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FUTURE INSIGHTS, SCENARIOS AND EXPERT METHOD APPLICATION IN SUSTAINABLE TERRITORIAL PLANNING

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Abstract. Implementation of sustainable development policy is one of the most complicated tasks and challenges faced by the global community. The efforts to move the concept of sustainable development from a theoretical level to a decision-making level and to link the economic development to environment are followed by a number of problems. Several theories and individual methods of the development of trends exist and they could be applied in the forecast of potential future. The setting of concerned social problems, related to scientific knowledge, its receipt and representation, consists of 4 different but inter-related elements: real world, data, theory, model. Analysis of the sustainable development must be based on a systematic approach. The paper describes the methodology for the creation of future insights, the principles of application of the expert method, the types of future scenarios, and their application in drafting the general plan of the territory of Molėtai district. It provides a comparison of the offered scenarios for the future of Molėtai. Conclusions and recommendations finalize the article.

Keywords: information model, urban development, expert method, scenarios.

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1. Introduction

Implementation of sustainable development policy is one of the most complicated tasks and challenges faced by the global community, the achievement of which is sensitive.

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In 2003, the Government of the Republic of Lithuania approved the National Strategy for Sustainable Development of Lithuania which emphasises that one of the major tasks of decision-making at all levels of governance is to ensure continuity of social development, integrity of social, ecologic and economic fields, and efficiency of decisions.

Problems posed by the development become vivid with the economic changes taking place in society. Transition from one type of the economic relations to the other ones is a long-term and very complicated process that includes all fields of life. It disrupts the old system and alters a society at every level: from the economic policy pursued by the state to the perception of oneself and society. These alterations and the creation of a new system are accompanied by major social and economic shocks.

In the course of the changing economic relations it is not easy to maintain mutual balance and sustainability of processes (Čiegis *et al.* 2008; Viteikienė, Zavadskas 2007). As most of theories and practical applications linked to sustainability are either new or still under development, a relevant problem becomes not only assessment of sustainable development of individual states but also assessment of general development trends and problems characteristic of certain states or groups of states. Theoretically, the sustainable development system is not fully set up, thus often different theoretical aspects and paradigms are used when speaking of sustainable development, and different trends of development theories and individual methodologies for future forecasting are applied (Jakimavičius, Burinskienė 2007).

Modelling the transition processes in a simplified form can be based on some broad, partly overlapping categories of models: mathematical equation-based, system dynamics, statistical, expert systems (Kauko 2007), and/or evolutionary or hybrid. By applying these models, the possibility of discontinuous transformation of quantity into quality (that can arise during the initial transformation phases) should be suggested (Feichtinger 1996; Lorenz 1993). The non-linear dynamic phase is expected when the old system enters a period of crisis. Such a dynamic period can also be observed after an economy has hit the bottom and begun to grow again (Rosser 2000; Feichtinger 1996; Lorenz 1993).

Stability and changes occur through materialisation of two fundamental trends: global differentiation trend and local integration trend. In social terms, the change from linear, mechanistic models to evolutionary models means at the same time the change from centrally planned, hierarchical development models to decentralised and economically diversified models based on the local recourse control, the impact of public organisations, and the responsibility of community members, open and publicly acceptable management methods. Sustainable development is accompanied by a new planning theory paradigm, in which planners are perceived as agents acting in a cultural and ethic environment rather than as neutral and impartial observers.

The goal of sustainable development is to combine economic growth, social progress and sparing use of natural resources, maintaining ecological balance and ensuring favourable living conditions for current and future generations. Development is fostered in a certain territory, in its natural environment, thus it is important to find out reasonable extent and form of development, so that life quality is maintained and negative impact on environment is reduced (Burinskienė, Rudzkienė 2004, 2007; Kavaliauskas 2008).

Analysis of the sustainable development must be based on a systematic approach, not only planned but also include the consumption aspect, emphasising sustainable consumption and production.

Planning is a political process where plans are drafted, activity directions foreseen, and decisions made by different level politicians. Proceeding from theory to implementation, 5 strategically major fields of activities are singled out: planning and infrastructure, human resources, environmental goals, culture and tourism, business.

