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To the Participants of the International Scientific Congress «The Scientific Heritage of Vernadsky As a Fundamental Basis of Scientific and Educational Revolution of the 21st Century»

Dear Friends!

I am glad to welcome participants of the International Scientific Congress on the 150th anniversary of Vladimir I. Vernadsky in St. Petersburg!

The anniversary of the great Russian scientist — the philosopher of nature, thinker and public figure is commemorated by all the global scientific community. V.I. Vernadsky is the originator of many schools of thought. He brought into being an integral, fundamental doctrine about biosphere and noosphere which for many years has determined the extent of human impact on the natural environment. For the widest erudition, the scale of thought and the ability to anticipate he is rightly called the Lomonosov of the 20th century.

The name of Vladimir Vernadsky makes the glory and pride of the St. Petersburg school of thought. In this city he was born and received education. He became an academician, founded and headed the Radium Institute.

In the opinion of the scientist, the development of the scientific worldview is the basis of technological and spiritual, social progress. Today, when we are creating in our country and in our city "smart" economy, convert the industry on the path of innovation, these postulates of the scientist become extremely relevant again.

Petersburg opens up an increasingly more opportunities for the realization of talents. We have a system of grants for students, post-graduates, and PhDs. Primary attention is paid to promoting scientific researches and their practical implementation. Young scientists — the future scientific elite of the nation — receive the Prizes of the President of Russia, the Government of St. Petersburg. In the city on the Neva hundreds of scientific and educational forums are delivered annually, each of which pushes the boundaries and horizons of knowledge.

I am confident that the Congress will be an important step in the study of the wealth of scientific heritage of Vladimir Vernadsky, the embodiment of his thoughts and ideas in the 21^{s} century. I wish all the participants of the forum successful and fruitful work, interesting discussions, and unforgettable impressions from the knowing of our beautiful city!

G.S. Poltavchenko
Governor of Saint Petersburg

On the Eve of the War?

Opening Remarks of the Editor-in-Chief

Geopolitical summer 2013 was hot. Its information dominant was set by the events in and around first Egypt, now calmed down for a while, then Syria, intended to be the eventful culmination throughout the fall. The Syrian crisis and the new Egyptian metamorphosis, as well as the scandalous revelations of global peeping have quickly sculpted a new legal and moral framework of international relations. The realization of this framework by representatives of all civilizational habitats will soon result in new formats of relationships, new facets of what is permitted, the new ideological discourse, new styles of diplomacy, new alliances and new conflicts.

In the very least, many rhetoric and often starry-eyed packages previously taken by someone at face value are falling away as a useless husk, leaving purely real interests and ambitions at the theater of international actions. And the reality is less pleasant and unambiguous than the fictions of the imagination. However, on the eve of 1914 wasn't it pacifist euphoria on the streets and in the salons of Paris and Berlin, Petersburg, Vienna and London? And the specter of war had already wandered very close — in the staffs and boards of companies, and especially — away from them, in the vast expanses of colonies and threads of transport routes.

The war Phantom, along with the reason for the open military intervention in Syria has emerged like a genie from a bottle. And caused a split in the G20 that has never occurred before. It is essential not only that someone spoke out against Obama's intentions to attack, but the fact that there is the half of those among 20 countries and international organizations. Significantly also the opposition of the authorities and society in the United States, Britain, France and Germany that have not occurred for long. It is significant strengthening the authority of the BRICS group. It is significant the positions of the Pope whose word with reverence is received by hundreds of millions of Catholics, and the UN Secretary General. But it is also equally significant a growing coalition of thousands of hits. Each side has its own reasoning and logic.

The tragedy in a country where converged historical paths of several civilizations, and where, until recently, their partnership has been quite exemplary, every day bleeds with new and new precedents of the fights of several powerful forces that represent the civilizational essences. On a relatively tiny piece of land, visible and invisible trenches bristle with ruthless intransigence, anger, hatred, revenge, looting, and pervasive evil. But also with examples of martyrdom, courage, sacrifice for the family, for faith, for their civilizational ideals.

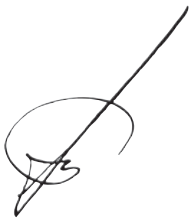
The Syrian crisis directly draws into a vortex of conflict interests, meanings, preferences and values of the majority of contemporary civilizations: Islamic in all its branches, the Western European, North American, Chinese, Eurasian, and African.

In the frightful vicissitudes of the Syrian troubles and its extensive metastasis it opens up its insides the new system identity, even a new civilizational reality. It has its entity features. Own human contingent. Own ideals and idols. Own network archipelago of basing. Own ancient genealogy, very hypnotic in its own way, not at all for singles. With own chroniclers and leaders. Its own tools. Allies. Energy and aesthetics of action. Own strategy and tactics of expansion on the principles of a roving ambush, wandering targets, anonymity of partners.

This is something beyond every limit parasitic. It is blatantly criminal. Unmerciful. Lethal. As the malignance. As the killer

In fact we are talking about a quasi-civilizational anti-system, bandit, terrorist by the methods, parasite by sources of vitality, and chimeric by aspirations.

Through all of a sudden coarsened at the highest official level vocabulary of interstate communication, through the geopolitical fault lines, humanitarian and natural disasters it shows through the disturbing features of the coming epoch. Huntington has managed to scratch its creepy, Rembrandt like etchings.



A.I.Ageev, Editor-in-Chief For
"The Partnership of Civilizations"
Journal, Professor, RANS Academician

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NBIC-Convergent Engineering Education

A.I.Rudskoy —
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Requirements for engineering education are considered to result from the national economic model, structure of the real economy and strategy of long-term economic development.

Engineering human resources for high-tech economy

Russia is due to be moving to the high-tech economy. Productivity has to increase by raising the human capital, improving the quality of engineering education, launching innovative technologies, better R&D organization. It is necessary to bring a greater number of high-qualified jobs to prevent the depletion of high quality human potential. Even if a country imports technological innovations, qualified specialists play a significantly important role in the adaptation of the borrowed technologies to the conditions of the lagging low-technological economy. They are the highly qualified specialists who own innovation skills. Therefore leading countries are in great demand for highly qualified engineering specialists.

Every industry with prevailing high technologies refers to high-tech industries. *It is worth noting that high-tech industries were growing fast in the last decades of the previous century, and are doing now. From 1980–1997 the average annual growth rate of the high-tech treatment industry in the world accounted for (with inflation) 6.2%, whereas in other treatment industries the growth rate was 2.7%. From*

1986–2005 high-tech industries grew annually by 6%, which is twice faster than in other industries. Thus Russia can benefit from the transition to high technologies along with the use of the natural competitive advantage, which will lead to a high economic growth rate, equal to 6–7% p.a., ensuring the double GDP every twelve years. Besides, this is the high-tech economy which will bring millions of high-tech and high-paid jobs. Moreover, fundamental science and applied R&D practices will matter. All the aforementioned will contribute to the achievement of the decade-range goals declared by the Russian Federation President V.V. Putin in 2011.

In the current conditions high-tech industries are the production foundation and important revenue source for industrially developed countries. The abovementioned statements result in the following conclusions:

1) High technologies and industries are the only moving power for the economic development of both a country and the world as a whole. This concerns as much production sphere as service industry;

2) Peculiarities of high-tech industries, important for the economy, are: growth rate which is twice-thrice higher than in other industries; great profit margin in production; high wages; high innovation potential not only for one industry, but all other industries, forming chain reaction of innovations in both national and world economies.

At the same time it is necessary to develop high-tech production to make science and education of use and importance for the society. This is the only way that can improve the quality of science and education through the economic interest.

Nowadays the USA reaches the GDP growth by two thirds only via scientific and innovative activity. In Russia, on the contrary, 2/3s of the economic growth is reached by extensive factors. A new innovation vector of development demands new high-tech specialists and production facilities. Thus the economic growth will increasingly depend on training and retraining of highly qualified workers, engineers and scientists.

Innovative Engineering Education

What is necessary to add to the Russian engineering education? The answer: innovation component. *The Russian engineering education is to become innovative engineering education and prepare specialists for the innovative engineering activity.*

What is the meaning of the innovative engineering activity? Actually, this is development and creation of new machinery and technologies, ready for use and able to provide a social and economic effect. Innovative engineering education is a process and result directed at acquiring certain knowledge and skills by a graduate, including the complex preparation of engineering specialists for the innovative activity.

