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MANAGEMENT OF DREINAGE CONDITIONS IN SELECTED BASIN RIVER IN THE CURRENT ECON SITUATION

Abstract. The article discusses the management of drainage conditions in a selected river basin in the current economic situation. To analyze the current state of the landscape in the area under consideration and identify problems in the basin, a thesis analysis was carried out. The results of the analysis will contribute to solving a number of regional problems, which will lead to environmental sustainability and increase the current economic situation in the region. The article describes the process of managing the territorial system of environmental and economic sustainability of the region.

Key words: management of drainage conditions in the selected river of the basin, landscape measures, landscape features, management of the regional system of ecological and economic sustainability of the region.

Introduction. Currently, people's access to the landscape is insufficient, which is seriously due to the adverse effects of climate change affecting the current state of the region's economy. Landscape is an integral part of our life and directly affects its quality of life. Processes, rules and behavior should be established to ensure that the landscape is not damaged and that sustainable development of the landscape and society is ensured [1].

The aim of the work was to professionally identify disappearing areas in the part of the selected river basin, starting from the source, from the sources of its tributaries to the reservoir at its end. To analyze the current state of the landscape in this area and identify problems in the basin, a thesis analysis of the impact of this problem on the regional economy was carried out [2].

The flow conditions in the selected river basin in the reservoir are violated mainly due to flow regulation, drainage of agricultural land and inappropriate agricultural activity due to extensive erosion. River basins in the area under consideration are currently carefully regulated and drained as a result of improper reclamation measures and are hydrologically unstable.

Methods. In the research process, general methods of scientific knowledge were used, namely empirical research methods (observation, comparison, measurement, experiment) and theoretical research methods (abstraction, analysis and synthesis, idealization, induction and deduction, mental modeling, ascent from abstract to concrete).

The empirical level of knowledge includes: observation of phenomena, the accumulation and selection of facts, and the establishment of relationships between them.

The theoretical level was associated with the predominance of mental activity, with the comprehension of empirical materials, its processing. At the theoretical level, we have revealed the internal structure and regularity of the development of the territorial system and phenomena, their interaction and conditionality.

Results. This study focuses on the issue of landscape management, which is an integral part of our life both in rural areas and in cities, focused on the flow conditions in the landscape. We preferred this topic because we are dealing with the issue of reservoir management in order to create the basis for making managerial decisions in the field of improving the quality of life of the population and the economic stability of the region. The subject of our interest will be the river basin from the source of the Svratka river to the Vir reservoir (hereinafter VN - Reservoir ~ Vodni-nadzh or Plotina). This area includes the Svratka River, which originates under the Zhakova Mountain near the village of Tsikhay in the Shar nad Sazavou district, a spring and tributaries of the Svratka reservoir Vire [3]. The described basin is environmentally unstable due to environmental pollution resulting from industrial and agricultural activities in the surrounding areas. The administration of this region is entrusted to the state-owned enterprise of the Morava River Basin, the administration also falls under the state-owned enterprise Lesia of the Czech Republic.

The theoretical part contains a set of basic theoretical knowledge and knowledge in the areas of ecological stability, territorial system of ecological stability, land consolidation, further knowledge of sustainable development, climate and the impact of agriculture on the landscape.

Recently, water managers have been facing the problem of phosphorus pollution on the Svratka River, which causes eutrophication of water not only on the Vír reservoir (VN Vír), but also on the Brno reservoir. Problems with water quality are already visible in the upper catchment area of the Svratka River, especially at the tributary of the Svratka White Stream [4]. The basin of the Vír reservoir is strongly anthropogenically affected. Water quality, both surface and underground, is most affected by point sources of pollution. Practical farming practices are another harmful impact on water quality, as well as inadequate treated wastewater from industrial and service establishments, which are abundant sources of nutrient supply. In addition, municipalities with up to 1,000 inhabitants (total number of approximately 10,000 inhabitants to solve) have a share in water pollution, where sewerage is not sufficiently solved. Also, the water in the Vír reservoir is faced with eutrophication due to the increased nutrient content, the occurrence of toxic cyanobacteria in the reservoir, which makes it difficult to adjust raw water for drinking. The importance of the Vír reservoir increased after it was selected as one of two sources of drinking water for Brno, which led to the construction of the Vír regional water main in 1988–2001 with a water treatment plant in Svařec and a conduit from this treatment plant to Brno (Morava River Basin). Therefore, as a native of Brno, the quality of the water in Svratka and the Vír reservoir are of direct concern to me. It can be assumed that the amount of drinking water taken from the Whirlpool's regional water supply will increase. The fact that the Vír reservoir is intended for the future as a reservoir of drinking water can also be deduced from the planned investments of the Morava River Basin, such as the plan for the Study of Improvement of Water Management, Water Quality and Restoration of Ecological Stability (Morava River Basin).