Sustainable development is a way to combine two different and sometimes contradictory approaches: "development-progress-growth" and "stability-safety-environment". Brundtland Commission created this dilemma and was the first to formulate the goal of the sustainable development.

2. Methodologies and ways for sustainable development insights

Planning their future, public authorities make decisions that will have significant impact on future events and processes. The results of the taken decisions have a long-term effect. The fact that the present-day scientific and technological development allows assessment of the outcome of decisions to be or not to be taken and getting ready for such outcome is very important for the public, politicians, and authorities. Obviously, before making a significant decision it is necessary to assess the aspects of its impact on other processes.

Different classifications of future process analyses may be found in literature. Traditionally, such type analyses may be classified into 3 (estimating, if-then planning, forecasting) or 4 classes, namely: forecasting, investigative analysis, presumption and projecting. Forecasting and projecting usually are applied to find out the future situation, and an investigative analysis and presumption may be applied for generating new ideas or opinions on situations with a high level of uncertainty. Among different methodologies it can be achieved using strategy of self-management tools (Paulauskas, S. and Paulauskas, A. 2008).

The easiest and most simple way to take a decision is to extrapolate the existing trends. However, this method directly applied for forecasting social and economic processes does not cover probably the most important factor – society itself, its preferences, creeds and attitudes – that exerts major influence both on the decisions taken and on their implementation. Estimation of the efficiency of the developed strategy responding to suddenly arising external changes and situations is not possible without taking into consideration the position by society. Without being aware of the public opinion it is not clear for decision makers how to react to such contingent events. Ultimately, the success of the implementation of sustainable development strategies to a large extent depends on the public attitude towards the necessity of this strategy. Successful implementation of the strategy might be expected only when the public approves the sustainable development policy and the strategy based on the sustainable development principles (Fig. 1).

As revealed in Fig. 1, successful implementation of the strategy might be expected only if the developed strategy is widely approved by the public. To explain the success or failure of the sustainable development policy, researchers usually focus on technological solution of ecologic problems and the arising difficulties. However, failures are not connected to an

inability to choose and apply modern technologies or wrong application of those technologies. The strategy is doomed to failure if people at whom decisions are targeted or the staff responsible for the introduction fail to understand the decisions and disapprove them.

Future insights are one of the key measures that could help the public realise its freedom conception through changing the future.

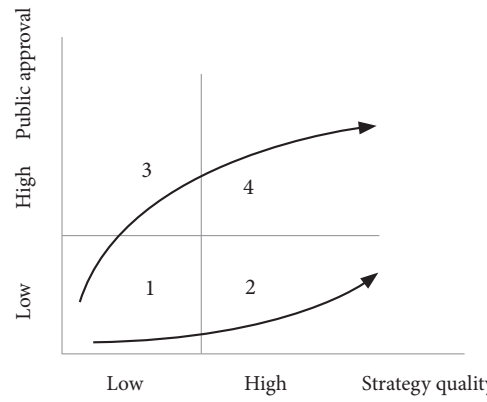

Fig. 1. The dependence of the success of implementating the sustainable development strategy on the strategy quality and public approval

Future insights are a new field the emergence of which was to the largest extent influenced by creative and innovative practicians who came with excellent methods and algorithms to satisfy the needs of their clients rather than by scientists/theorists. Future insights are one of the key measures that could help the public to realise its freedom conception through changing the future. Planning their future, public authorities make decisions that will have significant impact on future events and processes. The results of the taken decisions have a long-term effect. Obviously, before making a significant decision it is necessary to assess the aspects of its impact on other processes. Future insights and version plots are summarised in insight projects. Insight projects, the same as other projects, present analysis goal, resources, involved team and applied methods. An insight project may be a simple project that covers one product or technology, or it may be a complex project consisting of many parts, each devoted to one or more products or technologies.

The key method for insight forecasting is the *scenario* method. A scenario is a plot of potential multiple future versions: from a simple consideration of potential events of unknown future to analytically grounded future shapes linked by complex relations. One of the best-known futurologist, Peter Schwartz, in his book *The Art of the Long View* (1991) stated that practically a scenario reminds of a range of stories written or told according to accurately constructed plot. Stories may express many complex perspectives of event development, while scenarios give them special meaning. The methodology for scenario creation is based on the following main principles:

- reflection on the future and estimation of potential changes;
- as the future is indefinite and only presumptions may be made concerning it, the range of potential future versions is very wide.

