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Planning Studies

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FOREWORD

It is my pleasure to present the new issue of TERRA SPECTRA to you, which is devoted to the project management in an international context. Project management is characteristic with its structuring and its effective functioning significantly affects the economy as a whole and creates conditions to exploit the potential and development of territory. It is a prerequisite and objective of interest of successful investment of development and financial companies. For example, last two years in the Slovak Republic are characterized by significant increases in volumes of investments primarily in construction of shopping centers and office space, not only in Bratislava but also in smaller towns.

The project management, its funding and relating activities are closely intertwined with the main focus of the magazine - the issue of spatial planning and territorial development. Only a few scientific journals in Slovakia currently deal with the issue. For this reason, one issue per year of the journal TERRA SPECTRA is devoted to the issue of the project management. Published contributions will focus on the current problems of the project management, as well as other factors acting in a rapidly changing globalized world, thus contributing to a better understanding of this issue.

Part of the project management is its practical implementation. There are many R&D approaches but the focus of this issue is to transfer this process into those steps that really impact the project development and in practice lead to influencing the quality of life in the underdeveloped regions. This experience is also important for construction companies that during the financial crisis reported a large drop in productivity.

Planning of many projects were halted, demand for project implementation was reduced which in turn affected the economy, especially medium and small (regional) construction companies. While most construction companies responded to the arising unfavorable economic situation by reducing its own staff and rationalization of production costs, some construction companies have sought to address the critical situation in time and actively, which is presented by the example from the Czech Republic.

Currently, the urgent issue is the problem with spatial resilience in the development. In current issue of the journal TERRA SPECTRA we dedicated space for discussion about new scientific knowledge and results from this area.

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PROJECT PIPELINE MANAGEMENT

Introduction

The most important step in project portfolio management is making right project choices, especially, choosing which projects to fund and which not to fund. Organizations are facing increasing internal and external pressures to cut costs, and more changing demands. In some organizations, doing just the projects viewed "must do's" would require more resources than the organization can provide. In order to make the best use of limited resources, the project portfolio management office must determine which projects to initiate, which projects to revamp, and which projects to not to make.

Project management in today's global markets requires an entirely new blend of management and technical skills. The project manager of this century can no longer be solely the technical or business expert in change of a particular product, service, or functional activity. Pipeline management is the process of controlling the initiation of projects and managing the flow of projects through the product development pipeline. Effective project portfolio management and project resource planning and management is the starting point to preventing common problems with too many new product development or product upgrade projects in the pipeline.

Pipeline management

This is the determination of whether, and how a set of projects in the portfolio can be executed by a project with finite development resources in a specified time. Fundamental to pipeline management is the ability to align the decision-making process for estimating and selecting new capital investment projects with the strategic plan.

Definition of pipeline: Activity, item of information, material, or product that is between the starting point and the completion point is in pipeline. The pipeline contain a vast amount of information that flowing in both directions.

Definition of Pipeline Management: Cross-project management of all activities associated with a particular set of objectives (therefore managing different projects related to all of the activities that are linked to a certain of goals). Project management is the art of directing and coordinating human and material resources throughout the life of a project by using modern management techniques to achieve predetermined objectives of scope, cost, time, quality and participation satisfaction (Kester, 2011).

THE PROJECT PIPELINE PROCESS

Project and portfolio management is a formal approach that an organization can use to orchestrate, prioritize and benefit from projects. This approach examines the risk-reward of each project, the available funds, the likelihood of a project's duration, and the expected outcomes. A group of decision makers within an organization evaluates the returns, benefits and prioritization of each project to determine the best way to invest the organization's capital and human resources. Throughout the pipeline process, portfolio priorities are constantly evaluated and adjusted, Figure 1:
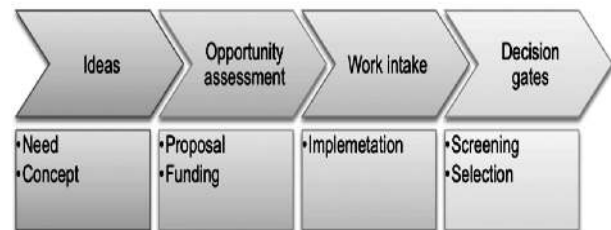
Figure 1: **Project pipeline process map**

The project management office is typically responsible for pipeline management, which focuses organizational resources on optimizing the concept-to-completion cycle time. (Termini, 2009). Foundation of identification project is need (analysis needs), where we can use the following methods:

- Brainstorm
- Strategy assessments regional and national institutions
- Drafting SWOT
- Forecasts or scenarios: infrastructure, investment climate, and regional economy.

Another activity is elaborated by a concept formed:

- Communication: written materials, webpage, workshops, meetings, and road shows
- Providing the framework: budget, eligibility rules, etc.
- Screening the project ideas and feed back
- Providing support to follow up
- Monitoring, drafting process and reacting
- Pre-selection of eligible and feasible project concepts.

Pipeline Management allows:

- Manage the number of projects in the pipeline and their release to avoid overloading resources and increasing work in process.
- Focus resources on highest priority projects to finish sooner; don't start other projects until resources become available.

STEPS PROJECT PIPELINE MANAGEMENT

Project pipeline management is an important component of project portfolio management because it encompasses the work needed to select the right projects. Pipeline management involves steps to ensure that an adequate number of project proposals are generated, evaluated, and screened out at various stages of the intake process that meet strategic objectives. There are four major sub-components to pipeline management: ideation, work in-take processes, and decision gates reviews illustrated in the Figure 2.

Figure 2: **Sub-components to pipeline management**

Ideation is the process by which new project ideas are generated. This is slightly different from the work in-take process by which project requests are formally brought forward to a governance board. Ideation is important for col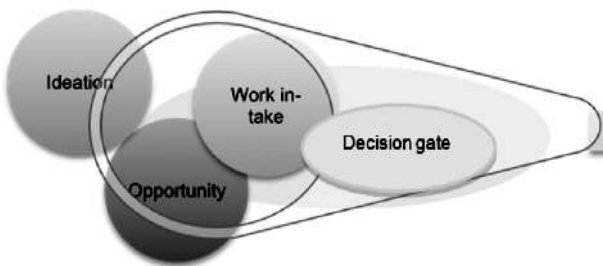lecting the best ideas from the organization, for collecting a sufficient number of project proposals to generate higher quality projects, and to maintain a healthy organization by engaging employees to submit their ideas.

Opportunity management complements ideation and further strengthens the project selection process. Some ideas may be great, but for one reason or another, the timing is not right or some other constraint makes the execution of the idea difficult or impossible. For this reason, organizations should establish a parking lot of good ideas waiting to enter the project pipeline (Denney, 2005). This lot is really a collection of all of the opportunities waiting to be captured. The processes for managing opportunities are similar to the processes for managing risks except that opportunities are future events that could produce positive outcomes for the organization. Opportunities often fall into the "should do" or "could do" categories, but enable organizations to achieve more or perform better than planned. Without an opportunity management process, organizations risk losing visibility of potentially beneficial future projects.

The work intake process refers to the steps of developing a project proposal and bringing it to the governance board for a decision. This process works in conjunction with both ideation and decision gates, but can also be a standalone process. When used with ideation and Decision gates, the work intake process helps bridge these other two processes together (Rajegopal, 2007). The work intake process is important so that all project proposals are created in a consistent manner with common tools and processes. The unintended consequences of not having a work intake process include organizational confusion, time delays, and quality erosion.

The question today is whether project pipeline resembles a funnel or a tunnel. In theory, as projects pass through the work intake process, those that do not meet key criteria or are deemed of lower value should be screened out. This would cause the project pipeline to look more like a tunnel or funnel, Figure 3., and Figure 4.

Figure 3: **Project pipeline to tunnel**
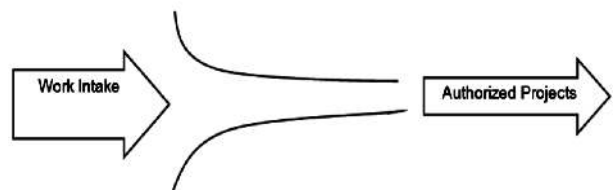
Figure 4: **Project pipeline to funnel**

In a future post we may explore success factors for managing the project pipeline, but for now it is sufficient to highlight two success factors: strong strategic leadership and clear screening criteria. When senior leaders can say "no" to projects for the right reasons, this will foster a leaner project pipeline and healthier project portfolio. Clear screening criteria make it easier for senior leadership to say no to misaligned projects, which requires a solid understanding of organizational goals and objectives.

Decision gates are a critical component of pipeline management. A winning portfolio must contain winning projects; therefore the portfolio management team must be able to discriminate between good projects and great projects (Sanwal, 2007). The decision gate process enables the portfolio management team to review these projects based on preselected strategic criteria at the gate reviews of the decision gate process. At each of those gates, important project information is provided to the Portfolio Management Team to make a (yes or not) decision related to the project. Without this mechanism, unnecessary or poorly planned projects can enter the

Category	Importance	Competitive Advantage	Time	Cost	Risk	Expected Benefit	Final Ranking
Programmes							
Project X	4	5	5	3	3	1	3,5
Project Y	1	2	2	3	4	2	2,3
Infrastructure							
Project Light	1	3	4	4	2	1	2,5
Project Green	2	2	5	4	3	4	3,3
Products							
Project A	4	5	5	5	5	3	4,5
Project B	2	4	4	5	4	2	3,5

Table 1: **Pipeline portfolio ranking analysis**
(*Source: Termini, 2009*)

portfolio and bog down the workload of the organization, hampering the benefits realized from truly important and strategic projects.

Screen out misaligned projects. A Decision gates process functions as a filter to screen out poorly aligned projects. Every organization will have more projects than it can execute, which requires the Portfolio Management Team to carefully select which project enter the portfolio. Some projects may look good on paper but are completely misaligned from the organizational objectives and strategies. When organizations have well established evaluation criteria, decision gates are an excellent way of filtering out these misaligned projects.

Control the flow of incoming work. Decision gate are also a valve to control the number of projects entering into the portfolio. Even if every proposed project is a winner, the organization still has limited capacity to execute the work. Therefore, projects need to be initiated at the right time so that the organization is not overloaded with work. This process works in parallel with portfolio planning to authorize projects at the right time.

Enables management to direct the scope of project work. Decision gates reviews afford senior management an opportunity to direct the scope of projects. There will almost always be more than one way to execute a project. Mature and successful organizations review the statement of work for each project and identify must have versus nice to have components of scope. This is important because it gives the portfolio management team options when selection projects and does not force them into making all or nothing decisions.

Evaluate and prioritize workload. Decision gates processes provide decision makers with project deliverables that contain key project information. The deliverables themselves ensure consistency in the process and helps ensure that a good project plan is in place. This information also directly feeds the prioritization process.

Without good project information, prioritization is inconsistent and poorly conducted. This information also helps the portfolio management team commit the right resources to the right projects at the right time.

According Termini (2009) throughout the pipeline management process, portfolio priorities are constantly evaluated and adjusted. This is done to maximize the performance of the entire portfolio, as well as reduce the risk that one or more projects will fail to meet expected/ committed performance levels and, by so doing, compromise the entire portfolio (Table 1: illustrates a typical portfolio analysis).

In this example, the final ranking reflects the current priorisation or sequencing in the portfolio, lowest score represents the project with the least risk in meeting all portfolio objective (Termini, 2009). Using this score carding methodology within the pipeline helps to maintain focus on the portfolio's priorities and organizational resource needs. At each decision gates review, actual portfolio and project performance is compared against the plan, then makes the decision to:

- move the project forward to the next stage of the project life or development cycle,
- re-direct the project through a change in scope, schedule, resources, or leadership,
- cancel the project outright and move another bullpen project into the pipeline to compensate for the loss of the failed project.

These questions are asked during a typical decision gates assessment (Termini, 2009). While each organisation will employ unique questions of their own design, the following provides a basis of understanding with which to illustrate how the actual process works.

Conclusions

Project pipeline management is an important component of project portfolio management and involves steps to ensure that organisation an adequate number of projects are being evaluated and screened out at various stages of the intake process to meet strategic objectives. Other factors such as budget and resource capacity also come into play so that the organization is not overloaded with work, which can be a risk factor for completing organizational and strategic goals.