Russia has to create its own dynamic model of engineering education to contribute to the development and progress of innovative technologies in the country. In St. Petersburg State Polytechnical University (SPSPU) engineers are to lead the Russian technological revival. Engineers have to acquire extensive communicative and managerial skills, develop innovative thinking. The model of engineering training in SPSPU is to be aimed at preparing innovative research engineers in the areas of new machinery and technologies. Russia is very experienced in preparing innovative research engineers, e.g. in SPSPU

and Moscow University of Physics and Technology. However, this experience has to be enriched by the innovation component.

Engineering education has to be transformed from the only studying process to the research process. Such innovative engineering education, based on the convergence of science and education, is under way in SPSPU. The example of this is the unique academic research educational institution headed by the Nobel Prize Winner, full member of the Russian Academy of Sciences Zh.I.Alferov. The faculty of Physics and Technology in SPSPU is affiliated to this Institution.

Requirements for Engineers in the 21st Century

Advantages of the Soviet engineering education:

- good fundamental education;
- profound knowledge and skills in the specialization area;
- individual work with talented youngsters within the framework of student R&D programs in order to detect abilities and talents for research and engineering activity.

Engineers of the 21st century have to own a wider range of competencies, most important among which are:

1) Good fundamental knowledge in the area of natural science;

2) Profound knowledge in the area of engineering technologies;

3) Creativity in the usage of knowledge in mathematics, natural science and applied subjects;

4) Ability to plan and make experiments, skills to analyse and interpret the results;

5) Ability to think innovatively and systematically;

6) Ability to define and solve technical problems;

7) Readiness for self-development and work quality improvement;

8) Ability to work in a interdisciplinary team;

9) Communicative, managerial and leading skills;

10) Recognition of necessity and motivation for lifelong learning.

According to the present list of competencies the preparation of the future elitist engineering resources will require great efforts from the teaching staff, reformation of the whole educational process, syllabus update, introduction of new courses. In the society, where success is based on knowledge, skills and ability to study, education plays a key role. Therefore modernization of engineering education is an imperative of our time. Factors which affect engineering education are determined by information society, rise of the global competition, new technological breakthroughs, service industry development, reformation of organizational structures, aspirations for constant development of eco-economy.

ENGINEERING EDUCATION IN THE LIFELONG LEARNING SOCIETY

It is well-known that engineering students cannot receive all the knowledge necessary for future work. Professional skills often become outdated so fast that engineering education does not achieve its goal and deprive university graduates of constant updating their knowledge and skills. *Learning how to study and especially how to change qualification is becoming more important. Lifelong learning is what every engineer will need, it has to become a "state of soul and mind".* Positive attitudes to education and desire to study during the whole life are key competencies for an engineer in

the 21st century. Such attitudes have to be developed in the engineering education. Lifelong learning is a priority area because nowadays the desire to study all life long is insufficient. According to the official statistics, participation in lifelong learning among the Russian population accounted for 24.8% in 2008. However, in countries with high innovation activity this figure is much higher: Great Britain — 37.6%; Germany — 41.9%; Finland — 77.3%!

INTERDISCIPLINARY
EDUCATION AS A PRIORITY

Motivating engineering students to lifelong learning and encouraging their interdisciplinary research is another important issue. Interdisciplinary research helps engineers to take proper technological decisions in changing social, economic and political environment in accordance with new technologies and their development. Thus, interdisciplinary research, particularly in the field of humanities and economics, should be an integral part of engineering education. The application of information and communication technologies to assist learning can contribute to more effective interdisciplinary research, therefore the engineer of the XXI century must be proficient in information and computer technologies. There should also be deep understanding of environmental issues, not only in terms of the damage caused to the environment, but also in terms of foreseeing the future effects of technological development.

The Convergence of NBIC-technologies

Technological convergence which implies close interaction and interconnection of technologies started at the turn of the XXI century. As a result of active technological convergence the boundaries between different technologies have become blurred and the interdisciplinary R&D discoveries are now made at the intersection of technologies. *Nowadays technological convergence is especially obvious at the intersection of NBIC-technologies.*

The concept of technological convergence was developed by the experts of EU and G8 countries at the beginning of the XXI century. It was based on the principle of "synergetic combination of four technologies" which were extremely dynamic at the time. These were: (1) nanoscale science and nanotechnology; (2) biotechnology and biomedicine, including genetic engineering; (3) information technology, including cutting edge information and communication technologies; (4) cognitive science, including neuroscience and cognitive technology. The combination was called NBIC-technologies or NBIC-convergences and these terms are now used worldwide.

The process of technological convergence is closely connected with the synergetic process the latter being almost equally important. Synergetics is a science which studies the phenomenon of self-organization and gives the description of the processes involving mutual, "cooperative effect". In these terms *synergetics should be among the fundamental disciplines to be studied at SPSPU.*

The term "synergy" is sometimes replaced by the term "synergetic effect" which refers to higher performance as a result of the integration and convergence of the technologies. *It is the synergy of NBIC-technologies which is due to have a profound effect on the economy of the XXI century.*

It should be noted that today *nanotechnology has become the driver of convergence and synergy of NBIC-technologies.*

The distinctive features of NBIC-convergence are the following:

• intensive cooperation between technologies mentioned above;

• profound synergetic effect;

• quantum growth of technological capabilities of individual and social human development.

Synergetic effect boosted by intensive cooperation and interaction of new platform technologies, or, in other words, by NBIC-convergence, is likely to be so strong that it will lead to an increase in total factor productivity and, consequently, economic growth rate may reach its record value of 4–5% in economically developed countries.

The Creed of St. Petersburg State Polytechnic University: NBIC-convergent Engineering Education

So, *what is the "highlight" of the model of engineering education at SPSPU? It was at SPSPU and in Saint-Petersburg where the ground for the formation of the leading science schools was laid in the four innovative branches of science and technology, i.e. nanotechnology, biotechnology, information technology and cognitive science. Together they comprise the core of the forthcoming sixth technological structure.* Now, in Saint-Petersburg, the development of nanotechnology is supervised by the full member of the Russian Academy of Sciences, Nobel Prize Winner, Zh.I.Alferov, the full member of the Russian Academy of Sciences N.N.Nykolsky and his team take the lead in the development of biotechnology, and the research into the field of cognitive science is carried out under the supervision of the correspondent member S.V.Medvedev at the Institute of Human Brain of the Russian Academy of Sciences.

It is very important that these four branches are accumulated and integrated at the laboratories of SPSPU and there is an ongoing process of technological convergence. Thus, NBIC–convergent interdisciplinary education can be seen as the "highlight" of the innovative model of engineering education at SPSPU. SPSPU graduates with the profound knowledge of fundamental and applied science in the field of NBIC–technologies will join the ranks of innovative researchers capable of technological breakthrough and ready for the structural technological changes in the economy of Russia. It should also be mentioned that the basics and application of NBIC–technologies are to be studied at all departments of SPSPU as these technologies are likely to dominate all spheres of individual and social human development and economic activity.

NBIC Technologies and Their Effect on The World Economy Dynamics in the First Half of the 21st Century

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Abstract

Starting from 2008 the world economy is going through another cyclic systemic crisis, which is related to the change of long waves of economic growth, also called Kondratiev waves [Kondratiev, 2002], as well as change of the existing technological mode (TM) based on silicon semiconductor microelectronics [Glaziev, 2010]. The post-crisis depression in the developed countries, as many experts have predicted [Akayev, Pantin, Aivazov, 2009], has come to stay and, most probably, will not finish before 2017–2018, when the next world economy recovery is expected to begin on the growing wave of the sixth Kondratiev cycle (2018-2040). It is believed that innovative technologies of the sixth technological mode will play the key role when overcoming the current financial and economic crisis and during the further world economy recovery. This comes from the Schumpeter-Kondratiev theory of the innovative and cyclic economic development [Akayev, 2011]. The innovative technologies of the sixth TM — NBIC technologies [Glaziev, 2010; Kazantsev et al., 2012; Rudskoy, 2007] — are going to become a stable source of economic growth and increasing competitiveness of economies in the developed countries.

