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Abstract

The theme of current Master thesis is devoted to the educational policy for sustainable development in Kazakhstan reviewed on the experience available on the international scale, in general, and on the European Union's countries, in particular. The aim of the research is the analysis of current educational policy for sustainable development in Kazakhstan. It is mainly considered the introduction of curriculum subject for classroom-teachers by proposing a strategy with different and new approaches of teaching starting from workshops to motivate students for creating local projects for sustainable development. Also it is expected to review the achievements and results of sustainable development policy provided by government, state agencies, non-governmental organizations on the example of Central Asian Regional Ecological Centre in Kazakhstan. This thesis consists of three main chapters and each chapter includes three subthemes. The first chapter is devoted to consideration of theoretical background of sustainable development concept, explanation of notion of sustainability and considers the education for sustainable development in particular view on difference between environment education and education for sustainable development. The second part has more descriptive character as it directs to analysis the current political, economic and social spheres in the Republic of Kazakhstan with focus on implementation and initiatives of sustainable development concept in all three areas. Moreover, this part also contains the analysis of the short the interview (survey by questionnaire) with the Minister of Education and Science of the Republic of Kazakhstan in order to clarify some question about current education policy for sustainable development. The last chapter provides analysis of the educational policy for sustainable development in Kazakhstan, firstly initiated by government's policy for higher education level. Consequently, this activity was introduced into educational policy with the main aim of reorienting educational policy for sustainable development, thus the second subtheme of this chapter is devoted specifically to narrow consideration of results of ESD implementation in Kazakhstan. The final part of thesis gives explanations of the proposed curriculum subject by this Master thesis comparing with the already experienced subject "Ecology and Sustainable development" in higher education and underlining the importance of new methods used within proposed subject. Thus, theoretical and methodological ideas and approaches formulated by the author of this work and approved on its basis the concept of education for sustainable development and new educational programme as pedagogical model on the example of curriculum subject allow to consider it as theoretical base and important direction of modernization of educational policy in the Republic of Kazakhstan.

Resumo

A temática presente nesta dissertação é a política educacional para o desenvolvimento sustentável no Cazaquistão, analisada à luz da experiência colhida a nível internacional, em geral, e dos países da União Europeia, em particular. O objetivo da pesquisa é a análise da política educacional para o desenvolvimento sustentável atualmente desenvolvida no Cazaquistão. Considera-se principalmente a introdução da temática no currículo de formação de professores com a proposta de uma estratégia com métodos diferentes e novas formas de ensinar, incluindo práticas de motivação dos estudantes para criar projetos locais de desenvolvimento sustentável. Também se passará em revista as realizações e os resultados da política de desenvolvimento sustentável fornecida por dados do governo cazaque, agências oficiais, organizações não-governamentais, tomando como exemplo o Centro Ecológico Regional de Ásia Central no Cazaquistão. Esta dissertação compõe-se de três capítulos principais e cada capítulo inclui três subtemas. O primeiro capítulo dedica-se à consideração do contexto teórico do conceito de desenvolvimento sustentável, à explicação da noção de sustentabilidade e considera a educação do desenvolvimento sustentável segundo a visão da diferença entre educação de ambiente e educação do desenvolvimento sustentável. A segunda parte tem um caráter mais descritivo por se dirigir à análise das esferas políticas, económicas e sociais atuais da República do Cazaquistão, sempre tendo por foco o caso de implementação do conceito de desenvolvimento sustentável nas três áreas. Além disso, esta parte também contém a análise da curta entrevista (inquérito por questionário) realizada junto do Ministro da Educação e da Ciência da República do Cazaquistão a fim de clarificar alguma pergunta sobre a política de educação atual do desenvolvimento sustentável. O capítulo último fornece a análise da política educacional para o desenvolvimento sustentável no Cazaquistão, primeiramente iniciada pela análise da política de governo a nível do ensino superior. Consequentemente, esta atividade introduziu-se na política educacional com o objetivo principal de reorientar a política educacional do desenvolvimento sustentável. Assim, o segundo subtema deste capítulo dedica-se especificamente à consideração estreita dos resultados da implementação ESD no Cazaquistão. A parte final da tese fundamenta a proposta de uma nova formação curricular por nós aqui apresentada, tomando como referência de comparação a disciplina de “Ecologia e Desenvolvimento sustentável” já experimentada no ensino superior e destacando a importância da introdução de novos métodos na formação proposta. Assim, as ideias teóricas e metodológicas e os processos formulados pela autora deste trabalho apoiam-se, na sua base, no conceito da educação para o desenvolvimento sustentável e propõem um novo modelo para um programa de formação de professores adequado à modernização da educação na República do Cazaquistão.

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Acronyms

ABD	Asian Development Bank
APR	Asia-Pacific Region
ASSR	Autonomous Soviet Republic
BRDB	Russian Regional Development Bank
CA	Central Asia
CAI	Central Asian Initiative
CAREC	Central Asian Regional Ecological Center
CiO	Chairman-in-Office
CIS	Commonwealth of Independent States
CSR	Corporate Social Responsibility
DESD	Decade for Education for Sustainable Development
DESD	Decade of Education for Sustainable Development
EACEA	Education, Audiovisual and Culture Executive Agency
EC	Economic Cooperation Organization
ECOSOC	Economic and Social Council
EE	Ecological Education
EFA	Education for All
EfES	Education for Environment and Sustainability
EfS	Education for Sustainability
ESCAP	Economic and Social Commission for Asia and Pacific
ESD	Education for Sustainable Development
EU	European Union
FDI	Foreign Development Investment
GDP	Gross Domestic Product
HDI	Human Development Index
ICSD	Interstate Commission on Sustainable Development
IEEP	International Environment Education Program
IHE	Improvement of Higher Education
IMF	International Monetary Fund
IUCN	United Nations Development Program
KIMEP	Kazakhstan Institute of Management, Economics and Strategic Research
MEP	Ministry of Environment Protection
MES	Ministry of Education and Science
MFA	Ministry of Foreign Affairs
NGO	Non-government organization
NIS	National Innovative system
OIC	Organization of the Islamic Conference
OSCE	Organization for Security and Co-operation in Europe
RK	Republic of Kazakhstan
SD	Sustainable Development
SIDA	Swedish International Development Cooperation
SOSE	State Obligatory Standards of Education
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development program

UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
USA	United States of America
USSR	Union of Soviet Socialist Republics
WCC	World Council of Churches
WCED	World Commission on Environment and Development
WSSD	World Summit on Sustainable Development
WTO	World Trade Organization

Introduction

The concept of sustainable development is widely discussed around the world. The perspective of sustainable development strongly occupies the central place in world economy, ecological, social and other spheres. There was not in previous time other scientific idea neither in natural sciences, nor in social disciplines which had so wide public response. At the same time a mankind comes to conclusion that it is new and long-term developing aspect of society life. Therefore it has been actually addressed just now moment as the humankind of the 21st century is faced a number of environmental problems that have been influenced our modern life as well as future generations. Such problems include: pollution of the atmosphere, water and soil; emissions of harmful substances, hunger, poverty, diseases, illiteracy, unstable models of consumption, climate change, anthropogenic impacts on the environment and other. Therefore the concept of sustainable development is initiated by the international community as a solution to new stage of development and proclaimed as a reference point and the main purpose for the 21st century. The theme of this thesis is "Educational Policy for Sustainable Development in Kazakhstan" is located on the crossing boundary of many disciplines, such as international relations, sociology, education philosophy, pedagogics, political sciences, economics etc. This work considers existing characteristics of the concept of education for sustainable development as alternatives for future development of society in the 21st century, and its role in formation and change of public consciousness.

Since gaining independence in 1991, the Republic of Kazakhstan has been actively integrated into world international processes. Due to unique geographical position, occupying 9th largest territory in the World and situating between Europe and Asia, Kazakhstan has opportunity to cooperate and follow both world practices of European Union and Asia-Pacific region. Sustainable development became one of these processes and was chosen by Kazakhstan's government as a priority direction in further development of country. Actively participating in international conferences for sustainable development and adopting final documents, the country automatically takes responsibilities for implementation of the main principles concluded in final documents. Important steps, for example, were undertaken at the international level in foreign policy of Kazakhstan, as participation of the country in June

2012 in Rio de Janeiro at United Nations conference, where Kazakhstan promoted the idea of green development at global level. The country initiated the Partnership program "Green Bridge" and global eco-energy strategy at the RIO+20 UN World Summit in 2012. Kazakhstan's initiatives have received wide support of the world community and were included into the final declaration of the summit. Based on results of RIO+20 Conference in support of these initiatives, the President of Kazakhstan, Nursultan Nazarbayev, has instructed the Government of the Republic of Kazakhstan in summer 2012 to develop the Strategy of Kazakhstan for the transition to "green" economy by 2050 (United Nations Development Program Kazakhstan/web site).

Relying on existing heritage, there was expressed at conference the intention on strengthening international cooperation for the most effective use of global educational efforts of mankind struggle for sustainable existence and its steady transition to green economy, creating of platform for those people who take decisions to interact with the UN in forums devoted to the Ecological Education (EE) and Education for sustainable development (ESD) to sum up implementation of national, regional and international programs of EE and to define future prospects of its development. Thus, education is initial transformation element to sustainable development, providing people with opportunity to realize the idea of society in reality. It not only gives scientific and technical skills, but also ensures motivation, serves as an explanation and gives social support for development of skills and their application. Kazakhstan together with international community firmly believes that through education it is possible to impart values, to bring up the relation, behavior and lifestyle necessary for providing sustainable future. Education for sustainable development represents process training in how to make the decisions necessary for providing the long-term future of economy, ecology and equalities of all communities. Development the thinking focused on the future is a key task of education for Kazakhstan. However, the history of education for sustainable development started when the Government of Kazakhstan had adopted the Plan of measures for 2007-2009 on implementation of the concept of transition of the Republic of Kazakhstan to Sustainable Development for 2007-2014 and by President's Decree No. 216 from November 14th, 2006 this concept was approved. Since this time many initiatives and activities were implemented in order to promote sustainable development. It is important to underline that initiatives were also launched in educational policy. The item 6.7 of the Plan of activities on implementation of Kazakhstan's transition to sustainable development for 2007-

2014 years confirms the necessity to create scientific principles of sustainable development theory in the application of adoption to local conditions and in particular items 1.3.1 and 1.3.2. are devoted to take measures on teacher training for sustainable development and on introduction of study program to sustainable development. There is need to have knowledge background of what development should be considered as sustainable. In this regard education for sustainable future means learning through entire of life that conducts to formation of population with high level of civic responsibility and awareness, including creative approach of possessing skills for the solution of problems, scientific and social literacy, and readiness to undertake responsible individual and collective actions. Education for sustainable development reflects aspiration to quality education and participation being trained in the discipline course, problem training, inclusion of aspects of sustainable development during learning of concrete subject and other spheres is characterized by interdisciplinary and scientific character, formation of critical thinking and activity.