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Attila Tóth

THE SPATIAL RESILIENCE OF SOCIO-ECOLOGICAL SYSTEMS IN TERMS OF A VARIETY OF STAKEHOLDERS - CASE STUDY OF RIVER IPEL

Introduction

The socio-ecological resilience in context of territory is a significant component of regional development and a territorial management of vulnerable area as economically weakened cross-border areas. Due to climatic changes there were started many changes within technical, environmental, economic and also safety issues. This research of spatial resilience was focused on mutual relationship among various stakeholders. Main literature defined a concept of resilience for socio-ecological systems (SESs), that views events more within regional context than within local context (Holling, 1973, p. 21). These SESs contain ecological and also human elements, and create complex system (Cumming, 2011), which create a territorial capital by territorial units. On socio-ecological systems was taken account as Complex adaptive system's (CAS's), which are driven especially from the „bottom-up" through local interactions and measures among varied stakeholders (Bristow & Healy, 2013, p. 11). By these relationships is influential key in form of communication as element for finding an innovative solution in civil society. There was also included the last definition for socio-ecological resilience as 'the capacity of a system to absorb disturbance and re-organize while undergoing change so as to still retain essentially the same function, structure, identity and feedbacks' (Walker, et al., 2004).

In the concept of resilience by SESs is connected a human sphere with a natural sphere through decisions, interactions and human activities. This research was good opportunity for participation on spatial decisions with various local stakeholders in five groups as Authority of communities (Mayors), Residents, Local entrepreneurs, Environmentalists, and "Stakeholders of nature" (Farmers, Rangers and Fishermen). The process of participation can have four forms: communication, cooperation, coordination and collaboration (Jankowski & Nyerges, 2001), whereby the field research was focused on individual interests without communication, subsequently also on communication and collaboration. The key element of collaborative spatial decision processes is using of maps (Nyerges, et al., 2011, p. 114), which was presented in form of a blind map with identified areas of urban area, forests, lakes and also areas according to the degree of soil quality.

According to LUCIS model (Carr & Zwick, 2007, p. 11) by which was inspired this procedure for a measure of regional resilience and a mutual relationships and also conflicts among five different stakeholders in same cadastre of model area – territory in the surrounding of cross-border's river Ipel (part of Euroregion Neogradiensis).

For this article, the research questions were specified as:

- Which relationships and processes in the area are relevant for resilience and capacity of adaptability, particularly towards unexpected disturbances?
- What are conditional specifics of processes of territorial management and of land-use patterns in cross-borders area in terms of the resilience and the capacity of adaptability?
- Which groups of stakeholders are relevant in the territorial management in terms of the resilience and the capacity of adaptability?

The results of the research can help with measurement of spatial resilience, which is important for assessment of the preparedness in case of natural disasters (e.g. floods or landslides) in particular cadastres.

The article is divided into four parts. First part is focused on literature review. In second part is presented the conceptual framework. Third part introduces a model area and it explains used methods. The last part explains the results of the field research in mutual context of relationship with literature review, the contribution for academic and municipal sphere by decision making and clarifies the changes and recommendation for next research.

Literature review

THE DEVELOPMENT WITHIN THE CONCEPT OF RESILIENCE

The concept of socio-ecological resilience was developed from 60'- 70'years, when this approach emerged from ecology studies of interacting populations. Nowadays there are existing many kinds of resilience according to disciplines (tab. 1). Holling emphasizes two views on ecological system. The first was the stability view, through which the equilibrium of the maintenance of a predictable world and about harvesting of natural sources with only a little fluctuation. In this viewpoint was extended on multiple equilibrium states (1986), where it was emphasized nonlinear causation, spatial heterogeneity and variability by the existence of more than one stable state (Holling, 1986, p. 72). Secondly, the resilience view was about persistence and domains of attraction and a regional context and heterogeneity was emphasized (Holling, 1973, p. 21).

Resilience concepts	Characteristics	Focus on	Context
Engineering resilience	Return time efficiency	Recovery, Constancy	Vicinity of a stable equilibrium
Ecological/ ecosystem resilience, Social resilience	Buffer capacity withstand shock	Persistence, robustness	Multiple equilibrium
Social – ecological resilience	Interplay disturbance and reorganization sustaining and developing	Adaptive capacity, transformability, learning, innovation	Cross-scale dynamics interactions

Tab. 1: **A sequence of resilience concepts, from the more narrow interpretation to the broader social–ecological context**
(*Domptail, et al., 2010*)

The last definition of resilience that is 'the capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks' (Walker, et al., 2004). Resilience presents 'the boundary of a stability domain and events far from equilibrium, high variability, and adaptation to change' (Holling, 1986, p. 76), and therefore low stability (Holling, 1986, p. 97) and various kind of diversity form available conditions for a high resilience.

Adger defines social resilience as the ability of groups or communities to cope with external stresses and disturbance (Adger, 2000), and therefore it will be relevant to consider diversity of various stakeholders within decision-making process as important element for higher (spatial) resilience by a peripheral regions as are cross-border areas. On the other hand, 'adaptability is the capacity of actors in the system to influence resilience' (Walker, et al., 2004). This collective capacity of SES is 'to manage resilience, intentionally, determines whether they can successfully avoid crossing into an undesirable system regime, or succeed in crossing back into a desirable one ' (Walker, et al., 2004).

ADAPTIVE CYCLES AND PANARCHY

The dynamics of development within socio-ecological systems is represented in form of four stages of adaptive cycle, which are (Holling, 1986, p. 95):

- Exploitation (r-phase);
- Conservation (k-phase);
- Creative destruction (omega-phase);
- Renewal (alpha-phase).

Within the dynamics of adaptive cycle within SESs initial stages a growth and exploitation phase (r) are merging into a slow conservation phase (K), whereby the dynamics of the system are predictable. As the K phase unceasingly continues, resources become increasingly locked up and this system becomes less flexible and more rigid to external disturbances. The state of rigidity is followed by a chaotic collapse during phase of creative destruction (Ω) that rapidly gives way to a phase of renewal (alpha phase) with innovation and new opportunities due to windows of opportunity (Holling, 2001, p. 397).
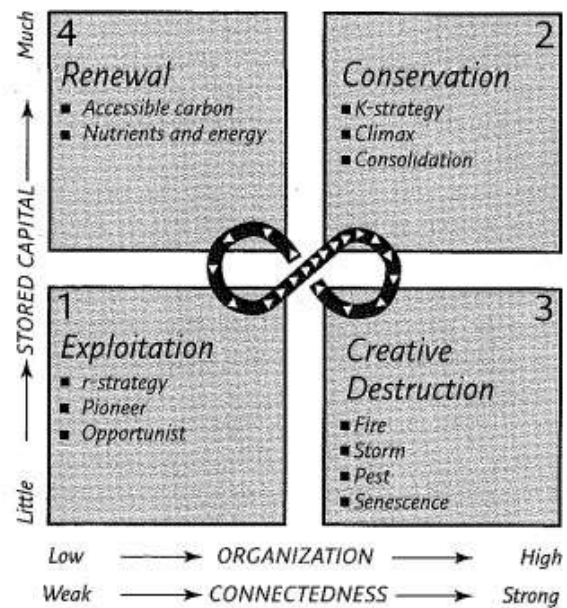
Fig. 1: **The four ecosystem functions and their relationship to the amount of stored capital and the degree of connectedness**
(*Holling, 1986, p. 95*)

By these last two stages (phase of creative destruction (Ω) and alpha phase of renewal) the backloop can arise unexpectedly, which moves the adaptive cycles to previous below or above degree of system's development (Holling, 1973).

System can be moved from conservation phase to using of sources, or from phase of renewal to phase of creative destruction through the backloop (Walker, et al., 2004). This concept of panarchy represents a theory of nested set of adaptive cycles (Holling, 2001, p. 396).

Two potential loops (Dawley, et al., 2010, p. 659) for that influence resilience during self-organization (adaptive governance)' (Walker, et al., 2004) are:

- Reorganisation-Exploitation-Conservation – stabilisation of a growth path
- Conservation-Release-Reorganisation – opening up of new growth opportunities
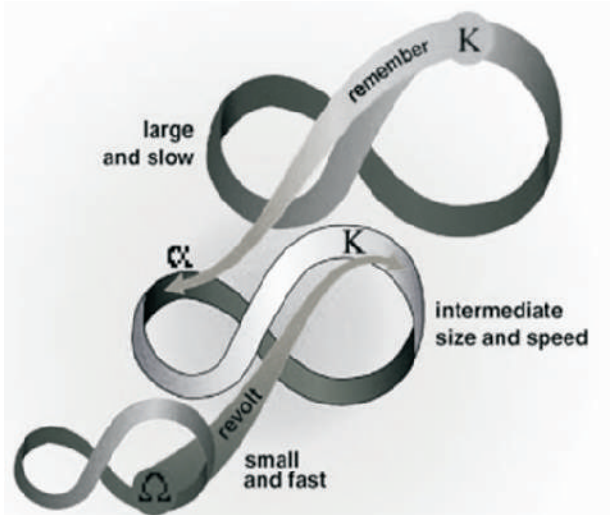
Fig. 2: **The dynamics of SESs: Panarchical connections** (*Folke, 2006*)

There are two main characteristics for panarchy; whereby the first is about importance of adaptive cycles, the second characteristics is about the connections among various degree of systems through loops "revolt" and "remember" (Holling, 2001, p. 398). Loop "remember" is contributing to changes and renewal, and on the other hand loop "revolt" can move the whole system to new higher and slower degree (Holling, 2001, p. 398).

Goldstone (1991) obtained the wave of revolutions in Eurasia. He expected that political decays were due to various crises at several different degrees of society and a cascading effect within the various degrees of panarchy (Holling, 2001, p. 399). Thence tight dependency of socio-ecological elements is not appropriate for sustainable development, and decentralization is needed within public administration through vertical relationships.

THE RELATIONSHIPS AMONG CONNECTEDNESS, RESILIENCE AND POTENTIAL

Why are there systems that are maladaptive? Either the systems are in bad conditions or conversely systems are in well-being. According to Holling it is desirable to measure connectedness, resilience and potential (stored capital), which was presented within features of the model within the four ecosystem functions in adaptive cycles.

First situation can be understandable due to missing or exhausted sources (as territorial capital). This poverty trap arises in case if system has too low potential, low resilience and also low connectedness, according to model of maladaptive system (Holling, 2001, p. 400). In the second situation, systems in positive conditions should lose the ability of perception of changes, creation of countermeasures, and become maladaptive as various civilizations or companies (e.g. NOKIA).

Fig. 3: **Maladaptive systems** (*Holling, 2001, p. 400*)

On the other hand, the high resilience presents a large ability to resist external disturbances and persist, also beyond the point where the system is adaptive and creative (Holling, 2001, p. 400). Furthermore the system should have a high potential due to accumulated sources and wealth of territorial capital. If the system has a high connectedness (among institutions or influential people) it has a tendency for a great social control, which degrades a creativity and adaptability. In case of a system, which has all these three features (high resilience, high connectedness and high potential), this system can represent even a rigidity trap (Holling, 2001, p. 400). It is evidence of an affirmation (Walker, et al., 2004) that the resilience is not always only a good thing. 'Sometimes change is desirable, generally at larger scales, and then effective management requires overcoming the resilience in the system to precipitate changes' (Walker, et al., 2004). Therefore these three features (potential, connectedness and resilience) will be needed to monitor as indicators of adaptability.

INFLUENCE OF HIERARCHY SYSTEM AT THE RESILIENCE OF SOCIO-ECOLOGICAL SYSTEMS

System of hierarchy or heterarchy plays a great role in form of the impact on the perception of risk especially by slow changes at higher scale (Holling, 2001, p. 399), political regimes with their rules and laws, an impact on variability (Cumming & Peterson, 2005, pp. 45-70) (Domptail, et al., 2013), impact of the resilience (Cumming & Peterson, 2005, pp. 45-70) (Holling & Meffe, 1996), because 'actions aiming at enhancing stability or durability by masking shocks and stresses supporting a rigid management' (Roe, et al., 1998) (Domptail, 2011)

(Domptail, et al., 2013) and 'may create a de-coupling between the system and its environment, itself characterized by variability' (Roe, et al., 1998) (Domptail, 2011) (Domptail, et al., 2013).

On the other hand, simultaneous crises at several different organizational levels in society would cause a political breakdown (Holling, 2001, p. 399) of maladaptive systems, and therefore these systems with their structures will be changed. For the adaptability and the resilience sensitivity is important which provides a perception of risk within the quality or also opportunity (Gallopín, 2006, p. 300).