Today it is obvious that economic evolution is going through a change of innovation activity and basic technologies. This idea was defended, in his day, by the great Austrian economist Joseph Schumpeter [Schumpeter, 1982]. He claimed that progressive economic growth comes to life due to the "creative destruction", i.e. when out-of-date technologies are rejected and invalid production structures are changed. He believed that progress in the economy is boosted not with just any kind of investment in production, but only with investment in innovations which allows mastering absolutely new products, introducing advanced methods and technology, new forms of production and commodity exchange structures.

Thus, in order to recover from a long depression, like the one we are experiencing now, it is effective to apply the empiric principle that has been stated by the outstanding German economist, consistent follower of the Kondratiev long waves theory, Gerhard Mensch — "innovations overcome depression!" [Mensch, 1975, 1979].

That is why governments of the developed countries as key actors in this sphere should pursue the economic policy which is aimed at implementation of the innovation and technology breakthrough strategy. It is essential to concentrate all the efforts on mastering the NBIC technology cluster, which forms the sixth technological mode, new structure of the world economy. We only have 5–7 years for this! The period from 2013 to 2018–2020 is the most favorable time for absorbing and distributing a new wave of the key innovations on the basis of NBIC technologies [Akayev, Rudskoy, 2013].

Hence, it appears that today it is vital to stimulate R&D and venture companies that commercialize innovative products and services. In future, on the wave of improving innovations, which will appear in advanced countries in the first place, the sixth technological mode will settle and become common all over the world. Today developing countries should actively borrow and use the fifth technological mode technologies, which have already become the multipurpose technologies (MT) [Helpman, 2012]. Thus these countries will be able to use the advantages of overtaking development. By the 2020s intensive diffusion of the sixth technological mode key technologies in the developed countries and the fifth technological mode key technologies in the developing ones will condition the new sixth wave of economic development [Hirooka, 2006], which is going to grow until the 2040–2050s.

The major issue is what the rate of the world economic growth conditioned by the new TM is going to be? The rate of economic growth depends on capacities of new technologies, their fields of applications and many other circumstances. For instance, the basic innovations of the fourth cycle were epochal advancements in scientific and technical revolution of the 20 century: nuclear power industry and jet engines; quantum electronics and laser technologies; computers and production automation; space technologies, satellite communication and television. In the same period, automobile and aircraft engineering experienced a rapid development. All these things have become possible because new materials appeared with properties that had been unknown before. That is why it is not surprising that the fourth technological mode resulted in average rates of the world economic growth which became record-breaking for the

whole history of mankind and equaled to 4.9% in the period of 1950–1973. However, 1973 saw a new world economic crisis which was far from incidental. Although the world economy proved to be extremely successful in the long-lived post-war growth, the relentless pace of change of technological modes and structural priorities in the economy worked. The depression phase of the fourth cycle took the period of 1973–1982. Then there was a recovery and the current fifth Kondratiev cycle started. When changing from the fourth to the fifth cycle the world production volume fell almost by 11%. The core of the fifth technological modes was microelectronics, personal computers, information technology and biotechnology. The efficiency of the fifth technological mode, based on epochal innovations of the previous cycle, was, of course, lower: the average yearly rate of GDP growth in the world decreased in 1983–2008 and was 3.3%. Moreover, the annual average rate of GDP growth in the world in 1983–2001 was 3.1%, whereas in 2004-2009 it slightly increased up to 3.5%. But this happened exceptionally due to the high growth rates of economies in the BRICS countries at the beginning of 21 century, which started to have systemic influence on the world economy. Is it possible to leave behind the growth rates of the world economy (which were achieved in the previous long wave of economic growth in 1980-2010) on the upward wave of the sixth Kondratiev cycle (2020–2040)?

On the basis of the mathematic model used for long-term forecast of technological progress rates during change of technological modes which has been developed by the authors [Akayev, Rudskoy, 2013], the present paper gives the results of calculations for different scenarios meant to increase technical progress based on NBIC technologies. The mathematical model, which describes the connection between technical progress *(A)* and diffusion of new basic NBIC technology cluster *(a)* leads to the linear differential equation:

$$\frac{dA}{dt} + skA = ska, \quad (sk = const), \quad (1)$$

where s — standard of accumulation, k — coefficient of return on invested capital (return on assets). As technologies diffuse according to the logistic law [Akayev, 2012], then

$$a = a_0 \frac{1 + c}{1 + c \exp\left[-d(t - t_0)\right]}, \quad (2)$$

where a_0 — initial capacity of innovative basic technology at the moment when innovative products and services are launched in the market ($t = t_0$); c — finite growth as a result of an improving innovations series; d — diffusion intensity.

The authors have obtained the approximate analytical solution to the equation (1) with non-linear right member (2) [Akayev, Rudskoy, 2013]:

$$A = C \exp\left[-sk(t - t1)\right] + \rho_0 \left\{1 + \frac{d(c+1)}{2lnc}\left(t - t_0 - \frac{1}{sk}\right) - \frac{bsk}{(sk)^2 + \left(\frac{\pi d}{lnc}\right)^2} \times \left[sk \sin\frac{\pi d}{lnc}(t - t_0) - \frac{\pi d}{lnc}\cos\frac{\pi d}{lnc}(t - t_0)\right]\right\}, \quad (3).$$

Here: C — integration constant; t_1 — moment when large-scale demand for innovative products and services appears; $\rho_0 = a_0/A_0$ — efficiency of the new technology in comparison to the existing one; $b = const$.

The paper presents estimation of all existing constant parameters and calculation

of different scenarios for growth of technical progress *(A)*, which gives an idea of increase in labor productivity during the sixth Kondratiev long wave of economic development. The scenarios differ in the choice of the definite ρ_0 value through variation of new TM efficiency based on NBIC technologies. A large range for variation of this parameter is explained by the fact that NBIC technologies result in a considerable synergetic effect thanks to mutual influence and intensive interaction. The calculations reveal that as a result of this synergetic effect NBIC technologies will boost the rates of the world economic growth up to about 3.5–4.5%, which is higher, on average, then during the fifth long wave of economic growth, but is still lower than in the fourth one.

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DRAFT

International Educational Program "Civilization (Theory, History, and the Future of Civilizations, Their Dialogue and Partnership) for the period up to 2020"

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1. The Need for and Objectives of the Program

1.1. The International Educational Program "Civilization (Theory, History and the Future of Civilizations, Their Dialogue and Partnership) for the period up to 2020" (the Program) is set up as an initiative of the Pitirim Sorokin — Nikolai Kondratieff International Institute, Institute for Economic Strategies and International Association "Znanie" in consultative status with the UN Economic and Social Council. It is intended for use in the educational activities of the UN Alliance of Civilizations and in the activities of its youth field.

1.2. The need for the development and implementation of the Program is driven by the following factors.

First, from the beginning of the 21st century the world has entered into a long crisis of civilization determined by the change of civilizational cycles. The crisis can be overcome through dialogue and partnership among civilizations in the establishment

of an integral, humanistically noospheric civilization. This process should be facilitated.

Second, from the end of the 20th century the Russian civilizational school completes the formation of the science of civilizations (civiliography). There are published such monographs as "The History of Civilizations" (1997), "The Past and the Future of Civilizations» (2000), "Globalization and Interaction of Civilizations" (2003), the fundamental multi-volume book "Civilizations: Theory, History, Dialogue and the Future" (2006-2009), "Civilization: the Past and the Future" textbook (2008) (in Russian, English, and Arabic), "Dialogue and Partnership of Civilizations" textbook (2013). It comes out the international scientific and educational magazine "Partnership of Civilizations" in Russian and English languages. It is launched science and education portal "New Paradigm" (www.newparadigm.ru), which includes more than 30 sites. It is worked out the Global Outlook "Future of Civilizations" for 2050 (2005–2011); the reports of an international team of scientists "Foundations of a Long-term Strategy for Global Sustainable Development Based on Partnership of Civilizations" (2011), "Strategy for Overcoming the Crisis of Civilization and Entering the Path of Global Sustainable Development" (2013) are presented at the UN at Rio+20 Conference and distributed among delegations to the"G-20" Summit in St. Petersburg.