The 2005-2014 years are declared by the United Nations as a “Decade of education for sustainable development” with the main objective to promote world creation where everyone has possibility to make contribution by means of education and scientific estimates, behavior, lifestyle, demanded for the sustainable future and positive social transformation (Agenda 21, UN 1992) The education conducting, first of all, to formation of knowledge and skills, promotes also the development of visions, positions, values, life-long learning of the person as a citizen of 21st century. According to Ursule's opinion: *There is a complex of researches areas such as social ecology, social informatics, global studies, a “new sphere” and others in which social and humanitarian and philosophical components are an organic part of these directions of scientific search* (Ursule 1996, p.13). Therefore the concept of sustainable development of society is considered in the same term. Sustainable development was initially proposed by International Union for Conservation of Nature (1980) as a compromise between development and conservation, it offered the hope that humanity could continue to advance socially and economically, while still conserving the life-support systems provided by the global environment that make an indispensable contribution to human welfare (Grainger p.10). Roosa says that: *Sustainable development is overarching set of integrative principles that involves energy, urban management, environmental ecosystems, economic development, social equality, policy integration and the idea that effective solutions can be achieve in cooperative manner* (Roosa 2010, p.28).

The aim of the research is the analysis of current educational policy for sustainable development in Kazakhstan. It is mainly considered the introduction of curriculum subject for classroom-teachers by proposing a strategy with different and new approaches of teaching starting from workshops to motivate students for creating local projects for sustainable development. Also it is expected to review the achievements and results of sustainable development policy provided by government, state agencies, non-governmental organizations on the example of Central Asian Regional Ecological Centre in Kazakhstan.

The object of research work is a process of formation and development of education at all levels for sustainable development of teachers based on the analysis of experience of European countries and taking into consideration the nature and society. This research work seeks to answer to three main questions: What is the theoretical concept of sustainable development? What is the notion of sustainability? What is educational policy for sustainable development in Kazakhstan? There is a problem of definition of the concepts sustainable development and education for sustainable development. . A transition to sustainable development is considered by civil society as a solution to created critical situation in relationship of the society and the nature. The main maintenance of future era is caused by formation of social and economic bases of a civilization of steady type and formation of the new personality. It is a starting point for overcoming of the designated *civilizational crisis*. The education oriented for sustainable development is the main factor of transformations in the society, promoting through a consciousness of *greening* to formation of new type of the citizen. There are different forms and methods of teaching for sustainable education. Thus it is proposed the introduction of new discipline subject into curriculum syllabus of higher educational institutions with the further consideration of perspectives of implementation of sustainable development concept in Kazakh society and change of public consciousness and attitude to environment issues not only at all levels of education. The models of three and more components (with inclusion of cultural, esthetic, ethical, human, religious and spiritual, moral, democratic, political and institutional and other aspects) of the concept sustainable development in the best way reflect the concept of a sustainable development in its multidimensionality which purpose is simultaneous ensuring economic efficiency and safety, social justice and safety, ecological safety and co-evolution development that national strategies on a sustainable development of European Union countries visually shows. The combination of scientific and interdisciplinary approaches, growth of scientific knowledge as

forms of reflection of public consciousness, and also continuous training during lifetime will provide efficiency of education for sustainable development. Functions of advancing educational process lead to transformations of traditional functions of education, deducing it on new qualitative level.

In this regard the main research tasks are: to open the theme by studying genesis of the concept sustainable development and problem of its definition; to allocate the main characteristics of sustainable development, criteria and indicators of sustainable and unsustainable type of development; to analyze the experience of teacher trainings in European Union's countries, in particular successful practices in implementation of the concept and education for sustainable development; to make conclusion about the importance of introduction of sustainable development discipline subject into educational system in order to provide opportunity for teachers to adopt their study program with reorientation to sustainable development; to understand the difference between concept education for sustainable development and ecological education.

Theoretical and methodological base of research investigation were using of primarily source materials such as final documents and declaration of international conferences, speech reports of speakers and head of states, result of survey by questionnaire of Kazakhstan's Minister of Education and Science. Technical method included the analysis of documents, statistics, systematization of data, survey by questionnaire and searching of bibliography.

This thesis consists of three main chapters and each chapter includes three subthemes. The first chapter is devoted to consideration of theoretical background of sustainable development concept. It reviews historical emergence and formation of sustainable development concept since the 1970s-1980s until modern time. This chapter also examines the notion of sustainability and its explanation not only by scholars as well as by stakeholders, leaders of international organizations, politicians and etc. The final subtheme of this chapter considers the education for sustainable development in particular view on difference between environment education and education for sustainable development.

The second part has more descriptive character as it directs to analysis the current political, economic and social spheres in the Republic of Kazakhstan with focus on implementation and initiatives of sustainable development concept in all three areas. Moreover it was important to submit the analysis of educational system of Kazakhstan in order to make a conclusion about opportunity to introduce new subject into curriculum

syllabus of higher educational institutions. This part also contains the analysis of short the interview (survey by questionnaire) with the Minister of Education and Science of the Republic of Kazakhstan in order to clarify some question about current education policy for sustainable development.

The last chapter begins to analyze the educational policy for sustainable development in Kazakhstan, firstly initiated by government's policy for higher education level. Consequently, this activity was introduced into educational policy with the main aim of reorienting educational policy for sustainable development, thus the second subtheme of this chapter is devoted specifically to narrow consideration of results of ESD implementation in Kazakhstan. The final part of thesis gives explanations of new proposed curriculum subject comparing with already experienced subject "Ecology and Sustainable development" in higher education thereby underlining the importance of new methods used within proposed subject.

Chapter I

1.1. The emergence and formation of the concept of sustainable development: from the theory of economic growth to a socio-economic paradigm

On the threshold of 21st century world community faces problems caused by global alteration of existing international world order. Humanity cannot stay indifferent in the deciding of these problems. The current economic crises existing in almost all countries of the world accompany human society during the history. In different period of time the human civilization repeatedly appeared in such turning point of world-wide and historical process which totally changed a world order and defined new dynamics and the direction of further civil development in the long-time prospect. However, the crisis which many countries and continents have been faced many at the turn of the 20th and 21st centuries is treated to the "category of phenomena which does not have analogs in world history" (Brown 1992, p.9). The modern world endures global system crisis, which is directly connected with long-term tendencies, global processes of world development and it is expressed in the accruing, avalanche growth and a critical aggravation of the global problems.

The mankind has been already staying permanently in the problem space which is transforming evidently to space of calamities that is promptly moving to the possible tragic culmination in a case of insufficient and wrong answer on this historical challenge. Quantitative and high-quality changes in various spheres of the public lives and in society interaction with the nature which were collected during long time have already reached the maximum permissible critical values, which reflect not only the whole complexity, variety and dynamism of modern era, but also its especially technocratic character, orientation to unconditional conquest of the nature. However the model of development of human civilization based on such ideology, creating illusion of stable growth, it is not capable to provide development preservation in long-term prospective and therefore sputtered out. The mankind faced a necessity for radical change of paradigm of further development, for carrying out of fundamental civilization transformations. In the second half of the 20th century the attempts of searching for a new model of world international order have been trying which is capable to lead global system to qualitatively new state.

In the 1970s-1980s the global problems including environmental issues, and also a necessity to combine efforts at the international level for overcoming of these problems began to play crucial role. The contemporary environmental problems, which are attracted attention and caused the concept of sustainable development, in a certain degree are generated by time lag of economic thought. Nor classics of economic science, beginning with A. Smith, nor the subsequent economic schools, including Marxist, did not attach significance to ecological restrictions in economic development. However only in the 1970s of the 20th century when the environmental problems sharply became aggravated around the world, there was set a new task for economic science to comprehend the developed tendencies of ecological and economic development and creating of essentially new concepts of development. In effect the concept of a sustainable development became qualitatively new approach to problems which neither were not noticed earlier, or weren't realized as important, or were considered not relating to the sphere of economic science. The still dominating paradigm of economy is based on some assumptions of the world, which being very useful to effective distribution of resources in short-term period, are less exact and useful in work with more long-term, wide and complex problems of sustainable development. However the global issues noticed broad attention of world community and became a subject of serious scientific discussions for the first time since the end of the 1960s and the beginning of the 1970s of the 20th century. Firstly the ecological perspective came to the fore. In the middle of the 20th century there was a large number of publications full of anxiety for nature and mankind: W. Thomas *Man's role in changing the face of the earth* (1956), J. Dorst of *Before nature dies* (1968), R. Parson of *Nature imposes Account* (1969), Armand D.L. *For Us and Our Grandchildren* (1964) which stimulated turn of world public consciousness to environmental issues and searching for solutions to eliminate the negative consequences of technology development. On this background the global aspect of ecological perspective and its close dependence on many other problems of the same scale was highlighted. Originally the assessment of global risks was penetrated by ideologies of alarmism. This alarmist discourse was formed *from below up*, as judgment and discussion of separate aspects of a global perspective in the different countries with the subsequent translation of this discussion on the international level. Existing approach to the concept of sustainable development was developed within several decades. It is based on experience in the field of the development, maintained during this time (Munasinghe, Cruz 1995, p.128-131). These processes have been

leading gradually by transnational community of scientists, politicians, public activists and experts etc. For instance, the international network structure of the non-governmental scientific organizations which conduct researches on studying of global processes on Earth such as Institute for Future problems, (Vienna 1965), Society on studying of Future World (Washington 1966), etc. Over the time the number of such organizations has been increasing. However, the original interest to global perspective was shown after the first reports of the Club of Rome which was created in 1968 (Peccei, King 1968, p.27). The activity which was carried out by the Club of Rome contributed to the emergence and development of the concept of sustainable development (Tinbergen 1976, p.14). A great impetus there was given by sensational work "Growth limits" which attracted the broadest attention to global environmental problems.

At the time global crisis one of the first attempts of scientific judgment of global issues and predictions of possible ways of development for humanity was undertaken by the Club of Rome (1968), a non-governmental organization which had united very influential businessmen, well-known politicians and the scientists concerned by possibility of global crisis of mankind in continued economic growth without long-term planning. Initially the main objectives of this organization were declared: to develop the scientific techniques of the analysis of global crisis existing in the World; to promote broader the gravity of crisis situation, and also definition of necessary measures in order to achieve a global balance in the world. Concerning the problems which are sharply facing mankind, the founder of Club of Rome A. Peccei noted: *There are no more economic, technical or social problems existing separately, independently from each other which could be discussed within one special terminology...* Even at a passing on the provided list of problems it is easy to see links which link them together; by more detailed consideration these communications are traced even more visually. Uncontrolled distribution of the person on a planet; inequality and heterogeneity of society; social injustice, hunger and malnutrition; wide circulation of poverty; unemployment; mania of growth; inflation; energy crisis; already existing or potential lack of natural resources; disintegration of the international trade and financial system; protectionism; illiteracy and outdated education system; revolts among youth; alienation; city blight; crime and drug addiction; explosion of violence and toughening of the police power; tortures and terror; neglect the law and order; nuclear madness; political corruption; bureaucracy; environment degradation; decline of moral values; belief loss; the

feeling of instability and, at last, not sensibleness of all these difficulties and their interrelations — here is far not the complete list or, or rather, a ball of that difficult, knotty problems which the Club of Rome called a perspective (quoted in Masini 2004, p.176) There were made first attempts to predict global models of imitating world processes *World-1* and *World-2* were introduced in 1970s by J. Forrester who had developed mathematical apparatus and methods of system dynamics (Forrester 1971, p.274). Consequently his followers Meadows including their colleagues on the basis of advanced computer models counted a number of scenarios of world development for 1970s-2100s. Finally they come to conclusion that what even most optimistic of the considered scenarios to the middle of the 21st century steadily rest against ecological collapse against progressing degradation of biosphere. The concept of *the zero growth* was suggested in order to avoid such prospect when economic development is reduced to simple reproduction, and demographic processes are put under rigid control (Meadows 1972, p.85).

