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Қ. И. Сәтпаев атындағы Қазақ ұлттық техникалық зерттеу университеті

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ИЗВЕСТИЯ

НАЦИОНАЛЬНОЙ АКАДЕМИИ НАУК
РЕСПУБЛИКИ КАЗАХСТАН
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NAS RK is pleased to announce that News of NAS RK. Series of geology and technical sciences scientific journal has been accepted for indexing in the Emerging Sources Citation Index, a new edition of Web of Science. Content in this index is under consideration by Clarivate Analytics to be accepted in the Science Citation Index Expanded, the Social Sciences Citation Index, and the Arts & Humanities Citation Index. The quality and depth of content Web of Science offers to researchers, authors, publishers, and institutions sets it apart from other research databases. The inclusion of News of NAS RK. Series of geology and technical sciences in the Emerging Sources Citation Index demonstrates our dedication to providing the most relevant and influential content of geology and engineering sciences to our community.

Қазақстан Республикасы Ұлттық ғылым академиясы "ҚР ҰҒА Хабарлары. Геология және техникалық ғылымдар сериясы" ғылыми журналының Web of Science-тің жаңаланған нұсқасы Emerging Sources Citation Index-те индекстелуге қабылданғанын хабарлайды. Бұл индекстелу барысында Clarivate Analytics компаниясы журналды одан әрі the Science Citation Index Expanded, the Social Sciences Citation Index және the Arts & Humanities Citation Index-ке қабылдау мәселесін қарастыруда. Webof Science зерттеушілер, авторлар, баспашылар мен мекемелерге контент тереңдігі мен сапасын ұсынады. ҚР ҰҒА Хабарлары. Геология және техникалық ғылымдар сериясы Emerging Sources Citation Index-ке енуі біздің қоғамдастық үшін ең өзекті және беделді геология және техникалық ғылымдар бойынша контентке адалдығымызды білдіреді.

НАН РК сообщает, что научный журнал «Известия НАН РК. Серия геологии и технических наук» был принят для индексирования в Emerging Sources Citation Index, обновленной версии Web of Science. Содержание в этом индексировании находится в стадии рассмотрения компанией Clarivate Analytics для дальнейшего принятия журнала в the Science Citation Index Expanded, the Social Sciences Citation Index и the Arts & Humanities Citation Index. Web of Science предлагает качество и глубину контента для исследователей, авторов, издателей и учреждений. Включение Известия НАН РК. Серия геологии и технических наук в Emerging Sources Citation Index демонстрирует нашу приверженность к наиболее актуальному и влиятельному контенту по геологии и техническим наукам для нашего сообщества.

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ECOLOGY AS A BASIC PRINCIPLE OF SUSTAINABLE DEVELOPMENT

Abstract: The article sets out environmental friendliness. The concept of sustainable development is disclosed. Certain basic measures of sustainability: environmental, social and institutional, economical. The proposed methodology for assessing environmental sustainability and land consolidation, which is a prerequisite for territorial planning and development of the territory, helps to improve the environment, protect and fertility of the soil, increase the efficiency of environmental protection and improve the quality of life in rural areas.

Key words: sustainable development, environmental friendliness, water, land, environmentally sustainable areas, principles of sustainability, cadastre.

Introduction. In 1987, the United Nations World Commission on Environment and Development issued a report entitled “Our Common Future,” which suggested that environmental problems were addressed through a so-called new type of economic development. Sustainable development would guarantee the preservation of life on Earth, the preservation of the functions of nature and would not reduce biological diversity and would not jeopardize the interests of another nation or future generations. An organized and coordinated process aimed at sustainable development and compliance with the principles of environmental management is called environmental management (Hejda, 2004).

Sustainable development of society is a development that preserves the ability of present and future generations to satisfy their basic necessities of life. (Maier et al., 2012).

The principle of sustainability has the following main dimensions: environmental, social and institutional, economical further for example: moral and ethical

Methods. Assessment of the overall environmental sustainability of the area is carried out using the KES method. KES has already been created for municipalities in the area and is available at the Czech Statistical Office and the Ministry of Regional Development. However, KES cannot reflect all aspects of the area’s environmental sustainability, such as the quality of life in the area. Therefore, this is an indicative figure that does not have enough information. For this reason, the practical use of the landscape will be taken into account only.

We are engaged in land consolidation in cadasters located in the area of interest, which are available on the eAGRI web portal. This is the portal of the Ministry of Agriculture, where you can enter the relevant data: region, district, cadastral territory on the map to determine whether the selected site processed land consolidation and at what stage.

