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Imperatives of Sustainable Development from the Perspective of Transdisciplinary Systems Approach

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This paper attempts to solve the challenges of attaining the goals of the National Agenda for Sustainable Development by means of the systems transdisciplinary approach concept and methodology. To achieve this, the author expands the existing concept of chemical evolution and describes natural mechanisms of directed transformation of the planetary matter. The paper reveals the meaning of cyclic recurrence of the development of supercontinents in geological history of the planet. This has led to the formation of the planetary matter required for further active transformation of biological objects, which are supposed to take part in that transformation. The author assumes and substantiates that stable development is controlled by the planetary and extraplanetary objective organizing compounds, which present effective mechanisms of appraisal and compulsion of objects of living and non-living matter to strictly denote results of activity and interactions. The results of long term and medium term modeling of the development of modern society was also shown. The conclusion of this paper describes the possibility of using the methodology of systems transdisciplinary approach in organizing sustainable development since 2016.

Keywords*:* Sustainability, sustainable development, systems thinking, modelling and simulation, systems transdisciplinary approach.

1 Introduction

Long term UN (United Nations) work on the program of the world community development was completed in 2015. The basic results were declared in December 2014 in the synthesis report of the

Secretary-General of the United Nations: The Road to Dignity by 2030: Ending Poverty, Transforming All Lives and Protecting the Planet. The report focuses on the post 2015 sustainable development agenda and contains a complex of economic, ecological, and social solutions. The UN is expected to be able to implement complex approaches based on a combination of different disciplines and corresponding skills. This is done in order to assist the member states' governments

in addressing complex multisector problems more effectively, and to also ensure that the policy of the United Nations corresponds to the designed goals for post 2015 sustainable development, this complex approach is considered to be a crucial condition for the actualization of the UN activities and further success [1].

However, the obvious need for a complex approach to make it possible to solve the above named complex multisector problems accentuates the absence of such an approach. This is according to methodologies of the contemporary science. As a result, there is an absence of consensus of different opinions about the clarification and interpretation of the term "sustainable development". Such lack of unanimity which is aggravated by the extreme diversity of the different society layers' perspectives, including scientific, political, and entrepreneurial views may cause a threat. This could prevent sustainable development from becoming a concept that generally categorizes ideas, but cannot describe them with exact quantitative definitions [2].

Therefore, the absence of scientific approach, which would make it possible to connect and unify ecological, economic, and social parts of sustainable development, and the absence of methodology, which could scientifically describe the essentials of these parts, may make it impossible for the world community to achieve the designed goals for post 2015. This conclusion may indicate that expansion of scientific knowledge to the adequately complex systems transdisciplinary approach can be more important than sole integration of economic, environmental, and social solutions as the primary condition for the success of UN activities on post 2015 development.

2 Ontological Foundations of the Concept of the Categorical Imperatives of Sustainable Development

The achievements of modern science allow us to make obvious conclusion. Under conditions when development of the world is controlled by objective laws of nature, quantitative and qualitative parameters of ecological, economic, and social compounds cannot be random or be set randomly at man's will. This is also the reason why their integration cannot be actualized solely based on compromises of subjective opinions. To scientifically substantiate the ecological, economic and social components of sustainable development, it is necessary to expand the scientific worldview and the maximum generalization of the picture of the world. The systems transdisciplinary approach is one of the ways for such expansion and generalization.

Systems transdisciplinary approach is a way to correctly isolate and model the complex object or a complex multifactor issue as a vertical or horizontal functional ensemble, which allows the application of the universal systems transdisciplinary methodology to their research and solution [3]. The concept of systems transdisciplinary approach is based on unicentrism. In a broad sense, unicentrism is a position in philosophy and science that focuses on the problem of the correlation between the single and its fragments. This position is based on the isomorphism of the universal order of the structure of fragments of space, attributes of information, and periods of time, which determine the one world. In ontology, unicentrism is based on the principle: the one world is represented as the sum of ordered fragments of space, attributes of information, and periods of time that determine the unity of goals and results of the development of phenomena and processes of reality. The united world is the one world. Any objects at all levels of the reality of the one world are its natural elements/fragments. Therefore, the main condition for the existence of one world is the existence of a universal order inside. According to this given name, this objective order must manifest itself everywhere in every element or fragment of this world and in every interaction of these elements/fragments at every level of reality. As a result, the same order should ensure the achievement of activity goals and results of