Physical limits of growth:

- Total area of potential arable lands — 3,2 billion hectare (it is twice more, than in 1970);
- Maximal productivity is three times higher than the average world indicator of 1970;
- Available stocks of non-renewable resources in 250 times more than in 1970;
- The level of absorption of pollutants the biosphere is 25 times higher, than in the natural

Ecosystem of 1970 (Ibid. p.115-121).

In the second global model of the Club of Rome entitled *Mankind at the Turning Point* by E. Pestel was considered the critics by the excessive global scale of the first model. The world was considered not as a whole, and on large regions but taking into account a physiographic factor and typology of the countries by formational criterion and a level of development: North America including the United States, Canada and Mexico; Latin America; Western Europe; Union of Soviet Socialist Republics and Eastern Europe; North Africa and Middle East; tropical Africa; Southern and South East Asia; People's Republic of China and socialist countries of Asia; Japan; Oceania and the Republic of South Africa. Instead of "the zero growth" according to Meadows the concept of *the organic growth* is the coordinated development of different parts of global system was offered (Pestel, Mesarovic 1974, p.316-317).

The Club of Rome added the noticeable page to the history of global studies already which is among a great deal of futurological organizations have appeared on a wave of an aggravation of global issues, it allocated for the first time the modern problems which have captured all planet, and I raised a question of need to be engaged in them in all their integrity. It managed to connect to this work of prominent scientists and experts, and also to carry out the problem of basic importance in order to show danger of some tendencies of development of world civilization and to appeal them to attention of all mankind. Members of the Club of Rome forced themselves to listen that so persistently achieved, both extraordinary conclusions and the forecasts containing in their reports, caused a great resonance among world community, in a scientific and political community, having had serious impact on formation of mass consciousness of the population of a planet (quoted in Masini p.202).

However, recognizing the authors of global models, it is necessary to emphasize that such models of the Club of Rome do not allow make scientifically valid conclusions about the world dynamics. A major part was constructed on the assumption of reserve of global system and does not consider mankind interaction with the space of environment surrounding it. There are three main concepts in the discussion of Club which are closed to the concept of sustainable development: the concept of dynamic growth, the concept of organic growth and the concept of dynamic balance (Peccei 1980, p.78-79).

The general characteristic for all these approaches is the comparison of global economic system to the live organism, especially brightly shown in the concept of organic growth. Quantitative growth does not play an evolution role of live organisms or biological systems. The main place here belongs to the vital force and ability to a survival, i.e. high-quality improvement and the adaptation to environment. Organic growth results in dynamic balance because the live, mature organism is constantly updated. The society which has reached conditions of dynamic or stable equilibrium, such society which in reply to change of internal and external conditions is capable to establish new balance corresponding to these changes both in it, and within the environment of the dwelling is. As for the quantitative growth on which the traditional economic science concentrated, it even from purely mathematical point of view has to stop sooner or later, and with the most adverse effects (Peccei 1980, p.270). True limits of material growth of mankind are defined by not so much physical reasons rather than ecological, biological and even cultural and psychological character. At the same time the concept of *the zero growth* where a steady state economy is

maintained, through that all economic activities and policies are oriented towards achieving a state of equilibrium. The theory asserts that the continuous growth model is inherently unstable resulting in a *boom/bust* cycle, and that continuous growth in the context of finite resources is unlikely to support current levels of prosperity indefinitely, as well as the concept of unlimited growth. Rather high growth rates cannot lead to adverse consequences for environment. At the same time at low or even negative growth rates (i.e. economic recession) the state of environment can worsen, and stocks of not renewable natural resources can be exhausted (Tinbergen 1976, p.189). R. Costanza and K. Folke allocate three hierarchically interconnected problems with which decision the sustainable development is connected (Costanza, Folke 1994, p.267). They reduced to maintenance of:

- the steady scale of economy which would correspond ecological life support system;
- equitable distribution of resources and opportunities not only in framework of present mankind generation, but also between present and future generations as well as between the man and other species;
- an effective allocation of resources in time, which adequately considered the natural capital.

The majority of representatives of traditional economic science believed that the distributive problem has to be solved political, instead of economic methods. The problem of scale was not considered at all as essential, as possibility of unlimited replacement of resources and technological changes admitted. It is important that a problem of scale and a distributive problem not to be solved within a market mechanism even on condition of the "perfect" market that is the accounting of all external expenses. It is rather a solution of these problems when it has to be found out of the market, the market can be used as effective the tool for realization of these decisions in life. The traditional paradigm substantially ignores a problem of scale and distributive problem as being *out of the sphere* economic science. The economic science is considered as limited by the solution of the technical questions arising in connection with effective distribution of resources. But if to define economic science more widely, namely as *science about management economy* (such value bears the Greek word *economy*), it has to be addressed to all problems arose during such management, including the problem of scale of economy and distributive issue, even if the last is not been held in the framework of mathematical models and the traditional instructions used in solution of problem of effective distribution of resources (Ibid. pp.273-277). The concept of sustainable

development inherited from developing in works of the Club of Rome is one of first concepts of all fundamental difference from the concept of the continuous dominating in traditional economic science the concept of economic growth.

The distinction between economic development and economic growth is fundamental for the concept *sustainability*. Growth is directed on quantitative increase in scale of economy in its physical measurement. It assumes increase in volume and speed of the material and power streams passing through economy, quantitative growth of the population and increase in stocks of products of human work. Development means high-quality improvements in structure, a design and composition of physical volumes and streams. Potential of the economic progress which is based on sustainable development, assumes high-quality improvements, than the economic growth based only on increase in quantitative indices. Original economic progress is only such progress which is carried out not for the environment account, and, on the contrary, at the expense of coordination of economic activity and all behavior of people with biogeochemical cycles of various level and full inclusion of economic system in structure of the global closed life-supporting environment of economic growth (Sen 1997, p.63). If the economic growth based only on quantitative indices, eventually leads to self-damage and thus is *unstable*, economic development understood first of all in qualitative sense steady can be. *Development theory has also moved along some times on its own impetus but at other times on direct response to empirical observations. We certainly can claim to understand parts of the process of development much better now than we could half a century ago* /quoted in Sen 1997 p.195/ A good example is the rather common generalization that the development experiences show the folly of the state activism and the unconditional merits of the pure market economy and all that is needed for development is to move from *planning to market*. There are on the one hand approaches that see development as a *fierce* process, with the moral that invokes *blood, toil, tears and sweat* (to use Winston Churchill's rousing phrase). The expansion of human capabilities, thus have both *direct* and *indirect* importance in the achievement of development. The indirect role works through the contribution of capability expansion in the enhancing productivity, raising economic growth, broadening development production, and bringing demographic changes more within reasoned control. The direct importance of human capability expansion lies in its intrinsic value and its constitutive role in human freedom, well-being and quality of life.

Economic models propose to sustain opportunity, usually in the form of capital. According to the classic definition formulated by the economist Robert Solow, we should think of sustainability as an investment problem, in which we must use returns from the use of natural resources to create new opportunities of equal or greater value. Social spending on the poor or on environmental protection, while perhaps justifiable on other grounds takes away from this investment and so competes with a commitment to sustainability. With another view of capital, however, the economic model might look different. If we do not assume that *natural capital* is always interchangeable with financial capital, as it is argued by Herman Daly (1996) and other proponents of ecological economics, then sustaining opportunity for the future requires strong conservation measures to preserve ecological goods and to keep economies operating in respect of natural limits. These considerations complement an ecological model.

Certainly, the concept of sustainable development could not become so widespread if there were no corresponding preconditions as in the root of most traditional economic science, and in either society. The main precondition became the enormous changes which have happened in the world in the middle of the 20th century. If before some countries of Europe and North America were considered as the arenas of economic growth, now in the world economy based on the uniform principles there was included practically a whole world. The model of development applied by developing countries in the 1950s-1960s was guided by achievement of economic efficiency (Munasinghe, Cruz 1995, p.23). There was considered that only efficiency of economic system is capable to lay a way to general prosperity and to finish an inequality as within separately taken country including global scale as well. However it was repeatedly specified on extremely low efficiency of economic system of the industrialized countries, based on its disproportionate high expenses of natural resources (Sen 1997, p.144). To the beginning of the 70th years the increasing number of poor segments of the population in developing countries and lack of advantages of economic development led to growth of number of attempts directly to correct a situation with distribution of the income. Therefore the only thing that can correct situation is concrete the actions undertaken in wide scales and coordinated at world level. The paradigm of development moved towards the counterbalanced growth, which in to obvious form considered the social purposes (especially a problem of reduction of number poor segments of the population) also attached them the same significance, as well as economic efficiency.

Environment protection became the third main objective of development. By the beginning of the 1980s years a large number of information testifying about was saved up that degradation of environment is a serious obstacle for economic development (Nafziger, Wayne 2006, p.12). It was specified that neglect to ecological problems cannot justify need to solve other problems which seemed to be more urgent. Thus, the concept of sustainable development appeared as a result of association of three main points of view: economic, social and ecological (Kit 1996, p.41). From economic point of view the concept of sustainable development is based on the definition of the income given by J. Hicks. *In practical life level definition the income pursues the aim to specify to people, how many they can consume, without doing itself thus more poorly* (quoted in Hicks 1988, p.167). It is quite good coordinated with the concept of sustainable development, where the following is made from Hicks in appeared the most fruitful order of consecutive specifying steps income definition: ... *income of the individual that it can consume within a week and thus after all expect it, as by a weekend its situation will be same what was and at the beginning* (Ibid. p.210)

Indeed, from understanding of that income gained today actually not is the income if same it cannot be received tomorrow, before awareness of hopelessness of the economic not correlated to resource opportunities growth it was necessary to take only one step, and this step was made by authors a concept of sustainable development. Value of the economically optimum directly follows from Hicks's definition key for the concept of sustainable development uses of limited natural resources. Limitation of resources was already realized long ago as the fundamental economic fact (Daly, Herman 2006, p.309). However a conclusion of actual not free of charge *the benefits the nature* was made only within the concept of sustainable development. In the present time a large number of the most different approaches to estimation of cost of the natural resources are available. However in the solution of question on interchangeability of the production, natural and human capital and especially at the cost to assessment of natural resources there are interpretation problems (Munasinghe, Cruz 1995, p.253).

It is important to emphasize that exactly economic approach is a core of the concept of sustainable development. At the same time the concept of sustainable development allowed to look at it from the other side as *economic efficiency* in a new way. Moreover, it became clear that long-term economic projects, at which implementation natural regularities

are taken into account, eventually recognized as economically effective, and carried out without the long-term ecological consequences are unprofitable (Barbier 2005, p.44).

