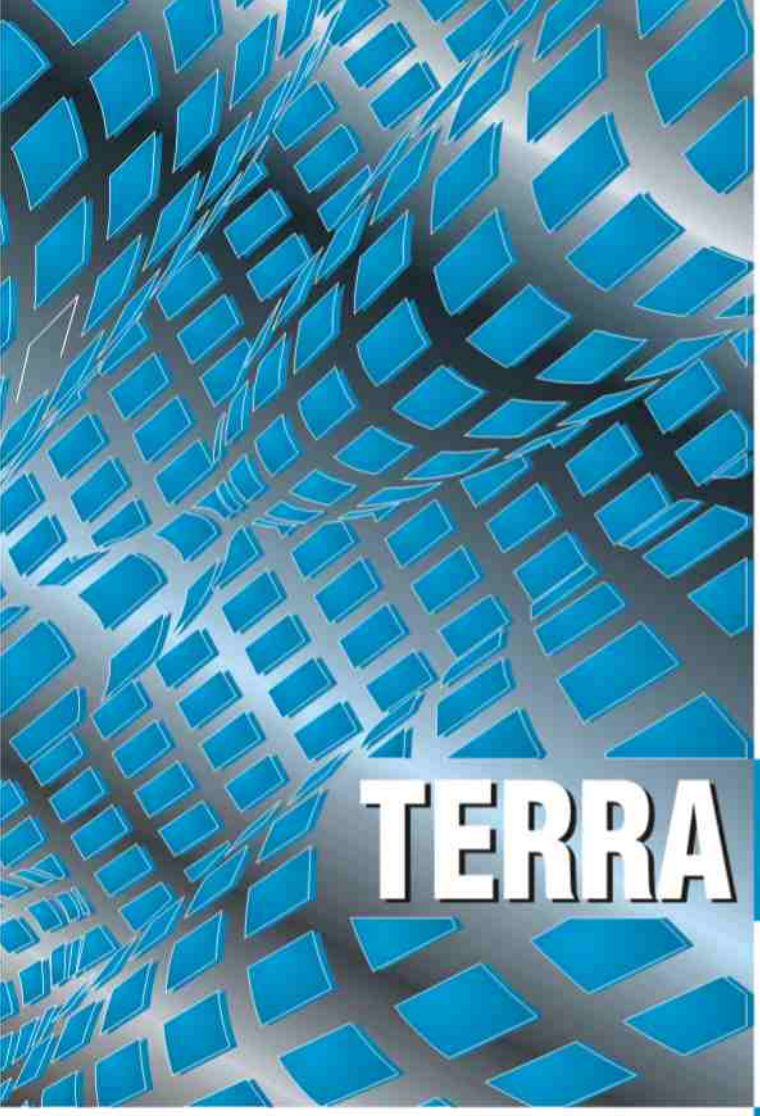

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# TERRA SPECTRA

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## Contents:

# FOREWORD

The broad scale of the problems in the spatial development in central European space is a big challenge for spatial planning practice, theory and education. New tasks and new frameworks, brought by current development of the formation of knowledge based society, require the implementation of new approaches, new methods and new instruments in the spatial development management, new understanding of the role of planning.

The effort of this issue is to contribute towards sustainable development and the processes of economic, social and cultural integration in Europe as well as towards its territorial cohesion with the interdisciplinary research and education emphasizing the integration of landscape-ecological, economic, social and technological aspects. Research results and the proposals, focused on optimising of spatial structures contribute to the fulfilling of the criteria of sustainable spatial development to balancing the regional disparities and at the same time to preserving cultural and ecological diversity, to improving the quality of life and to strengthening of social cohesion in Europe.

Interdiciplinary based research has been focused on creative research work, on the issues of complex planning of sustainable spatial development with the focus on optimising the functional use of territory, including economic and other activities, mobility, relations and functioning of urban and rural structures, creation of sound environment for living, preservation of cultural heritage and ecological balance, based on cooperation with the population and other stakeholders of spatial development.

I believe that the papers will address academic society in the field of spatial planning in the whole Europe to see the topics and projects of researchers in the CEE countries and at the same time bring impulses for their own research.

*Maroš Finka*

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# INTRODUCTION TO INTEGRATED ENVIRONMENTAL MANAGEMENT IN FUA

**Abstract:**
This paper is based on the INTERREG CE89 LUMAT project "Implementation of Sustainable Land Use in Integrated Environmental Management of Functional Urban Areas" solved under the programme priority 3. Cooperating on natural and cultural resources for sustainable growth in CENTRAL EUROPE and its specific objective 3.3 To improve environmental management of functional urban areas to make them more livable places in the years 2016 – 2019 and led by the IETU Katowice, PL.
The LUMAT project objective is the implementation of sustainable land use and pilot projects in integrated environmental management in 7 Central European Functional Urban Areas (FUAs).
The WP.T.1 "Methodology, Trainings and Common Understanding of Land Use in Integrated Environmental Management" has been under the responsibility of the Slovak University of Technology in Bratislava, SPECTRA Centre of Excellence EU where several deliverables have been elaborated with the focus on common methodology of specific integrated FUA environmental management, strategy and action plans. This paper is comprehensive result of the theoretical approach to these issues.

**Key words:**
*integrated environmental management, FUA – Functional Urban Area, eco-system service, sustainable soil and land use, action plans*

## Introduction

Crucial success factor of the development and implementation of integrated environmental management in the FUAs is human capacity closely linked not only to the scientific knowledge available, but to the public awareness and proper development of knowledge and skills at different levels and in different groups of stakeholders in FUAs`. Development of these capacities is the main aim of the training.

The key point in this development is the understanding of the conceptual approach for the integrated environmental management based on:

- Integrated management of urban development in the functional urban areas (FUAs) understood as a tool for optimization of land-use management overarching sectorial policies
- Incorporation of the concept of ecosystem services as the framework for the integration of different optimization functions, representing variety of interests and stakeholders in FUA, with the focus on sustainable soil and land use
- Polycentric multilevel governance, as the basic management model for cooperation management of the city core and its suburban areas and institutional framework for the development and implementation of integrated FUA plans-
- The broad involvement of all stakeholders in FUAs into the decision making and implementation activities reflecting their different capacities for this involvement and collaboration, as the basic principle of integrated FUA environmental management, is a challenge and imperative for the process of the development of the integrated environmental management plans.
- The development of integrated FUA environmental management plans as a part of the development of Action plans understood as the participatory process involving the stakeholder following their individual engagement and capacity.

The second important aspect which should be a part of the core content of human capacity development action represents the capacity for concept implementation. The methodology proposed by LUMAT Project is based on the common functional areas integrated environmental management strategy (FAIEMS) framing integrative development management in FUAs. The LUMAT project consortium "capitalized" in this methodology broad joint experience from previous common collaborative projects (e.g. LUDA, CIRCUSE and others), tacit knowledge and first practical experiences of the partners from integrative management at the supra-local level.

The most important tools for the implementation of the proposed strategy represents the elaboration and fulfillment of integrated environmental management plans and Action plans.

Integrated FUA environmental management plan creates the platform for integration of different interests, aspects, potentials, limits in the space/territory of the FUAs across different hierarchical territorial levels, sectors of policies, stakeholders. The LUMAT methodology of specific integrated FUA environmental management plans with functional urban areas as the functional territorial units defined based on analyses of natural ties of interdependences and collaboration between core city and municipalities in the peri-urban areas institutionalised or based on national policies implementation (including adopting the OECD methodology) (top-down approach) or based on collaboration agreements framing, in addition to horizontal cooperation between core city (core cities) and municipalities in the peri-urban area based on practical implementation of multilevel governance principle in the decision making (e.g. re-division of responsibilities based on efficiency and optimisation of problem solving level).

The most important principles framing the development of integrated FUA environmental management plans formulated by LUMAT project are as follows:

- The integrated environmental management plans for FUA should be understood as inherent part and important tool of common integrative FUAs development management. Being aware about not existing institutionalisation of the FUAs in majority of European countries the integrated FUA environment management plans can be understood as an informal tool framing the cooperation of municipalities in the spatial development of FUA.
- The integrated environmental management plans for FUAs should create strategic framework for short- up to mid-term implementation oriented action plans and can be elaborated as the first part of the action plans with the mid- and long-term perspective. They have to be understood not as formal instrument but as efficient tool, following the interest of the whole scale of stakeholders, first of all municipalities representing public interest.
- The main target of integrative environmental management plans is via the definition of a vision, mid- and long-term strategic goals, implementation principles, driving forces and required synergies to safeguard sustainable well-being and quality of life, through environmentally sound development in urban and peri-urban areas of FUA with special focus on sustainable use of all resources – natural, human, technologic, monetary
- The strategies represented by the plans should be focused on sustainable development, based on use and capitalisation of local and supralocal potentials, as driving force for solving the indentified problems.
- Important goal defined by the integrated environmental management plans for FUAs has to be creation and maintaining of well-connected and well-distributed networks of open, multi-purpose, safe, inclusive, accessible, green and high quality public spaces.
- The integrated environmental management plans have to focus on the use the capacities of the core city/cities of FUA fulfilling their territorial functions across administrative boundaries and in the same time the cooperative capacities of all structures of territorial governance in the area.
- One of the most important goals of the integrative plans is the integration of urban and rural functions promoting sustainable management and use of natural resources and land, ensuring reliable supply and value chains that connect urban and rural supply and demand to foster equitable regional development across the urban-rural continuum and fill the social, economic, and territorial gaps
- The integrated environmental management plans have to promote the development of functional and structural spatial frameworks for sustainable use of natural resources and land via achieving appropriate compactness and density, polycentrism, and mixed uses, triggering the economies of scale and agglomeration, strengthening supra-local food system, enhancing resource efficiency, urban resilience, and environmental sustainability.
- The integrated environmental management plans have to prioritize circular economy in broader sense, including urban renewal, land re-use, flexibility and adaptability of the build structures while facilitating ecosystem conservation, regeneration, restoration and resilience in the face of new and emerging challenges.
- The integrated environmental management plans have to support provision of accessible and well-connected infrastructure and services, sustainable population densities, and compact design and integration of new neighbourhoods in the urban fabric, preventing urban sprawl and marginalization.
- The integrated environmental management plans have to be understood as the tools to facilitate sustainable management of natural resources in urban and peri-urban areas in a manner that protects and improves the urban ecosystem and environmental services, reduces greenhouse gas

emissions and air pollution, and promotes disaster risk reduction and management, supports the development of disaster risk reduction.

- The integrated environmental management plans have to be built on smart city region approach, which makes use of opportunities from digitalization, clean energy and technologies, as well as innovative transport technologies, thus providing options for inhabitants to make more environmentally friendly choices and boost sustainable economic growth and enabling urban as well as peri-urban settlements to improve their service delivery.
- One of the important dimensions of the integrative planning is the preservation and promotion of ecological and social function of land and foster ecosystem-based solutions to ensure sustainable consumption and production patterns; so that the ecosystem's regenerative capacity is not exceeded.
- One of the most important fields of the integrated environmental management plans is land use planning, combining urban extensions with adequate densities and compactness, preventing and containing urban sprawl as well as preventing unnecessary land use change and the loss of productive land and fragile and important ecosystems.
- Integrated environmental management plan for the FUA has to frame sustainable management of particular resources and safeguard the interlinks and synergies between them — including land, water (oceans, seas, and freshwater), energy, materials, forests, and food
- Integrated environmental management plan has to pay particular attention to the environmentally sound management and minimization of all waste, hazardous chemicals, including air and short-lived climate pollutants, greenhouse gases, and noise in a way that considers urban-rural linkages and functional supply and value chains vis-ŕ-vis environmental impact and sustainability,
- One of the dimensions of integration followed by the integrated environmental management plans for the FUAs is the integration of short-term and long-term urban and territorial planning processes and spatial development practices that incorporate integrated water resources planning and management, considering the urban-rural continuum at the local and territorial scales, and including the participation of relevant stakeholders and communities.
- The integrated environmental management plans for the FUAs have to generate the shift from reactive to more proactive risk-based, all-hazards and all-of-society approaches, such as raising public awareness of the risk and promoting ex-ante investments to prevent risks and build resilience, while also ensuring timely and effective local responses, to address the immediate needs of inhabitants affected by natural and man-made disasters, and conflicts.

Integrated FUA environmental management plan is action oriented, it means the outputs from the planning, decision making and executing processes are the real improvements in the FUAs as the effects from managerial interventions across different levels of decision making, different target systems (ecosystems, infrastructural systems, social and economic systems) and different subjects involved. They are directly addressed by second – executive part of the planning for integrative environmental management – development of Action plans.

Action plans as the executive management tools focus on efficient implementation of necessary (by the strategy defined) interventions (e.g. investments, regulations, subsidies…) and harmonisation of various activities driven by different stakeholders of FUA development. The main reference quality related to the executive management is represented by the goals defined by the strategy of FUA development aimed on achievement improvement of the quality of life and its sustainability.

Interreg CENTRAL EUROPE
LUMAT
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Development Fund

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Pascal Schulze

# THE EFFECTS OF EUROPEAN STRUCTURAL MEASURES ON REGIONAL DEVELOPMENT IN SLOVAKIA. USING THE EXAMPLE OF THE TRENČÍN DISTRICT (2007-2013)

**Abstract:**
The following results are deriving from the master thesis in cooperation with the Technical University in Dresden and the Slovak University of Technology in Bratislava. It should mainly answer in which way the European structural measures supported the main targets of convergence to achieve a relevant contribution for a sustainable development on the regional level of the district of Trenčín. The focus of the research were all European Structural Measures in terms of all projects between 2007 and 2013, including territorial cooperation with the Czech Republic border. More than 900 projects could be noticed under the convergence target, with a financial volume of 2 billion Euro (NFP), which were divided in eight operational programs (OP). The detail interest was on the distribution and financial volume of the projects in the district.
Noticeable were high numbers in the OP Competitiveness and economic growth, OP Regional and OP Transportation. The distribution was interesting, because most projects were implemented in the economical stronger north-part of the district along the Vah valley. This concentration seems to be critical, considering the economic and social weaker south-part of the district. The instrument of convergence comes from the EU Cohesion policy, which has the main target to reduce disparities in regions and achieve equal living standards for all people. The investigation presented a different picture and several improvements had to be done to support the effectiveness of the European Structural Measures, for e.g. more competences for the local government and the document of the National Strategic Reference Framework (NSRF) need to be focussed on the regional challenges of a district.

**Key words:**
*EU Cohesion policy, European Structural Measures, effectiveness, National Strategic Reference Framework (NSRF), regional development, local and regional governments*

## Introduction

The chosen research subject of the district of Trenčín is based on a recent participation to a city development project in the city of Trenčín. This time opened a good insight of the general situation of the district. The developments of the district are characterised by ups and downs since Slovakia became independent. However, regional disparities exist until today. Especially the south part of the district has more disparities than the north. It is more important to find new ways to make the district more attractive, strengthen the economics and overcome the disparities. The large challenge is the implementation of good ideas and measures to achieve sustainable developments, which are almost connected to financial aspects. The budget of the district is limited for regional investment.

However, it was good timing that the first long European Structural period 2007-2013 starts to have the possibility to set up impulses for the regional developments. The main instruments for European Structural measures are the European Regional Development Fund (ERDF), which is important for e.g. infrastructure projects. Next to them is the European Social Fund, which invests in social activities like educational programs. European Structural measures can support the national regional development strategies of a region. In a larger approach is standing behind the European Structural measures the European Cohesion policy, which wants to improve the performance of regions to minimize disparities in EU member states and regions. A main target is boosting the economy and achieve equal living standards for the people. In this case, it should be answered in which way the European structural measures supported the main targets of convergence to achieve a relevant contribution for a sustainable development on the regional level of the district of Trenčín. This particular investigation focus was to analyse and evaluate all EU funded projects in the period in comparison with the development targets from the EU Cohesion policy and the national strategies from Slovakia. Furthermore, the investigation and data should be a good basic document for further EU projects investigations and connect the district of Trenčín with science.