An important aspect of assessing the sustainability of an area is the risk of erosion. Given the theme and content of this work, it will be mainly water and soil erosion. An erosion map will be provided from

the state land registry published by the Ministry of Agriculture on the eAGRI portal in electronic form, so that remote and continuous access to the main data from the public part of the land use registry is possible. The term pLPIS is used for the public part of the LPIS Internet application. To determine the level of erosion threat for a selected cadaster in a controlled area, you can also use the "Soil Erosion Monitoring" web portal, which is presented as a separate web application on the SOWAC geospatial GIS managed by the Research Institute of Soil Reclamation and Protection.

On the National Geoportal INSPIRE (Infrastructure for Spatial Information in Europe) map portal, we will enter the relevant research area and find the elements of the TSES territorial environmental sustainability system.

The study is conducted in the form of e-mail, telephone or personal contacts in order to find out information, access and the decision of municipal representatives on the issue of land consolidation in connection with the conditions of runoff, in the form of questionnaires. We are interested to know whether and to what extent the representatives of the municipalities are aware of the possibilities and necessity of land consolidation, including due to the fact that there is minimal land consolidation in this area. We will find out whether the municipalities with expanded competencies in the Vir River Basin influence the negative effects of climate change, and whether they are fighting for the conservation of water in the landscape and how.

The research plan sets the following main objectives:

– Goal 1: to investigate the problem and solution of runoff conditions from the point of view of the Vi dam;

– Task 2: compile a map of cadastral zones from the Svratka source to the Vir reservoir, including problems of the drainage basin;

– Goal 3: to study the attitude of municipalities with expanded competence in solving flow conditions;

– Goal 4: to evaluate communication with representatives of municipalities with expanded powers;

– Goal 5: Examine whether AFP records a link between the adverse effects of climate change, runoff conditions, and complex land consolidation;

– Task 6: examine whether AFPs recognize the importance of land consolidation;

– Goal 7: to examine whether there is enough land consolidation information in the RIPs;

– Goal 8: to find out if AFP is aware of the possibility of applying for a CPA in the land department "from below";

– Task 9: find out if RIP is taking any initiatives to solve the flow problem;

– Task 10: check if the RIP is familiar with the grant program: ongoing call 9 to apply for support from the Integrated Regional Operational Program (hereinafter referred to as IROP), specific objective 3.3 – Support the development and application of spatial research documents published by the Ministry of Regional Development of the Czech Republic.

Telephone representatives and a written contact will be established with ORP representatives, within the framework of which a questionnaire survey will be conducted.

Results. Kender (2004) states that water fulfills a number of functions and is one of the most migratory components in the landscape. According to him, it is important to address the improvement of water quality especially in small, small watercourses, because these are the basis of the system of ecological stability. Water quality is particularly important in a given locality, in a given landscape area, because it is interconnected with the locality and it is connected with interconnection of other environmental phenomena and relations to habitats, to ecosystems (Kender, 2004). Soukup is looking for a solution of the water regime in the landscape, more precisely an improvement of the runoff conditions in the basin. The measures identified do not work in themselves, as the effect of the individual measures is composite and complementary and acts as a whole (Soukup, 2008).

According to Syrovatka in the past improperly performed amelioration, the problem of deforestation, soil drainage, plowing and subsequent decomposition of organic matter in the soil (Syrovátka, 2008).

Transplant cooling disorder, where plants actively cool their organs and the surrounding air and limit the passage of heat to the soil (see, eg, Syrovatka, et al., 1999). The conversion of water into steam produces a huge amount of energy that heats the air during condensation. Plants are not only a cooler, but

also a regulator of the local climate. Water for transpiration is taken from the soil; however, if the soil water supply is not transpired, cooling does not occur, air and soil are heated. Even a small disturbance in landscape cooling tends to deepen and widen. In disrupted soil, water runoff from soil to subsoil increases to the detriment of water supply, surface runoff and evaporation from the soil increase, for example due to non-integrated plant cover, soil compaction by agricultural technology or soil build-up, to the detriment of water infiltration into soil. The lack of water in the soil increases, plants do not transpire, air and soil overheat. The superheated air, containing a large amount of water, rises to high altitudes, where it cools, condenses and storms from heat and local rainfall. However, the dried soil surface is water-repellent, water does not seep and a local flood occurs. Loss of the cooling function of the vegetation cover in large areas leads to changes in the energy flow, influencing the movement of air masses, which can result in disastrous floods (Syrovátka, 2008).