For the last century the relationships between the humanity and the planet, which has been provided its life activity, is changed a lot. The increasing consumption thereby the man unceasingly urges on the rates of economic growth, without considering the opportunities of environment which quickly degrades. The increased power of economy, negative effects of globalization became a huge destructive force. Also the struggle for natural resources became aggravated, there happened unprecedented stratification of the world according to income, the scales of poor population in the third countries significantly increased, etc. The planet is unable to sustain more these and many other catastrophic tendencies of global issues. *The world entered in essentially new, ultra-boundary condition which can be characterized as global system crisis, and in the traditional movement if to track it till the logical end, it is relegated to obscurity* (WCED, 1987, p.39)

In this regard in the second half of the 20th century the concept *sustainable development* was formulated which can be considered as a result of the joint intellectual efforts of representatives from different countries of the world community (Brundtland 1989, p.7). The world community is not able yet to break the destructive processes of global system crisis, totally to change development in the world situation and to provide a sustainable development in long-term prospect. However, it is obvious that the deal is not only in idea of sustainable development, but in unavailability of mankind to implement the measures to achieve it (World Bank Report 1992, p.4) The principles embodied the idea of sustainable developments, facing realities of life, concede to cruelty of the economic interests, urgent need of satisfaction of requirements for today, related to consume paradigms of development of modern civilization. The global purpose of achievement of sustainable development and national interests of the different countries are not always met. However in the conditions of integrity of the biosphere and interdependence of the states consuming limited economic capacity of planet, to return mankind in limits of this capacity and restoration of global ecosystem to the level, that guarantees stability of environment can be reached only by concerted efforts of the whole world community: *sustainable development in a detached country is absolutely hopeless deal* (UNCED 1992). The defining mechanism of such coordination of effective global cooperation of the states is economic, ecological and social bases of transition to sustainable development.

1.2. The problems of implementation of sustainable development policy as a consequence of misunderstanding of sustainability notion

It seems that the level of theoretical approach to the problem of sustainable development can allow adequately concretize practical measures of its embodiment. However the evidence of global crisis shows that scientific ensuring strategy of sustainable development whether is not used properly or while it is inefficient, that does not correspond to the scale and depth of problems rising before mankind. Despite the fact that the general confidence of lack of alternative of model for sustainable development, there can be found in the works of scholars a distinction in term of sustainable development and in interpretation of its contents, the main problem and offered models of its realization. As the term of sustainable development was already introduced and strongly presented into a scientific turn and practical use, M. Lele suggested not to change it: *The problem is not in the replacement of the term, ... but it is about filling the concept of sustainable development by uniform scientifically reasonable content and its adaptation to modern scientific overview* (quoted in LeLe 1991, p.8-9). *... it is reasonable to polemicize with the term of sustainable development if it has already been used in literature and not bad works in science and practice* (quoted in Fergus, Rowney 2005, p.15). So, therefore it is vitally important to understand this term, to exempt it from political stratifications and to give it the content which is corresponding the scientific idea of the present state of interdependence between nature and society. Moreover not only its methodological, but also purely pragmatic sense as it will allow the concept of sustainable development to form a basis for practical activities in future. However, the consensus of opinions in these questions has not been reached yet. The extensive discussion and set of critical remarks is caused by UN and offered the *classical* formulation of sustainable development in 1987. There are opinions that it is not quite correct to express and carry purely *human* (anthropocentric) character and nothing tells about relationship between society and nature; it is given at the level of household fall of a problem; it is not certain and ambiguous; it is empty and indistinct and moreover there is no scientific contents; it is insufficiently strict and concrete for statement and the analysis of scientific tasks follows the promotional or even the populist purposes etc.

Then what are these specific connotations of sustainability? While a more conceptual discussion is reserved for later on, some basic terms and usages need to be clarified here. The concept of sustainability originated in the context of renewable resources such as forests and fisheries, has subsequently been adopted as a broad slogan by the environmental movement (Lele 1988, p.34). Most proponents of sustainability therefore take it to mean *the existence of the ecological conditions necessary to support human life at a specified level of well-being through future generations – ecological sustainability* (Lele 1991, p.113). Sometimes however sustainability is used with fundamentally social connotations. For instance, Barbier (1987) defines social sustainability as the ability to maintain desired social values, traditions, institutions, cultures, or other social characteristics.

The concept of sustainable development was originally synonymous with that of sustainability and is often still used in that way. Both terms are derived from the older forestry term *sustained yield*, which is in turn a translation of the German term *nachhaltiger Ertrag* dating from 1713. According to different sources, the concept of sustainability in the sense of a balance between resource consumption and reproduction was however applied to forestry already in the 12th to 16th century. *Sustainability* is a semantic modification, extension and transfer of the term “sustained yield”. This had been the doctrine and, indeed, the *holy grail* of foresters all over the world for more or less two centuries. The essence of *sustained yield forestry* was described for example by William A. Duerr, a leading American expert on forestry: *To fulfill our obligations to our descendants and to stabilize our communities, each generation should sustain its resources at a high level and hand them along undiminished. The sustained yield of timber is an aspect of man’s most fundamental need: to sustain life itself* (quoted in Williams 1989, p.75). The idea of sustainability came to public attention after a 1972 report, *Limits to Growth* issued by the international think tank Club of Rome. In 1980 the World Conservation Strategy developed by the International Union for Conservation of Nature, in collaboration with the UN Environment Programme and World Wildlife Foundation, worked to make sustainability a benchmark of international action. Then the term *sustainable development* achieved international public prominence through the 1987 report of the World Commission on Environment and Development, *Our Common Future*, often called the “Brundtland Report” after the name of its chair, former Norwegian prime minister Gro Harlem Brundtland. It presented the famous definition: *Sustainable development is development that meets the needs of the present without*

compromising the ability of future generations to meet their own needs (WCED 1987), with three key objectives for sustainable futures:

- A socially and environmentally innovative, resource-efficient economy that delivers quality of life in the developed world
- An improvement of economic welfare and quality of life in developing countries
- A healthy natural environment with resources used and conserved wisely-worldwide.

Today there is offered by researchers a wide range of different interpretations of sustainable development concept, which is approximately totally accounted near to 100 competing versions of definition that concretize its initial version (Jenkins 2007, p.11). Often these definitions differ from each other by the emphasis on certain problems, however key elements of definition of the Brundtland Commission is *sustainable development is the kind of development that meets the needs of the present without compromising the ability of future generations to meet their own needs* as a rule remains invariable. There are given only some of offered definitions of sustainable development:

United Nations Environment Program (UNEP) defines sustainable development as: *Development which improves people's quality of life, within the carrying capacity of earth's life support systems* (UNEP 1992, p.17).

The World Conservation Union (IUCN) added to the definition of sustainable development in "Caring for the Earth" on: *The guiding rules are that people must share with each other and care for the Earth. Humanity must take no more from nature than nature can replenish. This in turn means adopting lifestyles and development paths that respect and work within nature's limits. It can be done without rejecting the many benefits that modern technology has brought. Provided that technology also works within those limits* (IUCN 1980 p.4)

United Nations Development Program (UNDP) report "World Development Report", 1992: *Sustainable development is a development, that is not only generating economic growth, but is fair distributing its results, restoring environment in a bigger measure, than destroying it, increasing possibilities of people, instead of impoverishing them. Its development gives a priority poor to expand their opportunities and to ensure their participation in the decision-making, mentioning their life. This development is when the*

majority of people focused on the preservation of the nature directed on the employment assuming realization of the rights of women (UNDP 1994)

The Earth Council (San Jose, Costa Rica), created for implementation of decisions to UN conference in Rio de Janeiro and offered such formulation: *Sustainability is a simple concept: to live on justice within our ecological opportunities* (Earth Council 1996)

World Bank in World Development report gives further definition: *Sustainable development as a whole is the steady growth of useful energy* (World Bank 1992)

Sustainable development now is commonly understood as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. But the concept, as introduced by the Brundland Commission and contributed to by many others since is much more nuanced than this, as is discussed below. The Brundtland Report asserted that the only way the environmental problems facing the planet could be resolved was through a marriage of economy and ecology. The Report called on the world's governments and their peoples to take responsibility for the planet's environmental damage and the policies that cause it and adjust economic policies in order to achieve balance. The Brundtland Commission Report recognized that in order to address the planet's environmental problems a systemic terms approach was needed which explicitly recognized interdependence of the ecological, and political-economic systems within which human beings are imbedded. Cooperation was advocated as the means for achieving this. Social issues relating to quality of life and economic disparity were not separated from environmental concerns in this attempt to reconcile regional and global environment concerns with international local and development interests. For many organizations and agencies, that formula or something close to it remains a working definition. Some have criticized the Brundtland definition for binding sustainability too closely to development and for focusing on human needs to the exclusion of other life. However the Brundtland Report has helped initiate an international public debate on sustainability that has since generated numerous alternative formulations (Jenkins 2008, p.84). In an early expression of what that relation implies, the 1974 Cocoyoc Declaration (the result of a UN-sponsored symposium in Mexico) stated that sustainability relates *inner limits* of human needs to the *outer limits* of Earth's resources (Ibid. p.121-123). Among the first uses of sustainability as a concept to help integrate response to related environmental and social problems was the 1975 program of the World Council of Churches (WCC) for *a just, participatory, and sustainable society*. For the WCC, sustainability might well contradict

existing development processes as well as reshape economic and political priorities. When introduced, the principles of sustainable development questioned the continued focus of the objectives and direction of society's development (Bruntland 1987, p.29), in particular the development of Western society, which has now reached a point of drastic global consequences (Wackernagel, Rees, 1996, p.317). Sustainable development intended to perform this critique through a cognitive process including understanding gained from the knowledge frameworks of other cultures and societies. It was intended to be international in scope and inclusive in thought stance (Bruntland 1987, p.56). The goal was to question the dominance of the instrumental rational paradigm and its influence on mainstream development processes to a point where other priorities would be included in the processes of planning and development. Attendance at the 1992 Earth Summit in Rio de Janeiro indicated a broad base of general support. However, when an increased level of commitment was needed, difficulties arose, manifesting themselves in a failure to come to agreement beyond a general acknowledgement that thinking about the future was a good idea (Strong 2000, p.315). These difficulties were a symptom of the fundamental disparity of cognitive knowledge creation. At the root of the disparity was the dogmatic power of the dominant scientific-industrial paradigm, where instrumental rationality and the cognitive framework of neo classical economics dominated the validity and creation of new knowledge. In the materially developed world, the *science* of economics has such a stronghold in the cognition of knowledge creation that it is almost impossible to view any idea without the economic optic affecting understanding. Indeed, to some extent this authority can be forgiven, since economic rationality has become so prevalent in our society that it is difficult to use language in everyday life without referring to the dictionary of economics. An unintentional catalyst in the domination of the neo-classical economic framework was the definition of Sustainable Development by the World Commission on Environment and Development. This commonly used definition established what Ralston Saul calls a *crutch for certainty and ideology* (2005, p. 12). In 1992 the Rio Summit offered an inclusive forum to establish a discourse with respect to honing the detail and understanding of meaning behind the term sustainable development. The meaning of sustainable development was, however, constructed within an instrumental rational framework, where the focus of the discourse moved quickly to the strengths of that framework, such as problem solving or understanding specific processes. This refocusing ignored the development of a discourse on the meaning of the objectives

(Habermas 1984, p.376-379). The definition was seen as a given, and the focus moved to the technical problems of process development. As Ralston Saul states, *A definition is therefore intended to clarify things, to free us for action. But what we have seen in our society is that a definition can just as easily become a means of control, a profoundly reactionary force* (2001 p. 12). This, we argue, was the case with sustainable development. The definition stated by the Brundtland Commission was accepted (Brundtland Report 1987, p. 43), thus moving the focus away from what was needed, an inclusive discourse on meaning towards debate on the processes of achieving the defined objective. A problem ensued, however, as the definition as stated by the Brundtland Commission was ambiguous, and thus the debate about how to proceed has continued to embed itself in a quagmire of dogmatic technocracy and political power struggles. The use of the term is institutional, yet its meaning has become vague, ambiguous, undefined, and often contradictory (O'Riordan 1985, p.212). To some extent the term has become a cliché (Lele 1991; Mitcham 1995) applied to almost anything remotely related to the business processes, the society in which those processes operate. Sustainable development term has come into common use but has no clear meaning as applied (Daly 1996, p.169) As a society, our goals should be looking at development that sustains values reflecting progress in our relationships with one another as human beings, our place in the natural environment, and consequently developments in what it means to be human (Stead and Stead 2000, p.298-299). Although these notions of sustainable development have been recently acknowledged by Meadows, Meadows et al. (1974) and Daly (1996), in essence they are historically much older.