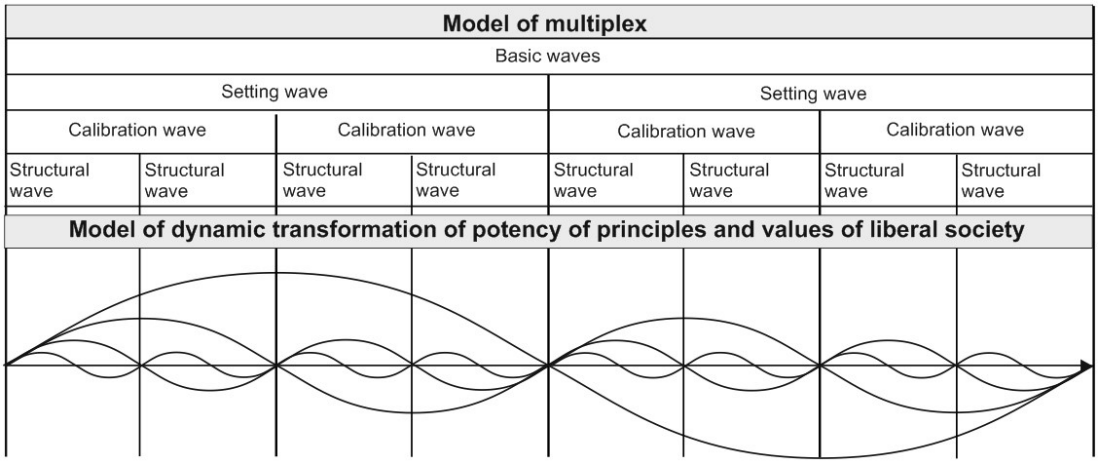

Figure 1: Structure of multiplex (the model of temporal unit of order).

all these elements/fragments and synchronize these goals and results. For this reason, the one world is the One Orderly Medium.

Therefore, according to the systems transdisciplinary approach, sustainable development is considered to be orderly development. This is followed by consequent growth in complexity of phenomena, objects and processes, and their internal and external bounds. Interpretation of sustainable development as an orderly development under circumstances when this organization is associated with the order that enforces the world unity most likely is able to provide the required level of methodological tools that any complex approach should have. This approach can be helpful to the UN Member States as a solution to the complex multisectoral problems during the post 2015 period.

The epistemological principle of unicentrism says: the knowledge of the one world must be preceded by the selection of appropriate models of spatial, informational, and temporal units of the universal order. In a narrower sense, unicentrism is understood as the "philosophy of unity" developed by the Russian Philosopher Vladimir Mokiy. In 2010, he also introduced the term "unicentrism" [4].

The model of spatial unit of order provides ground for the physical and/or logical object boundaries and the nature of relations between elements within these boundaries. The model of informational unit of order provides ground for the necessary and sufficient amount of information on the object and describes the overall condition of this object. The model of temporal unit of order allows the organization of potency conversion from the original volume to the results that will be used in the subsequent processes of its conversion. In the study of the sustainable development of society, the temporal unit model was also used. Therefore, it is necessary to briefly describe its main subspecies.

2.1 Subspecies of the Model of Temporal Unit of Order

The basic model of the temporal unit of order is represented as multiplex. Multiplex is a natural complex of waves, which logically fragments process of development. In this case, multiplex serves as a harmonious structure of development of objects and functional ensembles of objects, which embraces actualization of goals and plans of nature. Multiplex consists of waves of different duration and can be depicted as a "momentous picture" of the stage, era or period - a certain unit of historical time. This 'picture' actually shows all the combination of periods of development and demonstrates its general meaning (see Figure 1).

A multiplex wave is the natural sequence of periods of time characterized by one calendar duration. In comparison with its physical analogue, a multiplex wave identifies calendar duration of periods, but not the amplitude of oscillation. The processes in these periods are influenced by quantitative or qualitative transformations of object or functional ensembles of objects.

Waves of multiplex of development are divided into long and short ones.

Long waves of multiplex are waves, which have calendar duration, development of objects, and func-

tional ensembles with predetermined nature determination is shown by sequence of inevitable stages and results of development of both the object and functional ensemble of objects.

Predetermination reassures that development will correspond to the certain meaning despite individual nature of the objects, the influence of external and internal factors upon them, and the results of their distant periods. This will allow other objects and functional ensembles of objects to use received results. In this case, long waves of multiplex play a significant role of a tough program of development.

