Application of the Theory of Habitat Monitoring and Auditing in Models of Bio- and Geo-Systems, Natural Industrial Territorial Facilities and Their Components for Gardening

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Abstract: The idea of creating a modern system of managing plant productivity and fruit quality in intensive gardens is associated with the global trend in the development of the three models of agricultural development: 1) sustainable development of agrobiocenosis; 2) agro-ecological assessment of lands for adaptive landscape systems of agriculture; 3) management of the processes in natural-technical systems of the agro-landscape. Their implementation is not fully represented by the system of gardening in agricultural enterprises as well as in a draft concept of industrial gardening for the period up to 2025, due to the lack of a concept of the garden landscape habitat. The purpose of our research was to specify the principles of industrial gardening and land management in natural- technical systems located on agro-ecologically homogeneous areas as parts of the landscape being formed. The methodology of the research indicates the concepts, criteria and methods used taking into account the simulations of such systems in bio-ecology, geo-ecology as well as ecological-landscape and energy scientific approaches. In the presented scenario, we discussed the examples of simulating different situations depending on the object and methods of ecological monitoring. The situations with "translations" of properties between bio-and geo-systems are given. We comment on ecological auditing at different levels (planetary, regional and local (landscape)) and its procedures along with the monitoring of natural-anthropogenic environment. We also showed the records of using the principles of monitoring and auditing in the analysis of consistency of ecological functions of bio-and geo- systems subdivisions of the garden landscape as a part of agro-landscape. In conclusion, we formulated the classification principles of the geographical landscape in order to substantiate the territorial space of technosphere and agro-landscape. Also, the need for monitoring to assess the adequacy of habitat resources in the implementation of cultivated vegetation adaptation on ecologically homogeneous areas of the garden landscape as well as to confirm the results of the monitoring analysis by audit is indicated. It is suggested to use the information obtained to predict the ecological situation and ways of its management in the structure of landscape, and to improve the methods of selection and assessment of the areas for territorial placement of industrial gardens.