Several methods for scenario creation may be singled out, and each of them consists of several variations. For example, P. Bishop, A. Hines ir T. Collins (2007) single out 8 groups of methods for scenario creation. Scientists prefer methods that combine mathematical forecasting methods and human presumptions (Chermack, Lynham 2004; Illés 2006). Where a forecast is based only on quantitative data, it is not able to consider the indefiniteness of the

future. On the other hand, human opinion contains only a subjective estimation of the future. Therefore, considering that both human presumption and mathematical extrapolation have objective shortcomings, their complex application helps foresee critical events and make more accurate estimation of future trends.

The application of the scenario method is based on several ideas. Mathematical forecasting may be successful only under stable conditions. Due to various factors (economic, political solutions, global condition changes), however, events rarely develop in an expected way. The scenario method solves the task of forecasting by applying the principles of decomposition when individual potential variants (scenarios) of the development of events are singled out (Millett 2003; Neumann, Overland 2004). The whole set of scenarios covers all possible development variants. At the same time, each individual scenario has to present an adequately accurate forecast of the future, and the total number of scenarios should be manageable.

Two stages are singled out when applying the scenario method:

- development of a comprehensive, still manageable set of scenarios;
- Comprehensive forecasting in the framework of each specific scenario and a possibility to get answers to the questions important for the analysis.

Each of these stages is only partially formalised. The major part of considerations takes place on the qualitative level, as is usual in social sciences and humanities. This results from the fact that high level formalization and mathematization bring in definition in the fields that in essence lack definition, or create a complex mathematical apparatus. Under stable conditions events may be estimated by applying statistical time line forecasting methods. However, estimation by experts should be carried out, and conclusions of such estimation sometimes are sufficient and additional models are not necessary. Estimation by experts is understood as a summarised opinion of an expert group drawn on the basis of knowledge, experience and intuition of experts (Bardauskienė 2007). The goal of estimation by experts is getting, encoding, structural processing and interpretation of knowledge of an expert.

The procedure of estimation by experts allows to combine opinions of individual experts and to formulate a joint solution. In a general case the methodology of estimation by experts is grounded on the following presumptions:

- an expert has accumulated a large amount of rationally processed information (he has sufficient knowledge and experience and may count on his intuition), thus an expert may serve as a source of quality information;
- the opinion of the group of experts hardly differs from the real solution of the problem.

Different methods are applied to get estimations by experts. In some cases an expert works individually, sometimes without even knowing that he/she serves as an expert. This method helps to avoid an influence of the opinion of known authorities (Bardauskienė 2007). In other cases experts gather together and discuss a problem, assess the expressed reasoning and reject the wrong one. In some cases the number of experts is strictly fixed and calculated, it must satisfy the presumptions of statistical compatibility methods. Sometimes the number of experts increases in the course of examination.

It has been proved (Libby, Blashfield 1978) that in aggregate modules of estimations by experts with equal weights small expert groups are as good in the accuracy of their decisions

and estimations as large expert groups. But accuracy of estimations carried out by a group of 3 experts sometimes is higher than accuracy of estimations carried out by 1 or 2 experts. Further increase in the number of experts within the group results in a higher accuracy, and the maximum number of experts within a group is 5 to 9. When the accuracy produced by a group of 5 to 9 experts is not adequate, its is advisable to improve competence of experts rather than to increase the number of experts within a group.

To satisfy the requirements imposed on the estimation by experts, methods of measurement theories and mathematical statistics are applied for conclusion of the received data analysis algorithms. Results of the estimation by experts must be analysed with caution. Therefore, its is advisable that qualitative analysis methods are used instead of applying the quantitative ones.

Forecasting or planning situations or events, the experts usually are given a task: to estimate a problematic and complicated situation and to come up with several possible alternative situation estimations and several versions of a forecast or a plan. When analysing the possible versions, experts assess their importance, inter-relations, and, when planning further actions they may also take account of material and human resources, foresee the period and estimate the financial expenditure.

