

*The completed scientific and research work № 2135-p “Mathematical Models Development and Global Modelling of Sustainable Development Processes” (Educational and scientific complex “Institute for Applied System Analysis” of NTUU “KPI”— Research Advisor M.Z. Zgurovskiy).*

The competitive scientifically proved approaches, principles, models, techniques and methods for qualitative and quantitative assessment of sustainable ecological and social and economic process has been created. The measurements system (indices and indicators) used to evaluate the ecological and sustainable social and economic process, which allows monitoring changes in indicators (indicators) in time for the same territory, monitoring and making adjustments in the areas development has been suggested. The mathematical model for the comparison of the sustainable development index that is used for scaling factors to ensure equal value of economic, environmental and social dimensions according to sustainable development index has been introduced. Considering the evolutionary civilisation development as an integral process, determined by a harmonious interaction of its components, we have made the comparison of flow patterns the large Kondratiev cycles of the world economic development and the C-waves of system world conflicts. The attempt to predict the next world conflict, called “conflict of XXI century” and the analysis of its nature and main characteristics — the duration, main phases and intensity – have been defined. The set of key global threats, which cause the mentioned conflict, has been found out. Interdependence of periodic processes in the world economic development has been revealed and system world conflicts are an indirect confirmation of correctness in models of these phenomena construction.

*Results of the work have been implemented in the educational process of teaching such disciplines as “Sustainable Development”, “Globalisation and the Conflict Strategy”, “The Elements of Catastrophe Theory”, Socio-ecological Economy as a Factor in Sustainable Development”, “Globalisation and the Strategy of Conflict. The network of global data centres in the study of sustainable development”. The new master's specialisation of global modelling of sustainable development has been introduced.*

*The results of the work have been used in the performance of global modelling of sustainable development for a large group of countries in the context of safety and quality of life based on initial data provided by authoritative international organisations.*

During the year of paper defence on the basis of the conducted work results a monograph has been published, 2 PhD theses have been protected (2 are prepared to defend), 20 articles have been published, 28 presentations have been made at conferences, including 12 at international ones. In the process of research conducting 25 students have been involved According to the research results students have defended 5 master's theses.