The centralized system with higher connectedness, strong hierarchy and social control, regulations of resource-use are highly centralized at the national scale and applied without consideration of local social-ecological conditions (Weyerhaeuser, et al., 2005) (Trac, et al., 2007) (Xu & Melick, 2007) (Urgenson, et al., 2010).

On the other side, within heterarchy due to multilevel decision making it is easier to re-arrange the structure within these complex systems than by centralised system, and therefore is more self-organised. 'These are systems that are characterized by complex non-linear dynamics and an adaptive capacity that enables them to rearrange their internal structure spontaneously whether in response to an external or to some internal shock , in relation to 'self-organised criticality' (Martin & Sunley, 2007) (Bristow & Healy, 2013, p. 2). Ostrom (1998) claims that, 'decentralised and devolved local governance structures ("polycentric institutions") can address environmental problems more readily than centralised governance' (Ostrom, 1998), because they 'have a greater variety of response capabilities' (Ostrom, 1998) (Cumming, 2011), and 'can encourage innovation and experimentation by allowing a diversity of problem-solving approaches to develop' (Imperial, 2004) (Cumming, 2011). It is necessary to establish and support the management in the direction of bottom-up, to maintain the feedback system between levels, to prevent some cascading fall of this system, and also to respect the diverse needs of stakeholders.

THREE LEVEL OF SPATIAL RESILIENCE

According to Cumming, resilience of SESs has three levels (Cumming, 2011, p. 48) which imitate a human society. The highest level is global resilience of SES, which was derived partly from local and regional resilience. This level of resilience include cross-scale interactions plus some unique whole system properties, and in context of spatial management is represented particularly by national and supranational level of decision making. Middle level is regional resilience of SES, which is derived partly from global and local resilience. This level of resilience includes additional cross-scale elements (context and local system footprints, spatial feedbacks and subsidies, regional perturbations and rivers, connections between local system and connections to other regions.

According to Holling is this relevant level for research of resilience due to the domains of attraction and their regional context and heterogeneity (Holling, 1973, p. 21).

The local resilience of SESs as the lowest level is derived partly from global and regional resilience. The local resilience consists of spatial resilience (arrangement of parts, system morphology, boundaries, phase differences and location properties) and identity (components, relationship, innovation, adaptation, continuity and memory, thresholds and local perturbations) (Cumming, 2011, p. 48). Within local resilience it is possible to mention community resilience, whose quality is dependent on a state of these three components: environmental capital, social capital and economic capital, fig. 4 (Wilson, 2012) on communal scale that together creates the territorial capital. But these attributes have impact also on regional and global resilience, and therefore by this article there was defined the common terminology as spatial resilience of socio-ecological systems, and not only as the community resilience. While environmental capital is not simple and sustainably suggestible, the economic and social capital appear to be elements which play the key role to more resilient SESs in sight of governance. Furthermore, it will be more suited to say rather about hard components (natural and technical elements) and about soft components (socio-economic elements which are within social and economic capital).
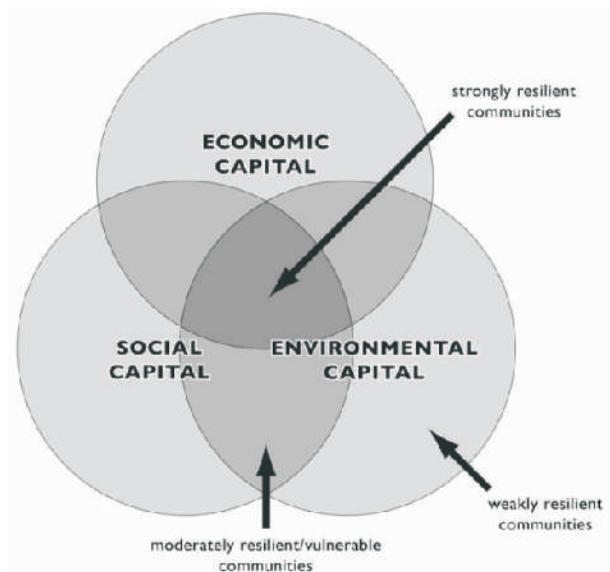
Fig. 4: **Community resilience, vulnerability, and economic, social and environmental** (*Wilson, 2012*)

SOFT COMPONENTS OF RESILIENCE BY CROSS-BORDER REGIONS

However, within poor cross-border regions (as also SESs) it will be beneficial, if the resilience would be strengthened in these areas. These peripheral regions are in poverty trap very often; or at least they have not a good attribute of connectedness and in relation of soft

components. The improvement of their situation could be reached through the support from various stakeholders as part of social capital within decision making (in terms of social resilience as the ability of groups or communities to cope with external stresses and disturbance (Adger, 2000). Also, an adaptive governance framework is based on the collaboration of various set of stakeholders within multi-level institutions and organisations (Olsson, et al., 2004). Various stakeholders in form of individual actors play roles in providing elements of community as leadership, social relations, vision and meaning, local knowledge systems and social memory (Folke, 2006, p. 262). Walker (2002) claims that, 'how the social-ecological system respond on local preferences and the extent to which local adaptive capacity, exhibited through memory, creativity, innovation, flexibility, and diversity of ecological components and human capabilities' (Walker, et al., 2002). Thus, 'the flexibility of rules, efficient use of local knowledge, self-organisation, and legitimacy of an increased number of decision-making actors may create the prerequisite conditions for renewal, and increase the adaptive response to external disturbances' (Finka & Kluvankova, 2014).

It appears that social memory, social relationship (in form of peace or conflicts), diversity of stakeholders, local adaptive capacity with local knowledge and self-organisation play a principal role by spatial resilience to external disturbances. The social memory is formed from accumulated experience and development of the system, and 'it provides context and sources for renewal, recombination, innovation, novelty and self-organization following disturbance' (Folke, 2006, p. 259). However, also social learning is a phenomenon of strong local social cohesion and mechanism for collective action in form of institutional policy for future events as expression of social memory (Cutter, et al., 2008, p. 603).

There are certain social relationships are among stakeholders, and so they can influence spatial resilience (Cumming, 2011, p. 197), thus social exclusion, marginalisation and inequity can start conflicts (Cumming, 2011, p. 195). Also, conflict is more likely in poor regions with 'low levels of education, strong relative deprivation regarding household assets, strong intraregional inequalities, and the combined presence of natural resources and relative deprivation' (Ostby, et al., 2009) (Cumming, 2011, p. 193). Due to self interests of various stakeholders there are many conflicts due to self-interests.

'Self-organization is a process in which the pattern at the global level of a system emerges solely from numerous interactions among the lower-level components of the system. Moreover, the rules specifying interactions among the system's components are executed using only local information, without reference to the global pattern. To summarize, the pattern is an emergent property of the system, rather than a property imposed on the system by an external ordering influence' (Camazine, 2003).

The local adaptive capacity and local knowledge depend on social capital (social networks) and social memory (Olick & Robbins, 1998). For research and work with local knowledge is important also work with emotions as determinant of risk perception (Sjöberg, 2006) e.g. in form of sense of security and attractiveness of territory.

Also 'social fragmentation often tends to increase regional, social and cultural diversity, hence increasing rather than reducing the number of ways that a system can respond to new challenges. Conversely, social resilience is also dependent on collective action and social fragmentation may reduce system resilience by reducing the ability of societies to respond collectively to change' (Cumming, 2011, p. 197).

Self-organising processes are often strongly dependent on feedbacks between system components (Levin, 1999) which are created during evolution (robustness against disturbances from past) and during ontogenesis (resilience against actual or future's disturbances based on self-learning). Also by cross-border cooperation there are self-organising processes, but are more difficult in case when local authorities in different countries have dissimilar competencies or resources (Bache & Flinders, 2004). According to Chobotova (2009) for good institutional setting with equitable decision-making it is essential to have access to enough information, accountability of competent officials and rules for participation, coordination, partnership, and for information management (Chobotová, 2009). It will be measurable as the satisfaction with superordinate institutions.

The character of these self-organising processes in society and in socio-ecological systems is reflected through the way of land use and trough capacity of adaptability according to new conditions. 'Land-use is influenced both by societal and environmental processes and patterns' (Breuste & Pauleit, 2011). 'Changes in land use and land cover in turn impact ecosystems and ecosystem services' (Cumming, 2011, p. 198), and are outputs of quality within the bi-directional socio-ecological relations.
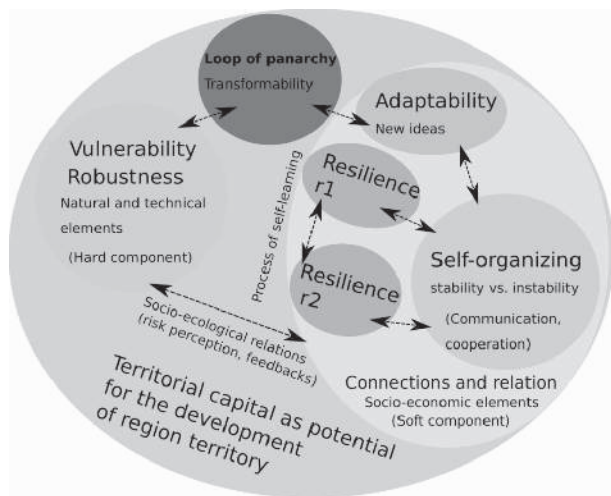
The conceptual framework

Fig. 5: **The conceptual framework of functional relationships within theoretical model of resilience**

The conceptual framework was created from issued theoretical proposition to relationships among the resilience, the robustness, the capacity of adaptability and the vulnerability. Also significant starting point was the relationships among the resilience, the connectedness and the potential, which can relate to maladaptive systems (Holling, 2001, p. 395). Original idea from Holling was transformed to this model of functional relationships within theoretical model of resilience, and there was also incorporated the theory from Wilson about components of territorial capital at communal level. On the other hand, just economical capital as part of soft component can be presented in form of the bussiness network within a region, though Wilson comprehend economical capital as monetary and financial base of community. Furthermore, between soft and hard components of system there can be perceived socio-ecological relations, which determine the character of relationships among human activities and natural elements. These relationships are demonstrated in form of ecological changes as feedbacks.

The capacity of perceiving these feedbacks determines the quality of re-active and pro-active responds by socio-ecological systems. Lastly the final decisions are as secondarily feedbacks against changes and disturbances, which depends on the capacity of adaptability (discovery of new solutions), and also depend on self-organising processes (make decisions and put solutions into practice). Therefore the quality of social capital is very important, seeing that this inherent feature is not possible to import through support from the outside to processes of self-organising. If it would be on the contrary, importing of ideas from the outside can evoke massive questions and distrust. Then it is necessary to focus on the education of human capital and on enhancement of processes within the social capital.

If resilience is dependent on enhancement of quality by social and human capital, on capacity of perception for feedbacks within society, on socio-ecological relationships, on capacity of adaptability, than this resilience increases particularly through processes of self-learning against new disturbances. In situation of very high vulnerability, which exceeds thresholds of robustness and resilience, or capacity of adaptability (fails by discovering new solutions) in that manner arises a process of the transformability. This process of transformability as part of the panarchy can provide crossing from an actual form of SESs to other quality of state among adaptive cycles. These changes can be known as historic milestones within evolutions of SESs. On the other side, process of transformability can be compared to connection among vertical levels within hierarchy. Anyway some of the tasks are not solvable effectively (if ever) at the highest levels, and subsequently are solved within middle or the lowest level. On this base among multi-level governance performs also the principle of subsidiarity.

Case study of River Ipel

The chosen part of a catchment area of the cross-border river Ipeľ is more than 80 km long along the border between Slovakia (also as SK) and Hungary (also as HU). Field research was executed on base of information from literature review during theoretical research about spatial resilience. There were 7 villages selected in Slovakia (i.e. Kováčovce, Vrbovka, Slovenské Ďarmoty, Balog nad Ipľom, Ipeľské Predmostie, Ipeľský Sokolec and Pastovce), and 2 also towns and 5 villages in Hungary nearby the river Ipel (i.e. Szécsény, Balassagyarmat, Örhalom, Ipolyvece, Drégenypalánk, Tésa and Vámosmikola). This cross-border region was chosen because it belongs to poor parts of both countries (ESPON ATLAS, 2014) and also there were floods (SLOVENSKÝ VODOHOSPODÁRSKY PODNIK, š.p., 2010) and earthquakes frequently in last years (GeoRisk Kft., 2015).