3. Principles of the scenario construction

Although construction of scenarios is not strictly regulated, such construction incorporates all qualitative and quantitative forecasting methods. The basis for scenarios consists of mixtures of analysis, scenarios usually use data and methods of different fields of science: economics, law, ecology, engineering, etc., they are based on legislation and regulations, discourses, historical analogies.

Validity of scenarios depends on logic and logical links. Several typical parts are characteristic of a scenario:

1. *Introduction* that presents the beginning position, i.e. the present situation, and tells the problems and the relevance of those problems to the decision-maker.
2. *The main part of a scenario* that gives details of one of many possible future ways of development of a problem. This part gives a detailed view of the main ***drives, beginning and finishing conditions, main events and episodes***.
   - Drives are everything that causes and stimulates events analysed in the scenario. For example, it may be a decision of the government to start or complete a certain programme, discovery of technological innovations that open new possibilities, marketing goals or just individual ambitions. Practically, 2 or 3 drives are enough.
   - The existing *conditions* are presented and future conditions that will exist at the end of the scenario are assessed. It is necessary to have a good understanding of conditions at the end of the scenario. This is especially important when the scenario is aimed at conclusions and not at the course of a process.
   - *Main events* encompass several categories: legal regulation and norms, influence of the government and parliament, legal solutions, international factors, private sector

activities and decisions, technological innovations, etc. Important social events, such as failed harvest, epidemics, natural calamities, social anxieties, etc., are also included. These events and dates related to them are the main factors for forecasting finishing conditions. Each of these events should be analysed as potential, even if the probability of its occurrence is not high. One of the most complicated stages of scenario writing is giving reasoning for possible future events by mentioning previous events and episodes.

- Episodes are like embellishment that adds vividness and persuasiveness to the scenario. They help convey thoughts and ideas but are of little importance to the development of the scenarios.

3. Comments. Comments draw attention to the main elements of the scenario. They give other development versions that are possible in case of different initial presumptions and conditions of development. They may also describe critical events, pay attention to unexplored fields and emphasise the importance and peculiarities of decision versions.

A methodological basis of scenario analysis is of major importance to decision-making. An analysis of possible scenarios may give a better view not only of potential future events but also of the potential impact of decisions made on the public and environment. Besides, an analysis of scenarios facilitates the estimation of the period for achieving the expected results and the sequence of actions necessary for that. Recently, literature offers a wide range of scenarios that forecast potential trends of society and state development. One of the best known scenarios are scenarios constructed by Gartner, Inc. in 2005, covering government perspectives and methods in 2020 (Government in 2020 ... 2005). Four scenarios (Status Quo Development, Free-Enterprise Government, Coverining Phantoms, The Good "Big Brother") were singled out applying the GBN scenario planning method, and those scenarios give a different picture of the role and development of governments, perspectives of regions and provision of public services.

Futher development trends until 2050 are provided into the scenarios constructed applying Delfi method in the experimental project TechCast (*http://www.techcast.org/methodology.aspx*). Although these scenarios contribute to creative estimation of future alternatives, they may be treated as one of the secondary data sources, as it is recommended to forecast 1–3 steps ahead, while precision of long reaching forecasts is insufficient.

Recently, the European Union has been constructing a number of scenarios of future insights (Schwab *et al.* 2003; Four futures of Europe 2004; Lindgren, Bandhold 2003). Scenarios aim at estimating the economic efficiency and competitiveness, and at the same time equity and cohesion. Several alternatives of these scenarios might be singled out:

1. *Supporting scenarios.* Continuation of the processes that currently take place serve as the grounds for this scenarios type. It is based on the structural EU aid and pay regard to common EU regulation norms. Frequent goal of these scenarios is narrowing regional gaps. These scenarios traditionally support agricultural production as a strategic provision to avoid socio-economic decline.

2. *Green scenarios.* These scenarios see agriculture not like a producer but as a countryside conservator. The main drives are policy and management of landscape and soil. They are aimed at avoidance of polluting activities and abandoned areas, conservation of natural resources, advocating environmental ideas.
3. *Market scenarios.* These scenarios are based on liberalisation of agricultural market and trade in agricultural products. In this regard, the main factors are free activities on the market, reduction of aid to agriculture and of export subsidies. These scenarios are divided into 2 classes:
   a) Gradual rearrangement of agricultural activities by instilling new methods and improving work efficiency. These measures should result in varnishing small farms.
   b) Cooperation. According to this scenario, small landowners should cooperate, for example, they should share modern agricultural machines, join efforts in market competition, etc. In this case progressive farming may be introduced.