Prevention should not be underestimated. The problem of preventing river basin protection against the impact of climate change in the landscape and restoring the basic functions of the landscape of individual river basins must be addressed at the same time at local, regional and supra-regional level. Thus, the matter takes on a serious political and economic dimension, while it is clear that addressing the issue of restoration and maintaining ecological stability in river basins will be a very long process. This process must be started as soon as possible, as any minor change in the landscape and in the behavior of those who manage and decide on the landscape will be beneficial (see, eg, Syrovátka, 1995; Syrovátka et al., 2002). A new approach to the landscape supporting the restoration of 'forest' conditions, applied across the trans-regional scale, can contribute to stabilizing the continent's climate and limiting the warming process (Syrovátka, 2008).

Addressing mitigation of the effects of climate change (drought) from above. The Ministry of Agriculture (MZE) has been given 25 major tasks from the government concerning defense against long-term drought and water scarcity, mitigating their negative impacts and supporting the enhancement of the landscape's function in water retention. MZE cooperates in this field with other ministries and organizations. The processes must be complementary. Based on the government's assignment, the Ministry launched new subsidy programs in 2016 with the aim of increasing the landscape's water retention capacity, modified the legislative framework and some procedures in this area, and adopted further measures.

Water management issues are fundamental within the landscape and therefore land consolidation. As a result, a functioning and well-organized landscape means reducing water runoff on the soil surface, reducing erosion and quality water in wells, streams and springs. It is necessary to link the results of the solution of precipitation-runoff conditions, erosion processes and water quality issues with the concept of land consolidation. Even the solution of water management problems should precede the proposals of land consolidation (Váchal, 2011).

The parties to the land consolidation proceedings are the owners of the land affected by the land consolidation proceedings, natural and legal persons whose ownership or other rights in rem may be affected by land consolidation, the builder in the event that the land consolidation is triggered as a result of construction activities, municipalities in whose territorial area the land is included in the area of land consolidation. The land consolidation procedure is considered to be initiated at the initiative of the Land Office and the Land Office shall commence it whenever the owners of the land agree with more than half the area of agricultural land in the cadastral area concerned (Czech Republic).

Complex land consolidation is one of the most important steps supporting the reduction of impacts of floods and droughts in the landscape. The aim is to improve the hydrological situation in the landscape by naturally retaining water in the landscape, achieving good ecological and chemical status of surface waters and good chemical and quantitative status of groundwater. KoPÚ solves land consolidation in a complex way usually in the whole cadastral area. The comprehensive solution then includes access to land, erosion control, water management measures. CoPÚ places higher demands on processing and financing (Vlasák, 2007). Simple land consolidation is partial and therefore concerns usually only part of one cadastral area or a problem selected in it (Ministry, 2010).

Conceptual revitalization of the landscape means corrections leading to the process of restoration and balancing of the water regime of the river basin and soil, establishing a consensus between bio and socioecological relations in the landscape and interests of landscape protection and its functions with the

interests of the local community. The aim of the revitalization of the landscape and the CPA is also to strengthen the diversity of activities in agriculture, to increase the attractiveness of small firms using new local resources (eg orchards, fast-growing trees, neglected traditional crops, local energy, etc.). Syrovatka attaches importance mainly to the CoPU process "from below", which takes into account the economic aspects of the consequences of inappropriate landscape management, where erosion and lack of organic component causes a decline in soil creditworthiness. The use of the CoPU principle is essential especially in the sphere of ownership relations to land; without this instrument, the much-needed revitalization of the spring areas is unrealistic. Syrovatka is of the opinion that the created model will be applicable in agricultural catchments throughout the Czech Republic.

The current one-sided farming management in most river basins reduces the ecological stability of the landscape and thus reduces its resistance to various climate changes, resulting in floods, erosion, droughts, torrential rainfall, windstorms etc. water in Pilsen. The solution of this problem in the form of a complex revitalization of the river basin landscape (restoration of landscape features, revitalization of small streams and springs, changes of cultures, etc.) will increase the ecological stability of the landscape and its resilience to most manifestations of climate change.

The main objective of the project was sufficient information and enlightenment to ensure support, approval and decision of preparation and implementation of complex land consolidation with the intention to stabilize runoff conditions for the cadastral area of Dolce and Kucín by management of municipalities and landowners. It was necessary to cooperate and support the management of municipalities, owners, project solvers, relevant land office and design office and cooperation with the local community and volunteers (Slunečko, 2012).