However, the vision and proposals of the scientists are out of the reach for a wide range of public and political figures, business leaders and educators, the leaders of the new generation, are not included in educational programs, or taken into account in the preparation of international instruments.

It is time to incorporate the findings and recommendations of scientists in the educational process, to use them in the system of education for adults, in training, advanced training and professional development of human resources.

Third, it has begun the process of generational change, the responsibility for taking and implementation of strategic decisions is passing to the generation of the leaders of the 2020s (2011–2040). They exhibit high activity, but do not understand the nature and prospects of occurring radical changes, do not have a long-term scientifically founded program. The task is to equip them with the latest knowledge about the theory, history and the future of civilization, the strategy of dialogue and partnership.

1.3. *Program goal* is the organization of the consistent education of a new generation in the basics of the theory, history, and the future of civilizations, strategy and methods of their dialogue and partnership for promoting the efforts of the leaders of the generation in surmounting the crisis of civilization and entering the path of sustainable development.

This goal is achieved by addressing the following priorities:

— establishment of the Open University for Dialogue among Civilizations (the University) — an international non-governmental organization which, together with leading universities in different countries, organizes additional professional education, continuing professional development, distance learning on civiliography and its practical application;

— preparation, publication and posting on the Internet the teaching and the-

matic plans, programs, textbooks, and electronic reading-books in the core disciplines of the University. Currently there are published the textbooks "Civilization: the Past and the Future" (in Russian, English and Arabic), "Dialogue and Partnership of Civilizations", "The Strategy for Global Sustainable Development Based on Partnership of Civilizations";

— Organization in cooperation with the leading universities from various countries education of participants in course as advanced training, further professional training, organization of summer schools. In 2013, there were delivered professional development courses in the disciplines "The Strategy for Global Sustainable Development Based on Partnership of Civilizations" at the International University of Nature, Society and Man (Dubna) and "Theory, History, Future of Civilizations. The Circumpolar Civilization" at the premises of the Arctic State Institute of Art and Culture (Yakutsk).

2. The Content of the Program

2.1. On the basis of the researches made in the field of civiliography it is being developed a system of fundamental and applied knowledge, which must be presented in the general and specialized training in the framework of the Program:

— The general course "Theory, History, Future of Civilizations" (based on the textbook endorsed by the Ministry of Science and Education, published in English, Russian and Arabic);

— "Dialogue and Partnership of Civilizations" (textbook prepared and published in electronic form);

— "The Strategy for Global Sustainable Development Based on Partnership of Civilizations" (textbook for a new generation of leaders, published in electronic form);

— the textbooks underway: "The Global Forecasting, Strategic Planning and Programming" (based on the 4th edition of the textbook "Forecasting, Strategic Planning and National Programming"), "The Dialogue among Cultures and Religions" "The Circumpolar Civilization", "Civilizational Tourism", "Dialogue among Civilizations and International Relations".

It is also possible books on globalization and monetary and financial issues, innovation, intellectual property, geopolitical dynamics, etc.

Each such tutorial includes teaching and thematic plan and program of discipline. Electronic reading-books are under way on each course to be delivered. Such reading books have been completed in 2013 on such disciplines as "The Strategy for Global Sustainable Development Based on Partnership of Civilizations" and "Theory, History and the Future of Civilizations. The Circumpolar Civilization."

Textbooks and reading-books will be posted on the Internet and will be available to its users.

2.2. The Open University for Dialogue among Civilizations is under way as an international institution of a new generation. Its features are: it is not focused on the professional higher education but on adult education, professional development and continuing professional education, and its content is the dissemination of knowledge in a new area — civiliography.

2.3. Focusing on the global spread of ideas of dialogue and partnership among civilizations the Open University forms the base departments and branches in Russia (Moscow, St. Petersburg, Nizhny Novgorod, Yakutsk), Ukraine (Dnepropetrovsk), Ka-

zakhstan (Astana), Austria (Vienna), Lebanon (Beirut), Brazil (Rio de Janeiro), China (Beijing) and in other countries.

2.4. The program focuses on the use of various modes of study and dissemination of knowledge:

— teacher training in the theory, history, dialogue and partnership of civilizations;

— reading additional courses for students, masters and postgraduate students in the disciplines of the University within the framework of education programs in related and close disciplines with taking exams, tests or paper writing;

— additional professional education in a particular discipline in the form of full-time, part-time or distance learning with the defense of the final work and issuance of certificate;

— professional development of civil servants and employees of international organizations under a short-term program with the use of active forms of learning and issuance of certificate;

— professional development of teachers and university faculty with the issuance of certificates;

— arrangement of international youth summer schools for students and high school students in individual areas and programs.

Education may include educational civilizational tours by individually-tailored programs.

2.5. Education is creative in nature, includes the results of the latest research in conjunction with the discussion of topical issues. In preparing the final papers specific tasks are addressed, civilizational tours set up.

3. Structure of the Program

3.1. The Program consists of five units *(Fig. 1):*

— Scientific unit — defining the scope and content of the system of knowledge and courses to be delivered based on the development of civiliography and studies into the outlooks of dynamics and interaction of civilizations (with the leading role of the Pitirim Sorokin — Nikolai Kondratieff International Institute).

— Learning and teaching unit — development of teaching plan, teaching and thematic plans and programs, preparation of textbooks, electronic reading-books.

— Museum-tourist unit — creating real-online museums, exhibitions, development and implementation of civilizational tour programs.

— Information-publishing unit — opening and maintaining the site (portal)

Figure. 1. *Structure of "Civilization" Program*

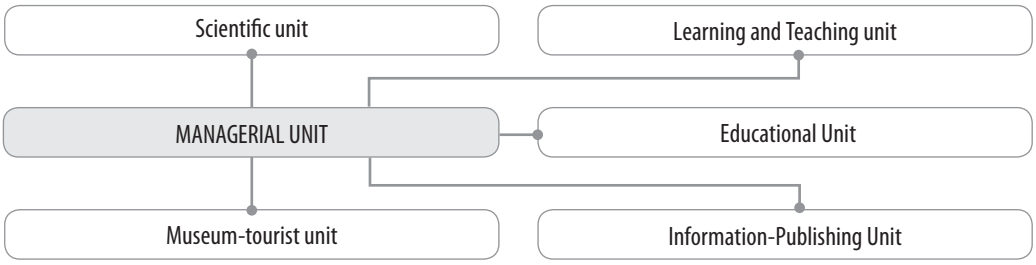
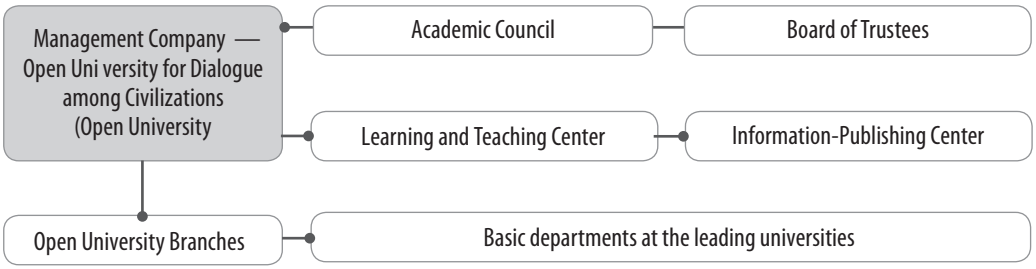


Figure 2. *Program management system*



on the Internet, publishing textbooks and electronic reading-books, creating and maintaining a knowledge base on civilizations.

— Educational unit — organization of the educational process on the disciplines of the Open University for Dialogue among Civilizations (the Open University) in conjunction with leading universities.

— Managerial unit — development of programs and projects, coordination of the program, activities of the participating organizations, financing of the works performed and acceptance of the results received.

3.2. The structure of the Program management includes *(Fig. 2)*:

— Board of Trustees consisting of representatives of the UN, UNESCO and the UN Alliance of Civilizations, the World Bank, and other international organizations as well as public and political figures.

— Research and Education Council consisting of the Program scientific supervisor, leading scientists and professors from different countries.