4. Lithuania's territorial development scenarios and solutions

In 1999, Finnish scientist Jari Kaivo-oja wrote that analysis of the widely applied development scenarios (the Deep Ecology Scenario, the Strong Sustainable Development Scenario, the Weak Sustainable Development Scenario) the Boomsday Scenario, the Doomsday Scenario and the World Bank "Policy Tunnel" Scenario, revealed that the sustainable development is not a conflict-free concept as the criteria of sustainability (environmental sustainability, economic efficiency and social equality) under many scenarios might be not complied with, and the named global strategies serving as the basis for the concept of sustainable development might even be harmful for developing societies. Sustainability planning based on the analytical positioning of the existing situation is a useful approach towards the formation of the sustainable development policy. This plan was applied when drafting the general plans of municipal territorial planning of the Republic of Lithuania, and at the stage of conceptual framework drafting the following is being defined:

- territorial planning and spatial structure development principles;
- territorial use functional priorities;
- territorial management, regulation, use and protection principles.

The conceptual framework of the spatial development of the district area is drafted for 20 years and it is to be approved at the Municipal Council of a concerned district. For example, analysis and assessment of the current state of the territory of Molėtai region revealed that the concept of special development of dwelling areas are conditioned by the following main factors:

1. Adverse trends of development of population and socio-demographic structure.
2. Changes in the system of population areas are necessary.
3. Tourism potential is not exploited.

According to the rules of municipal area general plan drafting, the drafters of a general plan must propose at least two alternatives for developing the planned municipality, i.e.

Molėtai district. The analysis of secondary sources, the expert analysis and the examination of the received data resulted in two territorial development scenarios.

Status quo alternative. Status quo (the existing situation to be maintained in future, too) on the grounds of the existing urban infrastructure that should be maintained; the existing network of institutions of education, culture, health, social protection, social care should also be maintained but the services being provided and the quality of living environment and public spaces should be improved; promotion of modernisation of agriculture and forestry within the existing limits of land use and landholding system and efforts to keep employment in agriculture (Bauža 2007). This alternative guarantees the existing service relations and relations between adjacencies, accessibility and continuity of the existing working places and social infrastructure objects.

The implementation of the status quo alternative demands large financial resources of the state and especially of the municipality and plenty of administrating staff with managerial skills. This needs the following:

- to keep youth in the area by offering exclusive conditions for studies and work;
- to secure quality of services of the public social and technical infrastructure, and to maintain highly skilled staff who work on it;
- to maintain social and technical infrastructure objects, to renew them despite the fact that their work will not be efficient due to a dispersal over the area, low population density and too large density of a small settlement network;
- to aim at the improvement of the housing quality by securing its provision with engineering infrastructure in all settlements. Due to a decrease in the number of settlements and large distances between users the investment into the engineering infrastructure will not be efficient;
- maintaining all existing schools, health care institutions and libraries, and improving their conditions, which due to negative demographic trends would not be rational.

By choosing the status quo alternative essentially efforts would be laid to improve the existing urban administrative structure quality and that would demand vast financial resources. Such dispersion of municipal objects and objects to be supported will determine retardation of development of Molėtai district if compared with other districts of Lithuania with the urban structure concentrated to a higher extent as the trends of the decrease of population in rural areas is 2,6 times higher than the average of Lithuania.

The attractiveness of Molėtai for investment will be conditioned not only by the development of the existing socio-economic, urbanistic, legal and administrative systems but also by other factors:

- supply of skilled staff;
- the level of development of socio-technical infrastructure;
- the level of professional mobility of labour;
- clear and specific principles of district development to attract investment.

Socio-economic development of Molėtai district will also depend on the following external factors: ability and failure of Molėtai district and other neighbouring towns (especially Vilnius) and regions of Lithuania to offer better living conditions and activity conditions.