In the following section basic facts about the district will be presented, to better understand the situation in the district and the reason why the district of Trenčín was supported by the European convergence target from 2007-2013. Trenčín itself was in the category of a convergence target, which means this region needs more attention, because it has a low economic performance and many

disparities in the region. The significant indicator for the European Union is the gross domestic production (GDP), which is in Trenčín under 75% of the average from the EU-25.

After this chapter there will be an introduction to the theoretical background and used methods before the final results will be presented. The last chapters discuss the main research question and some recommendations for a successful implementation for EU projects will be present.

## Short historical and socioeconomic background of the district of Trenčín

The investigation subject was the district of Trenčín, which is one of eight districts in Slovakia, located in the west part to the border of the Czech Republic. Trenčín's district area is around 4.500 km$_{,}$ and characterized by the spur of the Carpathian Mountains. As a result, the spread out for the settlement centres is limited and more concentrated in two valleys. In the north is Vah river valley and in the south with lower relief the Nitra river valley (see map 1). All in all, the district has 18 cities and 258 settlements and around 591.000 inhabitants are living there (year 2014). The district itself is subdivided in nine counties, whereby six are in the north part (see Figure 1).

Fig. 1 - **Administrative structure of the district of Trenčín**


Source: *EUROSTAT VERWALTUNGSEINHEITEN 2016 and own design with QGIS*

The economic situation of the district is influenced by the structural changes in the years 1989/90, when Slovakia became independent from the Soviet Union and later separated from the Czechoslovakia (1993). Slovakia itself was during the Soviet Union time characterized by a large monotone industry and planned economy. During that time the transformation process was boosting from an agricultural country to an industrial area. The same processes happen in the district of Trenčín. Especially the middle of the Vah valley with the cities Považská Bystrica and Dubnica nad Váhom had a strong-arm industry and in addition to machinery construction and chemical industry. In the south of the district was the textile and leather industry large for e.g. the city of Partizánske which gave around 14.000 people a job. Furthermore, in the south were large brown coal fields (around the city Handlová). The whole industrial process in Slovakia created a large labour market, in which around 843.000 people got a job.

The independent process in Slovakia initiates a new transformation process, which had negative effects on the monotone industrial sector. At first, the regular market to the Soviet Union collapse and the new markets in west Europe needed other products. There was a limited space for the old structures in the free enterprise system. As a result, many factories had to been closed and people lost their jobs. The number of unemployment increased from 1990 with 1,6 % in 1994 up to 14,8 % in whole Slovakia. The same situation was in the district of Trenčín, whereby the south part was more affected than the Vah valley in the north. Counter-measures like foreign direct investment (FDI), privatization and the liberalisation of market should help to stabilize the economy situation. But still, in 2001, the average unemployment rate in the district of Trenčín was by 12,7 %.

The south part especially had a higher rate with the counties of Bánovce nad Bebravou (17,76 %) and Partizánske (18,34 %). The situation changed after 2001 and the unemployment rate was decreasing until 2008 with an average rate of 4,95 %. On the one hand, the performance of the economic situation was better and 2007 was also the start for EU period 2007-2013. Many business parks were established and been very popular for foreign companies. Especially, the external suppliers for the automobile industry. But on the other hand, the demographic development turned into a negative way since 1996. The population of the district was in 1996 around 610.000 inhabitants and decreased to 510.000 inhabitants. The trend is still negative and only two counties, Trenčín (+82 inhabit.) and Nové Mesto nad Váhom (+24 inhabit.), could register a light plus in 2015. Also the birth rate is low and the numbers of older people is increasing, so that a future positive trend is at the time impossible.

As far as the foreign investment boosted the economic situation, it also had disadvantages. Especially, the worldwide financial crises had indirect impacts and affects to the export orientated industry. They had to reduce the production, which implicated a negative effect on the employment rate. From 4,95 % in 2007 it raised up to 10,13 % in 2009. Regional differences revealed between the north and south part of the district. In general is the performance and economic infrastructure around the Vah valley better than in the south. This means a higher number of companies and diversified economic structure, which helps the region to come better over the economic recession. In contrast is the south part with the counties of

Bánovce nad Bebravou, Partizánske and Prievidza, which suffered longer, because the economic structure is weaker is this region.

## Methods and theoretical background

The methodological approach was divided into three parts: literature research, interviews and the analysis of the project data. It should be noted that the master thesis was original written in German.

### LITERATURE RESEARCH AND THEORY

The literature research was the basic fundament to understand the European Cohesion policy in association with the district of Trenčín. As written in the beginning, the district is classified as a convergence region like almost all areas in Slovakia. Only the Bratislava region was a more developed region and classified as a "Regional competitiveness and employment" region. The classification for convergence region is mostly based on economic indicators and the GDP is one of the most important indicators. Convergence in newer science is an interesting topic to develop new ways to describe and evaluate convergence in a spatial development context. Expedient secondary sources are the publications from the authors BENEDEK, J. and KOCZISKY, G. Paths of Convergence and Polarization in the Visegrád Countries (2015) and the author MOLLE, W. European Cohesion Policy (2007). The authors BENEDEK and KOCZISKY are concentrating on economic aspects and the calculation for new economic clusters. The final results describing the dynamics of convergence based on NUTS-2 regions, taking account of the impact from GDP and spatial pattern. However, the author MOLLE developed a new multidimensional approach to describe and evaluate convergence. Next to economic aspects, MOLLE adds historical, social and territorial aspects to his new approach.

A primary source document for the implementation of the EU Cohesion policy targets was the National Strategic Reference Framework for the period of 2007 – 2013 (NSRR). This basic document describes the situations in the regions of Slovakia to understand better the need and the reason for the classification on convergence regions. Furthermore, the NSRR document introduced the operational program, visions, strategies and measures. Finally, 11 Operational programs (OP) were implemented with a total budget of 11,5 billion Euro and 81,5% were used for Convergence regions. For the realization of the programs were established financial instruments. Important were the ERDF (European Regional Development Fund), KF (Cohesion Fund) and the ESF (European Social Fund). Next to them were smaller financial tools with the EAFRD (European Agricultural Fund for Rural Development) and the EFF (European Fisheries Fund) (see Figure 2). Obviously in the document were the terms of sustainable development and synergy effects. A detailed description of these terms was missing, but this point was taken up in the investigations and interviews.

It is also good to know, that the NSRR document is based on the Slovak Perspective 2011, the European Spatial Development Perspective and the Socioeconomic document from the districts.

Important for the own investigation, were the classification of the settlement centres from the Slovak Perspective 2011. This classification describes the importance of a settlement in a national and international context to achieve a polycentric planning system, which should affect in a positive way other settlements. Indicators could be for e.g. transportation network, national and international importance, health, educational and cultural infrastructure or the political importance. In general, the classification is divided into five groups, whereby the first group implement the highest importance in a national and international context. The infrastructure conditions are decreasing from classification group to the next. In this case, the fifth group has a basic infrastructure and a lower importance for the spatial planning.

Fig. 2 - **Overview of the Operational programs and funds**

| Operational Programs | Funds | Amount in EUR million | |
|---|---|---|---|
| Convergence target* | Community contribution* | | district Trenčín** |
| Employment and social inclusion | ESF | 864 | 24 |
| Education | ESF | 600 | 20 |
| Research and development | ERDF | 883 | 30 |
| Healthcare | ERDF | 250 | 5 |
| Informatisation of Society | ERDF | 993 | 0 |
| Regional | ERDF | 1.445 | 167 |
| Technical assistance | ERDF | 98 | 0 |
| Environment | KF<br>ERDF | 1.569<br>231 | 233 |
| Transportation | KF<br>ERDF | 2.329<br>877 | 1.420 |
| Competitiveness and economic growth | ERDF | 772 | 105 |
| ERDF total | | 5.549 | not assignable |
| ESF total | | 1.464 | not assignable |
| KF total | | 3.898 | not assignable |
| **Convergence target total** | | **11.000** | **1.934** |
| **EAFRD** | | **1.969** | **20,5** |
| **EFF** | | **14** | **0,3** |
| **European territorial cooperation** | | **227** | **28,1*** ** |
| **Total** | | **13.210** | **1.982,9** |

Source: * own illustration by NSRR 2016, URL & EUROPA AND AUßENWIRTSCHAFT 2008, page 116 & 119f
** own calculation
*** total amount between the district of Trenčín and the Czech Republic

In comparison to the literature research and the current theoretical publications, was mostly the focus on economic aspects. However, it need new indicators and perspectives to declare and classified convergence regions. Furthermore, it is difficult to evaluate the targets of the EU Cohesion policy only on economic data. Interesting were the remarks from MOLLE, who implement the territorial aspects to analyse a region. His arguments are a result why the focus on the investigation was more on the distribution of the project numbers and the investment and how they

affect the territorial environment of the district. It need more indicators and research perspectives to analyse the needs of a region and to check if the EU projects have a contribution for a spatial development process of a region.

### INTERVIEWS

Three interviews were part of the investigation (all in English). A quality approach for interviews was not the focus and there was a limited access to interview partners, because of the language barriers. Finally, it was more a supported element for a better understanding in which way the implementation of European structural measures was used. Furthermore, it was a good opportunity to talk about the Cohesion policy, regional disparities and present the first results. Three interviews could be managed in English with the Ministry of Transportation, Construction and Regional Development, the Operational program office for Regional affairs and the local administration for Regional Development of the district Trenčín.

### DATA ANALYSIS

The focuses of the analysis were all funded EU projects from 2007-2013 including the extension until 2015. The final research stop was in the end of 30th of September 2016. Finally, 975 projects could be identified. This includes all national EU projects of the district Trenčín and the territorial cooperation with the Czech Republic. The information sources came at first from a written project list of the local administration of Trenčín, with the final status of 2013. To complete the overview of all projects, the ministry published in June 2016 an upgrade list, which resulted from the ITMS II monitoring system. Unfortunately, not all operational programs were achievable (e.g. Environment). Furthermore, the lack of data was large, especially for the total funds of the projects. In this case, the data analysis concentrated only on the NFP financial part (Nenávratný finančný príspevok). NFP stands for the not refund money and subdivides from the EU fund and governmental support part. The data preparation occurs in Excel and in QuantumGIS (QGIS). Especially QGIS was a supportive program to visualize the EU projects and his effects on the regional level of the district.

During the analysis a new statistical approach could be developed to make the contribution of the EU projects more visible. Next to the absolute numbers of projects was relative analysis of the EU projects in comparison to the number of inhabitants and settlements. A detailed contribution perspective makes it better to see the effects and compare them with the EU and national development targets. This calculation is based on the total number of inhabitants and the statistical indicator of 1.000 inhabitants. Also of interest was the NFP investment to identify the priorities in the district to see if the EU funds contributed for the spatial development.

## Results

The following data results from the period 2007-2013 and the extension of the two years until 2015. During that time 837 projects could be identified in 212 settlements, with a total NFP part of EUR 605 million (see Figure 3). In 64 settlements no project could be registered by focussing on the national programs of the district.

Furthermore, there was no implementation in the OP Technical assistance and Informatisation of Society. Also it was impossible to illustrate the Operational program of Transportation in maps and charts, because all measures couldn't be marked as points. The projects were in the field of road and railroad constructions. Maps were created by making use of points, not lines. Nevertheless, the OP Transportation had the highest rate of EU fund of EUR 1.42 billion to split up on 29 projects. For example, an investment for the modernisation of the railroad from Nové Mesto nad Váhom to Púchov to improve the infrastructure to a maximum speed of 160 km/h, costs EUR 500 million. Other investments were for new train cars, railroad crossings and new platforms. Another part was for the highway construction for e.g. the highway D1 and the road R2 with a total amount of EUR 400.000.

The first overview with Figure 3, represents all nine counties and the Operational programs. Each OP has two lines. The first is for the numbers of projects and the second line for the NFP investment. The Figure 3 makes clear that the OP Regional (198 projects) and OP Competitiveness and economic growth (253 projects) had the highest number of projects. The largest investment was in the OP Environment (EUR 232,85 million). Interesting is the distribution of the projects in association with the counties. The ranging starts with Trenčín (177 projects), Prievidza (146 projects), Ilava (113 projects) and Nové Mesto nad Váhom (102 projects).

### TERRITORIAL COOPERATION WITH THE CZECH REPUBLIC BORDER

To complete the analysis of the European Structural Measures in the district of Trenčín was the territorial cooperation with the Czech Republic border involved (see map III). This important investigation was a supported element on one hand side to identify new settlements, which no support in the national program, but in the territorial cooperation. On the other should be better understand its entirety of the regional development process. In the context of the territorial cooperation could be identify 73 projects in 68 settlements with an NFP investment of 28,1 million Euros (see Figure 4). On the Slovak Republic side were involved in 32 settlements and on the Czech Republic side 36 settlements. Finally, 54 partnerships could be identified and one settlement, Zemianske Podhradie (Slovakian settlement), was financed in this program.

### SPATIAL DISTRIBUTION OF THE PROJECTS

In additional, to the overview of all projects is a detailed consideration of the distribution of the projects at district level important for an objective appraisement. The

Fig. 3 - **Detailed overview of the district of Trenčín**

| County / Aspect | Bánovce nad Bebravou | Ilava | Myjava | Nové Mesto nad Váhom | Partizánske | Považská Bystrica | Prievidza | Púchov | Trenčín | Altogether |
|---|---|---|---|---|---|---|---|---|---|---|
| Inhabitants (from 2014) | 36.833 | 60.194 | 27.083 | 62.531 | 46.462 | 63.176 | 136.554 | 44.537 | 113.863 | 591.233 |
| Total number of projects | 49 | 113 | 55 | 102 | 50 | 78 | 146 | 67 | 177 | 837 |
| NFP total | 21,28 | 118,16 | 38,15 | 71,12 | 27,21 | 52,22 | 74,64 | 29,31 | 172,87 | 604,95 |
| OP Employment and social inclusion | 3<br>1,12 | 11<br>2,46 | 1<br>0,19 | 6<br>2,72 | 8<br>0,88 | 8<br>2,18 | 23<br>4,46 | 8<br>1,98 | 34<br>8,16 | 102<br>24,16 |
| OP Education | 4<br>0,9 | 18<br>5,74 | 3<br>0,26 | 3<br>0,59 | 1<br>0,35 | 10<br>1,98 | 14<br>1,57 | 4<br>0,76 | 19<br>8,04 | 76<br>20,18 |
| OP Research and development | - | 3<br>3,74 | - | - | 2<br>2,69 | - | - | 4<br>5,19 | 5<br>18,45 | 13<br>30,07 |
| OP Healthcare | - | - | - | 1<br>3,64 | - | - | 1<br>1,17 | - | - | 2<br>4,81 |
| OP Regional | 14<br>6,75 | 25<br>32,74 | 12<br>10,62 | 28<br>21,48 | 12<br>7,87 | 14<br>11,38 | 46<br>35,52 | 10<br>6,47 | 37<br>28,95 | 198<br>166,98 |
| OP Environment | 1<br>0,28 | 4<br>45,72 | 8<br>18,17 | 10<br>23,04 | 3<br>10,82 | 7<br>27,99 | 12<br>18,04 | 3<br>3,91 | 15<br>84,89 | 63<br>232,85 |
| OP Competitiveness and economic growth | 12<br>5,19 | 35<br>25,39 | 15<br>7,48 | 37<br>16,97 | 15<br>2,62 | 25<br>7,15 | 32<br>10,25 | 30<br>9,11 | 52<br>20,96 | 253<br>105,13 |
| Program for Rural development | 15<br>1,85 | 17<br>2,37 | 16<br>1,42 | 16<br>2,68 | 7<br>1,7 | 14<br>1,54 | 18<br>3,61 | 8<br>1,9 | 15<br>3,41 | 126<br>20,48 |
| EFF | - | - | - | 1<br>0,1 | 2<br>0,28 | - | - | - | - | 3<br>0,29 |

Source: own calculation and evaluation according to project data

Source: *own calculation and evaluation according to project data*

Fig. 4 - **Overview territorial cooperation with the Czech Republic border**

| Counties | Total number of projects | Investment (in Mio. €) |
|---|---|---|
| Trenčín | 24 | 11,57 |
| Ilava | 10 | 3,83 |
| Považská Bystrica | 9 | 1,57 |
| Púchov | 8 | 2,98 |
| Myjava | 7 | 1,66 |
| Nové Mesto nad Váhom | 5 | 1,65 |
| Prievidza | 4 | 0,64 |
| Bánovce nad Bebravou | 4 | 3,33 |
| Partizánske | 2 | 0,87 |
| Total | 73 | 28,10 |

Source: own calculation and evaluation according to project data

Source: *own calculation and evaluation according to project data*

evaluation is supported by the map I. In this map are marked different colours and the dark blue colour representing a low NFP part and the red colour stand for higher values. The first group up to EUR 500.000 represents 125 settlements. In the second group up to EUR 2 million are 46 settlements. In the following groups are the numbers of settlements decreased significantly. For e.g. in the fourth group are 12 settlements left. Finally, only five settlements are in the last group between EUR 10 million to 20 million.