The initial ideas of sustainable development seem to have been, to some extent, forgotten. This may result from a specific cause, such as the euphoria following the collapse of communism, the self-interested financial gain of the .com boom, or the intense focus on terrorism. It may be a symptom of the dilution effect caused by the ambiguous meaning of the term. More likely, it results from a combination of factors. The term sustainable development, while institutionalized in usage, is not receiving the main stream attention that was envisioned. With research into the meaning of sustainable development it quickly becomes apparent that the term and its meaning create more questions than answers. To answer these questions and thus to develop the basis for the thesis's argument, a more detailed, and historical look at the range of meanings is required. The analysis and establishment of meaning and the context behind the meaning are of importance, for it is

through the careful reflective interpretation of those meanings that the foundations for creative thinking are built (Alvesson and Deetz 2000, pp.38-41). In the mainstream interpretation of sustainable development, ecological sustainability is a *desired attribute of any pattern of human activities that is the goal of the development process. In other words, sustainable development is understood as a form of the societal change that in addition to traditional development objectives has the objective or constraint of ecological sustainability.* It generates a more nuanced definition of sustainable development: *the need to ensure a better quality of life for all, now and into the future, in a just and equitable manner, whilst living within the limits of supporting ecosystems* (Agyeman 2003, p.246). This conception of sustainable development focuses equally on four conditions: improving our quality of life and well-being; on meeting the needs of both present and future generations (*intra- and intergenerational equity*); on justice and equity in terms of recognition (Schlosberg 1999, p.213), process, procedure and outcome and on the need for us to live within ecosystem limits (also called *one planet living*) (Agyeman 2005, p.164). Open-source appropriate technology has been proposed as an approach for reaching just sustainable development.

A change in meaning has come about, not just a change of semantics but also a change in the cognitive underpinnings of the context in which that meaning is formed. The change in meaning is determined by the dominant paradigm of knowledge generation. It is easy to see how, in contemporary society, the seduction of instrumental rationality and the economic framework can be very powerful. Indeed, this cognitive thought stance has brought about many admirable and essential contributions to human progress. However, progress has consequences, and as we continue in the current direction, these consequences seem to be increasing in severity. Sustainable development as a proposition came about in response to a need for lesser consequences, with the intention of finding a way forward using a broader base of integrated cognitive frame works. The difficulty is that integration and broadening in an inclusive manner are always more difficult than debating an alternative. There is always fear in the integration process, fear of dominance in perspectives, influence, ideas, voice, and so on. Democracy is hard (Kingwell 2000; Ralston 2001). We argue that this dominance lies behind the change in meaning of sustainable development. The change of meaning came about with the authority of instrumental rationality and, in particular, the neo-classical economic framework that forms the structure of contemporary business practices. An explanation Habermas recognizing the change in meaning of the term sustainable

Development is important. However understanding how the changes have come about is arguably more important. In order to understand the dominative characteristics of the authoritative paradigm, we now turn to the work of the rationalist philosopher J. Habermas. He is although a strong believer in the ideals of the enlightenment, strongly criticizes the dominance of technocracy and the authoritative rule of the expert (Alvesson 1993, p. 139). Described as a critical modernist, Habermas believes in emancipation from dominance through open contemplative critical dialogue. The notion of a communicative action (1984, 1987) forms the principal ethic in his thesis, and communicative action is centralized in the body of society. Habermas goes beyond the first order of critical theory, the illumination of domination, to a second order, the exposition of the possibility of reasoned critical evaluative thought in the everyday life of the citizen. As Alvesson interprets this notion, the citizens of society are or, given favorable circumstances, may become the supreme judges of their own best interests (Ibid. 1993, p. 145).

Unfortunately, still the world scientific community could not overcome the internal contradictions and reach desired unity of opinions concerning future ways of society development. However that is not the main, as the wide range of opinions does not reduce the valuable status of sustainable development, moreover it increases the interest to it and stimulates search of new meanings and new sides of this phenomenon. A systematic research of allow to see and discuss the problem of sustainable development in interrelation with other phenomena and processes. While among publications, monographs on sustainable development the scholars having prevail the narrow-purpose orientation which provide investigating only on some parts of such difficult and multidimensional phenomenon, as sustainable development that brings to designing of abstract strategy and schemes (though, probably, to some extent and effective in separate areas of reality). However local efficiency of separate models of sustainable development is absolutely insufficient for the statement of objective status of the concept *sustainable development*.

1.3. Intrinsic characteristics of education for sustainable development on the comparative analysis of education for sustainable development and environment education

The public consciousness represents dynamic multifaceted process. It provides a stable representation connected with system of norms and principles, theories which try to generalize the characteristics of various aspects of social life. Informing the public is a conservative element, but also is a subject of development and changes with a special education system for sustainable development. Education in interests of sustainable future includes throughout all life that leads to formation of population with high level of civil consciousness and having skills of creative approach to the solution of problems, literacy and social sciences, readiness for a personal responsibility and collective actions. Education and research are essential tools for achieving sustainable development. *Universities must function as places of research and learning for sustainable development... Higher education should also provide leadership by practicing what they teach through sustainable purchasing, investments and facilities that are integrating with teaching and learning... Higher education should emphasize experiential, enquiry-based, problem-solving, interdisciplinary systems approaches and critical thinking. Curricular needs to be developed, including content, materials and tools such as case studies and identification of best practices* (UNESCO 2004, pp.22-23). The modern world today needs a new type of citizen, humanity with new knowledge about environment. Education for sustainable development plays a crucial role in all levels of education, as well as implementation through the valuable formation, behaviors and ways of life including also Peacebuilding and stability along with continuous life-learning during whole life. Sustainable development also implies such questions as democracy, human rights, health etc. As a basic human right and the key tool for sustainable development, in supporting peace and stability, education can be as well as a partner for economic growth. When education levels are low, economies are often limited to resource extraction and agriculture. In many countries, the current level of basic education is so low that it severely hinders development options and plans for sustainable future. A higher education level is necessary to create jobs and industries that are *greener* (i.e., those having lower environmental impacts) and more sustainable (quoted in Rosalyn 2002, p.79). In order

to achieve success in the construction of sustainable world in terms of education: the basic education needs to be improved, high education should be re-orientated for sustainable development, the public conscience of the environment issues should be increased, to supply understanding of sustainable development, to contribute the development of mankind in the sustainable management of the territories and resources. Education for sustainable development reflects the commitment of high quality education and characterized as scientific, the formation of the critical thought of the students, the active participation in the study process, solving problems, as well as the study of specific subject of environment and other resources. Education is seen as a process of critical investigation and transformation of the environmental and social realities of a community by people from this community (Gough 1993; Valverde 1995; Ordonez 1993). Javier Reyes Ruiz (1994) proposes a *grass-roots environmental education* not aiming only to balance economic development and environmental constraints, but also concerned with change in the political structures, and promotion of social values that favor optimal harmony among people.

Mankind cannot solve environmental problems in the world, without understanding educational programs on environmental issues. Thus, it is known about importance of education for sustainable development as it embraces value, behavior and a way of life which are necessary today. Education and scientific research are preconditions for sustainable development. There is a process of accumulation, reproduction of scientific knowledge, cultural values and ethical standards through education. In order to improve effective assistance of education for sustainable development it is necessary to unite scientific and interdisciplinary approaches and implementation of continuous learning that is training throughout all life. It is necessary to remember that sustainable development has to be considered as continuous process throughout all life and have to treat people of all nationalities, age and both floors. It has to include all education levels, and also non-governmental organizations, a family and mass media. As suggested by Bob Jickling (1992), we must however continue to critically review the relationships between sustainable development and environmental education. The analytical framework provided by Yves Bertrand and Paul Valois (1992) is useful to critically examine this discourse surrounding *education for sustainable development*: “competitive needs,” “education for productivity,” “human capital,” etc. It can be observed that the socio-cultural industrial paradigm and its corresponding educational paradigm (rational paradigm) are predominant. Here, education is

first and foremost perceived as a *central economic investment for the development of creativity, productivity, and competitiveness*, and as a transfer process where scientific and technical knowledge is favored (UNESCO 1992, p.14).

Sustainable development is based on the concept of economic development but it also includes the concept of educational paradigm. Certainly existing education arose far in the past during the period of great thinkers and philosophers. However if to connect development of educational paradigm with the international processes that by all means this time of World War II when the international order started to change and international institutes began to appear for the first time. The knowledge that before the war in 1939 educational opportunity was a privilege of a few individuals, the reality that economic development was not possible without adequate education, the reality that poverty and urban decay were a product of the Industrial Revolution, the knowledge that political and economic power was an inherited right of a few – all these factors combined to create an international climate that, by 1939, made conflict on a global scale inevitable (Mungazi 1993, pp.278-285). Another interesting description of educational processes is given on the example of reviewing the content of the different issues of *Educational Yearbook*. The analysis of the dynamism of the international exchanges that enriched the field of education from the late nineteenth century onwards was confirmed by research results of editor¹. For instance, the 1939 issue discusses the meaning of liberal education in the twentieth century (Correia 2011, p. 19). The author also makes important conclusion that the editor of journal was aware of the different political and ideological natures of the education models in developed countries therefore it still includes the articles that collide with journal's underlying goals such as defense of peace, democracy and intellectual cooperation on the subject of education and citizenship (Ibid. p.23).

The balance of objective approach the delegates to the San Francisco conference took to seek solutions of the world was also evident in other areas of their endeavors. They concluded that the environment of conflict was created because people of the world did not know each other and they were not sufficiently educated to understand the causes of human conflict. There is, then, a basic value conflict between the authoritarianism implicit in ecological imperatives and democratic procedures. That they placed the responsibility for this situation squarely on the shoulders of national leaders substantiates the conclusion that

¹ The Educational Yearbook journal was headed by Isaac L. Kandel (1881–1965)

leaders design policies that, while seeming to serve the interests of their nations, actually serve their own political interests. Both peace and environmental educators have a common goal of stopping violence, but in human communities there will always be conflicts, and humans must consume natural products. The challenge is to learn to resolve conflicts nonviolently, to share limited resources equitably, and to live within the limits of sustainability. This will become increasingly important as the twenty-first century unfolds with increasing human populations all seeking a better life. Peace will require environmental sustainability and environmental sustainability will require peace. Later in the 1990s, the idea of global security within peace education extended to that of ecological security as *environmental issues give rise to actual and potential international conflicts*. (O’Riordan 1994, p.178) Since then, an emerging and more accepted pedagogy has embraced the holistic nature of ecological thinking and learning that underscores the idea of interconnectedness and cooperation. With the *vision of transformed global society* where the younger generation perceives itself as an integral part of a shared planet, education for peace cannot be separated from education for ecological responsibility (Norland 1994, p.59). Eva Norland supported this vision and contended that the economy and ecology are inseparable at all levels, from the local to the global, with one affecting the other and vice versa. Protecting the environment and preventing the deterioration of the Earth is critical to ensuring peace and social justice. Noting that “economic inequality is the planet’s main *environmental problem*” Norland (1994 p.85) pointed out that the denial of human rights and access to scarce resources is a severe development problem that continues in a destructive circular manner. Environmental issues force people out of their homes, leading to increased military presence for security, which in turn places more stress upon the environment. As a result, many forms of development erode the environmental resources upon which they must be based. Environmental degradation, in turn, undermines economic development (Norland 1994 p.173).