Municipalities are situated mainly in these three areas. First group is created from villages from county Levice (SK) and Szób (HU), which are lying in down-stream of river Ipel (Ipeľský Sokolec, Pastovce and Vámosmikola) and are frequently impacted by floods. Second group of municipalities is composed from villages and towns in middle part of stream, which is close to wetlands within Ramsar Convention (Ipeľské Predmostie, Balog nad Ipľom, Slovenské Ďarmoty, Drégelypalánk, Ipolyvece and Balassagyarmat). In upper part of chosen area there are villages (Vrbovka, Kováčovce, Rapovce and Kiarov), because they are lying ahead of tributaries of bigger creeks. These villages are also within outstanding Kiarov's wetland and wetland in municipality Veľká nad Ipľom, that belong to special protection areas.
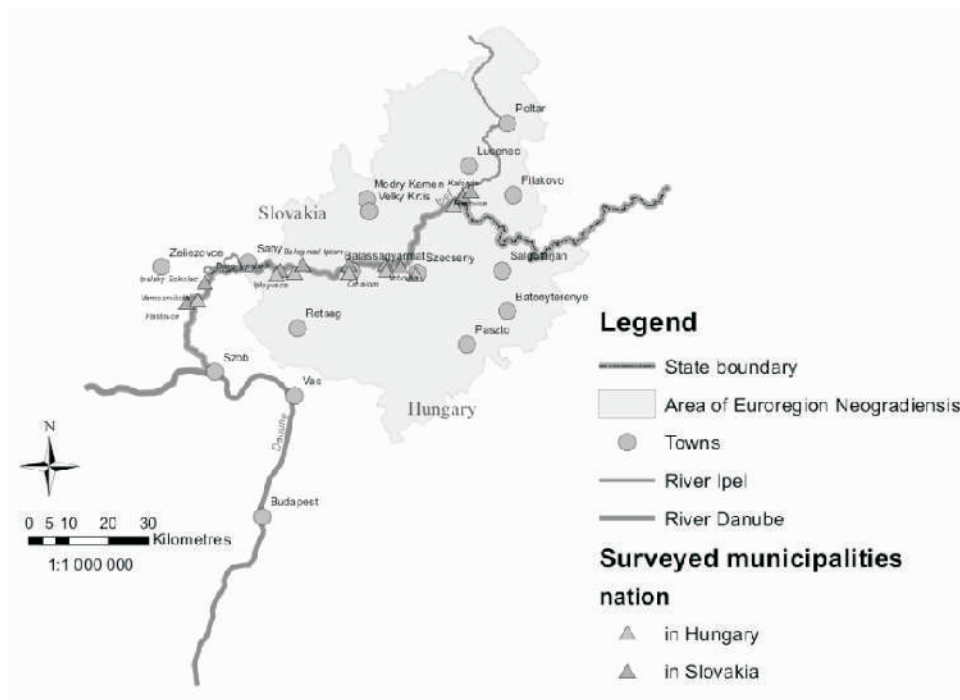
Fig. 6: **Model area - territory in the surrounding of cross-border's river Ipel**

Methodology and data collection

Within the issue of global changes and their aftereffects are usually analysed from individual scale through regional to continental scale, although these processes of changes are global. 'Cross-national and global comparisons are possible normally resulting in the aggregation of local information to broader spatial units, in contrast to the global change literature, where global processes are downscaled to assess their impacts on the local level' (Cutter, et al., 2008, p. 601).

Within the field research there was realized a bilingual workshop and research investigation with 32 residents on Slovak side of the border and with 20 residents on Hungarian side of the border, which was composited from various stakeholders in five groups such as Authority of communities (mayors), Residents, Local entrepreneurs, Environmentalists and Stakeholders of nature (as farmers, rangers and fishermen).

The workshop was composed of three rounds of land-use game. The territory of cadastre was divided within this game into a matrix of territorial homogeneous parts (patch-matrix paradigm) which are non-linear, and differ from its surroundings (Cumming, 2011, pp. 143-144).

This matrix was based on homogenous quality of soil on certain piece of area within chosen cadastre of village/town. Chosen unit was evaluated according to the relationship to its natural resource whereby it was inspired according to method LUCIS (Carr & Zwick, 2007) which is focused on self-interest of local stakeholders within these conflicts analyses.

In the first round of the land-use game there were tasks about individual localisation of simulated investments according to role and thereafter an identification of risks within graphically divided map according to the quality of soil – without measurable indication of this quality. Authority of communities had to localise the area for industrial concern (with dimension 45.000m2), and also educational institution/health facility (with dimension 2.500 – 5.000 m2) and wastewater treatment plant – if there is not one within municipality, or they do not have one planned for the next 30 years. The residents had to locate a residential complex with regards to individual municipality (with dimension 22.500 m2). Third group of stakeholders was local entrepreneurs, who had to localize new shops or new small industrial enterprises.

Since the environmentalists are not in all municipalities, environmentalists and „stakeholders of nature" had

Count of participants per country	Age From-To (average)	With finalized elementary school		With finalized secondary school		Finalized with academic degree	
		Abs.	%	Abs.	%	Abs.	%
Slovakia	32	46.21	1	3.12	19	59.37	12	37.5
Hungary	20	44.45	-	-	10	50	10	50
Total	52	45.53	1	1.92	29	55.76	22	42.30

Tab. 2: **The structure of participants in a workshop and research investigation according to education (n=52)**

common task in form of localising a lake with agricultural (with dimension 45.000 m2) and other countermeasures for environment improvement according to their identified needs.

Participants had to label for the chosen investments not only places, but also had to bind set a priority of selected places (from 1 to 9, where 1 was absolute unconcern, and 9 absolute concern according to their simulated investments). At the end of this first round of the game, participants had to identify and assess risks in individual cadastre according to local knowledge (from minimal 1 to maximal 9).

In the second round of land-use game, participants had individual situated investments from first round. Difference between first and second round was based on using the local knowledge about risks and also they had an access to information about measurable indication of the quality of soil. Participants were informed about meaning of the quality of soil for their local economy, biodiversity and how to use this map with measurable indication of quality. The quality of soil had values from 0 to 9 according to Slovak soil map, whereby 0 means built-up areas and others areas, which are not agricultural areas as e.g. forests. The quality of agricultural areas was measured from 1 to 9. The best soil by means of fertility is marked as 1, and the worst as 9. It was inspired by Slovak laws, because the quality of soil from 1 to 4 belongs to protected soils (it is a pity that only through advanced tax, but these are not blocked against new investments). Analysing of priority and conflicts was also inspired by LUCIS model (Carr & Zwick, 2007, p. 11), which evaluates the possible conflicts in an area. Thus, there was chosen the procedure for a measure of regional resilience and a mutual relationships and also conflicts among five different stakeholders in the same cadastre of model area – territory in the surrounding of cross-border river Ipel.

The third round was the last part of the workshop, and the main aim was communication among stakeholders and to solve potential conflicts, if different stakeholders had same preference for same piece of cadastre. Participant had an access to the same map with measurable indication of quality, to cadastral map and to historical map from period before first world war (A.D. 1806-1869) where there was noticed the authentic river-basin short of stream regulation. During third round there was a place for mutual sharing of the local knowledge on quality of soil and risks which are in the territory and also informal discussion. A common map was prepared in accordance to the discussion, where there were accepted preferences of all participants.

Also during workshop there was realised the research investigation of qualitative data with the same residents from these five groups of stakeholders through questionnaires. Because according to literature review, it appears to social memory, social relationship (in form of peace or conflicts), diversity of stakeholders, local adaptive capacity with local knowledge and self-organisation play a

principal role by spatial resilience to external disturbances, therefore these elements of the resilience was chosen for empirical research by qualitative analyses. This questionnaire was focused also on attributes of the spatial resilience as local economy, characteristics and occurrence of public-private activity, and satisfaction with the state of nature and with the state of spatial management.

Results

ANALYSES OF QUANTITATIVE DATA

Municipalities according to country (Slovakia as SK or Hungary as HU)	Number of the population in 2011	Total growth between 2001 and 2011, in %	Representation of minority groups (Romany population), in %	Uneducated persons, in %	Education index
Ipeľský Sokolec (SK)	861	2,090592	2,85	15,33%	148,345
Pastovce (SK)	528	-1,13636	0	14,01%	154,595
Ipeľské Predmostie (SK)	633	-2,21165	0	12,48%	156,83
Balog nad Ipľom (SK)	846	5,910165	0	15,60%	159,925
Slovenské Ďarmoty (SK)	565	1,061947	6,9	13,45%	143,705
Kovačovce (SK)	375	-4,8	0	12%	157,045
Vrbovka (SK)	363	-23,1405	0	11,29%	163,6
Kalonda (SK)	216	-11,5741	0,92	12,50%	168,95
Rapovce (SK)	979	8,588764	26,55	19,30%	148,165
Balassagyarmat (HU)	16397	8,51985	2,59	1,34%	178,515
Szécsény (HU)	5962	-11,2714	2,59	0,80%	172,26
Drégelypalánk (HU)	1516	9,36675	12,79	1,64%	147,3
Ipolytarnóc (HU)	445	-19,3258	13,03	1,57%	131,445
Ipolyvece (HU)	777	-9,78121	5,92	0,77%	162,17
Örhalom (HU)	1041	-2,20941	5,76	0,86%	155,825
Vámosmikola (HU)	1908	13,15514	6,76	0,85%	177,265

Tab. 3: **Chosen variables within municipalities in model area**

Within the analyses there were obtained quantitative and qualitative data, which were compared between Slovak and Hungarian municipalities of model area. In Slovak part of these municipalities which were mainly smaller than Hungarian municipalities. The Hungarian municipalities were represented by five municipalities and also two smaller towns (Balassagyarmat and Szécsény). The biggest outflow of residents was from villages which are at very peripheral areas (as Vrbovka and Ipolytarnóc). Inequality of percentage of separated nationalities between Slovak and Hungarian part of model area was demonstrated. While large part of Slovak residents profess to Hungarian nationality, Hungarian residents profess to Slovak nationality only in minor percentage, but the amount of Romany population in Hungarian part is greater than within Slovak part of surveyed territory. According to analysed data, Romany population is more disadvantaged particularly in Slovakia by means of the possibilities they have for better education and job finding. The percentage of uneducated persons and education index can be a significant indicator. This education index is according to methodology (Čermák, 2005, p. 46), which was calculated according to educational degree of residents (above sixteen

years old) with the coefficient (0,5 for uneducated persons, 1 for completed an elementary school, 2 for completed an secondary school, and 3,5 for persons with finalized with academic degree).

Municipalities according to country (Slovakia as SK or Hungary as HU)	Density of population (inhabitant per 1km)	Unemployed, in %	Remained workers in municipality of abode, in %	Index of ingoing and outgoing	Count of residents per flat
Ipeľský Sokolec (SK)	47,22	14,98	69,25	0,8064	3,06
Pastovce (SK)	40,98	12,68	63,43	0,6642	3,14
Ipeľské Predmostie (SK)	45,86	11,84	57,53	0,6733	3,4
Balog nad Ipľom (SK)	101,19	10,75	54,50	0,6640	3,24
Slovenské Ďarmoty (SK)	56,18	18,4	69,43	0,8151	3,13
Kováčovce (SK)	32,09	7,2	48,37	0,4891	2,97
Vrbovka (SK)	34,45	6,88	57,33	0,64	2,9
Kalonda (SK)	24,61	14,67	61,82	0,6364	3,3
Rapovce (SK)	110,51	16,89	72,78	0,8125	3,79
Balassagyarmat (HU)	667,4	4,89	76,40	1,2323	2,63
Szécsény (HU)	134,3	2,2	56,50	0,8411	2,55
Drégelypalánk (HU)	69,7	4,61	47,92	0,9453	2,6
Ipolytarnóc (HU)	34,1	3,73	60,47	0,7984	2,64
Ipolyvece (HU)	60,7	2,37	29,72	0,3392	2,51
Örhalom (HU)	61,6	3,77	19,35	0,2643	2,94
Vámosmikola (HU)	64,5	2,66	48,90	0,6514	3,53

Tab. 4: **Other chosen variables within municipalities in model area**

Worse results of educational indicators for Slovak residents are caused by failing school system, since the periferality to towns did not have an influence on these results. Also the quality of school system has an influence on economic situation through percentage of unemployed citizens. Furthermore it appears to discriminate the Romany population within termination of education process and in consequence within looking for jobs.