— The Open University for Dialogue among Civilizations set up for the implementation of the Program by the Pitirim Sorokin — Nikolai Kondratieff International Institute (SKII) in association with the Institute for Economic Strategies (IES), the International Association "Znanie", a number of Russian and foreign universities as an international educational consortium.

3.3. The Open University structure includes:

— Board of Trustees.

— Presidential Council headed by the president.

— Academic Council.

— Rector's Office, headed by the Rector of the University.

— Learning and Teaching Center.

— Information-Publishing Center.

— Branches of the University.

— Basic Departments in the core disciplines.

Branches and basic departments are the core part of the educational process arrangement. They operate on the basis of universities — Open University partners. The central part provides scientific and teaching guidance to branches and basic departments in accordance with the signed agreement.

— The Management Company represented by the Open University for Dialogue among Civilizations (Open University), its branches and basic departments, learning and teaching and information-publishing

centers. The Open University is being formed as an international educational consortium created for the implementation of the Program for the period of its validity.

3.4. Funding for the development and implementation of the Program is carried out on a multi-channel basis from:

— funds received by the Board of Trustees from the international and national educational foundations;

— proceeds from the implementation of educational projects, both on a paid basis and on budgetary sources;

— proceeds from the sale of information and publishing products;

— contributions from sponsors.

4. Organization and Milestones of the Program

4.1. Development of the draft Program will be done by the SKII jointly with the Open University and INES.

— The draft Program is subject to discussion within the International Scientific Conference "Science and Technology Revolution and Educational Revolution of the 21st Century: Noospheric Civilizational Aspect" (St. Petersburg, 25.09.2013), published in "The Partnership of Civilizations" magazine #3 (2013);

— the draft Program to be submitted to the RF Ministry of Foreign Affairs and the UN Alliance of Civilizations to bring together the content and status of the Program (October – December 2013);

— to be determined the structure of the Program, scope of stage I projects in the years 2013-2017 (January-March 2014);

— to summarize the results of the implementation of the projects of the first stage (2013-2017) and to identify the action plan and project scope of the second stage (2017–2022) is anticipated at the Civilization Forum in 2017; and the results will be presented at the Global Forum of the UN Alliance of Civilizations;

— After the implementation of the second stage of the project (2017–2022) it will be summarized the implementation of the Program.

4.2. The Management Company monitors the implementation of the Program and reports annually on the results to the Board of Trustees and management of the United Nations Alliance of Civilizations.

4.3. For each of the project implemented and for each stage of the Program it will be performed the acceptance by an international commission consisting of the customer, the main responsible parties, and experts. The results are reported to the leadership of the UN Alliance of Civilizations and posted on the Internet.

5. The Effect of the Program

5.1. *Educational effect* of the Program implementation — dozens of thousands of young people will get systematic knowledge of the new branch of the social sciences that will help them to adapt to the conditions of the 21st century, enhance creativity and confidence in the future. It will be tested and implemented a new and effective form of replenishment and update of knowledge, a system of adult education.

5.2. *Socio-political effect* is to extend the idea of dialogue and partnership among civilizations, to overcome the crisis of civilization and enter the path of global sus-

tainable development based on partnership of civilizations, as well as to increase the activity and effectiveness of the new generation of leaders.

5.3. *Information effect* is in filling the Internet and other information networks with the educational content, in implementing the principles of synthesis of scientific, educational and information revolutions of the 21st century.

5.4. The costs and sources of funding for the Program will be determined by summing up business plans by the projects, which is part of stage I of the Program. However, the program is not of a commercial nature, its originators do not seek to make a profit and return on investment.

5.5. The program will contribute to the implementation of the Strategic Plan of the United Nations Alliance of Civilizations, adopted in June 2013, its priorities in educational activities and youth work, and enhancing the role of Russia in the activities of the UN Alliance of Civilizations.

Theoretical Basis and the Strategy for Global Sustainable Development

The 21st Century Economy — the Economy of Justice and Intellect (Nooeconomy)

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Introduction

The main concerns of the world community today could be reduced to the solution of two interrelated objectives: success in overcoming the consequences of the global financial and economic crisis of 2008–2009 and sustainable growth of the post-crisis global economy. The scale of the current crisis was so deep that first time it was compared to the Great Depression of 1930's. Indeed, the unprecedented economic inequality and extreme social polarization appeared in the world up to 2008, as it was before the crisis of 1929 , superimposed on another big cyclical economic crisis and repeatedly reinforced it. There occurred a sharp deterioration in the living conditions of the majority of population, and especially in developed countries. All this led to mass social protests in the United States and Western European countries, and in some countries of the Middle East and North Africa they were so powerful that provoked social revolutions. In this connection, the problems of reduction income inequality across society to the socially acceptable level had become decisive in terms of the impact on the forthcoming global economic growth. We can probably assume that one of the key components of a new economic development model will be overcoming the

excessive income inequality in income distribution and extreme social polarization, i.e. turn from liberal economic model to socially oriented market economy.

On the other hand, there is still a huge gap in the living conditions in the developed and developing countries that in the conditions of globalization generates geopolitical tensions and conflicts in many regions of the world. To equalize the average income of population in developed and developing countries it is necessary to introduce a fair mechanism for the distribution of income earned as a result of globalization, whereas today developed Western countries, promoting a program of globalization, secured a disproportionate share of benefits at the expense of developing countries. If the situation does not change and the current process of unbridled globalization will continue, the mankind would not be able to avoid escalation of geopolitical tensions to the source of permanent instability and even local and regional wars.

Finally, the current global financial and economic crisis temporarily overshadowed the environmental concerns. But they have not disappeared. In contrast, the ecological situation in the world is only getting worse. As soon as the recovery and the new raise of the global economy begin, they will raise again to their full height and will require ever-increasing funds for environment protection measures. The solution to the key and other related problems will cause additional significant costs for the world economy, but at the same time, it is capable to ensure sustainable economic development in the long term.

Thus, when we talk about new economic model, we need to point out new sources of long-term economic growth and new conditions under which the long-term sustainable development will be ensured.

The source of economic growth for the forthcoming Kondratiev long wave (2018–2050) is, as it was already stated, the 6th tenor of technology (TT) which is based on NBIC-technologies (N — nano-, B — bio-, I — information and communication, C — cognitive technologies) generated by NBIC-revolution [Hirooka, 2006; Glaz'ev, 2010; Akayev, 2010; Kazantsev et al 2012]. An active process of technological convergence began at the end of 20th — the beginning of 21st century and meaning the interpenetration of technology, manifested especially clearly in the NBIC-convergence. The process of technological convergence is accompanied, as a rule, by a synergistic effect that characterizes the increase in efficiency of production as a result of technologies convergence. The synergy of NBIC-convergence will have a powerful impact on economic growth in the 21st century.

Thereby, the developed countries in the first half of the 21st century will saturate their industries and services with high-technology products and services based on NBIC-technologies. At the same time, the developing countries will speed up the industrialization of their economy and build a modern service sector. It is extremely important that they have an access to the energy- and resource-saving technologies of the 5th tenor of technology (TT) which is the basis of today's most developed economies in the world. It is noteworthy that the key technologies of the 5th TT have already moved into the category of general purpose technologies (GPT) [Polterovich, 2009]. Developing coun-

tries could carry out large-scale programs of 5th TT GPT implementation especially in life-sustaining sectors of the economy (mining, water, gas and energy supply, transport and trade industry as well as education and health care), as they provide the real growth of national income (GDP). Furthermore, such a scenario minimizes damage to the environment caused by the scaled growth in the world.

What are the conditions for ensuring a long-term sustainable growth for the next long wave of economic development? The author believes that the following five conditions have to become imperatives for the 6th long cycle of Kondratiev (2018-2050):

First, it is social justice ensuring equitable distribution of incomes in society, reducing incomes inequality to a socially acceptable level. The current financial and economic crisis has convincingly shown that socially-oriented economies of German and a number of Scandinavian countries are quite stable even in turbulent economic conditions of instability. Therefore, a return to a socially oriented market economy model, to welfare state is required. This will remove socio-political tensions in the national societies and strengthen social cohesion needed for a sustainable raise in the global economy.