However, one must not negate the reality that the delegates to the San Francisco conference took into account in concluding that educational development was the best means of resolving conflict, both international and national. That the participants at the San Francisco Conference also called on the all nations to reform their political system so that they would become more representative in their operations in order to sustain democracy was a condition demanded by the times. They reminded national leaders that they held office as a public trust, and if they violated that trust they must be removed from office. They called on

national leaders to observe at all times that sacred democratic principle: governments are instituted with the express consent of the governed. They created UNESCO as an agent to coordinate scientific, cultural, and educational programs throughout the world bring about improvement in the human condition. The excitement with which nations supported the inauguration of the UN and the hope that characterized their activity to map put better future were tempered by the nagging feeling that in spite of the claimed commitment by nations to embrace its principles, global conflict was likely to break out again in the future. For this reason, the delegates assembled in San Francisco decided that, before they asked nations to embark on the collective task reshaping the future, they needed to talk journey into the past to examine developments that had brought the world to the brink of self-destruction twice in the century (Mungazi 1993, p.145-148). As it is known from the second conclusion was that nations and their people prior to 1939 failed to understand each other because neither leaders nor their citizens were educated sufficiently to grasp human issues fully and the conditions that controlled relationships between them. Remembering that up to 1939 educational opportunity was a privilege of a few, this led to the conclusion that if nations were to avoid conflict in the future, a new collection effort had to be made to educate people, both national leaders and citizens alike, to help them understand their respective responsibilities in developing democratic societies. This endeavor required rethinking the objectives and content of education itself. Education practices of the past had to give way to educational programs based on new theoretical considerations. This self-appraisal led to the recognition that one basic objective of education in the postwar era was to produce more rational human beings whose thought processes and behavioral patterns would be influenced by reason and rationality, rather than by emotion. This line of rethinking was influenced by the ideals arising from the Age of Reason, or the Enlightenment, and was based on the belief that educated individuals become controlled by a rational thought process and are therefore less likely to do anything wrong because their sense of what is right and what is wrong is much sharper than those who are not as well educated (Mungazi 1993, p.167)

Human behavior as a product of education saw Thomas Jefferson, president of the United States from 1801 to 1809, and he argued that society had a duty to provide education to elevate people to a higher plane of reason and rationality and so reduce their tendency to make behavioral errors (Mungazi 1993, p.99). This was, indeed, a testimony of searching leader of nation struggling for self and a man and leader whose own experience had shown

him that without proper education man and his society were always victims of oppression and tyranny, and that to educate people is to liberate them from the scourge that undermined their potential for greatness. Having experienced the devastation of the war, it is not surprising that the delegates to the San Francisco conference embraced this line of thinking in their efforts to ensure future world peace and security. The conclusion of the San Francisco conference that the development of education throughout the world was the only viable means to end national inequality and, thus, international conflict led to the hope that a thrust for educational development would help eliminate the problems that society faced poverty, ignorance, prejudice and discrimination, and political oppression. For example, according to Ophuls (1977, p. 3) *liberal democracy as we know it ... is doomed by ecological scarcity; we need a completely new political philosophy and set of institutions*. For the first time in history the universal human being began to place hope in the realization that ending inequality of educational opportunity was possible and that the future carried prospects for self-fulfillment. This hope also meant that origin of birth, class and other considerations that had perpetuated inequality in society would no longer be used to determine who received an opportunity for educational development. To make this hope a reality, nations began to make plans, especially in three essential areas. The first was that because existing systems and programs were insufficient to meet the projected needs of a changing society, educational expansion must become a national commitment and a high priority; the reason for this strategy was that educational development is essential to all other forms of the national development. The second was that economic development was needed during the critical stage of the new thrust for educational development was needed during the critical stage of the new, thrust for educational development to invest in it, but that at some point in the future economic development and educational development opportunity was essential to seeking an improvement in the quality of life of all the people and that it would enable them to play a dynamic and constructive role in the political process (Coombs 1985, p.345-347). The thinking that popular participation in the political process was essential to political stability as a coordination of social development led to the conclusion that this participation was not possible without adequate education. Without political stability a climate of national development would not be created. This was how educational development made the practice of democracy possible. The idea of political elites who had controlled and exploited the dispossessed and oppressed masses had to give way to a new thinking that political stability

was possible only within a national environment of popular participation under the principle of the freedom of expression. This made educational expansion an imperative of the hope for the future.

However, by the 1967, nations felt that no tangible progress had been made in solving the problems that the delegates to the San Francisco conference had identified and the objectives that they had set. They therefore, decided to convene another conference at Williamsburg, Virginia, to review the situation and to establish new goals and strategies for their implementation. Unlike San Francisco conference, which included mainly government officials, this conference included politicians, civic leaders, educators, economists, and interested individuals. All assembled at Williamsburg in October 1967 to assess the condition of education throughout the world and to decide what actions should be taken to solve the many problems all nations faced. They did not think they should begin where San Francisco conference left off, they wanted to fresh start. The Williamsburg conference was different from the San Francisco and other preceding conferences in one important respect. It was not run on issues raised by conflicting positions, but on a single working document that had been sent to participants before they arrived. The document centered on two basic issues: how to eliminate illiteracy and how to end inequality in both education and society. The Williamsburg conference concluded that educators alone must not be expected to assume the responsibility for improvements in education, but that all segments of society should share responsibility for providing adequate facilities is that education could serve the purpose for institutions, and private organizations must all cooperate in a national effort to fight illiteracy and inequality. The conference also recognized the need to resolve another growing problem that is, the inability of nations to adopt national programs to new conditions. Changes in technology, politics, institutional structures and industrial development all demanded fundamental revamping of educational systems (Coombs 1985, p.19-22). Nations must recognize the importance of initiating innovation in educational systems because, *if it clings to conventional practices merely because there are traditions that cannot be changed, that system is a satire of education itself. From the standpoint of society, the resources invested in perpetuating such a system are misused resources because a higher proportion of students will emerge ill-fitted to serve well either themselves or their society* (quoted in Coombs 1985, p.6).

The fact of global ecological crisis required definition in education and upbringing of younger generation and in public education as a whole new world outlook, namely the replacement of current system as *nature and society* for idea of objective existence of other system *nature=society*. Scientific and technical revolution, powerful strengthening of technical armament in a rigid form reveals complete dependence of humanity on resources of natural and unnatural environment. This drama situation became the focus of attention. The concept of *ecological* and *education* was used together at the first time in 1948 on the meeting of the International Union for Preservation of the Nature and Natural resources in Paris (IUCN). Since 1960 ecological education was discussed and advanced actively in the international landscape. In 1970 the United States in Nevada, at the meeting organized by UNESCO, devoted to ecological education in school curriculum. After a while the definition of ecological education was recognized in future in all around the world that *Ecological education is the process of understanding of values and explanation of concepts to develop skills and the necessary relations in order to understand and respect the relations between the mankind, culture and biological environment* (quoted in Thompson 1997, p.58).

The theoretical framework for sustainable development evolved between 1972 and 1992 through a series of international conferences and initiatives. The concept of Environmental Education (EE) emerged in the late 1960s. In 1972, during the Stockholm UN Conference on the Human Environment, it was recognized as an important tool to promote the protection of the environment and, later was acknowledged as the pre-requisite for any development. Principle 19 of the “Stockholm Declaration” called for EE from grade school through adulthood to *broaden the basis for enlightened opinions and responsible conduct by individuals, enterprises, and communities in protecting and improving the environment in its full human dimension* (Drexhage, Murphy 2010, pp.34-36). The Belgrade (1975) and Tbilisi (1977) meetings described the principles of EE in a broad and generous way. The International Workshop on EE in Belgrade was convened by United Nations Educational, Scientific and Cultural Organization (UNESCO) in collaboration with the Centre for International Studies of Belgrade University and was attended by 96 participants from around 60 countries. The “Belgrade Charter: A Global Framework for Environmental Education” was adopted unanimously at the close of this 10-day workshop at Belgrade, subject to modification by subsequent regional meetings, providing the framework and guiding principles for global EE. During the meeting, the UNESCO-UNEP (United Nations

Environment Programme) International Environmental Education Programme (IEEP) was initiated. It has provided the global educational community with an important work in the field of publication for EE, the so-called UNESCO-UNEP IEEP Environmental Educational Series. Two years later, the world's first Intergovernmental Conference on EE was held in Tbilisi, Georgia (former USSR), in October 1977. The "Tbilisi Declaration", adopted at the close of the conference, together with two of the recommendations of the Conference, provided the inclusive framework, principles, and guidelines for EE at all levels—local, national, regional, and international—for all age groups, both inside and outside the formal school system. They have had great influence on all the evolutions in the field of EE.

In the late 1970s and early 1980s, EE underwent a series of changes in countries with varying socio-economic and cultural conditions. It focused primarily on natural resource conservation and environmental pollution, though in many cases more critical and often controversial socio-economic aspects were also included. The Brundtland report provided the momentum for the landmark 1992 Rio Summit that laid the foundations for the global institutionalization of sustainable development. Marking the twentieth anniversary of the Stockholm Conference, the Earth Summit adopted the *Rio Declaration on Environment and Development* and Agenda 21, a global plan of action for sustainable development. The Rio Declaration contained 27 principles of sustainable development, including principle 7 on *common but differentiated responsibilities*, which stated: *In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.* Agenda 21 included 40 separate chapters, setting out actions in regard to the social and economic dimensions of sustainable development, conservation and management of natural resources, the role of major groups, and means of implementation (UNCED 1992). In Agenda 21, developed countries reaffirmed their previous commitments to reach the accepted UN target of contributing 0.7 percent of their annual gross national product (GNP) to official development assistance, and to provide favorable access to the transfer of environmentally sound technologies, in particular to developing countries. The UN Conference on Environment and Development (Rio de Janeiro, 3–14 June 1992) often referred to as the Earth Summit, devoted its Chapter 36 to Education as the basis of Sustainable Development.