Eutrophication is one of the biggest problems in most Czech dams. The Švihov reservoir on the Želivka River, which is the largest reservoir of drinking water in the Czech Republic and the main source for Prague, is facing problems. Potato and sown maize are planted on sloping fields around the reservoir [5]. Representatives of public benefit corporation Net Želivka draw attention to how any stronger rain to flush the tank with fresh water arable land with chemical fertilizers. As a result of obvious soil erosion, the quality of drinking water in tributaries to the water reservoir is deteriorating (Vokáček, 2014).

An equally serious problem is erosion flushing, not only in the Czech Republic, but also worldwide. As a result of erosion, for example, a crash occurred in February 2017 at the highest dam in the US on Lake Oroville, California, where an emergency spillway appeared due to erosion. There was a great danger with the enormous consequences of the disaster (Hroch, 2017) (Vejvodová, 2017). If we look for erosion threats in the Czech Republic, then the Plumlov Reservoir can be an example, where adjacent gardens began to slide down due to erosion. A measure planned to eliminate or mitigate the effects of erosion is the construction of a stone wall at the Čubernice pond in Mostokovice (Havlík, 2013). The Morava River Basin states that erosion is a major threat at the Plumlov Reservoir, but it also points out that the issue of erosion is not limited to this area (Morava River Basin).

Land consolidation must be designed in a high quality and professional way to fulfill its purpose. If this is not the case, the implementation of land consolidation is unnecessary, costly and without the desired effect (Syrovatka).

The aim of this PhD thesis is to survey all the land cadastre, the source of the river Svratka, Svratka tributaries from the springs to the water tank Vír, analyze the current state of the landscape in this area and to detect problems in the basin and in the tank [7]. The aim of the thesis is to find out the attitude of the management of municipalities with extended powers and the representative of the state enterprise of the Morava River Basin to the issue of land consolidation and runoff conditions in the area. To find out whether the interviewees perceive the problem or whether they have enough information on the problem.

Part of the dissertation will be a research, in which I set the following four main objectives:

– problems and solutions of runoff conditions from the point of view of dam Vír;

– mapping of cadastral areas from the Svratka spring to the Vír reservoir, including river basin problems;

– the attitude of municipalities with extended powers to the solution of runoff conditions;

– evaluation of communication with representatives of municipalities with extended powers.

The level of ecological stability can be estimated on the basis of the proportion of successively developed ecosystems composed of self-spreading organisms that are able to sustain themselves without any additional energy (Michal, 1994).

Violation of ecological stability results in accelerated and fluctuating water runoff from the landscape, leaching of nutrients, dangerous erosion and soil drainage (Syrovátka, 2008).

KES scale:

– KES up to 1, 5: a heavily exploited landscape with significant disruption of natural structures;

– KES 1, 51 - 3,00: intensively used agricultural landscape;

– KES 3, 01 - 5,00: cultural landscape with common use;

– KES 5, 01 or more: a landscape with a significant predominance of natural elements, at a higher level of coefficient landscape close to nature and natural.

Territorial system of ecological stability

The Territorial System of Ecological Stability (TSES) defines Act No. 114/1992 Coll., On Nature Protection in Section 3 (1) as "an interconnected set of natural and altered but naturally close ecosystems that maintain the natural balance… defining the system of ecological stability, in order to preserve and reproduce natural resources; favorably affect the surrounding less stable parts of the landscape and create the basis for the multifaceted use of the landscape determined and evaluated by the authorities of spatial planning and nature protection, water management, protection of agricultural land resources and state forestry administration" (Czechia, 1992).

