-2006) as less successful. Every effort was done to improve the situation in this field. Now we can state, that especially the scientists of category II b changed their status substantially. After six elder scientists left the Institute by the end of 2012, the age structure scientists improved substantially. This brings for younger scientists broader space for more initiative, work, leading positions within new projects and better utilization of their innovative power.

The structure of the scientists has been improved also by 2 new professors (Tatiana Hrnčiarová, Juraj Hreško) and by 1 assistant professor (Martin Boltžiar).

The Institute is very active in the publication of monographs (14 in 1999-2002, 23 in 2003 - 2006 and 25 in 2007 – 2011). Improvement can be seen also in publication in journals with higher IF. It is necessary to state, that the demanding work on numerous international and domestic projects, intensive engagements in the qualification improvement process and also the publication of results of scientific projects by means of monographs, intensive cooperation with decision making institutes, application of scientific results in practice including science popularisation take utmost of the energy and power of the scientists.

The ILE SAS scientists must respect the publication forms and means as they are strictly stated in the contracts (EU projects, APVV projects), where, as deliverables, the monographs, chapters in monographs, scientific presentations and in many cases electronically submitted scientific results is the accepted outcome of the project. Under these conditions also papers in the reviewed proceedings (247) and scientific presentations at scientific events with international participation (257) were delivered in the assessed period.

vii. Supplementary information and/or comments on management, research infrastructure, and trends in personnel development

The financial problem concerns the Cross Border Cooperation project HUSK0801/2.1.2/0162 entitled „Develop of IT –based unified environment monitoring system in the catchment area of IPOLY“. Duration of the project was November 1st, 2009 – October 31, 2010 and is financed from the Structural funds of the DG REGIO. Despite of the fact, that all the work and duties from ILE SAS side have been done and submitted in time, the Hungarian Lead Partner: Közép Duna-Völgyi Környezetvédelmi, Természetvédelmi és Vízügyi Felügyelőség , Budapest has not paid to ILE SAS any Euro. The official eligible costs of ILE SAS are 92 753, 29 EUR. This causes extremely high deficit in the budget of ILE SAS and drastic and exceptional measures must be undertaken.

The public procurement brought another technical and financial problem. The complains of one of the bidders, which were repeatedly submitted to the Public Procurement Office, resulted in the situation, that ILE SAS was not able to sign the contract for 130 286,16 EUR within the contracting period.

Successful EU 7FP projects enabled the scientists of ILE SAS to participate and to have direct scientific network with scientists from the elite European scientific institutions and universities. These concurrence environments enabled to the Institute and especially to young scientists to establish in the European Research Area. Demanding and time consuming work brought results in high-quality publication, in improvement of scientific qualification of the staff and in introduction of new innovative and efficient working methods.

This has influenced also the technical conditions for work of scientists in the field and also in the laboratory.

In the assessment period ILE SAS became Centre of Excellence for the protection and utilization of landscape and for the biodiversity. This elite position in the Slovakian system of scientific institutions is the achievement of long-term high-quality efficient and productive work of our scientists. It is to be underlined, that within the Centre of Excellence, the ILE SAS is the Lead Partner of 6 other institutions and 1 (largest in Slovakia) University.

Other information relevant to the assessment

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Bratislava, 30. 4. 2012

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