Interesting was the fact that the most projects are distributed on 34 settlements with a project number of 497 (see Figure 5). In comparison the total number are 837 projects. Furthermore, the most projects are located in cities especially, in the north part of the district around the Vah valley. This area includes 13 settlements from Plevník – Drienové over Púchov, Dubnica nad Váhom, Trenčín until

Fig. 5 - **Locations with the most projects**

| County | Location with the most projects | Type | Projects | ∑ Projects in the county |
|---|---|---|---|---|
| Bánovce nad Bebravou | 1) Bánovce nad Bebravou | City | 18 | 49 |
| | 2) Uhrovec | Settlement | 5 | |
| | 3) Rybany | Settlement | 3 | |
| Ilava | 1) Dubnica nad Váhom | City | 45 | 113 |
| | 2) Nová Dubnica | City | 12 | |
| | 3) Pruské | Settlement | 11 | |
| Myjava | 1) Myjava | City | 25 | 55 |
| | 2) Brezová pod Bradlom | City | 6 | |
| | 3) Košariská/Priepasné/ Vrbovce | Settlement | 4/4/4 | |
| Nové Mesto nad Váhom | 1) Nové Mesto nad Váhom | City | 26 | 102 |
| | 2) Stará Turá | City | 17 | |
| | 3) Beckov/Čachtice | Settlement | 6/6 | |
| Partizánske | 1) Partizánske | City | 24 | 50 |
| | 2) Bošany | Settlement | 5 | |
| | 3) Klátova Nová Ves/Chynorany | Settlement (2) | 3/3 | |
| Považská Bystrica | 1) Považská Bystrica | City | 44 | 78 |
| | 2) Papradno | Settlement | 4 | |
| | 3) Bodiná/Plevník - Drienové | Settlement (2) | 3/3 | |
| Prievidza | 1) Prievidza | City | 28 | 146 |
| | 2) Bojnice | City | 18 | |
| | 3) Handlová | City | 16 | |
| Púchov | 1) Púchov | City | 24 | 67 |
| | 2) Beluša | Settlement | 9 | |
| | 3) Lazy pod Makytou/Lednické Rovne | Settlement (2) | 5/5 | |
| Trenčín | 1) Trenčín | City | 85 | 177 |
| | 2) Trenčianske Teplice/Nemšová | Cities | 9/9 | |
| | 3) Horná Súča | Settlement | 8 | |
| **Total** | **34 settlements** | | **497** | **837** |

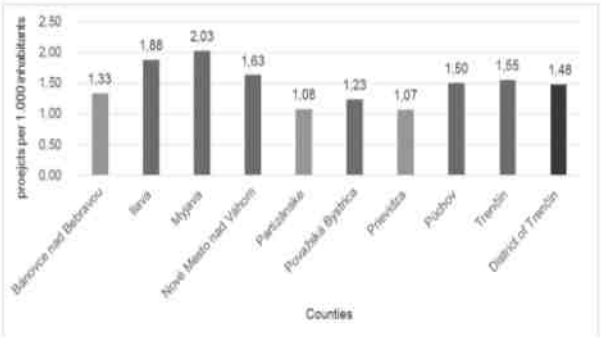
Source: *own calculation and evaluation according to project data*

Nové Mesto nad Váhom. The south part with the Nitra valley is represented with a lower number of settlements. Only five settlements were in the counties of Prievidza and Partizánske along the Nitra valley (see map I).

Obviously in the Figure 5 are higher values of projects in the north part of the district in comparison to the south part. The north part, especially around the Vah valley could be generated much more projects than the south part. A look on map I also highlighted a large number of projects in cities. The first estimation implements a higher numbers of projects in the north valley, which means a concentration of projects. To analyse this fact deeper, a calculation based on the population should help (see Figure 6).

Figure 6 focused on the projects per 1.000 inhabitants on the county level. The calculation based on 837 projects and the inhabitants' numbers from 2014. The average of the district is by 1,48 projects per 1.000 inhabitants. Interesting are the higher values of the six counties, which are located more in the north of the district (blue columns). Following results were identified: 1,23 projects in Považská Bystrica up to the highest value in Myjava with 2,03 projects. Lowest values were identified in the three counties in the south of the district (orange columns). The lowest value was in Prievidza up to a maximum of 1,33 in Bánovce nad Bebravou. These results presenting the absolute numbers of projects and a concentration of projects was clearly visible in the north of Trenčín.

Fig. 6 - **Projects per 1.000 inhabitants (counties)**




Source: *own calculation and evaluation according to project data*

Another perspective was the relative consideration leaning on each settlement (total 276) to check any abnormality. This calculation is based on the projects per 1.000 inhabitants and the blue points represented the settlements and the red points are the cities (see Figure 7). The final average value in the district were 1,84 projects per 1.000 inhabitants and the Picture 1 can be divided into three sections:

1. The first value range is from 0-3 projects per 1.000 inhabitants which includes 230 settlements. Under this range are also the 64 settlements without any project support. This means, that 23% of all settlements had no

benefits from the period of 2007-2013. The rest of the 166 settlemtents contain 17 cities. There is a low spread in this value range, which describes are relative equal distribution of the projects. Especially the city of Trenčín (1,52) and Myjava (2,08) are in this group. This is a different result to the absolute project numbers. In relation to the inhabitants can be notice a support in smaller settlements.

2. The second group contains 34 settlements in the value range from 3,1.-6 projects. In this group is also the city of Bojnice. The spread is getting larger and it doesn't represent anymore an equal distribution of the projects.
3. In the third group are 12 settlements with more than six projects and a maximum value range of 13,25 projects, which is represented with the settlement Ďurďové. The high values create a high spread of the projects and describes not any longer an equal distribution. Further examples could be identified in Podkylava, Priepasné and Temeš. The reason for the higher numbers of projects resulted from a low number of inhabitants. For e.g. has Ďurďové 151 inhabitants and had two projects, which increased the value. However, all high values were checked without any negative effect to the analysis. Of course, all values over six projects do not represent an equal distribution, but in this case the rural areas had a good support.

## SETTLEMENT CENTRES

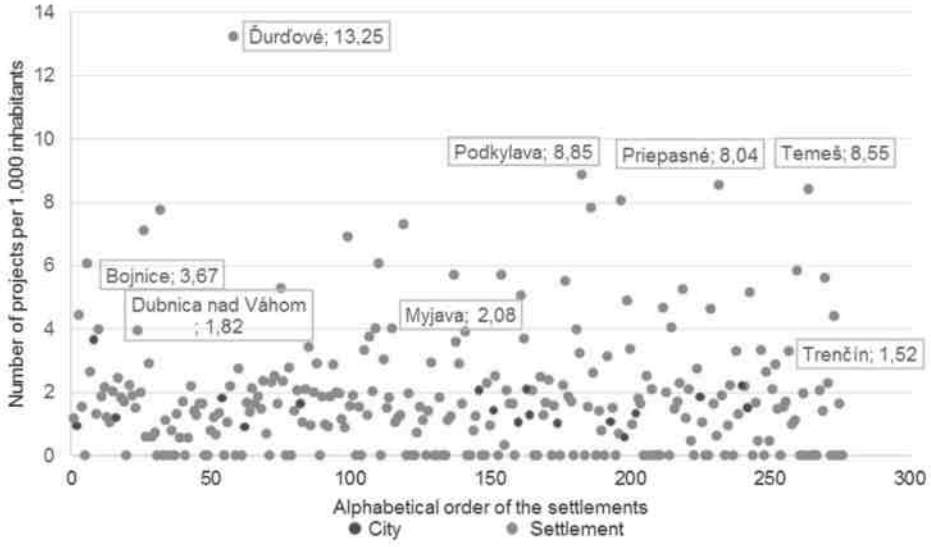
The last point focused on the spatial distribution of the settlement centres, which have an important role in the future development perspective in the district of Trenčín and Slovakia. As it was written the classification describes the importance of a settlement in a national and international context to achieve a polycentric planning system, which should affect in a positive way other settlements. Of the highest importance are settlements in class 1 and after this is a reduction of the role in a spatial context. The following overview could be identified for the district of Trenčín (see Figure 8).

Fig. 8 - **Project details of the settlement centres**

| Name of settlement centre | Settlement class | Number of projects |
|---|---|---|
| Trenčín | 1 | 85 |
| Považská Bystrica | 2 | 44 |
| Prievidza | 2 | 28 |
| Nové Mesto nad Váhom | 2 | 26 |
| Púchov | 2 | 24 |
| Dubnica nad Váhom | 3 | 45 |
| Myjava | 3 | 25 |
| Partizánske | 3 | 24 |
| Bojnice | 3 | 18 |
| Bánovce nad Bebravou | 3 | 18 |
| Handlová | 3 | 16 |
| Ilava | 3 | 9 |
| Stará Turá | 4 | 17 |
| Nová Dubnica | 4 | 12 |
| Trenčianske Teplice | 4 | 9 |
| Nemšová | 5 | 9 |
| Beluša | 5 | 9 |
| Nováky | 5 | 9 |
| Brezová pod Bradlom | 5 | 9 |
| Total | 19 settlements | 436 projects |

Source: *own calculation and evaluation according to project data*

Fig. 7 - **Number of projects per 1.000 inhabitants (settlements)**




Source: *own calculation and evaluation according to project data*

436 projects were identified in total, distributed on 19 settlements of the settlement centres, which are 52 % of all projects of the district (total 837 projects) (see Figure 8). It is a good evidence for the development of a polycentric spatial planning system in the district. Additional information of the chart are grey rows, which marked all settlements in the Vah valley.

The evaluation marked a high number of projects in the first settlement group with 85 projects, which is represented only by the city of Trenčín. The second settlement group includes four cities with a total number of 122 projects, the third group has 155 projects, the fourth group has 38 projects and in the fifth group are 36 projects. In conclusion, 272 projects are located in the Vah valley, which are more than the half of all settlement centre projects.

A deeper analysis identified two spatial clusters of the settlement centres. 1) Dubnica nad Váhom, Ilava, Nemšová, Nova Dubnica, Trenčín and Trenčianske Teplice; 2) Bojnice, Nováky and Prievidza.

1) The first cluster is in the Vah valley and had total number of 169 projects, with an NFP volume of EUR 235,6 million.
2) The second cluster is in the Nitra valley and had a total number of 55 projects, with an NFP volume of EUR 30,5 million.

The evaluation of the settlement centres describes a project concentration in the area of the Vah valley. Especially, the first cluster is characterised by a high number of projects to the contrary of the second cluster. In general, it can be noticed that all settlement centres had benefits from the period 2007-2013, but at this point a final statement is difficult if the projects had positive effects for the polycentric spatial planning system. It is even unsure if new synergy effects could be generated to boost up the performance of surroundings settlements. It is important to establish a monitoring system for a long-term observation.

## OVERVIEW TO THE EU FINANCIAL INVESTMENT

The next investigation focused on the financial aspects of the EU projects. In addition to the following data and charts there is the supporting element of the map II. The calculations for map II are based on the numbers of projects per 1.000 inhabitants including the investments volume per person. The resulted data are relative values. The classification on the map II is divided into five rings from 0,1-15 projects per 1.000 inhabitants. Furthermore, the three colours are representing the investment in correlation with 1.000 inhabitants. Blue describes the value range from 1-1.000 € in which are 177 settlements. The second group is marked with white colour for the value range until 2.000 € and contains 19 settlements. The last group (red) contains 16 settlements.

Fig. 9 - **Investment volume in the district of Trenčín**

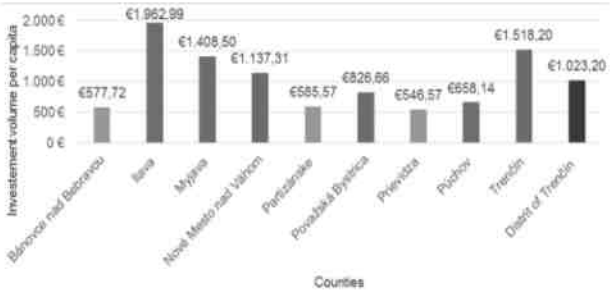
| County | Name of place | Location type | Project number | NFP (Mio. €) |
|---|---|---|---|---|
| Trenčín | Trenčín | City | 85 | 111,76 |
| Ilava | Ilava | City | 9 | 50,45 |
| | Dubnica nad Váhom | City | 45 | 41,10 |
| Považská Bystrica | Považská Bystrica | City | 44 | 30,40 |
| Myjava | Myjava | City | 25 | 22,71 |
| Nové Mesto nad Váhom | Nové Mesto nad Váhom | City | 26 | 19,19 |
| | Stará Turá | City | 17 | 17,81 |
| Považská Bystrica | Papradno | Settlement | 4 | 15,78 |
| Prievidza | Handlová | City | 16 | 14,11 |
| | Prievidza | City | 28 | 13,98 |
| | Bojnice | City | 18 | 12,15 |
| Trenčín | Trenčianske Teplice | City | 9 | 11,98 |
| Bánovce nad Bebravou | Bánovce nad Bebravou | City | 18 | 11,48 |
| Partizánske | Partizánske | City | 24 | 11,32 |
| Nové Mesto nad Váhom | Čachtice | Settlement | 6 | 11,14 |
| Trenčín | Nemšová | City | 9 | 10,11 |
| Ilava | Nová Dubnica | City | 12 | 10,08 |
| **Total** | | | **396** | **415,55** |

Source: *own calculation and evaluation according to project data*

The first aspect is focused on the highest NFP values in the district to a minimum of EUR 10 million (see Figure 9).

In the Figure 9 is the NFP part ranged until an investment of 10 Mio. €. The highest investment was in Trenčín with EUR 111,76 million spread out on 85 projects. Obviously, there is a trend of the NFP concentration in the Vah valley. Another calculation focused the counties and the relative considerations of the investment volume per capita, to complete the first impression (see Figure 10). The blue columns represent the counties of the north of the district. Orange is for the three southern counties of the district. In general, the average of the district was of EUR 1.023,20, but the gap between the north and south part is huge. The investment volume per capita in the south part was lower than 600 €. It is clear that the main investment was located in the north part.

Fig. 10 - **Investment volume per capita based on the counties**




*Source: own calculation and evaluation according to project data*

## INVESTMENT VOLUME PER CAPITA

Another evaluation focused on the settlements and the investment per capita. The red points represent the cities and the blue ones the settlements (see Figure 11).