The delimitation of TSES consists in the division of landscape from the point of view of biogeographical and typology of communities in relation to habitat conditions. The creation of TSES is a long-term process. Complex land consolidation can also contribute to the improvement of TSES elements, see Chapter 8. Within these complex land consolidations, the parcel delimitation of TSES parts ensures territorial protection and enables the implementation of TSES. TSES also serves as a basis for planning other activities in the landscape (forests, river revitalization, traffic constructions) (TSES).

TSES enables revitalization and restoration of landscape features and improvement of complexes of landscape functions, which include protection against soil erosion and water retention in the landscape (Michal, 1994).

Compositional elements of TSES are:

– Biocentre – we can name it as a natural living space (or a set of these living spaces) on which a plant or animal, or a space, that allows the permanent existence of a natural or altered naturally close ecosystem to live. It is a small space in the landscape without disturbing the environment from less stable area

– Biocorridors - are or are to be made up of an ecologically important part of the landscape that supports biocentres and allows migration, spread and mutual contacts of organisms. These are narrow sections of the landscape that line the farmland and watercourses

– Interactive elements – are ecologically important elements in the landscape. These are ecologically important line communities, creating living conditions for plants and animals, which significantly influence the functioning of ecosystems of cultural landscape (groves, solitary trees).

Definition ÚSES is included in the planning documentation, and the various details (zoning plans of municipalities, the principle of territorial development of regions, territorial development policy) and is

therefore binding when it becomes part of the planning documentation [10]. In terms of complex land consolidation, the TSES is incorporated into the plan of common facilities (CTU, 2010).

The TSES on water elements is linked to a tangle of watercourses, which are natural biocorridors. Natural biocentres (water and wetland areas bound to the watercourse, such as blind arms of a watercourse or pools in the floodplain of a watercourse) may also be bound to the watercourse. A number of habitat stagnant waters are on ponds (AOPK). Wherever large-scale farming is conducted, the network of interactive TSES elements is sparse (Syrovatka).

ORPs register a direct relationship between runoff conditions, local climate and complex land consolidation. It agrees that well-executed comprehensive land consolidation can contribute to mitigating the negative impact of weather changes.

ORPs are familiar with the MRD subsidy program, they would be interested in a landscape study within the 9th Call for Applications for Resistance from IROP, yet none of the ORPs has submitted and does not plan to submit.

The issue of water conservation in the landscape is dealt with in the ORP Nové Město na Moravě by permitting new water reservoirs, wetlands, ponds, pools, the establishment of rainwater soaks in family houses, the use of rainwater as domestic water for households. The village of Bystřice nad Pernštejnem solves the problem by revitalizing its water reservoirs. ORP Polička solves the problems in the territorial plan (see chapter 9.14. of this work). ORP Žďár nad Sázavou has only a few cadastre in the given territorial order and did not comment on this issue.

Evaluation of communication with representatives of municipalities with extended powers

The aim of the work was to professionally determine the endangered areas in the part of the Svratka river basin, from the Svratka spring, from the sources of its tributaries to the Vír reservoir, to analyze the current state of the landscape in this area and to identify problems in the basin. The attitude of the management of municipalities with extended powers and the representative of the Morava River Basin to the issue of land consolidation, runoff conditions and possibilities of investigation were ascertained.

At present, people's access to the landscape is inadequate, which is serious because of the adverse effects of climate change. Landscape is an integral part of our life and directly affects its quality [13]. Processes, rules and behaviors must be set up to ensure that the landscape is not damaged and that the sustainable development of the landscape and society is ensured.

The authors of the research in Senotín offer a starting point in the sense of a new systemic approach to the landscape, which means understanding that the individual landscape units and their parts are RETU. The aim of the systemic approach is then a consistent thought-out effort to restore the landscape's ability to retain water in the soil and use it to stabilize the climate through transpiring greenery, which will then stabilize the balance components of the water regime and prioritize restoration of water-thermal conditions in the landscape. The authors also point out the absurdity of the current way of defense against the ecological instability of the landscape, which consists in the construction of new dams and other regulations of watercourses. Here we come between two opinions of experts, on the one hand, the opinion of water managers advocating the construction of new reservoirs, and on the other, the opinion of experts from various professions concerned, arguing that it is important to manage water in the soil and use its retention capacity (Syrovátka, 2004).