Representatives of municipalities are aware of the needs of the river basin and the necessity of solving the runoff conditions of the area. An example is the municipality with extended competence (ORP) Přeštice, which flows through the river Úhlava. The municipality of Přeštice used the announced subsidy program of the Ministry for Regional Development for the preparation of the Territorial Landscape Study for the entire administrative district of the municipality with extended competence. According to the latest available information, the municipality carried out a public contract for the selection of the contractor of this study, which was selected in March 2017, and it can be assumed that work on the study has begun (Přeštice, 2017).

The European Union (EU) Funds include financial instruments primarily designed to support the economic growth of the Member States, improve the education of the population and reduce social inequalities. Regional Policy of the European Union also called cohesion policy (cohesion policy) means the application of the principle of solidarity within the European Union, which aims to improve the quality of life of citizens of the European Union with the assistance of richer countries to poorer developing countries and regions (Ministry).

One of the European Union's cohesion policy funds is the Integrated Regional Operational Program (IROP), approved by the European Commission on 4 June 2015. IROP is a broad-based program that aims to improve the quality of life in various areas. On 31 July 2015, the Ministry for Regional Development launched the first two calls for proposals under the Integrated Regional Operational Program. One of them concerns the acquisition of land-use plans for municipalities with extended powers. Concentrating EU funds in certain types of territories will support the development of these areas and contribute to redressing territorial disparities. Specifically, it is community-led local development that focuses on rural space and aims to support the local needs of the rural area and develop cooperation at the local level (Ministry).

Discussion. Hejda notes that in 1987 the World Commission on Environment and Development at the United Nations released a report entitled Our Common Future, which was expressed the idea that environmental problems were solved with a new type of economic development, so-called. Permanently sustainable development (SD). Sustainable development would guarantee the preservation of life on Earth, preserve the functions of nature and not reduce biodiversity, nor jeopardize the interests of another nation or future generations. An organized and coordinated process towards sustainable development and respecting the principles of sound management of the environment is referred to as environmental management (Hejda, 2004).

Sustainable development of society is a development that keeps the ability of current and future generations to satisfy their basic life needs. (Maier et al., 2012).

The principle of sustainability has the following basic dimensions:

– ecological;

– social and institutional;

– economical further for example: morally- ethical.

The basic principle of sustainable development is the need (interest) to balance these three main elements. Currently, in our opinion, economic interest prevails, which is not good (Maier et al., 2012).

In terms of sustainability, the river basin should be considered taking into account environmental, social and institutional and economic foundations.

The theory and practice of sustainable development have not yet found a balance between the economic, social and environmental needs of mankind, and the quality of life has not yet been sufficiently defined. He considers the quality of life and, therefore, the theoretical foundations of sustainable development as a broadly philosophical problem, and believes that this approach is more practical and logical than the search for separate and unrelated solutions to individual problem areas (Syrovátka, 2004).

Spatial planning documentation may include, inter alia:

– Landscape mapping of cadastral areas of individual municipalities, determination of endangered areas (including aspects of water supply to municipalities);

– Study of development documents and zoning plans with respect to relations to the surrounding landscape;

– Determination of risks for individual municipalities resulting from detected instability in the surrounding landscape;

– Evaluation of landscape character in terms of tourism development potential;

– Study of municipalities' cards in the Strategy for the Development of Water Supply and Sewerage, followed by the control of the above-mentioned sources of drinking and technical water in municipalities. If there are water mains, the state of sustainability of the source will be assessed, including control of drinking water analysis, if only wells, sampling and quality analyzes will be carried out at selected sources;

– Determining the state of wastewater management in municipalities;

– Synthetic processing of results for individual municipalities will also take into account the possibilities of recommendations for the implementation of CPA, where CPA are already implemented, suitable solutions will be recommended.

Research and its proper implementation presuppose the need to define a research plan. The research plan is a generally conceived goal that determines the main lines of the research direction. The project is then subdivided into more specific sub-objectives representing the different areas under investigation. For the research it is necessary to satisfy the determination of the research sample. If the sample is small and accessible and is researched entirely for research purposes, it is called a research file, then it is exhaustive research. During the research it is important to take care of the validity and reliability of the collected data (Novotná, 2014).