The gap between the development levels of districts will also depend on the efficiency of national regional policy implementation: i.e. on whether reduction of regional disparities will be formal or real measures (socially, economically and financially sound and targeted at the improvement of the living standard) will be taken.

Therefore, status quo alternative faces the following threats:

1. Lack of labour, financial, managerial and other resources available for the socio-economic development of Molėtai district which in the period foreseen for implementing general plan solutions, i.e. 10 years, could reduce the gap of the General development of the district to such an extent that Molėtai district could be able to take part in competitive market. The results of the poll carried out in Molėtai district revealed that population have their own opinion of the residential areas in the district that should be developed and prioritised such areas.
2. Population migration. The studying youth would prevail among those leaving, and usually young people do not want to come back. Another category is highly qualified specialists who may get job in other locations. In this process the population aging would accelerate as the youth leaving for their studies or highly qualified specialists would leave the district before moving to another place, and only old and less active people would permanently remain in Molėtai district.
3. The decreased number of highly qualified specialists (in the fields of education, health care, culture, social care, etc.) would result in poorer quality of services provided by them in an over-developed network of institutions, and due to decreasing population such activities loose their meaning, and it is especially characteristic of the *status quo* alternative that provides for developing and improving the living standard in all residential areas without prioritising them.

The name threats are not subject to direct management but municipal activities should be directed towards mitigation of outcome of threats. Therefore, the status quo alternative is not perspective with regard to the management of socio-economic and environmental development and territorial organisation.

An alternative of active development is a development which would identify priorities for individual settlements and aim at connecting adjacent settlements. This alternative could be called decentralised concentration.

Drafters of the general plan offer to accept the alternative of active development; the essence of this concept is the following:

1. To create a hierarchical system of centres and other residential areas.
2. To reduce the prevailing position of de facto centre, Molėtai, in the territory of the region, to strengthen local centres by redistributing rationally important institutions in settlements.
3. To ensure even distribution of the standard of living in the region territory, favourable conditions should be created for investment; the system of services should be formed on the basis of local centres; engineering infrastructure of local centres should be developed.