The Figure 11 can be divided into three parts:

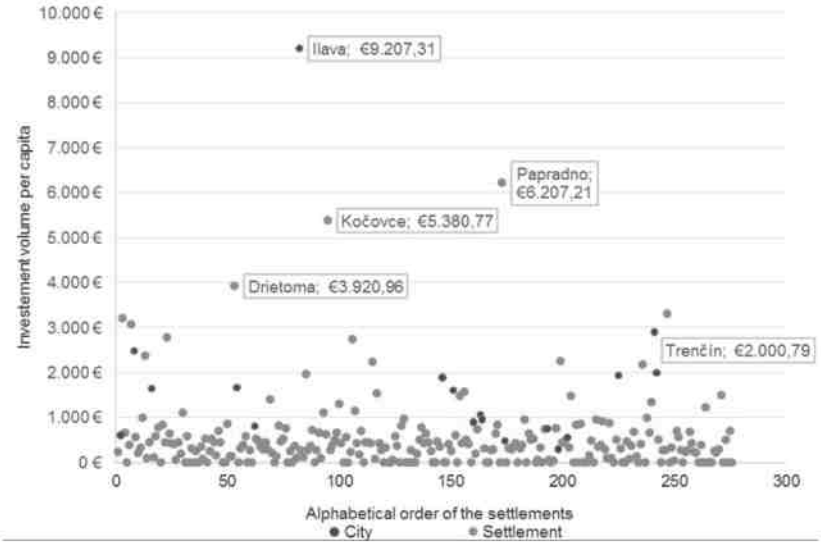
I) From EUR 0 to ≤ 1.000 per capita are 177 settlements with the cities Bánovce nad Bebravou, Handlová, Nová Dubnica, Nové Mesto nad Váhom, Partizánske, Považská Bystrica, Prievidza and Púchov. There is a low spread in this value range, which describes are relative equal distribution. Note: 64 settlements were without any project support.

II) From EUR 1.000 to ≤ 2.000 per capita are 19 settlements including six cities for e.g. Nováky (EUR 1.060,81), Myjava (EUR 1.885,97) and Dubnica nad Váhom (EUR 1.662,52). The spread is getting larger and it doesn't represent anymore an equal distribution.

III) The investment higher than EUR 2.000 includes 16 settlements and four cities: Bojnice (EUR 2.480,50), Ilava (EUR 9.207,31), Trenčín (2.000,79 €) and Trenčianske Teplice (EUR 2.900,70). This value range doesn't describe an equal distribution.

Also above the value of 3.000 € were some settlements with values, for e.g. Ilava (EUR 9.207,31) or Papradno (6.207,21 €). In Ilava there was a number of projects with a high investment volume for e.g. the modernisation of the sewer system with EUR 43,41 million. These high investments are not rated negative, but should be noticed. The distribution of the investment volume per capita shows disparities between cities and settlements. In settlements was the investment volume per capita lower. The final average in settlements of the district were EUR 578,93. Furthermore, the distribution of the investment had a higher volume in the north part of the district than in the south part.

Fig. 11 - **Investment volume per capita**




Source: *own calculation and evaluation according to project data*

## SUSTAINABLE DEVELOPMENT AND SYNERGY EFFECTS

The scope for an intensive qualitative analysis of projects was limited because of own personal resources and language barriers. The selective of these projects happen by abnormalities and interesting topics from the project list of the Trenčín administration. However, a small number of projects should give an idea in which way sustainable development and synergy effects could be reached. The analysis based on the projects' documents and own investigations via the internet. A personal interview with the beneficiaries was not possible. Four project topics were analysed and two of them will be presented.

### I) Projects in the field of education infrastructure in the settlement of Horná Súča

The settlement of Horná Súča is in the north part of the district and close to the border of the Czech Republic (see Figure 12). 3.363 inhabitants are living there and eight projects were implemented in the period 2007-2013, with a total NFP investment of EUR 4.8 million.

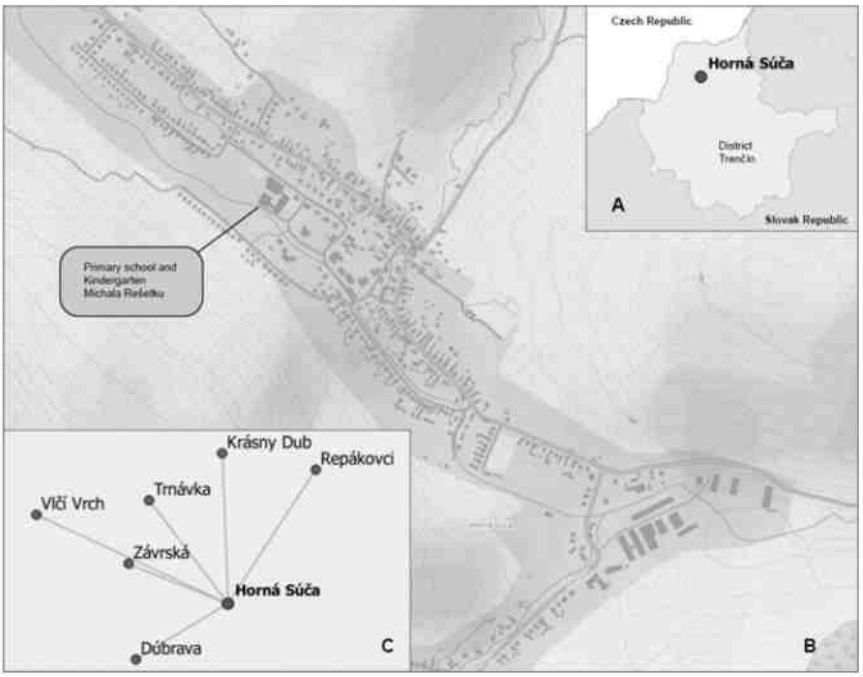
Three projects will be presented from the Primary school and Kindergarten Michala Rešetku (see Figure 13).

The first ESF project focused on modern teaching materials to improve the teaching process in the school. Teaching materials were laptops, interactive whiteboards, projectors and new books (e.g. Geographic, Mathematics).

The second project, which also started in 2009, was essential after the roof of the primary school was in bad conditions in 2005. Next to the renovation of the roof, this measure includes a new heating system, replacement of doors and windows and new isolation for the building. Further construction came with the second ERDF project in 2010. The school enlargement comprised a new sports hall and a new annex for school classes. In additional, the Kindergarten was also renovated (new isolation, doors, windows, chairs and tables). The build of the annex will be more used as a language laboratory, which is equipped with modern learn materials. Even the sports hall has more functions and can be transformed to an auditorium for cultural events, which are open for everyone.

All three projects are a good example for indirect synergy effects and a contribution for a sustainable development at the regional level. ESF improved the conditions for teachers and the children, and the ERDF projects valorised the technical conditions of the buildings. Both are strengthening the location of school and make it more attractive and sustainable for future generations. Further potentials and opportunities can be identified with the sports hall. It is a public meeting point to do theatres and other events. The new space is a positive contribution for the social cohesion. This good educational infrastructure also affects the surroundings settlements (see Figure 12, C). An intact primary school and kindergarten open a long term perspective for the parents, who can send their children to Horná Súča and are not forced to leave the region, because of missing a good infrastructure for the children. It keeps people in region and is a good base for a sustainable development.

Fig. 12 - **Primary school and Kindergarten Michala Rešetku**




Source: *own design with QGIS & GRUNDSCHULE HORNÁ SÚČA 2016*
A – location of the village;
B – infrastructure of the village;
C – rural catchment for the school

Fig. 13 - **Overview of projects at the Primary school and Kindergarten Michala Rešetku**

| OP | Measure | Information | Structural fund |
|---|---|---|---|
| **Education** | 1.1 Transformation from a traditional to a modern school | "Creative school – The gate for our children's"<br>103.835,00 € (NFP)<br>2009 | ESF |
| **Regional** | 1.1 Infrastructure of education | "Reconstruction of the primary school"<br>724.694,03 € (NFP)<br>05.05.2009-30.11.2010 | ERDF |
| | | "School enlargement and reconstruction of the Kindergarten"<br>949.982,95 € (NFP)<br>20.05.2010-31.11.2011 | |

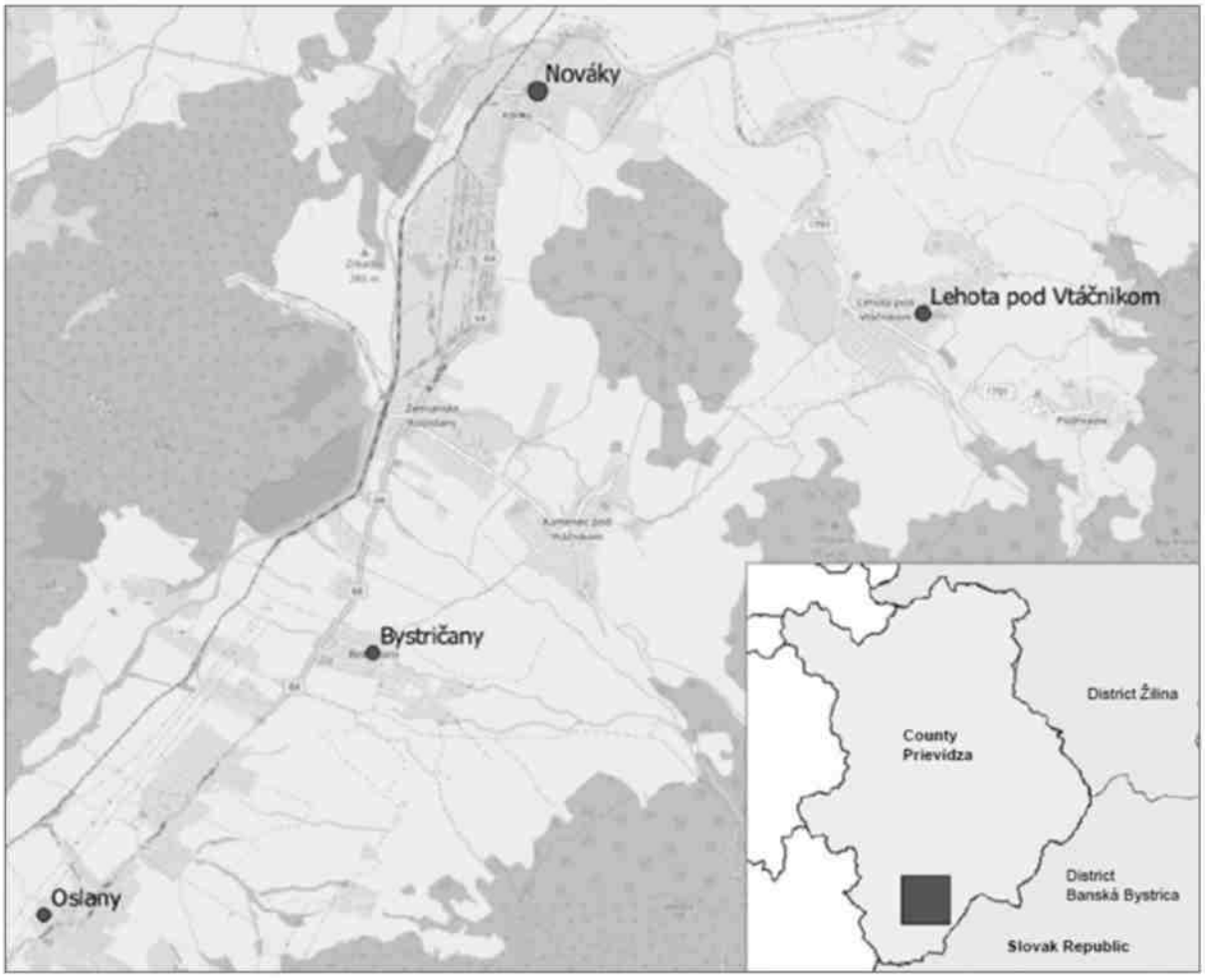
Source: o*wn calculation and evaluation according to project data & PROJEKTE GEMEINDE HORNÁ SÚČA 2016, URL*

**II) Projects to buy new road sweeper in the county of Prievidza**

In the county of Prievidza four similar projects could be identified. All of them were under the Operational program Environment with the priority III measure "Improving the air quality and minimize emissions to protect the climate". The reason to analyse these projects is based on the location (see Figure 14).

All settlements are close together, beginning with the city of Nováky and the three villages Oslany, Bystričany and Lehota pod Vtáčnikom. All of them bought the machine, an Unimog U-300 with a road cleaning equipment. Interesting were also the project application documents and the almost use of the same wordings and terms. The reasons to buy this vehicle was written on the homepage from Bystričany: "The need for new equipment is helpful to make the tasks

Fig. 14 - **Location of the Unimog's**




Source: *own design with QGIS & own project list*

Fig. 15 - **Overview of the operation from the U-300**

| Settlements | Inhabitants* | Cost (NFP)* | Seller** | Vehicle** | Distance** |
|---|---|---|---|---|---|
| Bystričany | 1.815 | EUR 352.504,57 | „REDOX" | U-300 | 15,5 km |
| Lehota pod Vtáčnikom | 3.919 | EUR 343.305,30 | „REDOX" | U-300 | 16 km |
| Nováky | 4.270 | EUR 392.482,47 | „REDOX" | U-300 | 13,8 km |
| Oslany | 2.396 | EUR 398.135,50 | REDOX | U-300 | - |

* own calculation and evaluation according to project data
** FOAF 2016, URL & REDOX 2016, URL

easier for the worker and to be more effective by cleaning the streets on a length of 15,5 km. Furthermore, the new vehicle has lower pollutant emissions, which is a benefit for the health of the people and the environment".

A low distance could be identified in almost all settlements (see Figure 15). The reason for the low distance couldn't be answered. A comment on the facts resulted from own experience from the author, who was in the past a highway custodian. The fleet of vehicles includes Unimog's, which were used for heavy task, because of the strong hydraulic system (mowing and winter service). An Unimog can be used for cleaning tasks, but in general other types of vehicles will be used. And one special vehicle for cleaning jobs was used on highways for a distance of 120 km and on country roads more than twice the distance.

The projects and the four U-300 let many questions open and there was no time to contact the beneficiaries for a statement. However, these cases were presented in the ministry and local administration, but for all dialogue partners these cases were unknown. It is absolutely right to modernize old equipment to be more efficient. Nevertheless, it was not clear why especially the three smaller settlements didn't share one U-300. Furthermore, the transfer to the main target to improve the air quality and the protection of the climate is limited.

## Discussion

In which way the European structural measures supported the main targets of convergence to achieve a relevant contribution for sustainable development on the regional level of the district of Trenčín?

The Cohesion policy is an important tool to strengthen economic, social and territorial aspects to minimize the development disparities in regions, as it was the case in the district of Trenčín. Trenčín was integrated in the target of convergence, because of a lower GDP under 75%. More than 900 projects were implemented in the period 2007-2013 to fill up the needs of the district, which were described in the NSRR document. However, the evaluation with the target of convergence for a sustainable development must be evaluated differently.

There are no doubts that the projects had effects on the regional level, which was clear visible after the finical crises. All projects were at the same time investments and there is a high probability that these projects created and saved jobs. This probably reduced also the unemployment rate. Furthermore, the instrument of the European structural measures allows the beneficiaries to realize them ideas and plans. However, the distribution of the projects was especially in cities and the Vah valley. The south part of the district and the counties had much fewer projects. It must be noticed that the southern regions have a higher unemployment rate and a decrease of the population. Looking back to the targets of convergence, these regions needed more support to achieve a better performance. Especially the rural areas did not get the special support they need. As an intermediate result, the period 2007-2013 had a limited sustainable development effect in the district of Trenčín and it should be more, because of the known regional disparities.

The reason for a limited support was not the NSSR document with the European targets themselves, the issues was more the implementation and the handling of the projects measures. Almost all administration was centralized in the ministries of Bratislava, which can be classified as negative. The reason for them is missing detailed specific knowledge from the district and the gap of transparency. The district of Trenčín needs to be more integrated and more competences to succeed the processes for the European structural measures. The number of projects is large and it needs many resources to manage and monitor them. Based on the situation of the period 2007-2013 a loss of quality and effectiveness was determined by the distribution of the projects as it was written in the NSRR document and the EU Cohesion targets.

The most numbers of projects could be identified in the north part of the district. This distribution was not helpful for the southern regions and contrary to the basic ideas of convergence although the weaknesses of the south part know very well. The effects of EU programs were weak and also the convergence was only partly successful on the regional level. The unemployment rate in the south part is still high. It also couldn't be analysed in which way the projects for the settlement centres had effects on other settlements.