Second, the fair harmonious globalization providing an equitable distribution of the benefits of globalization processes. It is required to curb the spontaneous process of globalization, and to send it to the benefit not only of industrially developed countries, as it has been until now, but also of developing countries, to enable them to move out of poverty and misery. Thanks to the rise of welfare of population, the global middle class in developing countries will rapidly expand, and it will expand the demand for durable goods and services contributing to the sustainable long-term economic growth at the global level.

Third, it is an environmental imperative providing consistent, vigorous and effective efforts of the world community to ensure balanced growing world population with all necessary resources — water, food, energy, etc., without damage to the ecology of the environment, without further deterioration of the Earth's biosphere.

Earth's biosphere is a self-regulating system, but its ability to maintain a stable environment is not unlimited and only lasts as long as the perturbations to which a system is exposed do not exceed the capabilities of regulation. The impacts of humanity at the turn of 19–20th centuries exceeded this limit, and since then the Earth is in a state of continuous deepening environmental crisis. If not to prevent a further worsening of the ecological crisis, it will inevitably turn into an irreversible, destructive for humanity environmental catastrophe. It is time that the current economy must be transformed into ecologized one that should protect the biosphere [Brown, 2003].

Fourth, it is the stability of financial system providing sustainable financial capital investment in the real economy. Financial capital, of course, plays a key role in the modern economy. It first supports the technological modernization of the economy, but then contributes to the deepening contradictions leading to a possible crisis. Each technological revolution led to a period of explosive growth in financial markets as the harbinger of the coming collapse [Perez, 2011]. As maintaining the stability of the financial system is one of the main responsibili-

ties of the state, it should pursue a more effective state regulation in this critical area. It is clear that over-regulation is killing the incentive to develop new innovate products. However, the lack of regulation also leads to great problems, as it was demonstrated by the current crisis. We hope that through cooperation of twenty developed and the major of developing countries it would be possible to work out the contours of a new global financial architecture, more reliable, more flexible and eliminating the possibility of financial bubbles which generate the crisis and lead to a sudden downturn in the economy followed by a crash and then by depression.

Fifth, the convergent development of the economies of avant-garde countries of the world. The avant-garde of the world, consisting of G5 countries (U.S., Japan, Germany, Britain and France), and the BRICS are becoming engines of world economic development at the 6th long cycle of Kondratiev (2018–2050) creating the necessary demand by convergent development of their economies. Developed countries are creating demand for products and services of the BRICS countries facilitating transfer of general purpose technologies (GPT) and the inflow of direct investment to the latter. BRICS countries and other developing countries with emerging markets promote expansion of the middle class in their societies, thereby creating sufficient demand for expensive high-technology and high-quality products and services provided by the developed countries. Labor-intensive manufacturing will continue to be in developing countries.

BRICS countries, in turn, become the locomotives for the less developed countries, creating the necessary demand for raw materials and semi-finished products, cheap goods and services, as well as investing in infrastructure and social services. A key role for economic growth in poor developing countries can be played by fair terms of international trade which could be developed only with the strong support of the BRICS countries in the G-20 and the WTO, through the successful completion of the Doha Round. Thus, it is possible to restore again the global demand and maintain its sustainable growth in the future.

The key problem here is the issue of globalization. Indeed, one of the conclusions of the famous French economist and the Nobel Prize winner Maurice Allais, to which he came as a result of an empirical study of the conditions of employment and economic growth in the globalization process, is as follows [Allais, 2003, p. 22–23]: *"General trade globalization between countries with very different levels of salary (at the exchange rate) cannot but lead ultimately — both in the developed and the less developed countries —only to unemployment, a decline in the rates of economic growth, inequality and poverty".* This is true also with regard to the problems of environmental degradation in developing countries, where the developed countries of the West carry out their "dirty" industrial production in the process of globalization.

Considering globalization as an objective process, another American *Nobel laureate economist Joseph Stiglitz proposed key reforms to eliminate its shortcomings, in particular, he raises the problem of global economic governance [Stiglitz, 2003, p.41]: "Unfortunately, we have no world government responsible for the peoples of all countries to control the process of globalization in ways comparable to those of national governments that are used to guide the formation of nations.* <...>

The main problem of the modern world is not globalization, but how it is implemented. This is partly due to the international economic institutions that generate rules. Often, they do so in the interests of the advanced industrial countries and in the interests of particular groups in these countries. These institutions put trade and financial interests above all and look at the world through the eyes of the financier, not an economist, thus the environment care problems, providing the impoverished people the right to vote on decisions that affect them directly, promoting the development of democracy, fair trade remain outside their field of view".

Thus, Joseph Stiglitz definitely link the solution of above mentioned problems with the creation of a world government obliged to act in the interests of all countries of the world, all of humanity, not just a small group of developed countries of the West, as it is now doing the IMF, the World Bank and many other international organizations.

Surprisingly, a great Russian scientist Vladimir Vernadsky thought about this a hundred years ago. This year is celebrated the 150th anniversary of the birth of Vernadsky in many countries of the world. *Vernadsky developed the doctrine of the Earth's biosphere that has received worldwide fame as well as predicted transition of the biosphere into a qualitatively new state — the noosphere [Vernadsky, 2012]. Understanding the scope of cooperation between nature and society under the noosphere, Vernadsky believed that the noosphere requires a global planetary processes management according to one intelligent will, and it is connected with the ideas of socially oriented society.*

The new model of the world economy that meets five above mentioned imperatives — social justice, harmonious globalization, maintaining the stability of the Earth's biosphere, the stability of the financial system and convergent development of the economies of avant-garde countries of the world, that is generated and managed by the intelligent world government, I call "nooeconomy", i.e. economic of justice and mind. Today, when the global crisis has exposed all these problems, this is the most opportune moment to begin the formation of nooeconomy in order to save mankind from the destructive wars and environmental disasters and to ensure a smooth transition into the noosphere civilization. Humanity must realize that tomorrow may be too late. All these issues are discussed in detail in this report.

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The New Pragmatism and the Future of World Economy

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How to reconcile the practical approach with an approach which is fundamentally principled? Is it possible to practice economic pragmatism and remain a man of principle? Is it worth it? It is, indeed, both possible and worthwhile. If we want to live in a world of peace and harmonious development — and we certainly do — new values must be introduced to the process of economic reproduction, however without disregarding the requirements of pragmatism, which is a fundamental and indispensable feature of rational economic management. We need to adopt a more pragmatic approach, favoring multiculturalism and one emanating from a system of values that promote participatory globalization, social cohesion and sustainable development.

There is no contradiction, as the core values underlying the social management process and its economic purposes are concordant to a large extent. The most important aspect of the two approaches is a balanced, long-term socio-economic development. Its equilibrium should be three-fold:

(1) sustainable economic growth, or growth associated with goods and capital markets, as well as investment, finance and labor;

(2) socially sustainable growth, or growth associated with a fair, socially acceptable distribution of income and an appropriate participation of the main population groups in basic public services;

(3) environmentally sustainable growth, or growth associated with maintaining adequate relationsbetween our economic activity and nature.

Therefore, we do not have to sacrifice basic principles on the altar of short-term economic matters or tactical issues but, instead, adapt practical strategic activities to these principles. This imperative charts the evolutionary path for the political economy of the future.

Income relations are of key importance for long-term economic growth. The latter is particularly enhanced by a balanced distribution of income. This conclusion is drawn from a comparative study of long time series and is indisputable. Economic growth is more sustainable in countries with relatively low income inequalities. What is more, income relations in these countries proved more important for their economic growth than the liberalization of trade or the quality of political institutions. This observation points at aspects to which future development policies should pay particular attention.

The possibility of achieving two goals in one go is particularly important. It is viable because one goal — namely the socially sustainable income distribution — is also a means to achieving the second, namely economic growth. This relationship was not to be apprehended by the neoliberal economic thought and the economic policy based upon it; consequently, it has generated a serious crisis through which it is destroying itself. It was also discarded by the economic thought that drove different facets of state capitalism, and for this reason the latter cannot also expect a bright future ahead of itself. Today, the time has come for New Pragmatism.