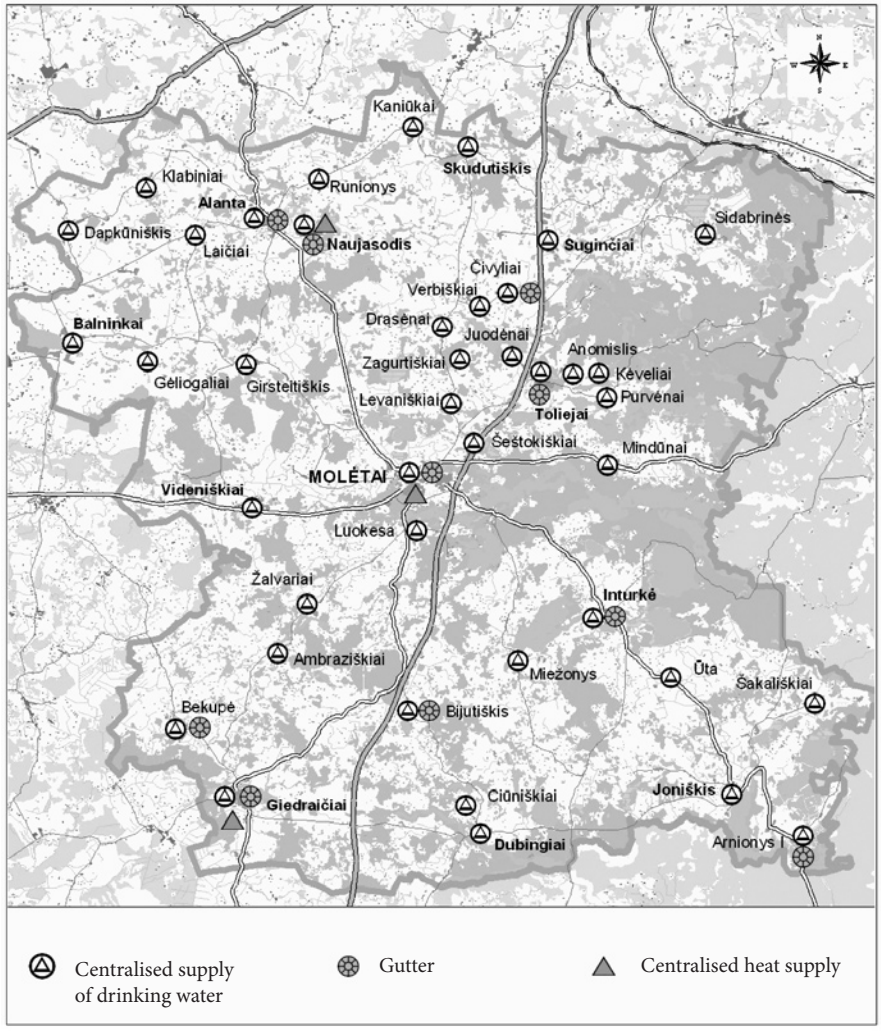

Fig. 2. Supply of residential areas of Molėtai district with technical infrastructure

4. Municipal council and administration of Molėtai should initiate qualitative and quantitative development of selected and approved local centres, which would initiate and promote activities in these centres and help attract private investment.
5. Adjacent settlements should be connected. Conditions should be created for a single system of administration, institutional, social and engineering provision, also for rational use of land (Fig. 2).

4.1. Generalisation of alternatives with socio-economic regard

Alternative I is maintenance of status quo. The alternative provides for the maintenance of the socio-economic structure of Molėtai district aiming at improving the quality of socio-economic environment without making changes in the formed infrastructure network.

Alternative II, also known as *decentralised concentration*. This alternative of district development provides for qualitative and quantitative development of socio-economic infrastructure in the local centres of the district, and promotes sustainable development of the district (Fig. 3).

This alternative generates larger socio-economic benefit for the whole district of Molėtai in the long-term perspective.

Comparison of alternatives

Advantages of the implementation of Alternative I are the following: investment of Molėtai district is targeted at improving the public infrastructure and public services aiming at the quality and safe environment for living. Investment of the municipality of Molėtai district should be used for the renewal of equipment at health care institutions, introduction of modern information technologies for a more efficient servicing the patients. In this way, accessibility of such services would be improved without making quantitative changes in the network of these institutions. However, the status quo alternative does not promote optimisation of social services in Molėtai district which are rather limited at present. The implementation of the status quo alternative could entail the improvement of the education services. This alternative creates conditions for improving the quality of tourism services by making tourist objects more attractive, improving the public infrastructure and information system of the sightseeing objects as well as expanding the range of complex services.

The implementation of all these services would serve as the grounds for the quality improvement of the existing structure and formation of higher standard living environment. However, conditions would not be created for the sustainable development of the district, which would impede the development of the socio-economic potential of the region. Negative demographic and different social trends of the district condition the fact that quality improvement of the existing infrastructure is not efficient in the long-term perspective. The implementation of the status quo alternative would not contribute to the achievement of the main goals of the general plan, as constant decrease in population, emigration of the skilled labour, low population density in the scattered settlements of the district and inefficient social provision have a negative impact on the socio-economic development and condition the need for changes in the socio-economic infrastructure, and stimulate further uneven development of settlements of the district and the town.

Comparison of the offered alternatives has shown that the second alternative is better than the first one, as its implementation should result in better accessibility of public services for region's population, as social and institutional provision would be concentrated not only in Molėtai town but also in localities. Formation of a hierarchical structure of local centres would reduce the impact of Molėtai town on the region. Occurrence of local centres should stimulate their development and increase attractiveness of residential areas, improve living conditions in remote settlements. Quality living environment should stimulate more rapid

Fig. 3. Hierarchy of locations of the district approved by the Municipal Council of Molėtai district

socio-economic development of the whole region. Concentration of service infrastructure in local centres should narrow the gap between towns and rural areas.

The implementation of the decentralised concentration variant would result in the fact that the increased significance of local centres of category **b, c, d** in Molėtai district would condition the improved standard of living in these centres, and the socio-economic development of the centres should stimulate investment in them (Fig. 3). It is probable that the improving living standard and the development of the public infrastructure would have a negative impact on the reduction of population emigration in the long-term perspective.