When using the method of data collection in the form of an interview, the interaction between the interviewer and the respondent (interviewee) occurs. With this method, the data may be distorted by the interviewer, which affects the interviewee by his/her appearance, behavior and behavior. Therefore, the interviewer must be inconspicuous and bland. The disadvantage of this method is that the interviewee responds in an interaction with the interviewer differently than in writing the questionnaire. The advantage of this method of data collection is the lower risk of misunderstanding of the question and the possibility of submitting additional information to the interviewer. According to Novotná, interviews are divided according to the standardization criterion into:

– standardized (structured) interview - a fixed structure of questions with an offer of answers;

– semi-standardized (semi-structured) interview - it has a syllabus and a goal. It often develops them according to the situation;

– non-standardized (unstructured) interview - it does not have a set curriculum, it may be a free narrative (Novotná, 2014).

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ЭКОЛОГИЯЛАНДЫРУ ТҰРАҚТЫ ДАМУ НЕГІЗГІ ПРИНЦИПІ

Аннотация. Мақалада экологиялық тазалық туралы айтылған. Тұрақты даму тұжырымдамасы ашылды. Тұрақтылықтың белгілі бір негізгі шаралары: экологиялық, әлеуметтік және институционалдық, экономикалық. Территориялық жоспарлау мен аумақты дамытудың міндетті шарты болып табылатын экологиялық тұрақтылықты және жердің шоғырлануын бағалаудың ұсынылған әдістемесі қоршаған ортаны жақсартуға, топырақтың қорғалуы мен құнарлылығына, қоршаған ортаны қорғаудың тиімділігін арттыруға және ауылдық жерлерде өмір сүру сапасын жақсартуға көмектеседі.

Зерттеуде ландшафтты концептуалды жандандыру өзен бассейні мен топырақтың су режимін қалпына келтіруге және теңдестіруге, ландшафттағы био және әлеуметтік-экологиялық қатынастар мен ландшафтты және оның функцияларын жергілікті қоғамдастықтың мүдделерімен қорғау мүдделері арасында консенсус орнатуға әкелетін түзетулерді білдіреді. Пейзажды және ПБЗ-ны жандандырудың мақсаты ауылшаруашылық қызметінің әр түрлілігін арттыру, жаңа жергілікті ресурстарды (мысалы, бақтар, тез өсетін ағаштар, ұмытылған дәстүрлі мәдениеттер, жергілікті энергия және т.б.) пайдалана отырып, шағын фирмалардың тартымдылығын арттыру болып табылады. Ірімшік жасаушы негізінен КОП процесіне үлкен мән береді, бұл эрозия мен органикалық компоненттің жетіспеушілігі топырақтың төлем қабілеттілігінің төмендеуіне әкелетін ландшафттық басқарудың тиімсіз салдарының экономикалық аспектілерін ескереді. CoPU қағидатын пайдалану жерді меншік қатынастары саласында әсіресе маңызды; бұл құралсыз көктемгі алаңдарды белсенді түрде іске қосу мүмкін емес. Сыроватка бұл модель Чехияның барлық ауылшаруашылық жерлерінде қолданылатын болады деп санайды.

Көптеген өзендер бассейндеріндегі егіншілікті біржақты басқару ландшафттың экологиялық тұрақтылығын төмендететіні және, демек, су тасқынына, эрозияға, құрғақшылыққа, нөсер жаңбырға, дауылға және т.б. әкелетін әртүрлі климаттық өзгерістерге тұрақтылығын төмендететіні анықталды. Пилсендегі су. Бұл проблеманы өзен бассейнінің ландшафтын жан-жақты жандандыру түрінде шешу (ландшафт ерекшеліктерін қалпына келтіру, кішігірім ағындар мен бұлақтарды қалпына келтіру, дақылдардың өзгеруі және т.б.) ландшафттың экологиялық тұрақтылығын және оның климаттың өзгеруінің көптеген көріністеріне тұрақтылығын арттырады.

Зерттеулер және олардың дұрыс орындалуы зерттеу жоспарын анықтау қажеттілігін көрсетеді. Зерттеу жоспары - бұл зерттеудің негізгі бағыттарын айқындайтын жалпыға ортақ мақсат. Содан кейін жоба әртүрлі зерттеу бағыттарын білдіретін нақты мақсаттарға бөлінеді. Зерттеу үшін зерттелетін үлгінің анықтамасын қанағаттандыру қажет. Егер үлгі кішкентай болса және қол жетімді және тек зерттеу мақсаттары үшін зерттелетін болса, онда бұл зерттеу файлы деп аталады, онда бұл жан-жақты зерттеу. Зерттеу барысында жиналған деректердің шынайылығы мен шынайылығына қамқорлық жасау керек (Новотна, 2014).