I am far from underestimating the importance of the rivalry between neoliberal capitalism and state capitalism, but this dichotomy will not be crucial for the future. Its shape will depend on the fallout from the confrontation between these two views of modern capitalism with social market economy that will take on the form of the New Pragmatism. The main line of conflict will run between neoliberalism, struggling to regain his strength and position, and state capitalism which is hostile to it, and the concept of genuine economic and social progress. It should benefit the masses, and not only the narrow social circles whose actions are fuelled by individual interests and supported by well-paid lobbyists who represent them in the world of politics, the media and the "science". There is no future for any political system perpetuating the situation in which a large economically disadvantaged group labelled the "margin" of social exclusion coexists with a a small group referred to as the "elite" and basking in luxury.

It is significant that even the International Monetary Fund, for many years the hub of economic orthodoxy, admits that the policy aimed at surmounting the crisis and conducted by the developed countries — both the United States and the European Union — should be focused rather on increasing tax revenue (primarily from wealthy population strata) than on cutting budget expenditure (primarily targeted at the poorer social groups). We must immediately add that increasing tax revenue of the state does not always have to consist in raising taxes, because this goal can also be achieved through the elimination of tax exemptions and an improved collection of tax receivables. This generally leads to the

introduction of pro-growth changes to the structure of final demand and reduces the scale of income disparities, and thus both the causes of the crisis and its consequences are eliminated. Similarly, the redistribution of income aimed at the reduction of distribution inequalities contributes in the long run to the economic development of the emancipating economies.

Moreover, up to a certain level of national income, a greater increase in social satisfaction can be achieved through its less disproportionate distribution than through quantitative growth. Let this be a crucial hint for economic policies; moreover, it should also inspire the entire educational system. The better we understand it, the easier it will be to pursue that direction. At the same time, there is a risk involved, because a policy that adheres to this thesis may steer towards populism instead of being pragmatic. The difficulty is even greater if we consider that production growth is fairly easy to quantify; conversely, measures of social satisfaction can be easily manipulated.

Social satisfaction can be noticeably improved if we reduce the Gini index by a specific fraction of a point instead of forcing the traditionally calculated GDP up by several percent. Economic policies of the future will increasingly have to resort to such a course of action. It will be much easier given that, on the one hand, the absolute level of production and consumption is rising and, on the other hand, the present scale of income inequalities is even greater than the previous one. In other words, when it comes to inequality, there is ample room for improvement. While the economic growth of poor countries will remain the most important factor for many many years to come, in the majority of rich countries — with the exception of social market economies characterized by a low level of inequalities — targeted changes in income distribution will be of crucial importance.

Unjustified inequalities, especially those arising from the pathological distribution relations, should be decidedly countered, as they undermine mutual trust between people, and consequently affect social capital which plays a key role in the development process. If different professional and social groups distrust each other, if society does not place their trust in the government, and the latter reciprocates such an attitude, if doubt reigns in relations between entrepreneurs, social capital becomes eroded instead of thriving. The economy, ultimately, resembles a family: even if money were to be no issue, but there is mistrust among people, things can turn ugly.

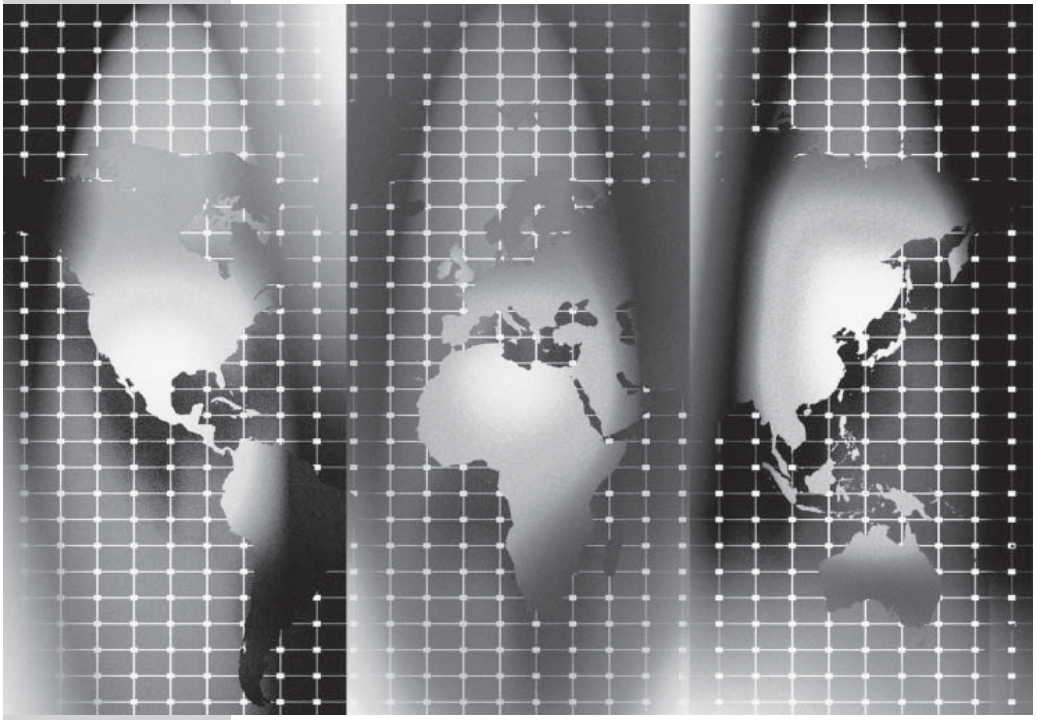
And what about the accumulation of capital? After all, it is necessary for the normal functioning of the economy, primarily for investing in the modernization of existing production capacities and the creation of new ones. Won't a shorter ladder of income weaken the public's propensity to save, and thereby generate capital with which to invest in a better future? Not at all. If this were true, we should not take any measures aimed at reducing income disparities. However, with a few exceptions, this is not the case. No empirical or theoretical evidence exists confirming that societies with a more homogenous income structure save more and invest less. It is enough to study the course of relevant capital formation processes in Austria, France, Scandinavia or other countries to see that their more egalitarian societies were just as capable of saving as countries

with a more elitist type of income division relations.

It also confirmed by conclusions that can easily be drawn from comparisons between the so-called "large state" economies with "small state" economies. Over several decades (1960-1995), in countries where the state's participation in the redistribution of national income was limited to approximately 30 percent (and therefore countries with greater distribution inequalities), the investment rate, or its percentage share in GDP averaged 20.7 percent; on the other hand, countries with a larger-scale budget redistribution, with an approximately 50-percent share of the state in GDP (and therefore with relatively lower income distribution discrepancies), investment rate averaged 20.5 percent. The difference is, therefore, almost nonexistant. A country can have the same capacity to generate capital, which affects economic growth in the future, with a less unbalanced income distribution, which in turn determines the social satisfaction with the present economic situation. This is another important guideline for the economic policy of New Pragmatism. This is what we should aim for in the future.

The constant proliferation of human needs, coupled with the irresistible desire to satisfy them, is a double-edged sword. It breaks through many barriers and, through permanently stimulating the economy, constitutes an indispensable link in the process of expanded reproduction, that is economic growth. At the same time, it is a destructive force, capable of blurring human minds, spoiling preferences, encouraging reprehensible qualities and, consequently, introducing irrational elements to the economy.

The continuous expansion of consumer aspirations is a significant problem. The latest profound crisis has, at most, slightly toned them down and shifted them in time. This phenomenon is also the product of a particular system of values. A few centuries ago, the mankind broke free from the chains of simple reproduction — a period when the size and the conditions of production and consumption were reproduced from one period to another without any changes; this later evolved towards quantitative growth, which has meant that the size of production has grown from one period to another, and appetites always remain unsatisfied. In the past, an average person needed just enough to maintain his or her standard of living on a level comparable to that of the previous year's; today — the more, the better. But does it represent progress? Regardless of the quantity produced and consumed, we inevitably demand more. Some believe that our appetite grows with eating: hence the economic greed remains rampant and, consequently, leads to economic obesity and many social pathologies deriving from it. The economy needs a healthy diet just as much as any well-functioning body does. The economy of the future also needs moderation.



Science Events

Alternative Strategy for Global Development: A Vision of Scientists

At the Round Table «Strategy for Overcoming the Crisis of Civilization and Entering the Path of Global Sustainable Development» organized by the P. Sorokin — N. Kondratieff International Institute, Institute for Economic Strategies, International Association of Knowledge and UN information center in Moscow (Moscow, June 20, 2013) it was discussed the report of the international body of scientists to the G-20 Summit in Saint Petersburg.