Within the Slovak part there is corrupted correlation between uneducated persons and unemployed ones through specialization at agriculture, which is not dependant at school system due to simplicity of activity by a conventional farming. On the other hand belonging of municipalities to towns makes itself felt through index ingoing and outgoing, which was more positive with towns and with focussed villages at agriculture. In light of resilience of socio-ecological systems there is a very interesting issue about flexibility and mobility of labour. Specifically the Hungarian workers are much more flexible, which was resembled through count of residents per flat. This positive aspect can be influenced due to proximity to the agglomeration of Budapest in Hungary. For improvement of this positive effect it is needed to ensure public service, which makes the conditions more favourable for commuters, in particular vulnerable groups. Lack of offers from public services was observed on account of the research investigation with local residents.

ANALYSES OF QUALITATIVE DATA - RESEARCH INVESTIGATION

Because public discussion is base for support of self-organising, within research investigation there was observed a possibility of public discussions during decision-making processes in management of municipalities and in management of stakeholders of nature. Furthermore the character of public-private activities was also detected. This sticking point was different from case to case. The issue of civil defence, flood counter-measures and sport were the most frequent public-private activities of residents. On the other hand, also activities for development of municipality and activities within public discussion were discovered.

Respondents expressed also their authentic opinion and satisfaction with the management of territory at local and regional scale (from 1 to 3), at which among the biggest shortcomings were small capacity by long-

Evaluated area	Euroregion	Only within Slovakia	Only within Hungary
Correlation value	0.166	0.679	0.309
Significant value	0.536	0.044	0.500

Tab. 5: **Correlation Romany population to ratio of unemployed**

Evaluated area	Euroregion	Only within Slovakia	Only within Hungary
Correlation value	-0.002	0.811	0.703
Significant value	0.992	0.007	0.077

Tab. 6: **Correlation Romany population to ratio of uneducated persons**

Evaluated area	Euroregion	Only within Slovakia	Only within Hungary
Correlation value	0.898	0.644	0.790
Significant value	2.27E-06	0.060	0.034

Tab. 7: **Correlation ratio of uneducated persons to ratio of unemployed**

Slovak municipalities	Satisfaction by authorities of municipality	Satisfaction by local entrepreneurs	Satisfactions by residents
Ipeľský Sokolec	1		2; 3
Pastovce	3		
Ipeľské Predmostie	1		2; 2
Balog nad Ipľom	3	3	3
Slovenské Ďarmoty	2	3	3; 3
Kováčovce	3		3
Vrbovka	3		3; 2; 3
Kalonda	3		2
Rapovce	3		3
Hungarian municipalities			
Balassagyarmat	1	1	1
Szécsény	2	1	3; 3
Drégelypalánk	3		
Ipolytarnóc	3		
Ipolyvece	3	2	3
Örhalom	3		
Vámosmikola	-	-	-

Tab. 8: **Satisfaction as rate of toleration and as rate by implementation of expectations**

1-discontented; 2 – partially satisfied; 3-satisfied

distance traffic, generally deficient frequency of public traffic, bureaucracy and troubles with EU funds. On the other hand, higher demandingness was presented within authorities of municipality and within local entrepreneurs than within residents. It can be caused by higher responsibility and advanced experiences with organizationally departments of public administration. It confirmed an embedment of entrepreneurs to relevant stakeholders in terms of resilience, although this type of stakeholders does not have time for public affairs, if they are not directly connected to their business.

ANALYSES OF QUALITATIVE DATA - WORKSHOP WITH BLIND MAPS

The first step during the workshop was the investigated application of local knowledge towards of risk within separated stakeholders. For analysing there was used layer of the identified risks and the layer of localisation of simulated investments according to the stakeholders. Second analysing was about identification of conflicts in the territory according to an intention of individual stakeholders (motivated from LUCIS model (Carr & Zwick, 2007, p. 11)), and according to marginalised groups.

Slovakia	Preference to urban area		Preference to open spaces		Preference to both area		Preference to floodplain	
Group of stakeholders	ABS	%	ABS	%	ABS	%	ABS	%
Authority of communities			4	57.14	3	42.85	1	14.28
Local entrepreneurs	1	50			1	50	1	50
Residents			6	75	2	25	2	25
Environmentalists			1	100			1	100
Stakeholders of nature (farmers, rangers and fishermen)			4	80	1	20	1	20

Tab. 9: **Analysing of graphical part of workshops: survey of the preference for localisation of imagined investments within Slovak respondents**

Hungary	Preference to urban area		Preference to open spaces		Preference to both area		Preference to floodplain	
Group of stakeholders	Abs.	%	Abs.	%	Abs.	%	Abs.	%
Authority of communities			3	60	2	40		
Local entrepreneurs	2	66.6			1	33.3		
Residents	1	33.3	2	66.6				
Environmentalists					1	100		
Stakeholders of nature (farmers, rangers and fishermen)			6	100			6	100

Tab. 10: **Analysing of graphical part of workshops: survey of the preference for localisation of imagined investments within Hungarian respondents**

Willingness for solution of regional problems within the catchment was investigated indirectly according to reactions and responses of stakeholders. For this article it is important, that the importance of individual experience or social memory was proved in terms of planning and floods. According to obtained preferences of local stakeholders it appears that residents prefer a build-up particularly in direction from built-up areas to open spaces. Similarly, preferences of authorities of municipalities had priority to open spaces. Reversely it was within local entrepreneurs, which preferred built-up areas for simulated investments in the sphere of trade and services.

Environmentalists showed the biggest creativity in comparison with other groups of stakeholders. Their investments were arranged to urban and also rural territory for improvement of ecosystem services. At the surveyed municipalities there was demonstrated a planning culture, since the respondents of stakeholders were similar within specific municipality (e.g. by town Balassagyarmat).

This monitoring of preference of stakeholders is very important, especially due to urban sprawl which raises the vulnerability to external disturbances such as floods or landslides, whereby a good helper is social memory about dangerous localities. Within this research there was identified a significance of this local knowledge, social memory or experience. A lot of stakeholders had preference for built-up in floodplains. Among these stakeholders there were not only the residents and local entrepreneurs, but also the authorities of municipalities.

Conclusion

For this article there were specified research questions as: which relationships and processes in the area are relevant for resilience and capacity of adaptability, and their conditional specifics of processes within territorial management, and also which groups of stakeholders are relevant by territorial management? Results of the research can facilitate finding of relevant components for the improvement of spatial resilience and capacity of adaptability, which are important for the preparedness at external disasters (e.g. floods, landslides or social changes). As the most suitable stakeholders of research were suggested participants as Authority of communities (Mayors), Residents, Environmentalists,

Local entrepreneurs and "Stakeholders of nature" (Farmers, Rangers or Fishermen). The chosen stakeholders are considerable due to their local knowledge, capacity of adaptability, measure of satisfaction with territorial management, the character of public-private activities, self-organisation processes and social memory, the relevance of which was confirmed, but they have certain limits in form of sensitivity on change, education, ardency for public activities, carelessness and missing of experiences. Also other limit is presented by weak willingness of entrepreneurs towards empirical research and also weak occurrence of environmentalists in lots of municipalities. Thus, as specific condition appears to have the quality of social and human capital, whereby these elements are influenced also from periferality due to the long-term outflows of previous residents with higher education to economic stronger regions.

The main contribution of research and article is represented in pointing out the capacity of adaptability at local scale, which was indirectly surveyed through willingness of stakeholders for new solutions of regional problems within the catchment during an obtaining of new data about quality of soil and risks within workshops. It was also confirmed, that it is needed to cultivate the socio-ecological relations between soft and hard-components, otherwise this social memory and experience have tendencies for degrading. These relations can be supported through enhanced tools at local and regional scale (e.g. master plan or prepared regulation documents also within small municipalities, enhanced school system, and participating processes as attributes of improved the social capital).

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THE EXPERIENCE WITH GETTING OVER CRITICAL PHENOMENA IN THE BUILDING ENTERPRISE OF A REGIONAL SIGNIFICANCE

Introduction

This contribution is intent on the problems of an active access the building enterprise of a regional significance to a solution of a financial crisis. It goes out from the period of the end year 2008 when the Czech Republic was hit by the financial crisis whose the general phenomenon was that orders of building enterprise were capaciously and financially lower. While most of building enterprises reacted on the arisen national-economic situation by a reduction and a rationalization of their own employees and the expenses connected with a production which resulted in giving the sack to employees, in a conversion into contracting relationships and a restriction of expenses on machines, equipment if need Is on an inventory there was a certain amount of those on a market which did their best to solve a critical situation in time and actively.

All these pieces of knowledge are practically applied to the examined building enterprise X1 s.r.o. which attempted at an active getting over the financial crisis by means of a view to the object of its activity (to the production of steel constructions) in which it excels in a region. Because in the period close to the beginning of the financial crisis and before it this building enterprise notice that there was an increased demand in the area of the production of steel constructions namely domestic and foreign it decided to realize a lately erected building of a productive hall for a production of steel constructions 20 x 45 m and reconstruction of productive areas of a locksmithery and a tinsmithery operations.

In the introductory chapters of the contribution the basic concepts connected with the solving problems are explained and the basic data about the building enterprise are described. The other chapters contain the tailed elaboration and evaluation of the realized investment namely on the basis of the calculation of the ratios of the economic efficiency (Net Present Value and Internal Rate of Return). The aim of the contribution is on the basic of the own experience to work out lucidly the problems of the active access of the building enterprise of a regional significance to a solution of the financial crisis and to judge the realized investment (the construction of the productive hall for a production of steel constructions and the reconstruction of productive areas of a locksmithery and tinsmithery operations) of the concrete building enterprise.

The terminology connected with the solving problems

- Investment Costs – represent a total of all costs of a capital character which is necessary for a construction of a production of a productive unit and for a security of its operation.
- Operating Costs – are a financial expression of a consumption of entrance factors; for investment calculations a generic division of costs into material, wage, deductional, the other and financial is used; on the basis of this division it is possible to find out on which entrance factor the biggest amount of financial means was exerted, which of costs has the biggest dynamism and can become a critical quantity during pessimistic variants of possible development of a project.
- Returns – their structure is given by a character of an evaluated project; particular sums if returns are assessed by a product of a projected volume of products in natural units and their expected unitary prices.
- Deductions – create a significant sum of costs which has no character of an expense; with regard to the fact that they don´t represent a decrease of financial means of a building enterprise it is possible to use them on a renewal of a long-termed property; a reimbursement of rise of claim, instalments of credits.
- Linear (Equable) Deducting – is the way of deducting of an investment property when deductions are equably divided into particular years of an investment function.
- Net Present Value – enables an evaluation of an economic efficiency in a longer time period; it goes out from the presumption that financial means are effectively invested only in case if the return from the investment is on a level with the initial investment cost or higher.
- Internal Rate Of Return – represent a percentage profitability of a project for the whole evaluated period.
- A Middle-termed Banking Credit – is an external source of financing of an investment with the maturity from 1 year to 5 years.
- A Long-termed Banking Credit – is an external source of financing of an investment with the maturity longer than 5 years.

- Instalments With a Constant Amortization – represent equable instalments of a credit whereupon it is necessary to calculate the interest from a credit´s remainder for every year; during an equable payment a height of the interest is the biggest in the first year, further the interest falls.

- Cash-flow for Judging of a Financial Stability of a project – their aim is to judge a financial stability or a commercial life – ability of a project which means to find out whether receipts generated by a project are sufficient for a reimbursement of all costs of a project including those associated with a foreign capital used for financing of a project.

The basic data about the examined building enterprise

- The title: X1 s.r.o.
- The law form: the corporation with a limited liability
- The object of the activity:
  - The production of steel construction of halls
  - The complete realization of building including complete repairs and reconstruction
  - Carpentry, slatery, locksmithery and tinsmithery
  - The construction of family houses, industrial halls and agricultural buildings.

- The regions of the activity: the region of Pardubice
- The year of the establishment:1992
- The management of enterprise: 2 managers
- The number of employees: 55

THE SIZE OF THE PRODUCTIVE UNIT AND THE DESCRIPTION OF THE TECHNOLOGY

Because the building enterprise X1 s.r.o. noticed that there was an increased demand in the area of the production of steel constructions in the period close to the beginning of the financial crisis, before it and during its course namely domestic and foreign it decided to solves this situation by the construction of the new hall. The future reasons which led to the realization of this investment were the following: the improvement the quality and the efficiency of the productive process, the improvement of working conditions, the extension of productive areas in conjunction with the location of particular machines, the property and the profitability of the production.