Short waves of multiplex are waves which have calendar duration, development of objects, and functional ensembles of objects with predisposition to achievement of certain results. Predisposition is different from predetermination since it allows objects and functional ensembles of objects to actualize their unique identity during development. Unique identity of object or functional ensemble is developed due to results of development, and it is being formed and influenced by external and internal factors and conditions. The external and internal factors and intensiveness of their influence may significantly vary during development. Objects and functional ensembles have a certain reaction to this influence. The individual results of their development may more or less approach the results predetermined by the nature of development. Therefore, current results of individual development of objects and functional ensembles of objects have to be periodically synchronized and orderly spread, according to the periods of short waves. Thus, they form obvious attributes of development. In this case, multiplex short waves play a significant role of soft program of development. It is important to note that the nature of multiplex waves of development is close to attractors (a combination of external and internal conditions, which contribute to the choice of the object of one of the variants of stable development). This is one of the definitions of synergistic methodology [5]. Long waves of multiplex are close to so-called simple attractors. Trajectory of development of object and functional ensemble of objects within one attractor or long waves of multiplex is predicted. Nature of short waves of multiplex is close to strange attractors. However, in comparison with a strange attractor, there is an opportunity to predict the most possible activity. Possibility to predict is conditioned by the naturally ordered contribution of results of individual development within periodization stimulated by short multiplex waves.

According to the roles multiplex waves play in the general process of development, they are divided into the following groups:

Long multiplex waves include basic and setting waves:

- a basic multiplex wave is a depiction of complete calendar duration of development of objects or functional ensemble of objects;
- a setting multiplex wave is a depiction of calendar duration of inevitable stages of development of object or functional ensemble of objects

Short multiplex waves include calibration and structural waves:

- A calibration multiplex wave is a depiction of calendar periods, which differentiate logical combination of basic stages (moments) of development of object or functional ensemble of objects;
- Structural multiplex waves is a depiction of calendar periods, which differentiate logical combination of current events of development of object or functional ensemble of objects.

In a case if there is a need to carry out a research of the events that occur within the waves and have a similar calendar duration, but belong to different multiplexes of development, one can use a combination of multiplexes called as a multiplex cycle.

3 Natural Mechanisms of Unstoppable Obligations of Modern Society

The synthesis report of the Secretary-General of the United Nations says: "We must take the first determined steps toward a sustainable future with dignity for all. Transformation is our aim. We must transform our economies, our environment, and our societies. We must change old mindsets, behaviours, and destructive patterns. We must embrace the integrated essential elements of dignity, people, prosperity, planet, justice, and partnership. We must build cohesive societies in pursuit of international peace and stability" [1]. Declarative principles of the report can be found in the absence of scientifically proven unsurpassable obligations for people different by race, gender, religion, mentality, educational

achievements, and culture belonging to countries with different forms of government. In this case, reactions of populations and leaders of some countries to the declarative appeal of the United Nations may be in accordance with the statement: we should, but we are not obliged!

In such a situation, it becomes impossible to integrate and implement effective solutions in the field of ecological, economic, and social components of sustainable development. Consequently, a primary task with systems transdisciplinary approach is designed to fulfill a scientific substantiation and interpretation of natural mechanisms. This would help to stimulate people to have unstoppable obligations towards categorical imperatives of these three components of sustainable development.

Solution is based on the concept of systems transdisciplinary approach:

- elements of one orderly medium (phenomena, objects, and processes) naturally present necessity and predestination either individually or in a logical combination within vertical or horizontal functional ensembles;
- necessity and predestination of phenomena, objects, and processes stipulates the achievement of strictly determined results of development and interaction;
- unconditional universal order in achievement of strictly determined results predetermines existence of natural interacting mechanisms of objective and subjective control, appraisal and obedience to the results of activity of phenomena, objects, and processes on any levels of reality.

Therefore, one may suggest, that necessity and predestination of phenomena, objects, and processes are conditioned by transformation of initial potency of cosmic matter (substance and radiation) starting from the Big Bang in the Universe. In this case, a commonly adopted scientific representation of chemical revolution being a process of transformation of non-living matter into a living matter and biological objects do not just state an evident phenomenon for man on the planet earth, but basically complete the whole process of evolution after appearance of man. Therefore, according to systems transdisciplinary approach, the term "life" is understood not as a biocentric nature of existence of protein mass, but one-common-centric nature of transformation of initial potency of cosmic matter.

During the process of transformation of initial planetary matter, one may observe consequent and phased accumulation of matter and energy, the potency of which exceeds the prospective futurity of preceding matter and energy. Thus, during two multicentury periods, the initial planetary matter had been transformed by a so-called differentiation zone within interiors of the young planet, and later it was erupted by volcanoes in the form of lava and degassing products [6]. The erupted substance on the surface of the planet had experienced active physical and chemical weathering. Weathering led to formation of clastic and sedimentary rock. In turn, clastic and sedimentary rock experienced further transformation after compression and melting on the borders of tectonic plates. Maternal rocks (mountains) appeared as a result of prolonged process of transformation of the potency of the initial planetary matter. Microorganisms and plants continued transformation of the mother rocks. Their participation contributed to creation of a qualitatively new body of the planet. The soil appeared instead of fragmented mountain rock, which had a number of distinct attributes and features, and fertility was one of the most important [7].