Finally, the disparities between the northern and southern regions of the district are clear. In further EU structural measures must be taken up the fact of the disparities and deeper focus on synergy effects and the integration of the local administration of Trenčín. To achieve this aim, also the NSRR document needs to be modified. The current regional situations are described on the NUTS-2 level, which is too large. It needs a smaller perspective to

create district specific targets and measures. Furthermore, the evaluation of regions needs to focus more indicators next to economic aspects.

Finally, it is not clear if the European structural measures can set up an impulse to achieve a sustainable development in the district of Trenčín. Nevertheless, it must be considered question what would the district without the promotion of European structural measures. Each individual act from a person is important for success, but without a stronger integration of the local admiration will be the efficiency for the structural measures low.

## Recommendations for a successful implementation for European structural measures

The present investigations and results to the effects on European structural measures showed some deficits in the handling and implementation of projects. The following results are deriving from the own investigations, the interviews at different administrative levels and the up to date theory in the field of using effective EU funds.

The first suggestions are focussing more the participation of the local administration of the Trenčín district, which was in a limited way integrated in the EU processes. The responsible body to make final decisions for project funding is in the ministries of Bratislava, without a deep participation of the administration of the district of Trenčín. The interview at the ministry also showed that there was special contact person for the district of Trenčín. The participation was helpful and had benefits for everyone. The current situation at the ministries makes a supposition that the special regional properties are out of focus. It is important for further funding periods to integrate the competences from the local government in this process and give the regions more responsibilities. Two factors play a decisive role: I) the local government of Trenčín need more trustfulness as a competent partner and II) the administration needs the necessaries resources to fulfil the needed competences. These approaches create a win-win situation for the ministries and the local administration. Many tasks can be established at the local administration and relieves the daily work at the ministries. Another point is the special regional knowledge from the local administration. They have a better overview of the regional needs and can better allocate the projects. Moreover, they should be responsible for the application process for funding projects located in Trenčín. The ministries can act like a second control authority body. A better communication supports the cooperation between the administrations and problems or possibilities can be discussed. This also creates a knowledge transfer to make the work more efficient. Furthermore, the regional specific knowledge from the local administration should be used to observe the controlling and monitoring of the projects.

The second point focuses on a better data processing and more transparency for the structural measures. A project list existed at the beginning of the investigation, which was prepared by the Trenčín administration. An official list form the ministries was uploaded in the mid of 2016. The first list had a good understanding for outsiders. It had a clear structure for each operational program and single project. Unfortunately, the personal resources of the Trenčín administration were limited and the list couldn't be continued. The list from the ministries was in an excel form, which was not easy to understand for outsiders. Many information's, numbers and codes overloaded the understanding of the list. In addition, not all Operational programs and financial information were reachable. To achieve a better transparency and well structure for the list, the Trenčín administration should be responsible for the regular updating a list, which is for everybody easy to understand. Finally, the list must be understandable for everyone in order to confer transparency as to what happens with the EU money.

Another point is catching the topics of improving synergy effects and project cooperation's. The investigations and the EU evaluation reports showed a limited success for synergy effects. Between projects beneficiaries, especially for e.g. in one settlement/city, no cooperation could be noticed. A better solution could be an improved coordination and initiative by the local administration. They have the resources to organize public events to bring beneficiaries and interested people together. At the first level these events have an informal character about the funding possibilities and at the second level, it is a platform for networking, sharing ideas and finding new project partners, who identified intersections. Public events have the chance to create more transparency for European Structural Measures and supporting the acceptability by the people. It needs further studies and talks to clear the question why this kind of interaction doesn't exist at the time.

In addition, a new approach for cities and settlements is necessary to develop new strategies for integrate projects concepts. It is the basic idea to bring ideas and visions for future developments together, with the implementation of an intensive participation process. Different stakeholders should come together to identify challenges, potentials and needing's for space. As participation partners are understood the citizen, the entrepreneurs, the science and the public administration. Finally an overall project concept should be set up. These concepts and strategies allow people to be a part of a development process in the city or settlement. The advantages are clear: I) creating transparency, II) promotion a cultural of participation and III) strengthen the European philosophy.

## Summary

Since the independence of Slovakia on the 1st of January 1993 the socioeconomical changes were large even in the district of Trenčín. The results were closings of factories and the loss of jobs. In the following years a high unemployment rate could be registered especially in the south counties with Prievidza, Partizánske and Bánovce nad Bebravou. 2007 was the start for first long European structural period 2007-2013, in which Trenčín was classified as a convergence territory. The target of the European Cohesion policy was it to minimize the regional disparities and create equal living standards in EU member states. Finally, eight Operational programs took part in the district of Trenčín including the territorial cooperation and several funds. All in all, more than 900 projects and a total among of 2 billion € (NFP) could be registered. The research focused was on the distribution of the projects and the NFP investment, concentrated on the all counties and all settlements in the district of Trenčín.

The first results showed a high number of projects and investments especially in the Operational programs of Environment, Transportation, Regional and in the OP Competitiveness and economic growth. By the distribution of the investment was the concentration in cities higher than in settlements. Even the distribution of the project numbers was also higher in cities and in the north part of the Vah valley. In comparison to the three southern counties the number of projects and investment was lower.

In the research part for the qualitative analysis of the projects were considered exemplary four projects from different Operational programs. The results can be declared mostly in a positive way, because the project targets had positive affects for the beneficiaries and the surroundings. Good examples were the projects at the primary school and kindergarten in the settlement of Horná Súča. These projects stabilized the educational offer in the region for the future. Positive effects were not only for the school, but also for the people in the region, because the sports hall is multifunctional and can be used for public events. Only the projects in the county of Prievidza and the purchase of the sweep machines let many questions open. Finally, synergy effects could be identify in an indirect way and in the upcoming European structural measures periods should be synergy effects more in the focus.

The evaluation of the effects of the period 2007-2013 could determine that the direction of the Operational programs, the targets of the Cohesion policy including the context of convergence, were adequate. In any case, it can be noticed that the beneficiaries had profits from the projects. However, there are still some critical points in the distribution of project measures and the implementation of the objectives. Two changes are necessary for future periods. At first, the local administration of Trenčín must be more integrated in the further implementation EU processes. And secondly, the NSRR document needs a smaller perspective to create districts specific targets and measures.

The European structural measures need to be understood as a collaborative project and it is important to make the chances and benefits for the people visible. For the future, it is important that the local administration of Trenčín is a part of the implementation process. Furthermore, this means that the people are more involved in the participation process and this creates more acceptances for the targets of the European Union.

The Cohesion policy describes themselves of finical instruments, but the Cohesion policy is much more complex and brings people and countries together. It is an important instrument to support our society and keeps a peaceful coexisting. Of course, the Cohesion policy is not giving a perfect plan for a successful implementation, but rather it needs the engagement of each single person. Jean-Claude Juncker's said ones: "Because our European Union is not in a good state. There is not enough Europe in this Union. And there is not enough Union in this Union.". His admonition contains a lot of truth, because in order to reach a European Union, a Union must be at first established in Slovakia and its districts.

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# A MANAGEMENT OF A RISK OF AN INSUFFICIENTLY ELABORATED PROJECT DOCUMENTATION

**Abstract:**
This article tackles the theme of an active access of a middle-size building enterprise of a regional character to a management of a project documentation risk. It goes out from a period of the year 2013 when the examined building enterprise fought a lack of building orders and therefore when it succeeded in selective proceedings on a construction of four row family houses it was made to take this order and to realize it on the basis of a building permit documentation in which a great amount of mistakes and imperfections was revealed during a construction.
The article can be divided into two main parts namely theoretical and practical ones. While the theoretical part of the article is intented on the basic concepts connected with the problems of the project documentation risk, its practical part includes a complete project documentation of realized row family houses namely including ascertained mistakes and imperfections, further on budgetary costs of this order and proposed measures for a reduction or an elimination of a risk associated with a project documentation. The aim of the article is on the basis of own experience to elaborate lucidly the problems of the project documentation risk and to demonstrate these pieces of knowledge on the concrete project of the examined building enterprise, further on to propose measures for a reduction or an elimination of the risk associated with the project documentation and to emphasize a role which plays a choice of a right projector during a realization of a building order.

**Keywords:**
*Building Work Construction, Building Process Risk, Project Documentation Risk, Possibility of Project Documentation Influence, Designer, Master Builder, Examined Building Enterprise*

## Introduction

This contribution is aimed at the problems of an active access of a middle-size building enterprise of a regional significance to a management of a risk of insufficiently elaborate project documentation. It goes out from the year 2013 when consequences of a financial crisis whose general phenomenon was that orders of building enterprises were voluminously and financially lower died away in the Czech Republic. Building enterprises often found themselves in a situation when they were made to realize building orders on the basis of the elaborate project documentation of poor quality.

These pieces of knowledge are practically applied to the examined building enterprise X1 s.r.o. which fought a lack of building orders in 2013 and therefore when it succeeded in selective proceedings on a construction of four row family houses it was made to take this order and to realize it on the basis of a building permit documentation of poor quality. Because one of the authors of this article worked as an assistant of a master builder during a construction and elaborated all budgets connected with the given building order, the other authors of the contribution could also cooperate with the master builder, the investor, the technical supervisor of the investor and the projector of the structure on a removal of particular mistakes and imperfections included in the project. By means of this active cooperation the project documentation risk was successfully eliminated in the end, the planned budgetary costs were kept and the contracting fine which the building enterprise X1 s.r.o. would have been liable to pay in case of a failure of a term of a work completion was avoided.

This contribution can be divided into two main parts namely theoretical and practical ones. While the theoretical part of the article is intent on the basic concepts connected with the problems of the project documentation risk, its practical part includes a complete project documentation of realized row family houses namely including ascertained mistakes and imperfections, further on budgetary costs and proposed measures for a reduction or an elimination of a risk associated with a project documentation. The aim of the contribution is on the basis of own experience to elaborate lucidly the problems of the project documentation risk and to demonstrate these pieces of knowledge on the concrete project of the examined building enterprise, further on to propose measures for a reduction or an elimination of the risk associated with the project documentation and to draw attention to an importance of a choice of a right projector.

## The Contemporary State of The Solving Problems

- Building Work Construction - is a complex process consisting of a great amount of activities and subjects which/who interfere with particular phases; activities of particular phases of a life cycle of a building work are weighted by costs and therefore all participated sides take interest in an effective use of financial means (without unnecessary losses) of all participants of this process. (Korytárová, 2011)
- Building Process Risk – its causes are main participants of a construction; an underestimation of this risk often leads to a failure of total costs of a structure whereupon in a worse case a stoppage or a conclusion of the whole building process can come. (Korytárová, 2011)
- Project Documentation Risk - represents a failure of claims laid on project documentation namely above all on its material extent and its requisite quality. (Korytárová, 2011)
- Possibility of Project Documentation Influence – falls with a more detailed level of its elaboration (studies are the most influencable, further on a territorial proceedings documentation and a building permit project follow and a real building performance documentation is the least influencable). (Hačkajlová, 1996)
- Designer - is responsible for the correctness, an entirety, fullness and a safety of a structure carried out according to his elaborate project documentation and a feasibility of a structure according to this documentation as well as for technical and economic levels of a project of technological facilities including effects on the environment.
- Master Builder - is liable to manage a performance of a structure in accordance with a decision or another measure of a building office and with a proved project documentation, to ensure a due arrangement of a building site and an operation on it, to ensure a demarcation of routes of a technical infrastructure on the spot of their encounter with a structure and to fulfil further liabilities going out from a building law and special law regulations.
- Examined Building Enterprise X1 s.r.o. - has 55 employees, its place of business is in Svitavy and its objects of the activity are a construction of family houses, industrial halls and agricultural structures, a complete realization of structures including complete repairs and reconstructions, a production of steel constructions of halls and carpentry, slatery, locksmithery and tinsmithery.

## A Case Study

The examined building enterprise X1 s.r.o. realized a construction of four row family houses in Svitavy in 2013 which are built in brick, ground – floor with a garret and a garage and have no cellars. The family houses were realized on the basis of the building permit documentation whereupon one of the authors of this contribution worked as an assistant of a master builder during a construction and elaborated all budgets. The authors of the article cooperated together with the master builder, the investor, the technical supervisor of the investor and the projector of the structure on a removal of particular mistakes and imperfections included in the project by means of which they managed to eliminate the project documentation risk, to keep planned budgetary costs and to avoid the contracting fine which the building enterprise X1 s.r.o. would have been liable to pay in case of a failure of the term of the work completion.

### A SETTLEMENT SITUATION

The row family houses are situated in the land register territory "Forty Fields" and the piece of land where they are located is contiguous to the gardens of the row family houses which were realized in 2011.

In the design "A Settlement Situation" the following mistakes and imperfections were ascertained: (ČSN 73 4301 Obytné budovy, 2004 and ČSN 01 3420 Výkresy pozemních staveb – Kreslení výkresů stavební části, 2004)

- a demonstration of a terrain slope is omitted (contour lines are missing)
- an object height setting is missing
- a reference to a height levelling on the street is omitted
- a basic elevation of the family house No. 3 amounts -0,500 which doesn´t correspond to the elevation ± 0,000 in the design "A ground Plan of A Ground Floor"
- terrain work is missing

### A GROUND PLAN OF FOUNDATIONS

The foundations for family houses and garages were carried out as monolithic concrete foundation strips and the foundation for pillars as monolithic concrete foundation bottom ends from a concrete class C 12,5/15. The foundation earth was earthen – sandy with a bearing capacity 0.2 MPa; this value was ascertained during a construction of a group of four row family houses which are situated in the neighborhood.

The design "A Ground Plan of Foundations" contains these mistakes and imperfections: (ČSN 73 4301 Obytné budovy, 2004 and ČSN 01 3420 Výkresy pozemních staveb – Kreslení výkresů stavební části, 2004)

- row family houses have common foundations
- downcast cuts are omitted
- a projected dilation between the foundation of the family house and the garage is unnecessary
- in a denotation of the concrete class C 12,5 / 15 is missing
- in a demonstration of a foundation cut (detail "B") a concrete of foundation strips is mistakenly graphically depicted, a gravel subbase under the foundation strip is unnecessarily depicted and an elevation of a foundation gap (-1,650) doesn´t conform with the relevant elevation in a ground plan of foundations (-1,400)

**A GROUND PLAN OF GROUND FLOOR**

It is possible to enter the object across a vestibule and from here there is an access to a study, a cloakroom and a hall; further on, from the hall there is the access to a toilet, a bathroom and a kitchen. The kitchen is directly connected with a dining room and living room whereupon there is a direct success to the living room from the hall. A space between the dining room and the living room is partitioned by a wooden staircase which leads to a garret. From the dining room and the living room there is the access to a terrace by two-leaves balcony door. A garage creates a separate object accessible from a street by a garage segment gate; from the garage there is the access to a garden.

Perimeter walls are carried out from a cut Porotherm laid in cement and common walls of neighbouring houses are carried out from acoustic brick blocks. A sound – tightness is strengthened by two front walls from a plaster-cardboard. This front plaster – cardboard walls are created by a steel metal grate with mineral wool filler and covered by plaster – cardboard sheets. Perimeter walls are insulated by a contact heat insulation system from polystyrene. Partitions are from a cut Porotherm as well. Pillars are lined with brick from full bricks. The staircase is wooden of the L – shape with two stringers.