Based on the prepared project Clean Water for Pilsen, it can be stated that with the cooperation of stakeholders such as representatives of municipalities, landowners, project solvers, land office, design office, as well as local and volunteers, conditions in the landscape. Such projects are based on available data and information, on quality evaluation of the landscape, specific land registers and river basins, taking into account all necessary aspects. The CPAs take into account the needs of the landscape in connection with the demands of stabilization of runoff conditions and protection against undesirable impacts of climate change. Mutual cooperation of interested – experts and laymen – is the basis for functional implementation of complex land consolidation. Land consolidation must be perfectly prepared and well executed. Only if these conditions are met can land consolidation improve the condition of the landscape (Syrovatka) (Slunečko, 2012).

The revitalization of the catchment area affects not only the people in the area above the Vír dam, but also the people living below it. Since the Vír reservoir is a reservoir of drinking water for Brno, the revitalization of the basin above the Vír reservoir should be of interest to both Brno citizens and people around it. The Vír reservoir sells raw water regardless of its quality, and its pollution is a factor in

calculating the price of drinking water. Waterworks have to incur ever higher costs for removal of undesirable substances in water (see example of waterworks in Pilsen). If we compare the price of drinking water between 2013–2017, we find that the price of water is constantly rising. In 2013, this price was 31, 40 CZK / m3 and in 2017 it rose to 37.08 CZK / m3 including VAT. Of course, the rising price of water is not only influenced by its poor quality, which the sewage treatment plants have to deal with, but also by the development of consumption and prices of basic inputs, especially the creation of resources for renewal, repairs and maintenance of water infrastructure, 2016)

Additional sources in the Svratka river basin, where other damage was identified. They should be consistent with spring break patterns.

Discussion. Following the results of research in this area, I see as a fundamental solution to the problem of land consolidation an excellent tool for revitalizing the landscape and increasing its resistance to some negative manifestations of climate change. We consider it important to start the CoPU processes "from below", that is, with a community-led process based on the acquisition of various allies. We believe that it is important to be more educated in order to master an excellent tool – a complex landscape design - as a tool to revitalize the landscape and increase its resistance to some negative manifestations of climate change.

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ҚАЗІРГІ ЭКОНОМИКАЛЫҚ ЖАГДАЙДА ТАҢДАУЛЫ ӨЗЕН БАССЕЙНІНДЕ ДРЕНАЖ ШАРТТАРЫН БАСҚАРУ

Аннотация. Мақалада қазіргі экономикалық жағдайда таңдалған бассейн өзеніндегі дренаж шарттарын басқару қарастырылады. Қарастырылып отырған саладағы ландшафттың қазірғі жай-күйін талдау және бассейндегі проблемаларды анықтау үшін тезистік талдау жүргізілді. Талдау нәтижелері өңірлік сипаттағы бірқатар проблемаларды шешуге ықпал етеді, бұл өңірдегі экологиялық тұрақтылыққа және қазірғі заманғы экономикалық жағдайды арттыруға әкеледі. Мақалада аймақтың экологиялық-экономикалық тұрақтылығының аумақтық жүйесін басқару процесі сипатталады.

Осы мақаланы зерттеу және жазу нәтижелері бойынша Свратка өзені алабындағы Вир су қоймасына ағу жағдайлары негізінен ағуды реттеуге, ауыл шаруашылығы алаңдарын құрғатуға және кең эрозия нәтижесінде ауыл шаруашылығы қызметіне сәйкес келмейтін ауыл шаруашылығы қызметіне байланысты бұзылатыны анықталды. Қарастырылып отырған облыстағы Свратка өзенінің бассейндері қазірғі уақытта тиісті емес мелиорациялық іс-шаралар нәтижесінде мұқият реттеледі және кептіріледі және ғидрологиялық тұрақсыз болып табылады. Бассейнде ландшафттан судың жылдам ағуына байланысты су мөлшерінің азаюы байқалады. Таяқша астындағы ақ ағындағы және Витохов кадастрлық ауданындағы ең қиын жағдай, онда мен қысқа мерзімде ҚКП-ны іске қосуды ұсынамыз.