In this well-known science process of consequent transformation of the initial planetary matter, one should consider two circumstances. First, each stage experiences formation and accumulation of transformed matter in volume, which is perfectly sufficient for the beginning of its further purposeful transformation. Second and most important, the so-called molecules of higher value are being formed within the matter during the process of accumulation. The molecules acquired this name due to their attributes and features which are very important for transformation of matter and are required for the next active transformation. In this case, the higher values are molecules which represent the codes of chains of single operations, including steps, stages, cycles, and groups of basic and catalytic reactions of a forthcoming process of transformation of this matter. Also, they act as the codes of structure and sequence of object construction, in which transformation will occur. Nowadays, it is known that four nitrogen bases: uracil, cytosine, adenine and guanine, which represent the prime components of nucleotides and molecules of polynucleotides, including molecules

of RNA and the rest DNA, began to form during the final stage of abiogenic processes inside the compartments (i.e. pores of lava and sedimentary rock or within coacervate drops) and, also, on mineral surfaces of sedimentary rock [8, 9].

In turn, organic substances, including polynucleotides and polypeptides, which have been formed by means of the abiogenic synthesis, became participants of constant objective selective process. During this process, the polar molecules, the size of which is resonant to the long UV waves emitted from the sun, always received and still receives the biggest potential for evolution [10]. This explains why the planetary matter transformation process, which gave birth to microorganisms, plants, animals, and humans at certain stages is organized and controlled by two objective organizing compounds: the planetary organizing compound and the extra planetary organizing compound.

It is reasonable to assume that sequent transformation of the planetary matter is followed by subsequent objective correction of codes of steps, stages, cycles and groups of catalytic reactions. Probably, this correction must develop within elementary changes in sequence of nucleotides, in molecules of polynucleotides and, also, in partial complementing of their structure.

Such corrected molecules were incorporated into the DNA of biological objects, and in (and still continue to do so) a part of DNA segment, which was incapable of coding a certain protein, aka "garbage" DNA. It turned this part of DNA segment into a so-called "library of instructions" on how to transform the planetary matter within the boundaries of possible external and internal conditions.

Complication of DNA due to replenishment of its noncoding fragment urged the increase in adaptation of biological objects to possible climate change, thermal stream from the planet interiors, and electric and magnetic fields, which have appeared after deformation of tectonic plates and rocks that represent a basis for continents and planetary biogeocenosis. Thus, it is reasonable to assume that general mechanism of adaptation of biological objects consists of two mutually supplemented mechanisms. The first one is responsible for dynamic rearrangement (distantiation or approximation) of different combinations of noncoding DNA fragments into coding fragments. The second mechanism corrects specifically the protein potential by adding or exerting particular introns from the genome, or by modifying the sequence.

However, the amount of information regarding the matter subjected to further active transformation, the external and internal conditions, stipulates its transformation. Normalization of the protein potential, which forms objects and participates in the process of transformation of the matter within the object, has to significantly exceed the amount of information and codes the sequence of amino acids in proteins. This assumption is supported by the fact that the genome of a modern man has more than 98% of noncoding DNA fragments [11]. This means a purposeful mutation of species for biological objects is capable of implementing transformation of the planetary matter considering objective corrective information of these molecules of higher values of abiogenic process. It is possible that complete transformation of the matter that has been used during adaptation of a certain biological species may lead to its extinction. This assumption is also supported by the existence of the so-called background extinction of biological species that has been observed during the whole history of the planet [12].

Completion of every single logical stage of transformation of the planetary matter will be followed by formation of a required volume of information needed for further active transformation. Afterwards, completion of each stage must lead to significant correction of information, which is coded by the molecules of higher values of abiogenic processes. Incorporating into DNA and RNA, this change will cause the appearance of new biological species by the end of each stage. New species will differ not only in quantity of cells, but also in morphological features of multicellular organisms. At certain stages, these new species will vary in particularities of higher nervous activity which will determine the nature and the results of their activity, interactivity, and level of social organization.