In the design "A Ground Plan of A Ground Floor" there are the following mistakes and imperfections: (ČSN 73 4301 Obytné budovy, 2004 and ČSN 01 3420 Výkresy pozemních staveb – Kreslení výkresů stavební části, 2004)

- an output line of a curved staircase is mistakenly depicted in a half from an outer face (it should be correctly depicted in a third from the outer face)
- an incorrent breadth of a staircase scale is on the spot of a staircase spindle (the correct breadth of the staircase scale should be at least 130 mm)
- a two-leaves door are incorrectly depicted (it should be correctly depicted open until its half)
- an elevation of a terrace is omitted
- underceiling inequalities concerning a girder and a door lintel are mistakenly indicated by broken lines with two dots (they should be correctly indicated by thin broken lines with one dot)
- a denotation and a specification of a girder in a centre of the object are missing (the girder should be correctly depicted by a thin broken line with one dot)
- facings are mistakenly depicted in a bathroom (they should be correctly depicted by a thick broken line with one dot)
- a facing height which amounts 1,5 m in a shower corner in a bathroom is insufficient (it should be correctly at least 2 m)
- a slope is indicated in a shower corner in a bathroom, however, its percentage isn´t stated there§ a bathroom is unsuitably lengthurse dimensioned
- an electric ventilation of a bathroom above a roof is missing
- facings are incorrectly depicted in a toilet room (they should be correctly depicted by a thick broken line with one dot)
- walls in a toilet room and a bathroom whose thickness is 80 mm don´t enable to pipe installations (walls should be correctly thick at least 150 mm in order to be able to pipe installations)
- an elevation of a front wall in a toilet as well as its breadth are omitted
- a wash - basin is mistakenly depicted in a toilet room because it interferes with a door space
- a breadth of a toilet room which amounts 850 mm is insufficient (it should be correctly 900 mm)
- a toilet room is unsuitably lengthwise dimensioned (owing to a rinsing down system its length dimension should be correctly 1.200 mm)
- a room where a boiler of a central heating is situated shouldn´t be indicated as a cloakroom (this room should be correctly indicated as a boiler room)
- a floor should be drained in the room where the boiler of the central heating is situated
- a ventilation of the room where the boiler of the central heating is situated is missing
- facings in a kitchen aren´t depicted and their height is incorrectly dimensioned (facings are situated between a working area and a suspension cabinet and therefore their height should be correctly dimensioned from the working area to the suspension cabinet)
- depictions of a dishwasher and a sink battery are omitted in a kitchen, a cooker is mistakenly depicted
- elevations of an external terrain at the exit are missing
- heat bridges aren´t completely solved in niches for a main gas closure, an electricity meter and a post whereupon heat insulations of the electricity meter and the post are omitted by the sides and the main gas closure has no heat insulation at all

- lintels in niches for the electricity meter and the post are missing § a lee is lower only by 5 mm than a vestibule and a denotation of a lee slope is missing (the lee slope should amount correctly 0.5% - 2%)
- a door lintel in a vestibule is mistakenly depicted (it should be correctly depicted by a broken line with one dot)
- a space for a cleaning footwear mat is omitted in the lee (each lee should have correctly a lower space by 20 mm for the cleaning footwear mat)
- family houses have common walls (each house must have a separate wall between neighbors, which isn´t kept)
- a table of rooms is omitted
- a module system for Porotherm isn´t kept (the whoíle design should be correctly projected in a basic module of Porotherm 250x250 mm or in its half modulus 125 × 125 mm)
- window lintels as well as door lintels are omitted
- doorframes are mistakenly depicted (they should be correctly depicted by a thin line)
- a projected dilation between a family house and a garage is unnecessary because foundations of both objects were carried out at the same time
- a breadth of a garage which amounts 2,75 m is insufficient (it must be correctly 2,9 m correctly)
- a garage gate is mistakenly depicted
- doors are incorrectly dimensioned (their hole sizes should be correctly dimensioned beause all doors have lined doorframes)
- a water supply and a drain for an automatic washing machine in a bathroom isn´t led along a perimeter of the whole bathroom which is wrong

### GROUND PLAN OF A GARRET

The access to the garret is by a staircase to a common central hall from which it is possible to enter particular rooms (abedroom and a nursery), a bathroom and a loft above a garage whose floor is lower than a floor in the garret. The bedroom has a separate window; the nursery has a window and a roof window. The bathroom, the hall and the loft space above the garage are illuminated by roof windows.

Perimeter walls are carried out from a cut Porotherm, partitions are plaster-cardboard and common walls with neighbouring houses from acoustic brick blocks have an amplified sound insulation by means of front plaster-cardboard walls. These front plaster-cardboard walls are created by a steel metal grate with mineral wool filler and covered by plaster – cardboard sheets. Wooden posts of a roof have an amplified fire resistance by means of plaster – cardboard facings. Perimeter walls are insulated by a contact heat insulation system from polystyrene.

The design "A Ground Plan of A Garret" contains these mistakes and imperfections: (ČSN 73 4301 Obytné budovy, 2004 and ČSN 01 3420 Výkresy pozemních staveb – Kreslení výkresů stavební části, 2004)

- the module system for Porotherm isn´t kept (the whole design should be correctly projected in the basic module of Porotherm 250x250 mm or in its half module 125 × 125 mm)
- the output line of the curved staircase is mistakenly depicted in the half from the outer face (it should be correctly depicted in the third from the outer face)
- the incorrect breadth of the staircase scale is on the spot of the staircase spindle (it should be correctly at least 130 mm)
- underceiling inequalities concerning shed roof edges are mistakenly depicted (they should be correctly depicted by a thin broken line with one dot)
- facings are incorrectly depicted in the bathroom and a facing height in a bath which amounts 1,5 m is insufficient (the facing height should be correctly at least 2 m)
- plumbing fixtures in the bathroom are incorrectly disposed owing to a drain pipe and depiction of an installation shaft or at least a vertical drain pipe which should lead up to a roof is omitted
- the access to a storage space is missing as well as a ventilation of the storage space is omitted
- the table of room is omitted
- family houses have common walls (each house must have correctly a separate wall between neighbours which isn´t kept)
- doorframes are mistakenly depicted (they should be correctly depicted by a thin line)
- the projected dilation between the family house and the loft above the garage is unnecessary (the dilation should be correctly at the wall)
- doors are poorly dimensioned (hole sizes must be properly dimensioned beacause all doors have lined doorframes)
- roof windows are mistakenly depicted (they should be correctly depicted so that their perimeter is indicated by a thin broken line with one dot and their inner part is indicated by a thin broken line or by a thin solid line)

### A CROSS - SECTION A - A'

The design "A Cross - Section A - A '" represents a cross - section of the family house.

The design "A Cross - Section A - A '" contains the following mistakes and imperfections: (ČSN 73 4301 Obytné budovy, 2004 and ČSN 01 3420 Výkresy pozemních staveb – Kreslení výkresů stavební části, 2004)

- a depiction of the concrete in foundation strips is omitted
- a thickness of a foundation concrete (150 mm) in a floor composition doesn´t conform with a thickness of a foundation concrete in a material legend (100 mm) (the thickness of the foundation concrete should be correctly most 100 mm)
- the concrete is mistakenly indicated (the concrete of foundation strips should be correctly indicated as C 12.5 / 15 instead of B 15)
- the designed gravel subbase under the foundation strip is unnecessary
- floor compositions on a terrace and on a prepositional staircase omitted (it should be correctly stated there that a lock pavement was used)
- a settlement of rafters on a top rafter is poorly depicted (rafters should sit on the top rafter by saddling)
- gutters of the roof including a description of a material which they are made from are missing (it should be correctly stated there that gutters are made from a galvanized sheet)
- a solution of a window lintel in the garret is insufficient, its heat and static complete solutions are missing
- elevations are omitted
- a depiction of a heat insulation of a roof is missing
- a wrong denotation of a floor is in a floor composition in the garret (a laminated floor should be used instead of a floating floor)
- a ceiling composition above the ground floor (SPIROLL panels – a plaster – cardboard underceiling – a plaster) is illogical (the plaster – cardboard underceiling shouldn´t be in the ceiling composition at all, only SPIROLL panels and the plaster belong to the ceiling composition)
- a drawing of a roof cladding ventilation (an air cavity formed by counter – battens) is omitted
- the ceiling composition above the room in the garret is missing (the ceiling composition should look correctly in this way: the plaster-cardboard underceiling, the supporting underceiling grate, the heat insulation, the diffusion foil)
- the roof composition above the loft is missing (it should look properly like this tiles, battens, counter-battens, a protective diffusion foil)
- the roof window is mistakenly depicted (it should be correctly depicted sbove a roof level)

### A CROSS - SECTION B - B'

The design "A Cross - Section B - B '" reprezents a cross - section of the garage.

In the design "A Cross - Section B - B '" these mistakes and imperfections were found out: (ČSN 73 4301 Obytné budovy, 2004 and ČSN 01 3420 Výkresy pozemních staveb – Kreslení výkresů stavební části, 2004)

- the thickness of the foundation concrete in the floor composition (150 mm) doesn´t conform with the thickness of the foundation concrete should be correctly most 100 mm)
- the concrete is mistakenly indicated (the concrete of foundation strips should be correctly indicated as C 12.5 / 15 instead of B 15)
- the projected gravel subbase under the foundation strip is unnecessary
- foundations are incorrectly dimensioned, the elevation of the foundation gap which amounts - 1,650 doesn´t conform with the elevation of the foundation gap in the design "A Ground Plan of Foundations"
- elevations are omitted
- the wrong denotation of the floor is in the floor composition in the garret (the laminated floor should be used there instead of the floating floor)
- the roof windows are mistakenly depicted (they should be correctly depicted above the roof level)
- gutters of the roof including the description of the material which they are made from are missing (it should be correctly stated there that gutters are made from the galvanized sheet)
- the drawing of the roof cladding ventilation (the air cavity formed by counter – battens) is omitted
- the depiction of an entrance door to the garret above the garage is missing

### THE VIEWS

The design "The Views" includes eastern and western views of row family houses.

The design "The Views" contains the following mistakes and imperfections: (ČSN 73 4301 Obytné budovy, 2004 and ČSN 01 3420 Výkresy pozemních staveb – Kreslení výkresů stavební části, 2004)

- the chimney height is omitted (it should be correctly stated there that the chimney height amounts 650 mm)
- a cornice height, a ridge height of a lower roof and a terrain elevation are omitted
- the depiction of a vertical boundary – line between neighbouring objects is missing (boundaries of objects should be properly indicated in axes of gable walls)

### A GROUND PLAN OF A ROOF

As far as the roof is concerned, it is gabled and has an attached skylight and a valby on the one hand as well as a shed roof and a skylight on the other hand.

In the design "A Ground Plan of A Roof" there are these mistakes and imperfections: (ČSN 73 4301 Obytné budovy, 2004 and ČSN 01 3420 Výkresy pozemních staveb – Kreslení výkresů stavební části, 2004)

- the chimney height, roof edges´heights and the ridge height are omitted

- family houses have common fire walls which is wrong (each house must have correctly a separate fire wall between neighbours)
- roof windows are mistakenly depicted (their perimeters should be correctly depicted by thick solid lines and diagonals should be properly indicated by thin broken lines with two dots)

### A TABLE OF PRODUCTS

In the design "A Table of Products" the windows and doors which are found in the family house and the garage are drawn.

In the design "A Table of Products" the following mistakes and imperfections were found out: (ČSN 73 4301 Obytné budovy, 2004 and ČSN 01 3420 Výkresy pozemních staveb – Kreslení výkresů stavební části, 2004)

- tinsmithing elements are missing (gutters, drain pipes, window sill metal plating, a chimney flashing, laves´strips) (tinsmithing elements should be correctly stated there including the fact that they are made from the galvanized sheet)
- locksmithing elements are omitted (wall plates´anchors, posts´ anchors in the lee, a frame (a grate)for a cleaning footwear mat) (locksmithing elements should be properly stated there including the fact that a wall plate anchorage is carried out by means of a strap, the frame for the cleaning footwear mat is carried out by means of a steel L-profile and a grate)
- a note that a doorframe was used at the entrance door is wrong because it is a general concept (it should be correctly specified there that it is a matter of a lined doorframe)

### A FENCE

The fence is created by galvanized posts and netting which is made from a galvanized wire.

The desing "A Fence" contains these mistakes and imperfections: (ČSN 73 4301 Obytné budovy, 2004 and ČSN 01 3420 Výkresy pozemních staveb – Kreslení výkresů stavební části, 2004)

- a foundation depth of the fence is missing (it should be orrectly stated there that the foundation depth of the fence amounts 500-600 mm)

### LINTELS, GIRDERS - A GROUND FLOOR

The design "Lintels, Girders - A Ground Floor" contains the lintels and girders in the ground floor which should be correctly depicted in the design "A Ground Plan of A Ground Floor".

In the design "Lintels, Girders - A Ground Floor" the following mistakes and imperfections were found out: (ČSN 73 4301 Obytné budovy, 2004 and ČSN 01 3420 Výkresy pozemních staveb – Kreslení výkresů stavební části, 2004)

- door lintels in partitions are missing
- doorframes are mistakenly depicted (they should be depicted by a thin line)
- door dimensions are omitted; in the design "A Ground Plan of A Ground Floor" doors are dimensioned to the axis which is wrong (hole sizes should be dimensioned at doors because lined doorframes were used)

### LINTELS – A GARRET

The design "Lintels – A Garret" contains the lintels in the garret which should be properly drawn in the design "A Ground Plan of A Ground Floor".

In the design "Lintels – A Garret" these mistakes and imperfections were found out: (ČSN 73 4301 Obytné budovy, 2004 and ČSN 01 3420 Výkresy pozemních staveb – Kreslení výkresů stavební části, 2004)

- heat and static completely solutions of window lintels at the western wall are missing

### A GROUND PLAN OF A CEILING

The ceiling is created by prestretched ceiling SPIROLL panels.

In the design "A Ground Plan of A Ceiling" these mistakes and imperfections are included: (ČSN 73 4301 Obytné budovy, 2004 and ČSN 01 3420 Výkresy pozemních staveb – Kreslení výkresů stavební části, 2004)

- used thicknesses of lines are incorrect (vertical supporting structures which are interwindow pillars or pillars at a central supporting wall should be correctly depicted by thick solid lines; by means of this holes above which it is necessary to place lintels or girders become evident)
- depictions of two pillars at the central supporting wall are missing
- drawings of windows at perimeter walls are omitted (windows should be correctly drawn by thin solid lines)
- downcast cuts are missing
- depictions of a heat insulation and a wreath to the ground plan of perimeter walls are omitted
- the denotation of a ferronconcrete complete concreting at a staircase space is wrong
- a ferronconcrete wreath can´t be carried out in the space which the chimney interferes with; moreover, the panel at the chimney shouldn´t be usual but it should be dimensioned from a manufactory regarding a chimney location
- a table of panels is omitted
- a reinforcement of the wreath by a KARI net is illogical (the wreath should have correctly the horizontal reinforcement and stirrups)
- drawings of wreaths are missing
- a note that the ceiling isn´t dimensioned on a point load is inaccurately specified

### A GROUND PLAN OF A ROOF

When it comes to the roof, it is a matter of a roof construction with a top rafter (a simple stool) which is supported by two posts and it is settled on its tip on the gable wall; runs above the garage are located lower. The skylight with the vally is created by gutter and corner chevrons as well as by rafters.

In the design "A Ground Plan of A Roof" the following mistakes and imperfections were found out: (ČSN 73 4301 Obytné budovy, 2004 and ČSN 01 3420 Výkresy pozemních staveb – Kreslení výkresú stavební části, 2004)

- roof windows are poorly depicted (their perimeters should be correctly depicted by thick broken lines with two dots and diagonals should be properly indicated by thin broken lines with two dots)
- oblique gridiron ties are mistakenly depicted (they should be properly drawn by thin lines with thickly merked diagonals)
- vertical posts are incorrectly drawn (they should be properly drawn by thin lines with thickly marked diagonals)
- tapes are poorly depicted (they should be correctly depicted by thin broken lines with one dot)
- heights of plate walls are omitted (it should be properly stated there that these heights amount 5.150 mm and 3.230 mm)
- a rafters´exchange is incorrectly drawn (it should be correctly drawn by a thin broken line)
- a spare rafter next to the chimney is poorly depicted (it should be correctly depicted by a thin broken line)
- gutters are missing
- the insulation of the SCHIEDEL chimney is unnecessary because the heat insulation is its component
- a protection of the SCHIEDEL chimney against weather sways above a roof cladding level is missing (it should be correctly carried out by means of a glass – concrete cuff or by a lining from non – absorbent bricks)
- a wall plates´anchorage in a reinforced wreath is wrong (the wall plates´anchorage should be correctly carried out in a ceiling structure as it is stated in the design "A Cross – Section A – A´")
- a depiction of the ridge is omitted
- a gutter space is mistakenly depicted (it should be correctly depicted by a thick broken line with two dots)
- the roof construction at the skylight with the valby is incorrectly drawn (rafters and wall plates shouldn´t be correctly depicted in the roof construction at all)
- depictions of shed roof edges are missing
- the drawing of the ridge is wrong (the ridge should be correctly drawn by a thick broken line)

### BUDGETARY COSTS OF TERRACE FAMILY HOUSES

Teracce family houses are built in brick, ground – floor with the garret and the garage and have no cellars.