Жоғарыда көрсетілген мәліметтерге сүйене отырып, осы саладағы зерттеулердің нәтижелері, мен жерді шоғырландыру проблемасын ірғелі шешу ретінде ландшафтты жандандыруға және климаттың өзгеруінің кейбір теріс көріністеріне оның тұрақтылығын арттыруға арналған тамаша құрал ретінде көремін. Өзен бассейнінде мен ОБП тұрғысынан өзен бассейніндегі шындыққа сай қауымдық КОП процесіне бетпе-бет келдім. Зерттеуге сәйкес, ӘПО өкілдері жерлерді шоғырландыру қажеттілігі туралы біледі, бірақ кейбір жағдайларда олар қоғамдастықтың басшылығымен ММС-ға түзетулер енгізу мүмкіндігімен таныс емес. Зерттеулер ДРК жерлерді шоғырландыруға ықпал етпейтінін көрсетті. Бұл қаржының жетіспеуіне, әкімшілік ауыртпалыққа, уақытша аспектілерге, меншіктің күрделі қатынастарына және Бюродағы күн тәртібімен жұмыс істеу үшін персоналдың жетіспеушілігіне байланысты. Егер RIP жерді шоғырландыруды жүргізуді жоспарласа, онда жер тізілімдері үшін басымдық гір деңгейінде емес, муници-палитеттер құзырында болады.

Біз Ұлы аспапты – күрделі Ландшафт дизайнын ландшафтты жандандыруға және климаттың өзгеруінің кейбір теріс көріністеріне оның тұрақтылығын арттыруға арналған құрал ретінде түсіну үшін неғұрлым білімді болу маңызды деп санаймыз. Муниципалитеттер, түрлі одақтастар және жергілікті қауымдастықтар

арқылы төменнен Сору процестерін іске қосу мацызды. Мен осы проблемада ец жақын тәжірибесі бар экологтар, сушылар немесе фермерлер, әсіресе, кеңінен қатысудыц ықтимал тәсілі ретінде көремін. Жер иеленушілер егіншіліктіц қазіргі жай-күйін тұрақсыздыққа сендіруі тиіс және шешімсіз сапаныц төмендеуіне және демек, жер құныныц төмендеуіне алып келеді.

Түйін сөздер: бассейнніц таңдаулы өзеніндегі дренаж шарттарын басқару, ландшафтық әлемдер, ландшафт ерекшеліктері, өцірдіц экологиялық-экономикалық тұрақтылыгыныц аумақтық жүйесін басқару.

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УПРАВЛЕНИЕ УСЛОВИЯМИ ДРЕНАЖА В ИЗБРАННОЙ РЕКЕ БАССЕЙНА В СОВРЕМЕННОЙ ЭКОНОМИЧЕСКОЙ СИТУАЦИИ

Аннотация. В статье рассматривается управление условиями дренажа в избранной реке бассейна в современной экономической ситуации. Для анализа современного состояния ландшафта в рассматриваемой области и выявления проблем в бассейне был проведен тезисный анализ. Результаты анализа будут способствовать решению ряда проблем регионального характера, что приведет к экологической устойчивости и повышению современной экономической ситуации в регионе. В статье описывается процесс управления территориальной системой эколого-экономической устойчивости региона.

По результатам исследования и написания данной статьи было установлено, что условия стока в бассейне реки Сватки к водохранилищу Вир нарушаются, главным образом, из-за регулирования стока, осушения сельскохозяйственных площадей и несоответствующей сельскохозяйственной деятельности в результате обширной эрозии. Бассейны реки Сватки в рассматриваемой области в настоящее время тщательно регулируются и осушаются в результате ненадлежащих мелиоративных мероприятий и являются гидрологически нестабильными. В бассейне наблюдается уменьшение количества воды из-за ускоренного стока воды с ландшафта. Самая критическая ситуация в Белом потоке под Поличкой и в кадастровом районе Витохова, где мы предлагаем запустить КПК в кратчайшие сроки.