(Scoullos, 1997 p.89) Similarly, the international conference “Environment and Society: Education and Public Awareness for Sustainability” held in Thessaloniki in 1997 recognized Education for Environment and Sustainability (EfES) as the basis of Sustainable Development. Because sustainable development is a very dynamic and new concept, for it to be understood and promoted, the entire education and learning system will require serious reorientation. The Thessaloniki Conference was organized by UNESCO with the support of the Greek government. The 1,400 participants included representatives from 84 countries, including governmental, intergovernmental, and NGOs. The conference declaration noted that *Insufficient progress has been made five years after the Earth Summit in Rio as it has been recognized by the international community*. The declaration also demonstrated its commitment to “reduce poverty” and utilize education in the best possible way *to exercise personal choice and responsibility, to learn throughout life without frontiers, be they geographical, political, cultural, religious, linguistic, or gender*. Sustainable development requires a vision, a series of operational guidelines, and a strategy to be implemented, if possible, throughout the world. The strategy of sustainable development which is objectively up to the requirements of time and announced in the 1970s of the 20th century, gained recognition within many international organizations. However, with all due respect for this international organization, it should be noted that a problem of sustainable development within UN regard has only *status of the political recommendation for all countries and people of the world*. Therefore the decision of which is, in fact, lays on the state and political structures burdens that have to initiate the development of SD national strategy. It is obviously a powerful argument the fact of political recognition of SD concept almost by 200 countries the world, under the auspices of the UN, but at the same time it is problem consideration just on a unilateral side. As a starting point of the sustainable development concept accepted the present unstable condition with such model which in reality does not exist yet (or exists mostly in general). A way to practical decisions of the SD strategy implementation passes through education. The science not only collects new knowledge of the world, but also is capable to formulate new strategy of development which is so necessary for mankind and methods of its realization that the UN and the Governments in a separation from scientific work cannot reach. Development of policy, science and education at the present stage is characterized not simply by their close interaction, but the common ground is so numerous and diverse that it is possible to speak about transformation of interrelation of

policy, science and education at the beginning of the 21st century as one of the main determinants of social development. Current world political process is impossible without an intellectual component. At the same time political measurement of influence on scientific community has various forms. After adoption of SD on UN conference on environment and development in Rio de Janeiro at 1992, the world community put the purpose connected with transition to sustainable development. However, as it was mentioned earlier, the concept of SD with accurate on a problem definition, has ambiguous interpretation and still is in formation stage. There is no conventional scientific solution of the problem of sustainable development which can be served as a guideline for politicians in practical activities. Any project of transition to sustainable development has to be based on a strict scientific theory, the emergence and development of which directs to the view of comprehension and correct application of laws of the real world and nature.

It can be clearly seen from all above reviewed facts that both the concept of EE and ESD was successfully developed through different conferences and summits. However there is discuss and misunderstanding between two these concepts which is mostly discussed by scholars, who propose various approach to consider possible relations between it. The relationship between EE and ESD is a crucial one to understand. Blindness of the various manifestations of EE and ESD, their histories and the ways in which they relate, can easily lead to misunderstandings when development agencies such as SIDA assume that they are similar to those in the country in which the agency is based. There are important differences to be observed in terms of both the contents of EE and ESD and the underlying pedagogical and didactic dimensions which are deeply connected to a country's or region's perspectives of citizen participation and democracy (Wals 2010, p.76). Also, it appears that in countries with a strong EE tradition ESD tends to build upon EE-structures and policies are already in place particularly in countries that have interpreted EE broadly to include social, economic and political dimensions. The quote below illustrates this: *...issues of development, survival, livelihoods, improved quality of education and improved quality of life, and more sustainable living practices. It is perhaps for this reason that environmental educators in southern Africa have long been concerned with environmental education processes that are processes of social change* (quoted in Lotz-Sisitka 2004, p17).

In countries where such a tradition is absent or weak at best, ESD appears to have provided an opportunity to create new structures from scratch and a possibility to catch up

with those countries that already had a strong EE-tradition. When analyzing the regional synthesis reports and the regional strategies, one can roughly find three different ways of viewing the relationship between EE and ESD which resemble some of the ones identified in the ESDebate held in 1999. The way the relationship is perceived tends to be related to the historic role EE has played in a country (prominent or marginal) and the way EE itself is interpreted (broad or narrow). With regard to the former, there are countries that developed nature conservation education already over one hundred years ago. This paved the way for EE in the 1960s and 1970s, whereas in other countries this was hardly the case. In some countries with a strong EE-tradition, it is often narrowly viewed as expanded nature conservation education or a combination of environmental protection education and resource management education (e.g. several countries in Europe and North America). In other countries with a strong EE-tradition (e.g. several African and Latin American countries) it may be interpreted more broadly, in tune with the Tbilisi Declaration, to include socioeconomic and political aspects. When interpreted as such EE and ESD become almost synonymous. These three relationships are described as follows: 1) EE equals ESD, 2) EE is a part of ESD and 3) EE and ESD have elements in common but are distinct (Wals 2010, pp.10-13):

- *EE equals ESD* When EE would become ESD, one might get concerned that the former could lose some of its uniqueness. For example, EE is known for the underlying concept that humans are part of nature. EE emerged out of environmental concern. In contrast, ESD is centered far more on humans. Sustainable development was founded in a search for a balanced approach to environmental, social, and economic interests. In the end, it would be a pity to lose the worldview that humans are part of nature as EE becomes human-centered ESD. Such a loss would ultimately impoverish ESD (McKeown 2002, p.22).

- *EE is a part of ESD* Whereas, in some of its forms, EE narrowly focuses on environmental protection, natural resource management and the conservation of nature, ESD tends to go further by bringing in socio-economic, political and cultural dimensions. In a sense, some countries felt that EE had become outdated and needed to be upgraded and replaced by ESD to better focus not only on the Planet but also on the People and Prosperity aspects of environmental and sustainability issues. In some parts of the world, the emergence of ESD has provided a stimulus for EE-reform in this way and in countries where there was

no tradition in EE or where it was marginally present; the DESD movement provided an opportunity for a jumpstart (e.g., Vietnam, many Arab countries).

- *EE and ESD have elements in common but are distinct*” ESD and EE are distinct, although they do overlap and both are legitimate and necessary. The old EE infrastructure and existing programs therefore, will need to be supported still and government support for ESD should not be at the expense of EE. At the same time the development of ESD needs to be supported as well as it adds important new dimensions that EE does not address or only addresses lightly (e.g., the socio-economic and cultural dimension.) As a result parallel policy streams and support mechanisms exist: one focusing on EE and another on ESD (e.g., The Netherlands, Canada, Greece). Sometimes coordination mechanisms are in place to assure that the EE stream is also informed by the ESD stream and vice versa.

In this context Gadotti states: *Education for sustainable development must continue working with environmental education which brought a new view of human relationships with the world environment – which is no longer conceived as an object, but as a living creature that shares the same destiny with human beings. Environmental knowledge is ethical and political. It isn't only a matter of understanding ecological principles, but also involves a new concept of reality* (2008 p.14).

An interesting *Southern* view on ESD is presented by Gadotti (2008) who sees current education and educational institutions as barriers for moving towards sustainable development (SD) as they tend to reinforce the principles and values of an unsustainable lifestyle and economy. He argues for an economy that is not centered on free market, profit and continuous growth. Instead he favors a *solidarity economy* which incorporates the principles of inclusion and social emancipation and identifies sustainability and solidarity as emergent and convergent themes. Gadotti proposes that without social mobilization against the current economic model, education for sustainable development (ESD) will not reach its goals. In addition, education for a sustainable life—not only for a sustainable development—is required. Gadotti prefers to speak about Education for Sustainable Life, to name a few of the educational objectives: global thinking, recognizing our identity on the Earth as a vital human condition, planetary awareness, voluntary simplicity and quietness (Gadotti 2000, p.11).

The humanity is in close interaction with environment, thus when the environmental changes happen it can be adjusted on the basis of consolidation of the efforts of different

countries in order to study the situation and to take the appropriate actions. The understanding comes from the conscience only: co-development, co-creation, in other words, co-evolution of the biosphere, the humanity is going to fit reasonably in the cycles of the biosphere to rise for the understanding of the universal laws that govern the world. In order to avoid unreliable standards of production and consumption it is necessary to reorient education within environment issues, to reach mutual understanding and social stability, including other series of tasks to make a lung mankind transition to sustainable development. Developing countries pay attention in this case to the experience of the European countries. The general successful practice for Europe lies in education for sustainable development starting from preschool and school period of children and young people when their consciousness can be exposed to change through understanding of idea of the concept. The object of research in this case is educational policy for formation of knowledge background about sustainable development, education for sustainable development which will promote subsequently to formation of public consciousness through the system of education for sustainable development based on the concept of European countries. In turn, this view of sustainability clearly invites a perspective on what would count as development, personal or cultural, which relocates the economic into a subservient position and suggests that the kind of knowledge required by environmental education will *not* be exclusively, or even predominantly, scientific (whose own rationalistic motives have been questioned). To say this is not to deny the value of pupils exploring the effects of human activity on the environment and the causal connections within it, studying closed ecosystems and becoming aware of the complexity, diversity and vulnerability of nature. Rather, it is to invite a relocation and integration of such studies into a broader and more open poetic milieu that is pervaded by a basic sympathy with nature as that which ultimately sustains us both in material and psychological terms. There is an important sense in which nature does not simply exist out there as an external object for our separate perceiving subjectivity, but that our relationship with it (how we reveal it to ourselves) is a primal conditioner of our experience as a whole and is constitutive of our own identity, our sense of place and purpose in the greater scheme of things. We exist *in* our relationship to nature (quoted in Bonnett 1997, p.9).

Chapter II

2.1. Political review of the Republic of Kazakhstan since state formation to modern time

Modern Kazakhstan covers a territory in the very heart of the Eurasian continent. It is a country where various and often contradictory phenomena are entwined and synthesized; a country which at once belongs to East and West as a link of the Eurasian civilization that has absorbed spiritual basics, ideas of humanism and the best traditions of world cultures and religions. Kazakhstan is located in the center of Eurasia almost at an equal distance from the Atlantic and the Pacific with its new capital Astana. In terms of size, the country is the ninth largest in the world (2.7 million sq. km). The number of population in Kazakhstan is 16 954 person for 1.03.2013 (ASRK 2013 p.1). Its deep continental location significantly influences the country's climatic conditions.

In the early part of the first Millenium B.C., the nomadic Skythian-Saks civilization prospered on the territory of the Central Asian steppes. During the following centuries in the steppes of modern Kazakhstan the powerful state of the Huns² was formed. This exerted great influence on the geopolitical map of the world of that period. The Huns were succeeded in Central Asia by Turkic-speaking tribes. These groups founded several large state formations, such as known as *Kaganats* (empires)³ which extended from the Yellow Sea in the east to the Black Sea in the west. On the territory of that historical Central Asia (the present day-territory of southern Kazakhstan and Central Asia) cities and caravansaries were founded which helped to facilitate the famous trade route, known as the Great Silk Road which connected Byzantium and China. In addition, other important trade routes were established in the area, including a road running along the banks of the Syr-Darya River leading to the Aral Sea and the South Ural, as well as the so-called *Sable Road* which connected Central Kazakhstan and the Altai with south-western regions of Siberia. It was via trade on this road the Near East and Europe were supplied with expensive furs. A number of major cities and trade centers such as Otrar (Farab), Taraz, Rulan, Yassi (Turkestan), Sauran, Balasagun and

² The **Huns** were a group of nomadic people who first appeared in Europe from east of the Volga River, region of the earlier Scythians, with a migration intertwined with the Alans.