Осылайша, сұхбат түрінде мәліметтер жинау әдісін қолдану кезінде сұхбат беруші мен жауап беруші (сұхбат алушы) өзара әрекеттесетіні анықталды. Осы әдісті қолдана отырып, сұхбаттасушы сыртқы түріне, мінез-құлқына байланысты сұхбаттасушыға әсер ететін мәліметтерді бұрмалай алады. Сондықтан сұхбат беруші көрінбейтін және жұмсақ болуы керек. Бұл әдістің кемшілігі – сұхбат алушының сауалнаманы жазғаннан гөрі интервьюермен әрекеттесуіне басқаша жауап беруі. Мәліметтерді жинаудың бұл әдісінің артықшылығы - мәселені түсінбеу қаупінің төмендігі және сұхбат алушыға қосымша ақпарат беру мүмкіндігі.

Түйін сөздер: тұрақты даму, экологиялық таза, су, жер, экологиялық тұрақты аймақтар, тұрақтылық қағидалары, кадастр.

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ЭКОЛОГИЧНОСТЬ КАК ОСНОВНОЙ ПРИНЦИП УСТОЙЧИВОГО РАЗВИТИЯ

Аннотация. Рассматривается экологичность как основной принцип устойчивого развития. Раскрыто понятие «устойчивое развитие». Определены основные измерители устойчивости: экологический, социальные и институциональные, экономичный. Предложена методика оценка экологической устойчивости района и консолидация земель, которая является основой для территориального планирования и развития территории, способствует улучшению состояния окружающей среды, защите и плодородию почвы, эффективному управлению водными ресурсами, улучшению экологической устойчивости ландшафта и улучшению качества жизни в сельской местности.

В ходе исследования установлено, что концептуальная ревитализация ландшафта означает коррекции, ведущие к восстановлению и уравновешиванию водного режима речного бассейна и почвы, установлению консенсуса между био и социоэкологическими отношениями в ландшафте и интересами охраны ландшафта и его функций с интересами местная общественность. Целью возрождения ландшафта и ЦПУ также является усиление разнообразия видов деятельности в сельском хозяйстве, повышение привлекательности небольших фирм, использующих новые местные ресурсы (например, сады, быстрорастущие деревья, забытые традиционные культуры, местная энергия и т.д.). Сыроватка придает большое значение в основном процессу CoPU «снизу», который учитывает экономические аспекты последствий ненадлежащего управления ландшафтом, когда эрозия и недостаток органического компонента приводят к снижению кредитоспособности почвы. Использование принципа CoPU особенно важно в сфере отношений собственности на землю; без этого инструмента столь необходимая активизация весенних площадей нереальна. Сыроватка считает, что созданная модель будет применима в сельскохозяйственных водосборах по всей Чешской Республике.

Обнаружено, что нынешнее одностороннее управление земледелием в большинстве речных бассейнов снижает экологическую стабильность ландшафта и, таким образом, снижает его устойчивость к различным изменениям климата, что приводит к наводнениям, эрозии, засухам, проливным дождям, ураганам и т.д. воды в Пльзене. Решение этой проблемы в виде комплексной ревитализации ландшафта речного бассейна (восстановление ландшафтных особенностей, ревитализация небольших ручьев и родников, изменение культур и т.д.) Повысит экологическую устойчивость ландшафта и его устойчивость к большинству проявления изменения климата.

Исследования и их правильная реализация предполагают необходимость определения плана исследований. План исследования является общепризнанной целью, определяющей основные направления исследования. Затем проект подразделяется на более конкретные подцели, представляющие различные исследуемые области. Для исследования необходимо удовлетворить определение исследуемой выборки. Если выборка мала и доступна и исследуется исключительно для исследовательских целей, это называется исследовательским файлом, то это исчерпывающее исследование. Во время исследования важно позаботиться о достоверности и достоверности собранных данных (Novotná, 2014).

Таким образом, выявлено, что при использовании метода сбора данных в форме интервью происходит взаимодействие интервьюера и респондента (интервьюируемого). При использовании этого метода интервьюер может искажать данные, что влияет на собеседника из-за его внешнего вида, поведения и поведения. Поэтому интервьюер должен быть незаметным и мягким. Недостатком этого метода является то, что интервьюируемый реагирует на взаимодействие с интервьюером иначе, чем при написании анкеты. Преимущество этого метода сбора данных заключается в более низком риске недопонимания вопроса и возможности предоставления дополнительной информации интервьюеру.

Ключевые слова: устойчивое развитие, экологичность, вода, земля, экологически устойчивые районы, принципы устойчивости, кадастр.

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