Следуя вышеуказанным данным нами, было определено, что результаты исследований в этой области, видим в качестве фундаментального решения проблемы консолидации земель отличный инструмент для оживления ландшафта и повышения его устойчивости к некоторым негативным проявлениям изменения климата. В речном бассейне мы столкнулись с процессом общинного КОП с реальностью в речном бассейне с точки зрения ОВП. Согласно исследованию, представители ОВП знают о необходимости консолидации земель, но в некоторых случаях они не знакомы с возможностью внесения корректировок в ОМС под руководством сообщества. Исследования показали, что ОПР не способствует консолидации земель. Это связано с нехваткой финансов, административным бременем, временными аспектами, сложными отношениями собственности и нехваткой персонала для работы с повесткой дня в Бюро. Если RIP планируют провести консолидацию земель, то приоритет для земельных реестров находится в компетенции муниципалитетов, а не на уровне RIP.

Мы считаем, что важно быть более просвещенным, чтобы понять великий инструмент - сложный ландшафтный дизайн - как инструмент для оживления ландшафта и повышения его устойчивости к некоторым негативным проявлениям изменения климата. Важное значение придается запуску процессов CoPU снизу через муниципалитеты, различных союзников и местные сообщества. Это возможный способ широкого участия, особенно экологов, водников или фермеров, которые имеют самый близкий опыт в этой проблеме. Землевладельцы должны будут убедить нынешнее состояние земледелия в неустойчивости, что приведет к снижению качества и, следовательно, стоимости земли.

Ключевые слова: управление условиями дренажа в избранной реке бассейна, ландшафтные меры, особенности ландшафта, управление территориальной системой эколого-экономической устойчивости региона.

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REFERENCES

[1] Duras, Jindrich. 2006. vakinfo.cz.NEW CHALLENGES FOR WATER TANK MANAGEMENT. [website] 2006 http://www.vakinfo.cz/vodni-hospodarstvi/vodni- Hospodarstvi-cr / novevyzvypromanagenentnadrzi /

[2] EU. 2000. Directive 2000/60 / EC. eAGRI. [website] October 23, 2000. http://eagri.cz/public/web/mze/legislativa/predpisy-es-eu/Legislativa-EU_x1991-2000_Smernice-2000-60-Vodnihosp.html

[3] Fiedler, Jiří, PONDĚLÍČEK, Michael, ŠILHÁNKOVÁ, Vladimíra. 2008. Territorial analytical data of the municipality with extended competence Polička, Sustainable Development Analysis. polička.org. [website] November 2008 http://www.policka.org/soubory/uap/RURU.pdf.

[4] Adamek, Helesic, Marshal and Rulik. 2014. Applied hydrobiology, Translated by Katařina Němečková. Ceske Budejovice: University of South Bohemia in Ceske Budejovice, Faculty of Fisheries and Protection of Waters, 2014. ISBN 978-80-7514-025-8.

[5] Bukáček, Matějka. 1999. Evaluation of landscape character. In. Landscape management - aims and methods. [editor] P. Sklenička I. Vorel. Prague: CTU, 1999. ISBN 80-01-01979-9.

[6] Ecological Services Ltd., Agency for Nature Conservation and Landscape Protection of the Czech Republic, ME CR, 2005. ISBN 80-239-6351-1.

[7] Kvítek, Tomáš et al. 2006. Agricultural amelioration. České Budějovice: University of South Bohemia, Faculty of Agriculture, 2006. ISBN 80-7040-858-8.

[8] Literature LÖW, Jiří and Michal, Igor. 2003. Landscape character. Kostelec nad Černými lesy: Forestry work,2003. ISBN 80-86386-27-9.

[9] Maier et al.. 2012. Sustainable Development of Territory. knihy.abz. [website] 2012 http://knihy.abz.cz/imgs/teaser_pdf/4449788024741987.pdf

[10] Abisheva G.O., Ismailova D.T., Taukenova L.Zh., Mazhikeeva S.S., Ismailova N.T. (2019). Coaching as a tool for enterprise development. News of the national academy of sciences of the Republic of Kazakhstan. Vol. 6, N 54 (2019), 24–27. ISSN 2224-526X. Series of agricultural sciences. https://doi.org/10.32014/2019.2224-526X.71

[11] Medunova, Iveta. 2013. Model study of river basin management management optimization.: University of Economics, Prague - Faculty of Management, 2013.