In the areas of the building enterprise 400 -500 tonnes of steel were worked before the construction of the hall; after the completion of the construction of the hall and its bringing into a full operation the capacity increased up to 720 -750 tonnes of steel which presents the annual increase of the productive capacity in about 73%.

To this increase of the productive capacity the equipment of the productive hall by machines contributed as well (see Table 2: The costs on the machinery)

THE MATERIAL FEELS AND ENERGY

The building enterprise concludes the contracts of purchase on the deliveries of the decisive materials for the production of steel constructions. Electric power, water and gas are taken away from the already realized connections of the building enterprise.

THE LOCATION OF THE PRODUCTIVE UNIT

The productive unit representing the construction of the productive hall for the production of steel constructions is located in the contemporary area of the building enterprise X1 s.r.o. which is represented by its private pieces of land. The area of the building enterprise X1 s.r.o. is situated at the beginning of the newly set up industrial zone which enables an easy accessibility directly from the main road. 3.4 The labour forces (the human forces)

The construction of the productive hall for the production of steel constructions was realized by the own employees of the building enterprise X1 s.r.o. (by its welders, painters, fitters of steel constructions) whereupon there was the increase in the amount of the employees which was represented by 5 workers. The increase was in the rows of the technical-economic employees as well which was represented by 1 master of the production and the control and 1 employee with the cumulated function of projector, a preparator and a technician.

THE COURSE OF THE PROJECT REALIZATION

The course of the project realization is stated in the following table.

The date of the starting/ The date of completion	The activity	The source of financing
01/2009 - 03/2009	the preinvestment phase	the middle-termed banking credit and the long-termed banking credit
04/2009 – 06//2009	the creation of the producing project documentation	the middle-termed banking credit and the long-termed banking credit
06/2009 – 07/2009	the building permission	the middle-termed banking credit and the long-termed banking credit
15. 8. 2009	the starting of the construction	the middle-termed banking credit and the long-termed banking credit
31. 10. 2009	the completion of the building part including communication	the middle-termed banking credit and the long-termed banking credit
1. 11. 2009 - 15. 11. 2009	the technological part of the construction, the equipment with machines	the middle-termed banking credit and the long-termed banking credit
15. 11. 2009 - 15. 12. 2009	the trial operation	the middle-termed banking credit and the long-termed banking credit
15. 12. 2009 – 13. 12.2009	the inspection of the hall and the locksmithery and tinsmithery operations before the starting of their full operation	the middle-termed banking credit and the long-termed banking credit
01/2010	the starting of the production on its full operation	the middle-termed banking credit and the long-termed banking credit

Table 1: **The course of the project realization**
(*Source: The plan of the realization of the project provided by the building enterprise X1 s.r.o., 2009*)

The calculation of the investment costs

The investment costs include the costs on the machinery, the construction part and the other investment costs (see Table 2: The investment costs of the project in the year 0).

The item	The total [Czech crowns]
The costs on the machinery (the hydraulic presses, the hydraulic shear machine, the mobile frame scaffolding, the post rotary crane and so on)	6 848 492
The costs on the construction part (the reconstruction of the productive areas of the locksmithery and tinsmithery operations, the construction of the productive hall for the production of steel constructions)	5 400 000
The other investment costs (the containers for the metal waste, the packaging material from the paints and the other waste)	500 000
THE TOTAL INVESTMENT COSTS	12 748 492

Table 2: **The investment costs of the project in the year 0**
(*Source: The accountancy by the building enterprise X1 s.r.o., 2009*)

The calculation of the operating costs in the particular years of the project

The operating costs include the personal costs, the costs on the direct material, the costs on the short-termed material property (non-deducted) and the other operating costs (see Table 3: The operating costs of project in year 1)

The item	The total [Czech crowns]
The annual personal costs (the welders, the locksmiths, the painters, the master, the projector, the preparator and the technician, the manager, the operating and wage accounting department, the transport and working safety)	5 401 640
The insurance of health and the social insurance	1 890 574
The costs on the direct material (the steel profiles, the connecting material, the welding material, the grinding material, the cut material and the other material)	20 293 750
The short-termed material property (non-deducted) (the equipment of the office, the computer, software, the photocopier)	90 000
The other operating costs (the office needs, the propagation, the purchase of the tools, the transportation of people and the material, electric power, gas, water)	1 525 000
THE TOTAL OPERATING COSTS	29 200 964

Table 3: **The operating costs of project in year 1**
(*Source: The accountancy by the building enterprise X1 s.r.o., 2009*)

In further years there was the interannual increase of 6,8% in the personal costs, the interannual increase of 4,5% in the costs on the direct material, the increase of 5% in the costs on the short-termed material property in the fifty year (the copiousness of this property is considered in the first and the fifth year) and the interannual increase of 3% in the other operating costs.

The year	The personal costs [Czech crowns]	The insurance if health and social insurance [Czech crowns]	The costs on the direct material [Czech crowns]	The short-termed material property [Czech crowns]	The other operating costs [Czech crowns]	The total operating costs [Czech crowns]
1	5 401 640	1 890 574	20 293 750	90 000	1 525 000	29 200 964
2	5 768 952	2 019 133	21 206 969		1 570 750	30 565 804
3	6 161 241	2 156 434	22 161 283		1 617 873	32 096 831
4	6 580 205	2 303 072	23 158 511		1 666 409	33 708 227
5	7 027 659	2 459 681	24 200 675	94 500	1 716 401	35 498 916
6	7 505 540	2 626 939	25 289 705		1 767 893	37 190 077
7	8 015 917	2 805 571	26 427 742		1 820 930	39 070 160
8	8 560 999	2 996 350	27 616 990		1 875 558	41 049 897
9	9 143 147	3 200 101	28 859 755		1 931 825	43 134 828
10	9 764 881	3 471 708	30 158 444		1 989 780	45 330 813

Table 4: **The operating costs in the particular years of the project**
(*Source: The accountancy by the building enterprise X1 s.r.o., 2009 - 2015*)

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The calculation of the returns in the particular years of the project

After the completion of the construction of the productive hall for the production of steel constructions and its building into a full operation 735 000 kgs of steel were worked in its area during the first year.

The calculation of the returns for the year 1 goes out from the following finding out; in further year there was the internnual increase of 4% in the returns.

Formula 1:

The returns fot the year 1:
R = a weight (of steel) x prise (of steel)

(Source: Valach, J. 2006)

R = 735 000 kgs (of steel) x 47 Czech crowns/kg (of steel)
R = 34 545 000 Czech crowns – the first year

The year	1	2	3	4	5
The returns [Czech crowns]	34 545 000	35 926 800	37 363 872	38 858 427	40 412 764
The year	6	7	8	9	10
The returns [Czech crowns]	42 029 275	43 710 446	45 458 864	47 277 219	49 168 308

Table 5: **The returns in the particular years of the project**
(Source: The accountancy by the building enterprise X1 s.r.o., 2009 - 2015)

The calculation of Earnings after Taxes

The following table contains the calculation of Earnings Taxes (the rates are excluded from the informative source). As for as the deductions are concerned, these were calculated in case of the production hall and machines with which the hall is equipped; it was chosen a linear way of deducting (the particular deducting rates and the durations of deducting are excluded from the informative source.

The year	The returns [Czech crowns]	The operating costs [Czech crowns]	The deductions [Czech crowns]	The basic of Income Tax [Czech crowns]	Income tax [Czech crowns]	Earnings after Taxes [Czech crowns]
1	34 545 000	29 200 964	923 535	4 420 501	684 100	3 536 401
2	35 926 800	30 565 804	1 892 491	3 468 505	659 016	2 809 489
3	37 363 872	32 096 831	1 892 491	3 374 550	641 165	2 733 385
4	38 858 427	33 706 227	1 892 491	3 257 709	618 965	2 638 744
5	40 412 764	35 498 916	1 892 491	3 021 357	574 058	2 447 299
6	42 029 275	37 190 077	146 200	4 692 998	891 670	3 801 328
7	43 710 446	39 070 160	146 200	4 494 086	853 876	3 640 210
8	45 458 864	41 049 897	146 200	4 262 767	809 926	3 452 841
9	47 277 219	43 134 828	146 200	3 996 191	759 276	3 236 915
10	49 168 308	45 330 813	146 200	3 691 295	701 346	2 989 949

Table 6: **The calculation of Earnings Taxes**
(Source: The accountancy by the building enterprise X1 s.r.o., 2009 - 2015)

The calculation of Cash-flow and Net Present Value

In the following table the values of Cash-flow and Net Present Value are calculated if we consider the rate of profitability at the height of 10% which was assessed by the investor.

The year	Earnings after Taxes [Czech crowns]	The deductions [Czech crowns]	CFI [Czech crowns]	$\frac{1}{(1+r)^n}$	DCFI [Czech crowns]	CFI cumulated [Czech crowns]
0			-12 748 492	1	-12 748 492	-12 748 492
1	3 536 401	923 535	4 459 936	0,9091	4 054 528	-8 693 964
2	2 809 489	1 892 491	4 701 980	0,8264	3 885 716	-4 808 248
3	2 733 385	1 892 491	4 625 876	0,7513	3 475 421	-1 332 827
4	2 638 744	1 892 491	4 531 235	0,6830	3 094 834	1 782 008
5	2 447 299	1 892 491	4 339 790	0,6209	2 694 576	4 456 582
6	3 801 328	146 200	3 947 528	0,5645	2 228 380	6 684 961
7	3 640 210	146 200	3 786 410	0,5132	1 943 186	8 628 147
8	3 452 841	146 200	3 599 041	0,4665	1 678 953	10 307 100
9	3 236 915	146 200	3 383 115	0,4241	1 434 779	11 741 879
10	2 989 949	146 200	3 136 149	0,3855	1 208 985	**12 950 864**

Table 7: **The calculation of Cash-flow and Net Present Value (r = 10%)**
(Source: Valach, J. 2006)

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From the table stated above it ensue that Net Present Value NPV was negative provided the assessed rate of profitability at the height of 10% in the years 0-3 of a project´s life; in the year 4 of the project´s life its value converted into positive and gradually increased up to the value 12 950 864 Czech crowns which was reached in the year 10. On the basis of the deciding rule for the ratio of Net Present Value which accepts all investments with a positive or a zero Net present Value and Refuses all those which have Net Present Value negative it is possible to state that the project is effective provided the assessed rate of profitability at height of 10%.

The calculation of Internal Rate of Return

Because for the calculation of Internal Rate of Return it is necessary to assess the positive and the negative value of Net Present Value the negative value of Net Present Value was calculated (it was reached provided r = 33%)

The year	Earnings after Taxes [Czech crowns]	The deductions [Czech crowns]	CFI [Czech crowns]	$\frac{1}{(1+r)^n}$	DCFI [Czech crowns]	CFI cumulated [Czech crowns]
0			-12 748 492	1	-12 748 492	-12 748 492
1	3 536 401	823 535	4 459 936	0,7519	3 353 426	-9 395 066
2	2 809 489	1 892 491	4 701 980	0,5653	2 658 029	-6 737 037
3	2 733 385	1 892 491	4 625 876	0,4251	1 966 460	-4 770 577
4	2 638 744	1 892 491	4 531 235	0,3196	1 448 183	-3 322 394
5	2 447 299	1 892 491	4 339 790	0,2403	1 042 852	-2 279 543
6	3 801 328	146 200	3 947 528	0,1807	713 318	-1 566 224
7	3 640 210	146 200	3 786 410	0,1359	514 194	-1 052 030
8	3 452 841	146 200	3 599 041	0,1021	367 462	-684 568
9	3 326 915	146 200	3 383 115	0,0768	259 823	-424 745
10	2 989 949	146 200	3 136 149	0,0577	180 956	-243 789

Table 8: **The calculation of Net Present Value provided (r = 33 %)**
(Source: Valach, J. 2006)

Formula 2:
Internal Rate of Return 1:
IRR = r1+ (NPV+/ (INPV+I+INPV- I)) x (r2 –r1)
(Source: Korytárova, J., Fridrich, J. Puchýř, B.,2002)
IRR = r1+ (NPV+/ (INPV+I+INPV- I)) x (r2 –r1) =
10 + (12 950 864/ (12 950 864 +143 789)) x (33-10) =
32,5750%

From the calculation of Internal Rate of Return stated above and the deciding rule for this ratio on the basis of which the projects which have IRR higher or equal to the Internal Rate of Return assessed in advance it is possible to come to a conclusion that the project is effective because Internal Rate of Return acquired by the calculation (IRR = 32,5750) is higher than the rate of return assessed beforehand (r = 10%)