In this case, a number of events, such as: the emergence of prokaryotes (a nuclear cells), eukaryotes (nuclear cells), multicellular organisms, separation of the phylogenetic species of homo, emergence of homo sapiens, transition of mankind to settled lifestyle, and formation of the common human society demonstrate the results of logical stages of transformation of initial planetary matter. Thus, these results were achieved, conditioned, and controlled by the objective of the extra planetary matter and the planetary

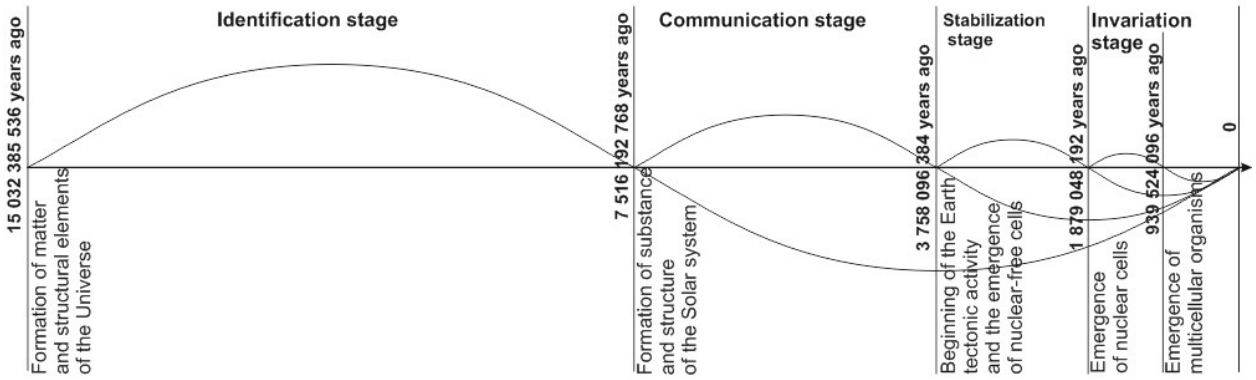

Figure 2: Stages of transformation of cosmic and planetary matter, in which the Earth partakes (in modern chronology).

organizing compounds.

This conclusion may mean the following: mechanisms of objective organizing compounds lead physical and chemical phenomena to the formation of required volumes of information, which is required for further active transformation. They also continue to bring biological objects to achieve strictly set up results in completion of logical stages of the matter transformation. Consequently, it is without any doubt that the same mechanisms will bring man to understanding his own unstoppable obligations in regards to imperatives of three compounds of sustainable development by means of correction of his genome and, as a result, of his consciousness and mind.

4 Systems Transdisciplinary Foundations of Imperatives of Sustainable Development

Systems transdisciplinary research allows the establishment of duration and calendar dates, by which humankind, influenced by mechanisms of objective organizing components, will be ready to change its attitude to actualization of demands, which are set up by the imperatives of sustainable development. Trans-formation of cosmic and planetary matter must be actualized in a common order, which can support the unity of the world. Therefore, both the duration of the complete transformation and the duration of every single stage may be calculated by using a corresponding systems transdisciplinary model of temporal unit of order. In accordance with the rules of formation of systems transdisciplinary model of temporal unit of order, this process is shown by several basic stages (see Figure 2).

The first stage is called the Identification stage. During this stage, which is the longest, formation of matter and global structural elements of the Universe (galaxies and stellar clusters) occurs.

The second stage is called the Communication stage. During this stage, vertical functional ensemble of objects is being formed out of the matter containing a particular potency value. As a result of the zone differentiation, the third stage called the Stabilization stage makes it possible to identify out of the initial planetary matter the part that will be subject to further transformation. Finally, the fourth stage called the Invariation stage determines unconditional transformation of this matter according to a strictly set timeframe. With the results, this will later support formation and sustainable development of other cosmic vertical functional ensembles within one united world.

The beginning of the invariant stage was preceded by two processes: the process of accumulation of oxygen in the atmosphere of the planet, and the process of formation of matter proposed for further active transformation. Formation of such matter began about 1.8 billion years ago along with appearance of Columbia supercontinent [13]. This matter began to form during the process of the second remelting of clastic and sedimentary rocks that had been accumulating on the passive sides of the oldest platforms (cores of the modern continents) for hundreds of millions of years. Formation and accumulation of the molecules of higher values of abiogenic process occurred together with the formation and accumulation of planetary matter which is subjected to active transformation during the Invariation stage.

