

Sustainable Development Global Modeling in terms of Quality and Security of Human Life

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This research is based on the concept of "sustainable development" being the further development of studies of V. Vernadskij about noosphere (Vernadskij, 1944). It has been theoretically and practically proved that on the edge of the centuries studies about the noosphere appeared to be a necessary platform for the development of three-dimension concept of ecological, social and economic sustainable development (Rio de Janeiro Summits, 1992, 2012) and (Johannesburg Summit, 2002).

Economic approach is based on the optimal usage of limited resources and application of natural-, power- and material saving technologies for creation of the gross income flow which would at least provide the preservation (not reduction) of the gross capital (physical, natural or human), with the use of which the gross income is created.

From the ecological point of view the sustainable development is aimed at provision of the integrity of both biological and physical natural systems as well as their viability that influences the global stability of the whole biosphere.

Social constituent is aimed at human development, the preservation of stability of social and cultural systems, as well as the decrease in the number of conflicts in the society.

Systemic coordination and balance of these three components in mathematical form is developed. The basic principles of such coordination are: - the interconnection of social and ecological constituents causes the necessity to preserve equal rights of present and future generations to use natural resources; the interaction of social and economic constituents requires the achievement of equal and fair distribution of material wealth between people and help provision to the poor; the correlation of environmental and economic components requires the cost estimation of anthropogenic influences on environment.

In this research a Sustainable Development Gauging Matrix (SDGM) (Zgurovsky, 2007) within three abovementioned components is proposed. With the help of this Matrix the sustainable development processes have been globally modeled for a large group of world countries in terms of quality and security of the human life.

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