Cash-flow for the judging of the financial stability of the project the long-termed and the middle-termed banking credit

THE SCHEME OF THE INSTALMENTS OF THE LONG-TERMED INVESTMENT CREDIT WITH THE CONSTANT AMORTIZATION

This is the long –termed banking credit
- The height of the credit: 12 748 492 Czech crowns
- The maturity of the credit: 5 years
- The interest rate: 10%
- The régime of the payment: the annual instalments with the constant amortization
- The starting of the credit usage:1.1 2009 (the year 0)
- The starting of the credit payment:1.1 2010 (the year 1)

The year	The state of the debt [Czech crowns]	The amortization [Czech crowns]	The interest [Czech crowns]
1	12 748 492	2 549 698	1 274 849
2	10 198 794	2 549 698	1 019 879
3	7 649 096	2 549 698	764 910
4	5 099 398	2 549 698	509 940
5	2 549 700	2 549 700	254 970
6	0	0	0
7	0	0	0
8	0	0	0
9	0	0	0
10	0	0	0

Table 9: **The scheme of the instalments of the long-termed banking credit**
(Source: Korytárova, J., Fridrich, J. Puchýř, B.,2002)

Formula 3:

The calculation of the instalment (the amortization): U = D/n
(Source: Korytárova, J., Fridrich, J. Puchýř, B.,2002)

U = D/n = 12 784 492/5 = 2 549 698 Czech crowns

Formula 4:

The calculation of the credit interest: u = Dn x r
(Source: Korytárova, J., Fridrich, J. Puchýř, B.,2002)

u = Dn x r = 12 748 492 x 0,1 = 1 274 849 Czech crowns

THE SCHEME OF THE INSTALMENTS OF THE MIDDLE-TERMED INVESTMENT CREDIT WITH THE CONSTANT AMORTIZATION

This is the middle – termed banking credit

- The height of the credit: 2 000 000 Czech crowns
- The maturity of the credit: 3 years
- The interest rate: 10%
- The régime of the payment: the annual instalments with the constant amortization (instalment)
- The starting of the credit usage:1.1 2010 (the year 1)
- The starting of the credit payment:1.1 2011 (the year 2)

The year	The state of the debt [Czech crowns]	The amortization [Czech crowns]	The Interest [Czech crowns]
1	0	0	0
2	2 000 000	666 667	200 000
3	1 333 333	666 667	133 333
4	666 666	666 666	66 666
5	0	0	0
6	0	0	0
7	0	0	0
8	0	0	0
9	0	0	0
10	0	0	0

Table 10: **The scheme of the instalments of the middle-termed banking credit**
(Source: Korytárova, J., Fridrich, J. Puchýř, B.,2002)

Formula 5:

The calculation of the instalment (the amortization): U = D/n
(Source: Korytárova, J., Fridrich, J. Puchýř, B.,2002)

U = D/n = 2000 000/3 = 666 667 Czech crowns

Formula 6:

The calculation of the credit interest: u = Dn x r
(Source: Korytárova, J., Fridrich, J. Puchýř, B.,2002)

u = Dn x r = 12 000 000 x 0,1 = 200 000 Czech crowns

CASH-FLOW FOR THE JUDGING OF THE FINANCIAL STABILITY OF THE PROJECT – THE LONG-TERMED AND THE MIDDLE-TERMED BANKING CREDIT

The table 11 provides the survey about Cash-flow of the project whose source of financing were the long-termed banking credit and the middle-termed banking credit.

The year	0	1	2	3	4	5
THE RECEIPTS						
The source of financing: the long termed banking credit	12 748 492					
The source of financing: the middle-termed banking credit		1 055 757	944 243			
The returns		34 545 000	35 926 800	37 383 872	38 857 427	40 412 764
The total receipts	12 748 492	35 600 757	36 871 043	37 383 872	38 857 427	40 412 764
EXPENSES						
The addition of the investment property	-12 748 492					
The addition of the stocks		1 691 146	78 102	70 528	83 104	86 845
The costs without the deductions and the interest		29 200 964	30 565 804	32 006 931	33 708 227	35 498 916
The interest		1 274 849	1 219 879	898 243	576 606	254 970
The instalments of the credits		2 549 698	3 216 365	3 216 365	3 216 365	2 549 698
The Income Tax		884 100	658 016	641 165	618 965	574 058
The total expenses	-12 748 492	35 600 757	35 737 166	36 932 130	38 203 267	38 964 487
The net Cash-flow			1 133 877	731 742	654 160	1 448 277
The money at the beginning of the year				1 133 877	1 565 619	2 219 779
The money at the end of the year			1 133 877	1 565 619	2 219 779	3 668 056

Table 11: **Cash-flow for the judging of the financial stability of the project 1-5 year**
(Source:Valach, J.,2009)

The year	6	7	8	9	10
THE RECEIPTS					
The source of financing: the long-termed banking credit					
The source of financing: the middle-termed banking credit					
The Returns	42 029 275	43 710 446	45 458 864	47 277 219	49 168 308
The total receipts	42 029 275	43 710 446	45 458 864	47 277 219	49 168 308
EXPENSES					
The addition of the investment property					
The addition of the stocks	90 753	94 836	99 104	103 564	108 224
The costs without the deductions and the interest	37 190 077	39 070 160	41 049 897	43 134 828	45 330 813
The interest					
The instalments of the credits					
The Income Tax	891 670	853 876	809 926	759 276	701 346
The total expenses	38 172 500	40 018 872	41 958 927	43 997 668	46 140 383
The net Cash-flow	3 856 775	3 691 574	3 499 397	3 279 551	3 027 925
The money at the beginning of the year	3 668 065	7 524 831	11 216 405	14 716 342	17 995 893
The money at the end of the year	7 524 831	11 216 405	14 716 342	17 995 893	21 023 818

Table 12: **Cash-flow for the judging of the financial stability of the project 6-10 year**
(Source:Valach, J.,2009)

The evaluation: By means of the middle-termed credit the enterprise is able to reimburse all its costs in the year 1; the receipts exceed the expenses in all years of the project´s life so that the net Cash-flow is positive in the particular years. It is possible to consider the given project sufficiently financially stable and the judged variant of financing acceptable. At the same time it stands to reason from Cash-flow that the annual postponement of the instalments of the middle-termed banking credit is necessary because the payment from the first year of the operation isn't possible.

Conclusions

The examined building enterprise X1 with the law form of the corporation with a limited liability proceeded to an active solution of a financial crisis in this way that it aimed at to object of its activity (the production of steel constructions) in which it excels in a region. Because the enterprise was financially healthy and its management looked after the future working capacity of the enterprise (the orders) it used the investment into the development of the enterprise as the defence against a financial crisis. In the contribution the economic efficiency of the realized investment was evaluated which the realization of the construction of the hall for the production of the steel constructions and the reconstruction of the productive areas of the locksmithery and linsmithery operations represented. In the theoretical part of the contribution the basic concept connected with the solving problems were clarified which are investment cost, operating costs, returns, deductions, linear (equable) deducting, Net Present Value, Internal Rate of Return, a middle-termed banking credit, a long-termed banking credit, instalments with a constant amortization, Cash-flow for judging of a financial stability of a project. In the first chapter of the practical part the basic data about the building enterprise which the construction of the hall for the production of the steel constructions and the reconstruction of the productive areas of the locksmithery and tinsmithery operations realized were described. In the further chapters of the practical part the realized investment is elaborated and evaluated in detail on the basis of the calculation of the ratios of economic efficiency (Net Present Value and Internal Rate of Return).

On the basis of the pieces of knowledge from the theoretical part and the outcome from the practical part it is possible to state that the project is effective (provided the profitability rate at the height of 10% Net Present Value was positive and Internal Rate of Return acquired by the calculation was bigger than the rate of return assessed in advance). It stands to reason from Cash-flows that the receipts in all years of the project. It is then demonstrated that the project creates sufficient financial means for the payment of the interest and the instalments of the credits. It is possible to consider the given project sufficiently financially stable and the judged variant of financing acceptable. At the same time it stands to reason from Cash-flows that the annual postponement of the middle-termed banking credit is necessary because the payment from the first year of the operation isn't possible.

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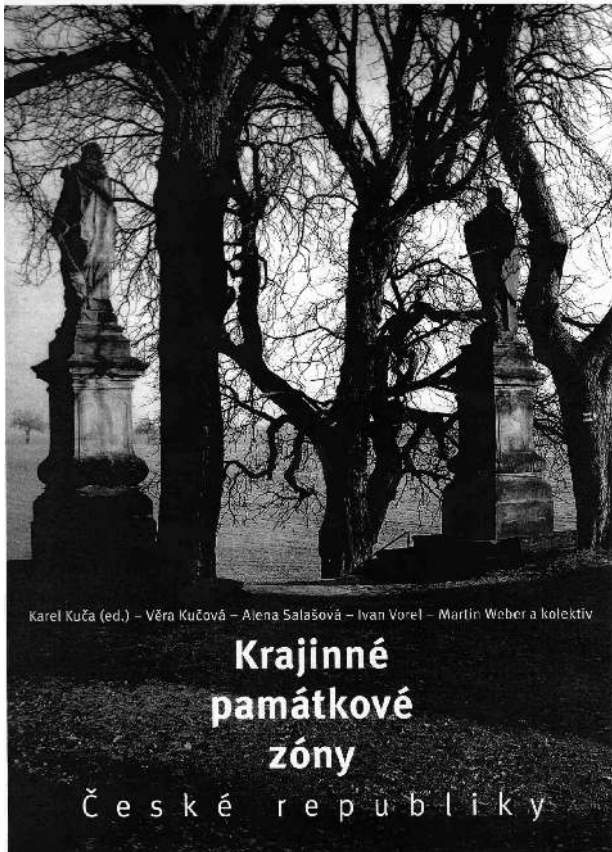
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Daniela Gažová

KRAJINNÉ PAMÁTKOVÉ ZÓNY ČESKÉ REPUBLIKY
(LANDSCAPE CONSERVATION ZONES IN THE CZECH REPUBLIC)

KRAJINNÉ PAMÁTKOVÉ ZÓNY ČESKÉ REPUBLIKY

*(LANDSCAPE CONSERVATION ZONES
IN THE CZECH REPUBLIC)*

Authors: Kuča, Karel at al.
Monograph, 2015
1st edition
511 pages : coloured illustrations, maps, plans

Other authors:
Kučová, Věra,; Salašová, Alena,;
Vorel, Ivan,; Weber, Martin

ISBN 978-80-7480-045-0

A very engaging book catches the glance by its extent and processing. It was written in collaboration of the authors from the Silva Tarouca Research Institute for Landscape and Ornamental Gardening, National Heritage Institute, Mendel University in Brno Czech Technical University and it can be added to other similar enriching publications aimed at the nature and landscape protection in the Czech Republic. A comprehensive encyclopaedia presents a representative view on the landscape conservation zones (hereinafter LCZs) in the Czech Republic.

The book gives an overview of the history, present state, values and conditions for further development of 24 landscape conservation zones declared so far as landscape protected areas under the so called Heritage Act No. 20/1987 Coll. Texts are accompanied by 876 current photos, dozens segments of old maps, plans and vedutas as well as other illustrations including schematic mapping of cultural landscape values as well as maps with the modelling terrain based on air laser scanning. Citing the authors Kuča and Kučová: "The LCZs are a specific type of continuously protected areas with the cultural and historical values." The LCZs represent a type of cultural landscape as a space created by human activity for centuries, which, however keeps, still more or less natural character and involves the valuable natural phenomena. Although the LCZs, according to the Nature and Landscape Protection Act, have a different status as protected nature areas, the activities carried out in them are under supervision of the National Heritage Institute as well as under regulation according to the plans of heritage preservation.

In the introductory chapter the book seeks to highlight specific characteristics and significance of the cultural values of cultural landscape within the territory covered by the LCZs and in other parts of the country and the need to access them from the aspect of the primacy of these values to other interests in the landscape land-use.

The following preview of the international documents on the landscape protection provides an overview of common European documents and builds on the holistic and participatory approaches for the protection and development of the landscape, an understanding of the European landscapes as a common source with the necessity of cooperation in its protection and management. Among them as the most promising document we can consider the European Landscape Convention and its subsequent implementation in the national legislation of each country.