## The Proposed Measures for A Reduction or An Elimination of A Risk Connected with A Project Documentation

As it was already stated earlier, the project documentation risk represents a failure of expectations laid to project documentation especially to its material extent and its requisite quality.

The law No. 183/2006 of the code, about territorial planning and a building rule (a building law) prescribes in § 150 that "a master builder is liable to care about a due preparation and a performance of a structure. At the same time he has to keep in view especially life and health protections of people or animals, environmental and property protections and a regard of a neighbourhood. The master builder is liable to ensure a prescript documentation in order to discuss an intention according to this law. If the law requires an elaboration of the project documentation by a competent person, the master builder is liable to ensure the elaboration of the project documentation by such a person, if he doesn´t have the necessary competence on his own."

Although the law prescribes the liability to elaborate the project documentation, a danger of a risk rise can be connected with a choice of a wrong projector by reason of his incompetence or performed work of poor quality.

If the project documentation is elaborated by an incompetent person, the building office will stop building proceedings according to § 111 of the building law. For example, according to the building law it can be required so that the project documentation was elaborated by the competent person in accordance with the law No. 360/1992 of the code, about the performance of the occupation of authorized architects and about the performance of the occupation of authorized engineers and technicians active in the construction, in the wording of later rules or the project documentation for the performance of land modifications which can be elaborated only by the competent person as well who owns the authorization about the professional qualification to the projection of land modifications which is awarded by Central Land Office in accordance with § 18 of the law No. 139/2002 of the code, about land modifications and land offices.

On the basis of these facts it is possible to formulate the following measures for the reduction or the elimination of the risk connected with the project documentation. The documentation should be elaborated by the person who has sufficient experience with analogous projects namely from a material extents point of view as well as from a height of presumed costs´point of view. If the projector is

chosen on the basis of selectiveproceedings, references to already elaborate similar orders belong to qualifying criteria. Further on, it is necessary so that the all documentation was ensured in the requisite quality and term regarding a commencement of the construction and the subsequent operation. These risks appear as very weighty especially there where a fixed time schedule is planned in accordance with the commencement of the operation of the structure and each delay reprezents then increased costs or the postponement of returns of the project which the structure should have been realized for. In case of public projects which are financed from national or supra – national grant resources (for instance, from structural EU funds within a scope of specifically intent operational programmes) the fact that the project documentation isn´t ensured in the requisite term can lead to the forfeit of the building permit and to the frustration of chances of an investor to gain the grant because he isn´t able make the complete request for the grant to the requisite term. As far as a phase of realization is concerned, its risk can be eliminated by a cooperation of a technical supervisor of an investor with a projector of a structure. It is necessary to bear the fact in mind, however, that the possibility of the project documentation influence falls with the more detailed level of its elaboration.

## Conclusions

The examined building enterprise X1 Ltd. with the law form s.r.o. noticed a significant decline in building orders in 2013 and therefore when it succeeded in selective proceedings on the construction of four row family houses it was made to take this order and to realize it on the basis of the elaborate building permit documentation of poor quality. Because the management looked after work contents of the experience (particular orders) they managed to eliminate the project documentation risk by means of the active cooperation with the technical supervisor of the investor, the investor and the projector, to keep planned budgetary costs and to avoid the contracting fine which would have threatened to the building enterprise in case of the failure of the term of the work completion.

In the theoretical part of the contribution the basic concepts connected with the solving problems were clarified namely the building process risk, the project documentation risk, the possibility of the project documentation influence, the projector, the master builder, the examined building enterprise X1 Ltd.. The practical part of the study contains the complete project documentation of the realized row family houses inclouding ascertained mistakes and imperfections, budgetary costs of this orders and proposed measures for the reduction or the elimination of the risks connected with the project documentation.

On the basis of pieces of knowledge from the theoretical part and the outcome from the practical partit is possible to state that for the reduction of the risk of the project documentation of poor quality there is a need so that the documentation was elaborated by the person who has sufficient experience with similar projects namely from a material extents point of view as well as from a height of presumed costs´poit of view. Therefore in case of a choice of the projector on the basis of selective proceedings references about already elaborate orders of a similar character belong to qualifying criteria. The further danger of the rise of the project documentation risk threatens either in case of a wrong communication between the investor and the projector or in case of mistakenly set terms on the elaboration of necessary levels of the project documentation in dependence on a need to commence further activities leading to a physical realization of a building work. In the phase of realization the risk can be eliminated by the cooperation of the technical supervisor of the investor and the projector of the structure which testifies the case study stated above. However, it is necessary to take the fact into consideration that the possibility of the project documentation influence falls with the more detailed level of its elaboration.

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Ladislav Kubo

# EMERGING PARADIGM: HOW DESIRABLE IS ACTUALLY THE PERMACULTURE CONCEPT?

**Abstract:**
This paper brings the overview of the shift in sustainability paradigm in philosophy, environmental economy, technical sciences and political practise. The green light at the end of the tunnel is seen in the design constructive strategy the incorporates psychological aspects of human being existence – the need for place attachment, social life and acceptance of the participatory approach towards utilization of the important common – free space – within the residential tissues. One of the opportunities is creation of community gardens that have been opened worldwide and are introduced at the end of the paper.

**Key words:**
*sustainability, economic development, ecology, design theory, perma-cultural dimension, community gardens*

Fig. 1: **Karls Garten, Vienna, Austria**, *Photo: Sandra Lamy*


## Recent world – a stage of sustainment?

**Let us make this initial remark:**

In our opinion, it will not be possible to establish the Paradigm of Sustainability as a major solution within the society which also does not promote simultaneously – neither intentionally (i.e. with pro-active stimuli); nor solely declarative, insufficiently (i.e. without adequate policies to achieve this aim) – the holistic, truly personalised development of each individual as the "autonomous personality".

In addition, we could moreover remark that organisation of societal life – its conventions which basically have not changed too much since the primeval period of the history (these basically remind the social habits of hunters and gatherers…) – and they are implicitly (in the broadest, anthropological sense…) originated also from the "acculturation process" replicating itself within the human-made "world of artificial" – i.e. within the domain which then becomes increasingly alienated from its natural – biologically or ethologically rooted – basis.

Czech philosopher J. Šlajs states there are facts about the structure of universe, about the appearance of our

planet, about the character of natural biotopes and biosphere that represent parts of the general humane knowledge at the one hand, but at the other hand, almost nobody (neither philosophers nor politicians…) is aware of the character, the extent of culture – how it is formed and what is the price of its´ expansion within the biosphere. We do not know anything about what happened to Earth, as a consequence of the fact, we still have ignited another evolution – "the cultural evolution" – being in opposition towards the "natural evolution". The crucial fact here is that this „cultural being" grows out of the "natural being" and since is of different character and order; it has to reconstitute – to destruct of the older, more original and widely constituted natural being (Šlajs, 2008).

This introduces a fundamental, pressing question: does human culture follow any kind of inevitably replicating trajectory, or is it possible, facing the current state of the world, to redirect it?

The state of the world, we nowadays know – and which is manifested, among others, through symptoms, as are e.g.:

- disruption of biosphere – environment – at the planetary scale,
- globally instable social order,
- escalation of material and social disparities, i.e. proliferation of deep poverty in so called developing word, and progressively declining "quality of life" in the developed – "rich" world that threatens or cause direct collapse of everything, we use to consider as civilisational achievements, and despite of the fact, that this description represents rather dismal state of the world – context, in which the above mentioned symptoms of crisis are imbedded – we could and should ask, whether this might be some kind of predestination, towards which we are heading for…?

## Sustainability Paradigm Shift – attested by philosophy.

*Karl Popper* – important 20th century philosopher, proponent of the critical rationalism, has supposedly formulated following: „The history as such has no sense - to bestow it this is the humane destiny". Popper has in his work challenged the conception of interconnectedness between theory and observation, which could be described by empiricism. He held that scientific theory, and human knowledge generally, is irreducibly conjectural or hypothetical, and is generated by the creative imagination in order to solve problems that have arisen in specific historio-cultural settings. He contented that theories are not generated by observation, but that observation is made in the light of theories and that the only way a theory can be affected by observation is when it comes in conflict with it (Popper, 2002).

Popper proposes "the "falsifiability concept" as the landmark of scientific theories, and "falsification" as the empirical method, to replace verifiability a and induction by purely deductive notions. He further claims that there is actually only one universal method and that this method is not specific to science: the negative method of criticism – – trial and error. It is supposed to cover all "products of the human mind", science, mathematics, philosophy, and art inclusive.

Our brief and modest conclusion of Popper's statements could represent quite a stimulus, a starting point for us to challenge recent governance, political practise and especially "economical science" – as "the irrefutable" method to rule the social (and natural) metabolism after the principle of incessant "growth of Growth " towards human prosperity.

It is just Popper's pertinence to "Critical Rationalism" which might – at the level of philosophy – also prove that the subject of our reflexion – sustainability – is not merely a romantic cry or any kind of activism – but seriously intended interest towards "our common future" , i.e. critical reception of established, supposedly "terminally omnipotent paradigm of growth, could and should be questioned and also "falsified" .

The recent, generally (globally) established (and enforced) political practise is experimentally tested only when it comes to establishing new modes – based (verily in the metaphysical sense) on the same old narrative – to promote the perpetual growth as the ultimate horizon, which should all mankind's effort strive for.

### ANOTHER CRITICAL COMMENTS TO THE ISSUE.

Another recent thinkers as e.g. Carolyn Merchant or late E. F. Schumacher considered, that the 17th century scientific revolution has shifted science from a focus on understanding nature, or wisdom, towards a focus on manipulating nature, i.e. power, that this emphasis on manipulating nature leads inevitably to manipulate people, as well . Such a focus together with a stress on quantitative measures has led to critiques that the modern science is unable to recognize important qualitative aspects of the world.

Perceptions akin to those of K. Popper could be found also in the work of another Austrian-born philosopher - *Paul K. Feyerabend* - he advocates treating science as an ideology, the entity such as religion, magic and mythology, and considers the dominance of science in society authoritarian and unjustified (Feyerabend, 1982).

He proposed the idea of epistemological anarchism, which holds that there are no useful and exception-free methodological rules governing the progress of science or the growth of knowledge, and that the idea that science can or should operate according to universal and fixed rules is unrealistic, pernicious and detrimental to science itself.

Finally we may not forget the prominent contribution, referring to the limited potentiality of science to be

Fig. 2 - 3: **Community Garden in the Park, Noáin, Pamplona, Spain,** *Photo: Jana Szuhova*

"objective", which has been made by *Thomas S. Kuhn* in his profoundly influential book "The Structure of Scientific Revolutions" (Kuhn, 2012).

Purpose of our concise and modest introduction is appeal on the readers - young academics to resist the rigid pressure which represent recent, extremely fragmentised science, and be active in searching for more qualitative, holistic point of view, while naturally keeping standards of the necessary acribia.

## ECONOMY "AS RECENTLY PRACTISED" HAS AN OVERESTIMATED SCOPE OF VALIDITY.

When we notice the ancient – already Aristotelian – distinction between the terms "oikonomia " and „chrematistics ", it is the matter of irony, that there exists by far more extensive economical research that either handles issues of financial flows within the economy (e. g. growth, GDP…), or is concentrated on consumption, commerce and financial markets, in comparison to the one, that studies the terms of economy administration (See: oikos+nomos) or those of the environment!

As stated, this modus operandi entirely dominates over all other (already known) alternatives, despite of all balance losses, and although it can be obviously – in sense of Poppers conclusions – falsified i.e. proven false. This dominant modus operandi is perpetually favoured and promoted (and yes, even forced) as the supposedly "the best known, or the sole option", and it is advocated for its ostensible potential for multiplying wealth. The balance losses, neglecting or ignoring e.g. externalities of such a developmental process (the externalities will be commented in detail further on) are either not taken into account by major economical practise – otherwise dominated by calculations.

## ECONOMIC AND ECOLOGIC FALLACIES OF THE MAJOR THEORY.

The theoretical model of homo oeconomicus – the necessary variable of recently favoured economic equations has been accomplished as by far too simple to be relevantly valid within these calculations. Humans do not act exclusively in a rational way – e.g. the externalities are too often not included. Just this errancy has been lately stressed on the April conference of INET in Berlin by its supporter and sponsor George Soros.

Soros – himself a world-renowned financier, critics thus have come from the respected insider – challenged the abstract, entirely rational model of man used in recently prevailing paradigm.

The dismal situation has been summed up by the following words: "Economists draught the faulty maps, leading us though the world in a wrong way. Why?" They have been, inter alia, too close to the mighty people and their money" – this opinion has been pronounced in Berlin by the executive director of INET, Robert Johnson. Conflict of these two paradigms – of the already established and the emerging one – shows the comprehensive, Oscar-winning documentary film – Inside Job – exploring the background of the last decade's financial crisis.

Despite of the dubious tendency of continuous Growth, proven as unjustifiable already by means of the first thermodynamic law, acute problem represents how the produced "wealth" is distributed. We can easily observe that it is the crucial point with regards to the instability of the heavily preferred (and promoted in Barnum-like way ) approach to the reality: the true "state of the world", its realistic considerations are manipulated by all means, the broad public is mislead to participate in this hazardous venture and corrupted with promises of never-ending entertainment and available consumption – we can use the hyperbole saying – people thus become shareholders of the future global catastrophe.

The whole – in major political practise imbedded – mystification is clearly a kind of pyramid (Ponzi) scheme , but exactly the above mentioned externalities of such an extent that will affect all the people – those staying aside as well, are carefully kept hidden.

Rather than to look for the absenting evidence as missing within the field of science, it is possible to view it from the opposite aspect, possibly caused by the existential

Fig. 3 - 4: **Community Garden Karls Platz, Vienna, Austria,**
*Photo: Sandra Lamy*

pressure – the power of direct (or status connected – indirect) material incentives (either of personal or institutional character) – which could engage/subvert the scientific acribia (admittedly impartial, according to its original intentions) into the arena of interspecific competition. As reason could be observed the preference of the ideologically desirable outcomes in favour of those implied as controversial ones, it clarifies eloquently also the "silence of experts" (either stifled or "pushed-by-conjuncturalism") - e.g. in respect of the last decade's financial crisis.

Tip for compulsory reading: perspicacious reasoning that warns before the present "tragedy of economization of the education" could be found in texts of Austrian philosopher *Conrad P. Liessmann* (Liessmann, 2013).

### ECONOMY AT THE TURNING POINT.

Turning Point – the book of the same name, written by environmental economist *Robert U. Ayres*, eloquently express the unavoidable while explaining widely and thoroughly the fallacy of the theorems proving the theoretical presumptions interpreting the functioning of free market mechanisms, whose have been in the real world regularly discredited by application of the non-economic means – as e.g. political or even violent-military power (Ayres, 2009).

The utilization of science (impartial and objective to the extent mentioned above) to support goals of exclusively ideological character, is visible also in preferring certain (for unsustainable paradigm) advantageous fields of science, such as:

- technical sciences enabling the continuation of the questionable progress even presented as exclusively technical, quantitative motion with increasingly dehumanising external or
- growth oriented economic practices, meanwhile challenged from side of hard (physical) sciences and part of social sciences as well. And just the ancient ones among the latter – such as philosophy and ethics, belong nowadays to the most marginalized, surviving in "academic ivory towers".