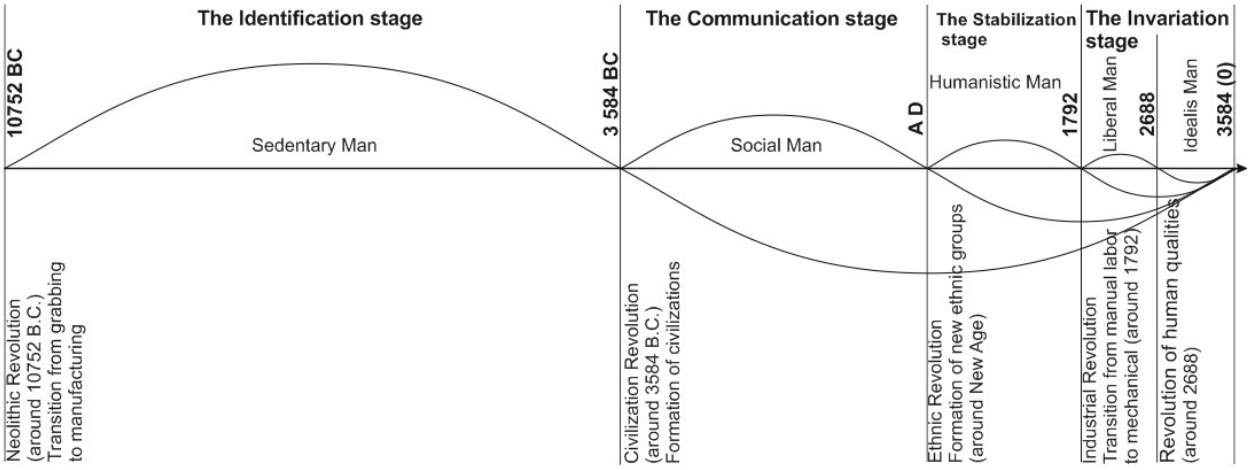

Figure 3: Stages of transformation of the planetary matter since 10752 B.C. with participation of the humankind (in modern chronology).

Accumulation of these molecules in the DNA and RNA structures of archaea and prokaryotes (nuclear cells) is conditioned on rebirth of their single species into eukaryotes (nuclear cells).

Such a close interaction of chemical, physical, and biological processes makes it possible to explain the purpose of cyclic decomposition and, as a result, the conjugation of continents into supercontinents. Continental plates, just like the hands of a professional cook, thoroughly mixed, melted and finally prepared a required volume of matter subjected to further active transformation. Simultaneously, this matter created genetic material that supported directed nature of biological evolution in the world of biological objects.

Purposeful transformation of the planetary matter around 900 million years ago resulted in the formation of a hereditary characters transmission mechanism, and the emergence of multicellular organisms. The calendar terms of the events, which were theoretically calculated using transdisciplinary approach, correspond to the terms set up by paleontologists after examination of existing geological traces and biological remains.

Another scale of the model of the process of transformation of planetary matter allows the calculation of the calendar terms of the stages, and it logically combines the events in which modern humanity is involved (see Figure 3).

According to paleontologists and historians, a transition of humans to settled lifestyle occurred around 10752 B.C. [14]. This fact, which has been hard to explain from a position of paleontologists, was logically substantiated by systems transdisciplinary approach. According to the systems transdisciplinary approach, this was provoked by the following circumstances. During glacial and interglacial cycles of the ice age of the Fourth period, which had occurred around 10752 BC, there was an active fragmentation of rock masses. Soil and vegetative zones were being moved, expanded, or shrunk. This urged the accumulation of matter subjected to active transformation within the boundaries of mother rocks and soil of regional biogeocenosis, which had formed itself by that time within the boundaries of the existing landscape. In turn, these changes caused formation and accumulation of the molecules of higher values of abiogenic and biogenic processes within the boundaries of the biogeocenosis. These molecules were being accumulated not only in the environment, but also within biological objects turning them into endemics of vertical and horizontal functional ensembles of regional biogeocenosis.

Human involvement into the vertical functional ensembles of the regional biogeocenosis, which was accompanied by the active agriculture development and a large scale mineral resources processing, gave humankind the status of the "nature transforming force".

However, not all the planetary matter is being transformed by humankind. Human activity only affects the group of objects and natural phenomena, such as the earth's crust, the lower part of the atmosphere, water, soil, vegetation, and animality. All the above mentioned is involved in the process of social production. This group is called geographical