From the point of view of theoretical input, it is considered that the chapter of K. Kuča is significant and devoted to the development of approaches to the protection and interpretation of nature and landscapes in the Czech Republic, where the author discusses the development of approaches to protection and their reflection in the legislation as well as linkages to related acts, in particular land-use planning. In the context of this chapter, the following list of the tabular processed national parks, protected landscape areas and natural parks as well as maps that illustrate the large protected areas, natural parks, protected bird areas and the European areas Natura 2000. In the summary map, the authors present the superposition of all types of protected areas in the context of the LCZs, which are then commented in the text. The following chapter written by V. Kučová describes the legislative protection of the landscape in the Czech Republic in the relevant acts and it analyses international agreements related to landscape. The general theoretical part culminates in the chapter: The Landscape Conservation Zones and their Place in the Protection of the Cultural Landscape, by Kuča and Kučová and in a tabular outline and characteristics of the LCZs declared in the Czech Republic from 1992 until January 1, 2015.

The most important and extensive part of the book is devoted to the content of each LCZs in the Czech Republic processed in alphabetical order by different authors. Processing is based on a standardized common methodology of LCZ´s assessment record. Each zone evaluation consists of text and graphics with the chronologic overview line of its development, while its extent is proportional to the importance and territorial area scope of the LCZs. The chapter devoted to the Lednice - Valtice area is then from this point of view the most detailed, as it is the largest and perhaps the most significant one in the monitored areas.

The texts in the subchapters contain a general description of the LCZs, the characteristics of natural conditions, the history of the territory and the transformation of the landscape nature as well as the components that make up the essence of the territory values. In the conclusions there are elaborated opportunities and threats of the landscape development.

The texts are accompanied by historical maps and representative photographs of the architectural and natural monuments, greenery, landscape structures, etc. A great contribution to understanding of the current state and prospects for further development of the LCZs are used aerial photographs of the landscapes by M. Gojda and in particular in the context of the current urban development and the pressure on the landscape.

In the book there have been used a number of historical maps of the different developmental stages. The contribution of the work is the analysis of each of the territories from the compositional and territorial point of view and drawn in the relief maps. Documents description and characteristics of the landscape character may approach even to the laics the spatial composition, in particular, in the case of the development of the landscape park complexes and other planned landscape compositions.

While the territorial protection of nature and the landscape in the Czech Republic by now covers the majority of valuable territory, in the case of landscape conservation zones there are other several dozen waiting for a statement of declaration. The situation is similar also in Slovakia, where, however, in the context of the protection of nature and the landscape the defined category is not set up yet, though out of protected areas within this category 3 territorial units of historic cultural landscape have so far been declared. The submitted publication can be perceived as a challenge for Slovak environmentalists, landscapers and conservationists not only in the area of the LCZs but in the presentation of the Slovak historical landscape sites.

The reviewed book can be clearly recommend for professional and general public, in addition to the outline presented in the context of a detailed encyclopaedic overview and professionally evaluated information, elaborated in the high quality and attractiveness. In the framework of the professional values of the publication would be useful and to processing a summary of the findings into the conclusions as well as recommendations and suggestions for the further development of the subject in the theoretical field as well as in the field of protection and preservation practices.

Dagmar Petríková

MEMBERS OF THE CE SPECTRA CENTRE AT THE SMART CITY 360 THE GATEWAY TO INNOVATION INTERNATIONAL CONFERENCE ON 22-24 NOVEMBER 2016 IN BRATISLAVA

The International Conference Bratislava was hosted under the auspices of the Slovak Presidency of the Council of the EU and the European Commission, and the Ministry of Economy of the Slovak Republic.

Members of the CE SPECTRA at the STU in Bratislava have been actively participating at the Smart City 360 International Conference. Prof. Maroš Finka has been one of the keynote speakers along with Mr. Rastislav Chovanec and Mr. Roman Bercely on the fist day of the conference to introduce an overview of the current situation within smart cities and how the automotive industry is one of the key elements to focus on in the area of "SMART".

On the 2nd day of the conference the members of the CE SPECTRA at the STU in Bratislava contributed with the papers concerning several important aspects within the smart city theory and practice. Daniela Gažová and Martina Lazarová presented a paper „Smart Water Management – Innovation within Tradition", Tatiana Kluvánková and Alfred Kaiser presented a paper on „Smart Governance: a Tool for Climate Mitigation in Cities?" Vladimír Ondrejička and Ľubomír Jamečný contributed with a paper on „Smart Twins Bratislava and Vienna Strategy", Maroš Finka and Filip Gulan contributed with a paper :Towards a Smart City: an Integrative Spatial Perspective on Energy Transition",

Dagmar Petríková and Silvia Ondrejičková presented a paper „Quality of Space in Cities Respecting Requirements of Specific Target Groups as Objective of Smart City Concepts" and Zuzana Ladzianska and Matej Jaššo presented a paper „City as a Personality: New Concept of Creative City".

The conference was a unique event bringing a 360˚ degree perspective on Smart Cities and Smart Mobility-related projects and activities.

Dagmar Petríková

INTERREG CE89 _LUMAT PROJECT MEETING IN DRESDEN, DECEMBER 5-6, 2016

The LUMAT project „Implementation of Sustainable Land Use in Integrated Environmental Management of Functional Urban Areas" is one of the INTERREG CE projects under the programme priority 3 Cooperating on natural and cultural resources for sustainable growth in CENTRAL EUROPE in the frame of the programme priority specific objectives 3.3 To improve environmental management of functional urban areas to make them more livable places. It started on May 1, 2016 and will continue till April 30, 2019.

The idea of the LUMAT project „Implementation of Sustainable Land Use in Integrated Environmental Management of Functional Urban Areas" is based on the key role that land use and management play for achieving the goals of sustainable environmental development. environmental considerations that are widely present in documents and decision-making procedures concerning land use: land-use planning indeed integrates environmental, social and economic objectives. Nevertheless, depending on a firm base of institutional power to foster multi-interest cooperation, it often causes territorial conflicts and there is a need for further extension of urbanized areas onto agricultural or semi natural areas.

Therefore environmental management should better enhance the tools available for land use planning to prevent undesired spatial patterns of urban sprawl and land degradation. In addition, an ecosystem services-oriented approach offers a promising way to align conservation and production, in developing market based mechanism for ecosystem services by ascribing them economic and social value, thus improving human welfare by incorporating economic valuation into environmental management decisions.

The LUMAT project involves 13 partners among public and private bodies, research institutes, NGOs, administrations, SMEs. They represent 7 central European countries with a common industrial past (Poland as country of lead partner, and partners from the Slovak Republic, Czech Republic, Austria, Germany, Slovenia, Italy).

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. The LUMAT partnership of cities and regions, environmental agencies and research institutions develop integrated "Functional Areas Management Strategies (FAMS)" with shared transnational territorial and scientific competence. FAMS will include planning strategies with innovative technology supported with citizen participation. Local stakeholders will initiate pilot projects by using new interactive information tools from the Urban Atlas and citizen observatories. The ecosystem service concept will support the assessment and decision-making process. The implementation will be

based on agreed action plans and pilot /demonstration projects for land and soil including information base and tool for the management of urban-peri-urban relationships. Action plans include financial instruments and institutional solutions e.g. land management agencies or permanent inter-municipal working groups.

Tools on FAMS methodology and participation will be an integrative part of FAMS (minimize threats and environmental compensation to get more liveable places starting with the pilots in all regions (successful brownfield redevelopment, green infrastructure, sustainable land use on contaminated land).

The project relies on the interplay between strategies and instruments beyond existing practice and on a suitably comprehensive deployment of tools in these areas.

The Dresden meeting was the 2nd project meeting combined with the project Steering committee meeting but devoted to Activity A. T1.2 – Methodology of FUA plans enhancing urban and peri-urban coherence basing on the gained experience – presentation of the draft concept and discussion that is under responsibility of the project partner the Slovak University of Technology in Bratislava. Prof. Maroš Finka presented the results of Activity A.T1.1 Review of status-quo on Functional Urban Areas (FUAs) place in national spatial policies and Deliverable D.T1.1.1 Transnational report on policy framework related to FUAs. Based on these documents the Concept on Common Understanding of Integrated Environmental Management has been prepared and presented to all partner projects as background for further work in the project. The LUMAT project started in May 2016 and will continue till the end of April 2019.

UPDATES

Andrej Adamuščin

INTERNATIONAL REAL ESTATE CHALLENGE
2017

International Real Estate Challenge (further IREC) from its establishment in 1999 is an annually organised international competition in real estate field taking place in the capital of Germany – Berlin, during which students take part in a project development based on real requirements of a real investor which this year was the HOWOGE Company. Student housing was the main topic of the 2017´s competition.

More than fifty students of undergraduate and postgraduate studies of various technical and economic programmes from all over the world took part in the competition and created seven different teams: Dublin, Milan, Bratislava, Warsaw, Gothenburg, Vienna, and Brussels. It was the mixture of students that allowed for various range of knowledge, abilities and experience to accomplish the common goal. Cornerstone of the competition above all, is to share experience and practice from other cities and also team work. Team spirit is an inseparable part of the competition. Students have a great opportunity to try working in teams consisting of 6-8 students from different countries, cultures and different education background and working experience. Creativity, open-minded approach, motivation and new ideas are the biggest contribution to the team work. Cooperation in the team also highly depends on language-barriers; therefore the English language is the inevitable requirement of participation in the competition. Many times it is also important to know how to achieve a compromise, intellectual comprehension, active communication among team members, setting priorities; and needless to say, building friendships and contacts exchange.

For the whole period of time the team works with tutors, professors and extern experts from whom the team regularly gets feedback which ensures concepts and ideas cohesion and results in a quality product for the client.

From the Institute of Management – The Slovak University of Technology in Bratislava, seven students were initially supposed to take part in IREC 2017; however, despite health problems, eventually only four students actively participated in the competition: Bc. Sandra Lamyová (Brussels team), Bc. Lucia Petríková (Milan team), Rebeka Križanová (Gothenburg team) and Daniel Dziak (Warsaw team).

Students arrived to Berlin o the 6th of January and their two-week hard work started right after the welcoming ceremonial of IREC 2017. After first three days of project work and introductory presentations on the 9th of January students travelled to their visiting cities, in which they gathered interesting inspiration which later led to achievement of the client´s requirements. After having returned to Berlin on the 12th of January they did everything to present the best projects during the final presentation on the 16th of January. Seven teams stood in front of the jury consisting of tutors and professors, but only the best three proceeded to the final top presentations for investors; Dublin, Vienna and Brussels teams. The student Sandra Lamyová from the Slovak University of Technology was the only one to be honoured to step in front of the investors with her team and present their project: It is a great honour to hold a diploma of International Real Estate Challenge 2017 in my hand as a result of my team,

consisting of students from Germany, Ireland, Italy and the US, with whom I spent most of a day, working on our project during the two-weeks period. Thanks goes to our tutor and organiser of IREC 2017, Prof. Dr. Sabine Zippel, and also the RICS (Royal Institution of Chartered Surveyors) Company, especially to Mr. Maarten Vermeulen, who provided meetings and site visits of student housing in Brussels and Amsterdam.

During thirteen days I travelled five countries, saw a large part of the world, met a lot of people and built irreplaceable life-time friendships; but foremost for me it is priceless experience which is a great contribution in my future career. Once again, I would like to thank to all people who allowed me to be a part of this unique project and I am pleased to share my advice, help and support to the next generations of students, who are interested in learning practical experience in their field and who will decide to be a part of IREC in next years.

IREC is a great opportunity not only for students of real estate and property management studies, but also for everyone, who is interested in spatial and investing planning, urbanism, architecture, building industry, economy, finance and management and who is willing to develop his experience and working practice.

Review of 2017´s participating students: During IREC we forgot that we are still students and we had a real chance to try how it works in a professional life. We have learnt how important our professionalism is – to be punctual and prepared at any circumstances, to be objective and reliable to ourselves and our team as well; we have learnt critical

thinking; how to present in front of a client; how to communicate with people on a professional level; and how to sell ourselves. Last but not least, it is important not to lose sense of humour and reasonable detachment. At the end of the project we found out not only that we made life-time friends from all over the world, but also several business partners and contacts for future.

Finally, we would like to give our THANKS to the Institute of Management of the Slovak University of Technology in Bratislava and especially to Ing. Andrej Adamuščin, PhD. for the opportunity to be a part of IREC 2017. A big thanks belongs to our sponsors – Colliers International, HB REAVIS, HERRYS - for the financial support, without whom the students´ participation would not have been possible. To all student who will decide to be a part of the international project of IREC in the following years we wish best luck, and at least as many experiences and contacts as we got in 2017.

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