[12] Ismailova N.T., Abisheva G.O., Ismailova D.T. (2019) The role of EVENT-marketing in management. News of the national academy of sciences of the Republic of Kazakhstan. Vol. 6, N 328 (2019), 94–98. ISSN 2224-5294. Series of social and human sciences. https://doi.org/10.32014/2019.2224-5294.201 Michal, Igor. 1994. Ecological stability. Brno: Veronica, 1994. ISBN 80-85368-22-6

[13] Czechia. Act No. 254/2001 Coll. *Ministry of the Environment.* [website] June 28, 2001.http://www.mzp.cz/www/platnalegislativa.nsf/2a434831dcbe8c3fc12564e900675b1b/20f9c15060cad3aec1256ae30038d05c? OpenDocument.

[14] Czechia. Act No 1992. Act No. 114/1992 Coll. *Ministry of the Environment.* [website] February 19, 1992. http://www.mzp.cz/www/platnalegislativa.nsf/d79c09c54250df0dc1256e8900296e32/58170589e7dc0591c125654b004e91c1?OpenDocument.

[15] Czechia. Act No ACT No 139/2002 on land consolidation. *portal.gov.* [website]

[16] Czechia. Act No 1992. Act No. 17/1992 Coll. *Public administration portal.* [website] 1992 https://portal.gov.cz/app/zakony/zakon.jsp?page=0&nr=17~2F1992&rpp=15#seznam

[17] Havlik, Radim. 2013. The builders will also repair a piece of the shore of the "Bahňák" dam, due to erosion. *prostejovsky.denik.* [website] January 7, 2013. http://prostejovsky.denik.cz/zpravy_region/stavbari-opravi-i-kousek-brehu-prehrady-kvuli- erozi-20140106.html.\

[18] Hroch, Jaroslav, CTK. 2017. There is a danger of rupture of the highest American dam, blocking a hole with stones will not go. *spravy.idnes.* [website] February 13, 2017 http://zpravy.idnes.cz/usa- dam- protrzeni -evakuace-kalifornia-fee-/zahranicni.aspx ? c = A170213_060641_zahranicni_ane.

[19] Michal, Igor. 1994. *Ecological stability.* Brno: Veronica, 1994. ISBN 80-85368-22-6.

[20] Slunečko, M, Syrovatka, O. 2012. Another story of endangered nature and people. [website] 2012. http://tv.sms.cz/televize/CT2/20121104/1540056876-Nedej-se ? porad_stav = archiv.

[21] Syrovatka. 2004. Towards a paradigm of sustainable development. *Selected socio-scientific aspects of environmental management.* University of Economics, Prague, Department of Social Sciences, 2004.

[22] Syrovatka. 2015. Clean water for Pilsen. *regio-adaptation.*[website] 2015. http://www.regio-adaptace.cz/cs/examples-prax/35/.-. Clean water for Pilsen. *regio-adaptation.*[website]http: //www.regio- adaptace.cz/cs/example-prax/35/.

[23] Syrovatka. 2004. Man and European Landscape. *Selected socio-scientific aspects of environmental management, Hejda J.*University of Economics, Prague, Department of Social Sciences, 2004.

[24] Syrovatka. 2008. Landscape ecological aspects of prevention of negative impacts of climatic changes in river basins. *Study prepared for TG Masaryk Water Research Institute, Research on adaptation measures to eliminate the impact of climate change in regions of the Czech Republic (Research Program in the Agrarian Sector 2007-2012).*

[25] Syrovatka, Miloslav. 2001. *Change of approaches to landscape – condition of sustainable development. Proceedings of the conference Face of the Landscape – Landscape of Home No. 1: Landscape as a Natural Space.* Prague - Pruhonice: Studio JB, 2001. 80-86512-02-9.

[26] Vejvodova, Nela, Vladykova, Marie. 2017. Helicopters are supposed to prevent a disaster on an American dam. Erosion created a 60-meter hole. *list.*[website] February 13, 2017. https: / /www.seznam.cz/zpravy/clanek/ejvyssi-p Damrade-ve-spojenych-staty- hrozi-protrzeni-27970.

[27] Vokacek, Martin. 2014. How to prevent water pollution in Želivka? A joint memorandum was created. *iDNES.cz.* [website] July 31, 2014. http://jihlava.idnes.cz/jak-zamezit-znecistovani-pitne-vody-stoji-to-hodne-penez-pzb-/jihlava-spravy.aspx ? c = A140731_2086784_jihlava-spravy_mkk.