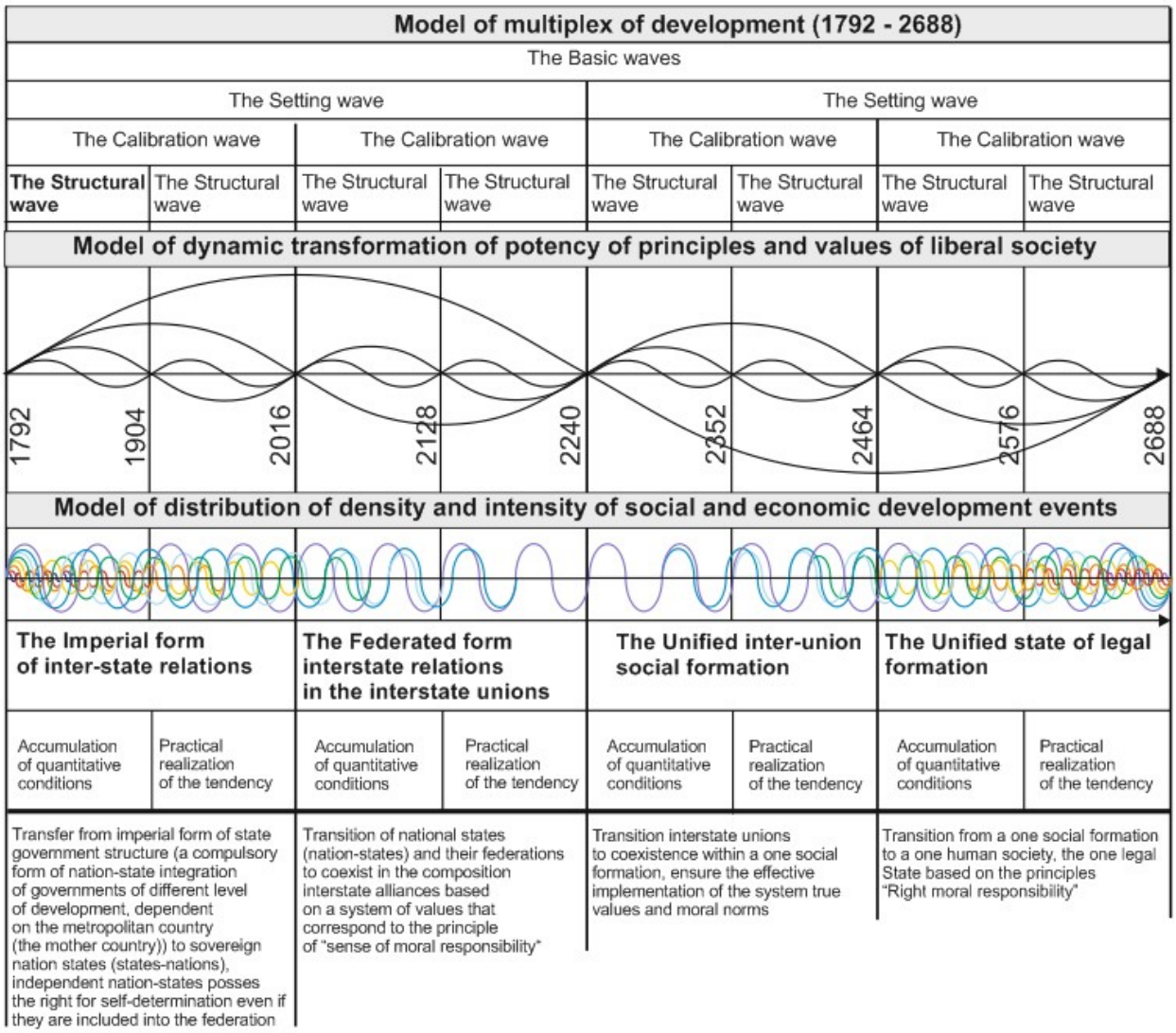

Figure 4: The model of multiplex of the development of modern society since 1792 to 2688.

environment [15].

Active transformation of the geographical environment matter leads to the formation of adequate molecules - higher values of abiogenic and biogenic processes inside this matter, and inside the genome of biological objects, including humans. In turn, molecules contribute to the active development of the higher nervous activity of humans, such as consciousness and intellect. In view of the above arguments, it is logical to assume that each of such stage corresponds to the characteristic features of the higher nervous activity (thinking, consciousness and intelligence) of man. The need to adapt the process of cognition of the world to the achievement of milestone of socially meaningful goals contributed to the formation and consolidation at the genetic level of the corresponding mega structure of neuron connections in the human brain. Therefore, the beginning of each stage in the model was accompanied by two important events. First it was caused by the characteristic revolutions: the Neolithic, Civilizational, Ethnic, and Industrial. Later, it happened due to formation of the main subspecies of Man Truly Reasonable, corresponding to the character of these revolutions: Sedentary Man, Social Man, Humanistic Man, and Liberal Man.

The final scale change of the model of the temporal unit of order allows you to create a model of the multiplex of human development for the period from 1792 to 2688 (see Figure 4).

Multiplex information is of practical importance for understanding predetermined short term and long term development goals of society. Following the logic of transformation of the planetary mat-

ter, it can be assumed that humanity will be in the united state of legal formation by 2866. Achieving this goal will be accompanied by tough and soft development programs. The first result of the tough program (Setting wave 1792-2240) will be achieved by 2240. This result can be known as the Federal form interstate relations in the interstate unions. In turn, this result will be achieved in the course of two structural waves, which represent soft programs for periods of 2016-2128 and 2128-2240. These structural waves will provide transition of national states and their federations to coexist in the composition interstate alliances based on the system of values, which correspond to the principle of "moral responsibility sense".