Having chosen the alternative of decentralised concentration, the municipality of Molėtai district should foresee measures for solving socio-economic problems that would ensure a proper development of local centres.

6. Conclusions and recommendations

1. The easiest and simplest way to make a decision is to extrapolate the existing trends. However, social, economic and ecologic environments are complex and intertwined, and goals of decisions are not unambiguous, and it is not easy to choose valid assessment criteria. The following question remains always relevant: to what extent the developed strategy and models will be effective when responding to sudden external changes and situations?
2. Future insights are one of the key measures that could help the public realise its freedom conception through changing the future. Planning their future, public authorities make decisions that will have significant impact on future events and processes. The results of the taken decisions have a long-term effect.
3. The key method for insight forecasting is the *scenario* method. A scenario is a plot of potential multiple future versions: from a simple consideration of potential events of unknown future to analytically grounded future shapes linked by complex relations.
4. Estimation by experts is understood as a summarised opinion of an expert group drawn on the basis of knowledge, experience and intuition of experts. The goal of estimation by experts is getting, encoding, structural processing and interpretation of knowledge of an expert. The procedure of the estimation by experts allows combining opinions of individual experts and formation of a joint solution.
5. Forecasting or planning situations or events, the experts usually are given a task: to estimate a problematic and complicated situation and to come up with several possible alternative situation estimations and several versions of a forecast or a plan. When analysing the possible versions, experts assess their importance, inter-relations, and, when planning further actions, they may also take account of material and human resources, foresee the period and estimate the financial expenditure.
6. In those cases where uncertainty degree is high, scenario analysis becomes the main method for assessing future changes and making rational decisions. All scenarios are analytical and clearly defined constructions of the future that present a set of possible alternatives. Every scenario is based on certain presumptions and conditions. They help a decision-maker to assess the importance of these presumptions and to decide which scenario is most suitable. The goal of scenario method is to look at the functioning and internal links of a complex dynamic system.
7. When drafting the general plans of municipal territorial planning of the Republic of Lithuania, and at the stage of concept drafting the following is being defined:
   - territorial planning and spatial structure development principles;
   - territorial use functional priorities;
   - territorial management, regulation, use and protection principles;
8. The drafters of a general plan must propose at least 2 alternatives for developing the planned municipality, i.e. Molėtai district. The analysis of secondary sources, the expert analysis and the examination of the received results resulted in 2 territorial development scenarios: a *status quo* alternative and an *active development* alternative.

9. The implementation of the alternative of active development (decentralised concentration management) would result in higher significance of smaller categorised local centres in Molėtai district, which would precondition the improvement of the standard of living in them. Socio-economic development of the centres should stimulate investment in them. It is probable that the improving living standards and the development of the public infrastructure would have a negative impact on the reduction of population emigration in the long-term perspective.

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ATEITIES ĮŽVALGOS, SCENARIJAI IR EKSPERTINIO METODO TAIKYMAS DARNIAM TERITORIJŲ PLANAVIMUI

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Santrauka

Darnios plėtros politikos įgyvendinimas yra vienas iš sudėtingiausių uždavinių ir iššūkių visai bendruomenei. Bandymai pereiti nuo darnios plėtros koncepcijos teorinio lygmens prie sprendimų priėmimo lygio bei nukreipti ekonominę plėtrą į aplinką yra susiję su keliomis problemomis. Yra keletas teorijų ir individualių plėtros krypčių metodų, kuriais remiantis galima nusakyti tikėtiną ateitį. Socialinių problemų aplinka susijusi su mokslinėmis žiniomis, jų gavimu ir pristatymu. Ji apima keturis skirtingus tarpusavyje susijusius elementus: realų pasaulį, duomenis, teoriją ir modelį. Darnios plėtros analizė turi remtis sisteminiu požiūriu. Straipsnyje aprašomi ateities įžvalgų kūrimo metodologija, ekspertinių metodų taikymo principai, ateities scenarijų tipai ir jų taikymas rengiant Molėtų r. teritorijos bendrąjį planą. Lyginami Molėtų r. teritorijos siūlomi ateities scenarijai.

Reikšminiai žodžiai: informaciniai modeliai, miestų plėtra, ekspertinis metodas, scenarijai.

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