Humanity is alarmed by the tenth wave of global crises that hit the planet. The government and political figures, scientists and leaders of the new generation are looking for new approaches to overcome the crises, transition to sustainable development. However, there is no yet a long-term strategy to address this challenge either at the United Nations, or G-20 and G-8.

Russian scientists and their associates from other countries suggest the leaders of «G-20» who will meet in St. Petersburg in September 2013 their vision of the nature of the crisis and ways to overcome it through a noospheric-civilizational approach.

They have concluded that this is the crisis of ***civilization*** determined by a change of super-long cycles of civilization. This requires new approaches to anti-crisis policy.

The main lines and features of the strategy proposed by scientists are the following.

First, the civilizational approach, promoting acceleration the replacement of the industrial civilization worked out its days and increasingly parasitic with humanistically-noospheric focused on human and on the harmonious co-evolution of society and nature. This requires a radical transformation of all components of the genotype of civilization — natural-ecological and socio-demographic, technological, and economic, socio-cultural and geopolitical. One cannot be limited to half-measures, partial improvement of the systems worked out their days, it is necessary a focus on radical transformations.

Second, the crisis will not end by itself with an unregulated-market mechanism, an inertia-based path can only lead to deepening of the contradictions and bring humanity to disaster. It is necessary a global, long-term, science-based strategy oriented also at radical balanced realignment of the system of international relations. The center for the implementation of this strategy should be the United Nations, and the initiator of its development could be G-20 represented the leaders of all modern civilizations with the involvement of the leading scientists for validation of the strategy.

Third, the implementation of this strategy requires consolidation of all healthy social forces, necessary partnership of civilizations and nations, social strata and generations. Partnership in the face of the new challenges of the 21st century, a growing avalanche of risks and dangers should become a key principle of international and social relations.

The scientists have built their conclusions and recommendations not from scratch. They have developed and published a series of monographs on the foun-

dations of the theory, history and the future of civilizations, which was presented at the UN Headquarters in October 2006. On this basis in 2008–2009 it was worked out the Global Outlook «The Future of Civilizations» for 2050, which was discussed at the Round Table at the UN Headquarters in October 2009. Prepared on this basis, the report of the international body of scientists «Foundations of a Long-term Strategy for Global Sustainable Development Based on Partnership of Civilizations» was presented at the Round Table at the UN Headquarters in June 2011 and at the Civilization Forum at the UN Conference on Sustainable Development, Rio +20 in June 2012.

The alternative strategy proposed by scientists has still received marginally by the world leaders, but the aggravation of crises and the deepening contradictions, and also the process of changing generations of leaders that has begun impel to look for fundamentally new approaches to break the deadlock and to listen to the voice of the scientists. We hope that this report, which expresses an alternative position of scientists on the most pressing issues of the future of civilizations, sooner or later, will resonate with world leaders — and sooner is better than later.

President of the P. Sorokin-N. Kondratieff International Institute, Academician of the Russian Academy of Natural Sciences Yu.V. Yakovets made a report at the Round Table (presentation of the report is given below).

The paper was discussed by Director of the UN Information Centre in Moscow A.S. Gorelik, Chairman of the Science and Education Committee of the Senate of the Republic of Kazakhstan, Academician of the Kazakhstan National Academy of Natural Sciences H.H. Valiev, Director of the Eurasian Economic Commission E.L. Hatul, Head of the Department of the Russian Presidential Academy of National Economy and Public Administration, Academician of the Russian Academy of Natural Sciences V.I. Kushlin, Director General of the Institute for Economic Strategies, President of the International Futures Studies Academy Academician A.I. Ageyev, Director General of the Institute of Energy Strategy, Academician of the Russian Academy of Natural Sciences V.V. Bushuev, Secretary-General of the Organization for Promoting Global Civilization Mingkuan Peng (China), responsible officer of the Security Council of the Russian Federation, Academician of the Russian Academy of Natural Sciences N.V. Abrosimov, representative of the Embassy of the Republic of Indonesia to Russia A.M. Pratomo, Scientific Secretary of the RAS Academic Council on Complex Problems of the Eurasian Economic Integration, competitiveness and modernization, RANS Academician E. A Naumov, Deputy Chief Editor of the Internet portal «INSITAH» A. Moussa (Syria), Professor at the Dubna International University for Nature, Society and Man S.V. Kibalnikov, as well as the meeting was attended by Head of the Department of Russian Foreign Minister Sergey Ryabokon.

At the meeting it was delivered a presentation of the Open University for Dialogue Among Civilizations, the International Science and Education Journal «Partnership of Civilizations» and the e-edition of the writings of S.Yu. Glaziev and Yu.V. Yakovets (English) «The Integral Theory of Cycles, Crises, Innovations, Technology and Economic Development». The meeting endorsed the recommendations found below.

Scientific Foundations of the Strategy for Overcoming the Crisis of Civilization and Entering the Path of Global Sustainable Development

Recommendations of the Round Table
Moscow, June 20, 2013

In September 2013, St. Petersburg will host the next G20 summit. The body of scientists formed by the P. Sorokin — N. Kondratieff International Institute, on its own initiative prepared a report for the Summit «Scientific Foundations of the Strategy for Overcoming the Crisis of Civilization and Entering the Path of Global Sustainable Development.» The report was at the Round Table organized by the P. Sorokin — N. Kondratieff International Institute, Institute for Economic Strategies, International Association of Knowledge and the UN Information Centre in Moscow, which was held on June 20, 2013. The meeting discussed the report as well as it was delivered a presentation of the Open University for Dialogue among Civilizations, the International Science and Education Journal «Partnership of Civilizations» and a collection of scientific works of S. Yu Glaziev and Yu.V. Yakovets «The Integral Theory of Cycles, Crises, Innovations, Technology and Economic Development».

The discussion of the Round Table participants comes to the following conclusions and recommendations.

1. The meeting participants welcome the initiative of the P. Sorokin — N. Kondratieff International Institute on preparing the report for the G-20 Summit

in St. Petersburg, which expresses the alternative position of the scientists on the strategy to overcome the crisis of civilization and entering the path of sustainable development based on a noospheric-civilizational approach and partnership among civilizations and nations.

2. The meeting participants share the main points of the report:

— on diagnostics of the current global crisis as a crisis of civilization, determined by the change of super-long c cycles of civilization;

— the need to develop a long-term global strategy to ensure consolidation of the progressive forces for a balanced radical transformation of all the components of the genotype of civilization and the evolving humanistically-noospheric integral civilization as the basis for global sustainable development;

— the formation of institutions and mechanisms for the implementation of the strategy, with the leading role of the UN, evolving the global law and strengthening ties of the UN system with a breakthrough science.

3. The meeting participants support the proposal to develop the project of scientifically based framework of goals and objectives for sustainable development in the long term to be discussed at international scientific congresses in St. Petersburg (25–27.09.2013) and Moscow (3–5.12.2013), followed by submission to the RF Ministry of Foreign Affairs and the UN ECOSOC.

4. The meeting participants point to the fact that the outcomes of the Rio +20 UN Conference and the G-20 and G-8 Summits do not almost represent the technological component of overcoming the crisis and sustainable development, and recommend the UN ECOSOC to focus on uniting the efforts for the development of scientific and technological revolution of the 21st century and the 6th technological order.

5. The meeting participants recommend the Board of the Eurasian Economic Union on the basis of proposals by the P. Sorokin — N. Kondratieff International Institute proceed with the development of the strategy for recovery and improvement of the competitiveness of the Eurasian civilization on the basis of the evolving sixth technological order and deepening integration as well as to develop science and technology strategic partnership of the SCO, BRICS, and EU.

6. The meeting participants recommend the representatives of the Russian Foreign Ministry and representatives of the embassies of the G20 to bring the report and recommendations of the Round Table to attention of delegations of the G20 Summit in St. Petersburg, as well as to the UN ECOSOC.

7. The meeting participants have warmly congratulated the authors of scientific discovery in social sciences U.A. Vinokurova (Arctic circumpolar civilization) and Yu.V. Yakovets, and wished them more success.