## Design – the constructive strategy for the artificial world.

Author, directly focused on the design theory (though on the design of artefacts) – *Clive Dilnot* , noted that design represents a means of ordering the world rather than merely of shaping individual artefacts /environments . It exceeds purely formal games– though too often only putatively aesthetical – that are generally connected with reception of design within the lay - consumers public. As it is not limited to the phenomenal, the designed artefacts structurally contain an information record imbedded – about how the world structure looks like, and if we consider just the psychological aspects of our existence we could the way round say (while using a Jungian concept) that artefacts/environments also serve as requisites/stages for our individuation. These testify the ways we perceive the world – how we respond to it – in the presence and in the future. The designed artefacts also "forecast" the way we transform the world –with the future prospects (Dilnot, 2011).

Just considering sustainability, Dilnot contends literally that it is "a project of history – – the largest and most significant one the mankind will (eventually) [author´s note] undertake this century" . History, after Dilnot, does not mean our past but our future, our history-to-come. He insists on conceiving sustainability just in this way, because as he states literally – "we, humans still hopelessly confuse the question of sustainability and nature and this confusion will be the cause of much future unhappiness". (Ibid.)

Dilnot further contends, that there is our insufficient or misled ability to grasp adequately the potential of nature to support our existence: "What has failed us is not nature, but how we have acted vis-a-vis that which we are most immediately consequent or dependent upon, which is not nature which we increasingly engage with in any case at one remove but artifice ". "The un-sustainability now built into the world as a structural aspect of its functioning is a consequence of how we have failed to accept our dependency on the systems of artifice – technical, economic, political – by which we secure our relations to the natural and artificial environment", argues Dilnot further in the respective text.


Fig. 5: **The timeline metamorphosis, mobile garden in Bratislava, Slovakia, before 2013 and after in 2014**, *Photo: Sandra Lamy*

We can, once again, attempt to conclude this by means of paraphrasing the next book title: it is not "Nature", but the (supposedly) everlastingly continuing "Growth" which has its´ (ecce) "natural" limits .

## The green light at the end of a tunnel.

Since we have just pointed out that every design process (hereby also constitutive process when creating works of permaculture) contains inevitably the intention of the world's future – where the future should be either sustainable or there will be probably no future at all (i.e. not such as used to be humane).

Facing the state of affairs the most conspicuous actuality appears that despite all the arguments already known (and gathered here in this modest enumeration) so little has been done to implement them into reality, to test them and eventually to improve them.

It proves that the identical "zero sum game" will be kept as the generally utilised developmental scheme also in the future and "the players" will keep the belief, to get somehow to the next level of constantly shrinking number of the fellow participants.

There are seemingly two principal tendencies of the human's social conduct – the competition and cooperation. And it is still the way of competition – since the long past until now – which seems to be habitual for the mankind. Although "the civilisational pendulum" moves now just towards this peak of amplitude – just because of its´ kinetic essence – it will move contrariwise someday. Nevertheless, the tragic message about such a fact is that a lot of Earth's wealth and Earth's biodiversity will meanwhile disappear irrecoverably; our existence will become poorer. Put differently: The later we begin to act sustainably, the less will remain from the planetary wealth for our future subsistence, in every sense.

### IMPORTANCE OF SUCCESSION: EVERY JOURNEY BEGINS WITH SOME FIRST STEP.

When we will look at the Rules of Conduct for users and visitors of the first community garden in Vienna (Fig.1), we can see that they promote quite strict rules for the respective community. This is perhaps quite remarkable in the Austrian – as it is probably only possible way how to protect a garden before, so to speak, "Tragedy of Commons syndrome", which would otherwise there probably, occurred.

But the message of such gardens – their socially-communal accented profiling – either does not necessarily mean the gardens must remind a kind of "hortus pauperis" (Fig. 1).

### THE DISCREET CHARM OF URBAN GARDENS…

The urban gardens (especially if they are permaculture works) are the mostly suitable examples to understand that especially in highly urbanized, artificial, by technology dominated environment where it is rather improbable to introduce the permaculture methods "in extenso", we can successfully accent the perma-cultural dimension, i.e. also the social dimension of this phenomenon. We can see it at samples – and not only in Bratisava and Vienna – their influence, as of the "social putty" is of the same importance, as it helps to promote (and to proliferate) certain social attitudes at the positive and informal basis. Perhaps it might represent a possibility to promote the paradigmatic shift in the incremental, evolutionary way. In addition, it is probably a litmus paper for testing the level of peoples´ political accommodation – their acceptance of the participatory approach towards utilization of the important common – free space – within the residential tissues.

As the performance scope of urban/community gardens shows, their value is predominantly symbolic – they serve as true "dissemination points" for socially sustainable alternatives to the otherwise mostly destructive impacts of our being in the urban milieu.

The strong, historically rooted American tradition of volunteering and as a certain form of compensation of strong individualism on the other side their goals are defined with unusually straight determination , they are deeply worked out as well legally, as in organisational terms and rules of conduct or use.

European context, on the other side – as this continent is characterized by long tradition of social movements (collective societal concept…), and therefore has far more developed the institution of welfare state – the social aspects of the gardening here prevail over the in US accentuated food security, the respective communal gardening program covered in Washington's capital city by The Department of Neighborhoods stresses food security as the unambiguous part of the city governments´ official policies.

The practice is still not so rigorous in the case of Europe: e.g. the well-known "Prinzessinnengärten" in Berlin, Kreuzberg, or e.g. its´ pendant "Prazelenina" in Prague, exist more as complementary phenomena than demarcating themselves towards the urban context. While the German garden feature vivid discussion programs often with he alternative keynote speakers and it is has not any strict borders, meanwhile Czech "Prazelenina" (in English freely: The Primeval Veggies) still has a sheet-metal fence and offer rather a tentative, leisure program with the pro-social touch. The avant-garde lifestyle touch is present in both cases.

Such gardens incorporate emerging subculture, and proliferate, as stated before the mode of participation, cooperation and – after sociologist *Christa Mueller* – they even incorporate political and ideological aspects. They serve as relaxation and meeting areas for mothers with children they might include shops with vegetables and beverages and serve as natural centers of social life for their users. Though these plots have not the potential for subsistence – the only functional places for subsistence urban gardening should be Detroit, MI and Cuban Havana – both stages of "economic catastrophy" – urban gardening of subsistence became there a "sheer way out of need" (Mueller, 2011).

At the same time, it is obvious, that because of its character – dissociating oneself from the dependence on hierarchy, enthroned by the major capitalistic economy and resultant social arrangements –of course it will be difficult to promote this alternative. We must be aware of the fact, that there is still plentiful public, which hopes to gain winnings in the pyramid scheme, which could and will have, due to the economic application of game theory mentioned earlier but a very limited handful of winners.

And that is the reason why, between the recent, invalid but still established paradigm and the visionary, though in terms of sustainability vitally prospective paradigm, rules a truly "memetical warfare ".

The following paragraph could serve as a powerful argument, supporting this statement: So called "ecological colonialism", which had shown itself reciprocally, resulted in change of whole countries´ ecosystems and subsequently also their identity (artifice) – just think about Ireland before potatoes – or in reverse direction, spreading of cereal crops (as barley, wheat and rye) across the whole North America has changed this territories irrevocably.

Fig. 6 - 7: **Mobile garden in Bratislava, Slovakia**,
*Photo: Sandra Lamy*

Spin-off effect of this activity has brought rich social informal interactions that have been developed while spending time by urban gardening . The next spin-off effect of this activity has been children education in becoming familiar with the type, colour and smell of flowers and vegetables as well as getting practical experience in helping with gardening.

And since we are focused on the permaculture "gardening" (i.e. a considerably smaller scale of intervention and garden has also aesthetic connotations) – the following example will document the extreme ridiculousness of such steps in the past. Just because it had been supposed that New York City will be this way more cultivated, when there would nest every kind of bird, mentioned in the works of Shakespeare. European starling – the avian pest, omnipresent nowadays across the Northern subcontinent, has been naturalized just there and the "Shakespearian plants" followed subsequently . Is it not just the brilliant example of pathological interpretation of reality through the misunderstood cultural schemes?

## What has the permaculture to do with this all?

Permaculture (which is among others also strategy of designing) has been developed with the intention to find generally harmless, socially viable, equitable, pleasing and justified methods of subsistence, maximally based on observation of ecosystems´ behaviour.

It is of highly systemic character – therefore it strives for integrative coexistence with The Natural although it does not imitate it necessarily and its development shows the cyclic behaviour of natural processes.

The humane i.e. artificial processes, on the other hand – mostly tend to proceed within the linear time, subjected (in a linear or exponential manner) to the growth/collapse tendency.

Let's remind once again the threat lying in the lone fact that the humane/artificial domain shows tendency for an unbounded growth and it replicates itself excessively through metabolic acts and processes – deploying its ´own natural and therefore starving basis – as resource for transmutation. This natural basis – often not renewable resources – thus becomes scarce and therefore objects of the severe competition for their control, distribution and utilisation. We can say following: the insatiable desire after the resources is the main motivation of the competitive aspect of humane behaviour. Even the opposite – complemental, behavioural strategy – the cooperation, serves often at the end to the same purpose.

Undoubtedly, the phenomenon of permaculture as it was established already earlier, has the broad range of various benign traits, widely rendered to the humane sustainment, mitigation of both – the environmental conditions as well as the societal and cultural milieu of the mankind. This justifies the permaculture (since it accommodates according to the climatic and environmental conditions) as a global, wide-scope tool of sustainment, despite of the pertinacious attitudes, so symptomatic for "the period of paradigm shift".

**We have the Manual - now we should exercise it over.**

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Dagmar Petríková

# STRATEGIC PARTNERSHIPS IN MANAGEMENT, BUSINESS AND MARKETING


**STRATEGIC PARTNERSHIPS IN MANAGEMENT, BUSINESS AND MARKETING**
Published by Comenius University in Bratislava, 2016
Author: Eva Smolková

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This publication aims to reflect the importance and diversity of strategic and marketing partnerships for the current business environment in various spheres of activities-from spatial planning and management through to business and marketing.

The book provides insight and a comprehensive set of information about the most used types and forms of strategic and marketing partnerships, from the most free ones to the most close ones. It also brings information about what the strategic partnerships are, how and what for are they used and what type of partnerships is it possible to use in the context of the particular activity.

The effort is to point out the possibilities and opportunities that strategic and marketing partnerships bring, and to highlight the opportunities as well as the risk factors for a particular kind of partnership. From this point of view there are all kinds of possible partnerships described and analysed. They refer to non-equity terms and relations between enterprises, strategic alliances, network partnerships, joint ventures for joint business, Mergers and Acquisitions (M & A), fusions, consolidations, acquisitions. Special attention is devoted also to management of partnership relations.

Strategic partnerships are also influenced by the current form of management. Management science has responded to the need for training and the operation of the partnership. The biggest impact of the partnerships was on strategic management and strategic marketing. They have been able to convey their meaning and significance. The apparent importance became strategic and marketing analyses and a strategic controlling. Along strategic and marketing management the partnerships have influenced also management of human relations and human sources. Thus the publication is useful for students in the MSc. Study of management and marketing as well as for entrepreneurial business operating also in the foreign markets. It offers the opportunity to get oriented in the current understanding of strategic partnerships, as they are presented and interpreted in the science of management.

Maroš Finka

# ALLIANCE OF CHINESE AND CENTRAL EUROPEAN UNIVERSITIES FOR THE SMART SUSTAINABLE DEVELOPMENT AND INNOVATIONS (SSDIA)


Fig. 1 **Prof. Li Junxiang and Prof. Maros Finka at the ECNU Shanghai meeting in 2017.** *Photo: V. Ondrejička*

The Smart Sustainable Development and Innovations Alliance of Chinese and Central European universities (SSDIA) was established by signing the Memorandum of Understanding between grounding institutions East China Normal University from Shanghai and Slovak University of Technology from Bratislava. This Alliance is a non-formal alliance allying top science and technology universities of China and Europe on a voluntary basis following the United Nations Organization goals and principles of sustainable development and New Urban Agenda.

The work of the SSDIA is focused on transnational collaboration in the research and development interlinking social, environmental and technology innovations in reaction to the most pressing problems of current spatial development. In the last decades, increased global pressure of urbanization processes, technological development in the production sectors, services as well as settlement infrastructure and request to safeguard equal access to the quality of life have derived growing demand on all kind of resources - water, fuels, raw materials, soil and others. This caused confrontation of the development dynamics not only with the limits of non-renewable resources but also with the restoration/rehabilitation capacities of renewable resources and with the limits of natural ecosystems to tackle the side effects of human activities. This critical situation does not concern only urban ecosystems, although especially they are exposed to enormous pressure. In addition the process of urbanization is no more only the problem of growing cities, but more and more of urban agglomerations and interaction between cities and agglomerations and their surrounding areas. Moreover, urban population has to be perceived not as the population officially living in the cities, but as population with urban life styles, population whose activities are predominantly bound on urban environment (e.g. daily commuting, living in the suburban villages or informal urban and suburban settlements).

This is very important especially because it determines character of interactions in urban and urban-rural systems influenced predominantly by character of work and human activities directly linked to life style. Intensity, density and character of interactions in these systems can be

Fig. 2 **Prof. Li Junxiang and Prof. Maros Finka at the ECNU Shanghai meeting in 2017**. *Photo: V. Ondrejička*

conceptually grasped in their complexity only if the complex systems of city and agglomerations are understood as socio-ecological systems.

In this context the problem of restoration and rehabilitation of urban ecosystems can be solved only in the context of complex transformation of socio-ecological systems of cities, their agglomerations and functional areas based on smart modes of all activities and aspects of their development and functioning starting with sustainable efficient use of all resources, the production activities, via ecosystem services, technical and social infrastructure, transport, housing and leisure time activities and tourism, ending with proper innovative modes of their governance. The concept of smart cities belongs to main stream concepts in urban development in the EU and World and is broadly supported by the European Commission (e.g. via the European Innovation Partnership on Smart Cities and Communities EIP-SCC). The concept of "smartness" in the context of smart cities needs to be strengthened in its going beyond simple implementation of the ICT and other advanced innovative technologies or "intelligent" urban transport networks.

Advanced smart urban development concepts are focused on smart use of resources including energy and territory, smart production and transport modes lowering air pollutions, noise, waste, water pollutions, radiation and waste heat. One of the main features is the integration of different innovative approaches focusing on solving partial problems of a city and its suburban areas, interactive, sensitive, reflective urban and regional governance, more safe public spaces and satisfaction of the needs of all citizens, entrepreneurs and other stakeholders across different age and social groups. But in many cases, this concept is unfortunately deformed by its limitation to cities and by its narrow understanding in high-tech implications in the development and functioning of the cities´ infrastructure and transport.

Fig. 3 **Chongming island**. *Photo: V. Ondrejička*

Important part of the smart urban development concepts is its ability to react flexibly to current and future challenges and adaptation to the needs resulting from other external and internal impulses like climate change, development of the global economy and its volatility, globalisation and internationalisation and others. This is possible only by using innovative approaches in urban development underpinned by functioning smart governance system safeguarding proper flexibility, swift reaction, efficient and effective solutions and optimal decision combining long-term sustainability with short term adaptation ability. That is why the SSDIA focused on smart approaches are based on:

- Innovative use of knowledge on natural processes (e.g. on restoration and rehabilitation of ecosystems)
- Use of high-technologies for their research, research of possibilities for their use and support.
- Reflection of awareness about dynamics and difficult predictability of shocks and development trajectories in the governance modes based on process management instead of traditional planning approaches.
- Reflection of awareness about dimension and complexity of the urban socio- ecological systems not allowing efficient use of traditional descriptive complex models as management tools requires innovative approaches to the modelling using the knowledge form synergetic as the empirical study of systems in transformation, with an emphasis on total system behaviour unpredicted by the behaviour of any isolated components, including humanity's role as both participant and observer.

The SSDIA is open platform for cooperation of all academic institutions in China and Europe following the goals and principles of the work of SSCIA willing to promote international research cooperation including joint research and technology transfer, educational activities, international scientific events and publishing, cultivation of talents and to contribute to socio-economic development and China-European cooperation.

Fig. 4 **Chongming island**. *Photo: V. Ondrejička*

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**Next Issue:**
Next issue will be devoted to the results of the INTERREG CE TRANSGREEN project.

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