The first structural wave for the period of 2016-2128 should provide the accumulation of quantitative conditions of this transition. Soft development program involves the search for possible ways to manage modern society within certain calendar periods. These calendar periods, with the content of the stage goals, can be found in the multiplex model for the period of 2016-2128 and other models of the systems transdisciplinary approach, such as spatial and information units of order.

Thus, the use of systems transdisciplinary approach creates prospects for a new interdisciplinary, multidisciplinary and transdisciplinary interaction and cooperation of scientists and practitioners. This interaction and cooperation can be carried out as a part of public and private analytical centers, or as a part of university research centers. According to this assumption, demonstration of objective organizing compounds' mechanisms will be easier to understand. In order to eliminate any discrepancies with the unconditional way of how-everything-should-be state of all the objects of the planetary functional ensembles, these mechanisms will inevitably be found in particular regional biogeocenosis, included into the geographical environment by means of catastrophic natural disasters i.e., earthquakes, tsunami, epidemic outbreaks, etc. and increased solar or asteroid activity [16]. First are the objects of non-biological and biological nature within vertical and horizontal ensembles, which belong to the different levels of reality. Thus, these are capable or incapable of carrying out the higher nervous activity naturally subjected to the influence of one common categorical imperative. This categorical imperative is interpreted as unconditional way of how-everything-should-be, and it automatically determines the existence of natural unsurpassable obligations. For example, it is impossible to imagine that mother rock will stop transforming into soil, or microorganisms will refuse to produce nitrogen for plants, or the plants will refuse to consume carbon dioxide and produce oxygen, or animals will not have any need to reproduce. All of them must and are obliged to do that unconditionally to support the unity of the planetary vertical functional ensemble. Therefore, people automatically falls under the influence of the categorical imperative, regardless of the level of understanding of the concept, as soon as they become participants of the vertical functional ensembles of regional biogeocenosis.

Obviously, man understands the categorical imperative as ecological, economic, and social imperatives of sustainable development. Taking into consideration the work of the mechanisms of objective organizing compounds, one may speak about the prime importance of the ecological imperative, or about the unconditional way of how-everything-should-be for man and the society in regards to the preservation of the planetary matter and the regional vertical functional ensembles.

Second, actualization of the necessity and designation of objects is implemented not only within the boundaries of the vertical functional ensemble, but also within the horizontal functional ensembles. For man, the role of the horizontal functional ensemble is presented by society. Society itself has two subjective organizing compounds: family and social medium. In comparison with objective organizing compounds, which determine and control the process of transformation of the planetary matter, subjective organizing compounds support and develop it [17].

5 Conclusion

Before starting a summary of the concept of sustainable development imperatives, it is essential to consider the circumstances, which are coming from the principles of the unicentrism and systems transdisciplinary approach. According to one single centrism perspective, an order, which stipulates the unity of the world, should and is obliged to be the basis of existence of not only the vertical, but also the horizontal functional ensemble (fairly and social medium).

Consequently, the concept of economic and social

imperatives of sustainable development must embody this order into manifold interactions of people within a family, the members of the society within a state, or within the human society as a whole. In other words, there is a need for a significant transdisciplinary reinforcement of the normative component of the social sciences. As a result, the social sciences, which are more precise, will become the basis for the common worldview.

Third, with the beginning of the higher nervous activity development, the abiogenic and biogenic processes of the planetary matter transformation resulted in the emergence of not only the molecules of higher values, but also ideas of higher values. During many years, such values, supported and developed by the family and the society, had been determining the states' structures and the nature of social and economic development. The results of the systems transdisciplinary research (see Figure 4) demonstrate that the ideas of higher values, which finally determined the norms and the principles of the constitutional state, were supported by a motto "Liberty, Equality, Fraternity" coined during the French Revolution of 1792, and which determined the revolutionary right of the people for human rights and for the observance of such rights, will finish their transformation by 2016. They require constructive rethinking. This will instigate the natural transition from absolutization of the material needs of the modern human society to absolutization of the requirements of three compounds imperatives of sustainable development. In other words, there will be real grounds for the transition of the society to a new model of the world social and economic order after 2015. This transition could be the first step towards achieving the goals and objectives set out in the synthesis report of the Secretary-General of the United Nations: The Road to Dignity by 2030: Ending Poverty, Transforming All Lives and Protecting the Planet.

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