³ **Khanate**, or Chanat, is a Turco-Mongol-originated word used to describe a political entity ruled by a Khan.

others were founded on these routes. The Great Silk Road not only stimulated the development of trade, but also became a conduit of progressive scientific and cultural ideas. For example, the life and creative activity of the great philosopher Al-Farabi⁴ (870-959) dates back to these times. There were Buddhist enclaves, Zoroastrian communities, a Nestorian Christian movement and Moslem mosques, as well as Sufi orders combining Islam with the traditional Turkic – Tengrian religion (a cult of the sky and other natural elements). This form of Islam was to influence the world outlook of the Kazakh people for centuries to come. In 1221, Mongolian tribes, led by Genghis Khan⁵, invaded and occupied Central Asia. The Mongolian invasion exerted a considerable influence upon the history of the Kazakh people. One of the measures taken by Genghis Khan regarding the Kazakhs, was an attempt to replace the gender-tribal division with territorial administration and to unite nomads as a ruling class under the supreme power of Genghis Khan himself, and his successors. The majority of modern Kazakhstan was included in the Golden Orda⁶, Ulus (hereditary line) belonged to the successors of Dzhutchi, the eldest son of Genghis Khan. Later, Kazakh khans became his direct successors and enjoyed supreme power over the state. At the pick of its political and military might, the Golden Horde exerted significant influence of the formation of the Russian state and controlled the whole geopolitical situation in Eastern Europe. Thus, the East became a donor and a catalyst of ethnic and cultural processes in that part of the world also. At the turn of the 15th century, the powerful empire of Tamerlane (1336-1405)⁷ was founded on the territory of Southern Kazakhstan and Central Asia.

By the second half of the 15th century a process of consolidation had begun among the nomadic peoples living on the territory of modern Kazakhstan. This process evolved from their world-view and style of life. A short time later, the first Kazakh states were formed, and by the beginning of the 16th century a united a Kazakh nation had emerged. The ethnic name

⁴**Al-Farabi** is known in the West as Alfarabius was a renowned scientist and philosopher of the Islamic Golden Age. He was also a cosmologist, logician, and musician.

⁵ **Genghis Khan** was born Temujin, was the founder and Great Khan (emperor) of the Mongol Empire, which became the largest contiguous empire in history after his demise.

⁶ The **Golden Horde** was a Mongol and later Turkic khanate that was established in the 13th century and formed the north-western sector of the Mongol Empire.

⁷ **Timur, Tarmashirin Khan, Emir Timur**, historically known as **Tamerlane**, was a Turkic ruler. He conquered West, South and Central Asia and founded the Timurid dynasty.

Kazakh in old Turkic meant *free, independent* and fully reflected the character of a people who had long aspired to live independently. During the first period of its existence, the Kazakh state was able to maintain a united state power and territorial integrity under the leadership of the wise khans Az-Djanibek and Tauke-khan.⁸ During this period, a legal system was also established, reflecting the norms of the nomadic way of life and the relation between different groups within Kazakh society. The ideology of the Kazakh people was indisputably Islamic at this time. The educational system and literature were built on the basis of the Arabic alphabet, the mores of Islam and the peoples' traditional nomadic upbringing. By this time, the verbal-poetic and musical traditions of the Kazakhs were already highly developed. To this day, these traditions remain a cultural trademark of the Kazakh nation. It could even be said that modern Kazakh spiritual culture is based on the reconstruction of the best examples of poetic improvisation and on the history of such well-known "Akyns" (poets) and "Biys" (sages) as Asan-kaygy, Kaztugan-zhyrau, Tole bi, Aiteke bi, Kazybek bi, Bukhar-zhyrau and others.⁹ Also during this period, despite a large degree of ethnic and cultural unity, Kazakhstan remained a so-called "nomadic democracy" with a highly unstable political structure. The Kazakh people traditionally roamed from place to place following warm weather. There was also a relatively strict system of land-use and land-ownership, which was seasonally determined. Winter months were considered to be the most difficult. Livestock was fed on pasturage, and when ice prevented livestock from getting to the grass, starvation resulted. This tragedy was known as a "Jut"¹⁰ by the Kazakhs. Catastrophic "Juts" usually occurred once every 10-12 years and thoroughly devastated the nomadic economy of the Kazakhs. During dry seasons, this nomadic economy was also weakened, often disempowering state and military power as well. Some Kazakhs also engaged in agriculture, especially on the rich lands of Syrdaria, Talas, Tchu river valley, on the edges of the Altai Mountains, in the Irtysh valley, and in the Zaisan depression. However, even in these areas, nomadic live-stock-breeding remained dominant (UNESCO 2005 p.5) Totally dependent on nature and located geopolitically between the two largest nations of Eurasia, China and Russia, the Kazakh nomads were often subject to invasion by their economically and

⁸ Kazakh Khans, one of the first founders of Kazakh state and first rulers, between 1474–1480 period

⁹ Representatives of creative intellectuals, distinguished culture figures of the history of Kazakh people

¹⁰ Kazakh notion of "starving time" which is caused by heavy murrain

politically more stable, settled neighbors. During the 17th and 18th centuries, nomadic tribes of Dzungars¹¹, led by Chinese Bogdy-khans¹², began a large-scale war against the Kazakh state. Here were bitter battles throughout the steppe lands, and, weakened by tribal and kin group divisions, as well as by regional affiliations, the Kazakhs were defeated in 1723. However, thanks to the courage of “batyrs” (knights)¹³, the decisiveness of the Kazakh leader Ablai-khan¹⁴, the diplomatic activities of the Kazakh “Biys” (sages) Tole bi, Kazdausty Kazybek bi, Ayteke bi¹⁵, as well as the self-sacrifice of the people, the Kazakhs escaped the total capture and physical annihilation of the population. In order to obtain guarantees of independence and security, Kazakh khans started searching for the military assistance of the Russian Empire, which was actively expanding its border to the East, deep into Siberia. While Russia’s help saved the Kazakhs from annihilation, Russia also took this opportunity to begin a colonization process: building town-fortresses, moving a significant Russian population from internal regions of Russia into the steppe, transferring pastures to these Russian peasants and dividing Kazakh steppe land according to Russia’s administrative-territorial structure. Finally, Kazakhstan lost its sovereignty. Despite the heroic resistance of Kenesary-khan¹⁶, leader of the peoples’ volunteer corps, the insurrection of Batyr Syrym¹⁷, the uprising of the eldest zhuz¹⁸ and other anti-colonial actions, in 1871 Kazakhstan ceased to exist as an independent state. The last stage of Russia’s colonization of Kazakhstan was the annexation of Southern Kazakhstan in the 1850s and 1860s, following a Russian military

¹¹ The name **Dzungar people**, also **Zunghar** (literally "left hand"), referred to the several Oirat tribes who formed and maintained the Zunghar Khanate in the 17th to 18th century.

¹² The **Bogd Khan** (Mongolian 1869–1924) was enthroned as the Great Khaan (Emperor) of Mongolia on 29 December 1911, when Outer Mongolia declared independence from the Qing Dynasty after the Xinhai Revolution.

¹³ Kazakh soldier, commander.

¹⁴ **Wali-ullah Abul-Mansur Khan** better known as **Ablai Khan** (1711 — May 23, 1781) was a Kazakh khan of the Middle jüz.

¹⁵ Judges, Kazakh public figures, authors of the first legislative code of laws of "Zhety Zhargy", speakers and poets.

¹⁶ Kenesary Khan was proclaimed khan of the Kazakhs when the Russian Empire was already fully in control of Kazakhstan, and in fact the Kazakhs were prohibited (by Russian law) from selecting their leader after 1822.

¹⁷ The leader of Antigoovernmental movement of Kazakh state against Russian Empire in 1783 — 1797

¹⁸ Administrative unit of territory in Kazakh state

campaign against the Khanate of Kokand¹⁹, Bukhara and Khiva²⁰, whose lands extended into what is today the territory of Southern Kazakhstan. Subsequently, Kazakhstan's fate was closely linked to the European model of social progress in general and in particular to the fate of the Russian state and its people. During the first half of the 19th century an increasing number of Kazakh people turned to a settled way of life and abandoned pastoral nomadism in favor of agriculture. This way less by choice than by necessity, since large areas of fertile pasture had been expropriated from the Kazakh people and given to Russian peasants arriving to the internal regions of Russia. Gradually, the economy of Kazakhstan became increasingly integrated into the economic scheme of Russia. On the territory of Kazakhstan various industries, transport and trade were developed. As a result, a national working class and intelligentsia also began to develop.

After the Bolshevik revolution of 1917 Soviet power was gradually established in Kazakhstan. The 1st World War and the Civil War almost totally destroyed the economy of the area and following a catastrophic "Jut" during the winter of 1920-1921, almost half of the live-stock of Kazakhstan perished. As a result, the population of Kazakhstan faced a famine during the summer of 1921. The economy of Kazakhstan only recovered at the end of the 1920s. In 1920 Kazakhstan became an Autonomous Soviet Republic (ASSR) and in 1936 became a Union Republic of the USSR. Kazakhstan was the only republic of the former Soviet Union where the native found itself in a minority. This situation developed in the 1930s, when not only was there a large loss of population, but also a massive influx of people from other regions of the URSS. These new residents of Kazakhstan came as "enemies of the people" and many were forced to live in concentration camps founded in Kazakhstan for victims of terror in 1937-1938. During 1935-1940 some 120,000 Poles were deported to Kazakhstan from Western Ukraine, Belorussia and Lithuania. In addition, during World War II (1941-1945) many Germans from the Caucasus were among those forcibly repatriated to Kazakhstan. Furthermore, in the 1950s and 1960s, more than one Ukraine and Belorussia moved to Kazakhstan in order to work on the "Virgin Lands" campaign. As a result, the percentage of Kazakhs in Kazakhstan decreased from 57.1% in 1926 to 38% in 1939 and to

¹⁹ The Khanate of Kokand was a state in Central Asia that existed from 1709–1876 within the territory of modern Kyrgyzstan, eastern Uzbekistan and Tajikistan, and southeastern Kazakhstan.

²⁰ Territory occupied the land between the Amu Darya and Syr Darya rivers

no more than 30% in 1959. Only recently has the proportion of Kazakhs of Kazakhstan once again reached 50% of the total population (Demko 1997, p.69). In the late 1970s and early 1980s, the USSR's general economic, social and political crisis also affected Kazakhstan. The rigid system of planned economics was inhibiting Kazakhstan's economic growth and social development. Thus, the USSR's reformist policy, "Perestroika", was generally supported by the people of Kazakhstan. However, when, on 17 December 1986, the Soviet authorities brutally put down a youth protest in Almaty, many people in Kazakhstan began to lose faith in the USSR and began to believe that the end of the socialist system of their country was inevitable (Dymko 1997, p.73).

The break-up of the Soviet Union made former members of it sovereign. In the early 1990s the governments of Kazakhstan launched large-scale changes to the whole social and political system. On 24 April 1990, a law was passed declaring a presidential form of the government in the Kazakh SSR, with Nursultan Nazarbaev²¹ elected as its first President. On 25 October 1990 the Supreme Soviet of the Kazakh Soviet Socialist Republic approved the Declaration on State Sovereignty, establishing and the country's determination to be subject to international law, while the institution of citizenship as well as equality of forms of ownership were also introduced. On 10th of December 1991 the country was officially renamed in the republic of Kazakhstan and on 16th of December the Parliament of the on the Republic declared the independence of the Republic of Kazakhstan. During the period 1991-1995, the political system and Constitutional legislation of the Republic were formed. The first Constitution of sovereign Kazakhstan was adopted in January 1993. Being to some extent a compromise between the old and new political systems, reflecting attempts to introduce into the post-Soviet context a western democratic model, this Constitution initially contained some contradiction which occasionally took the form of unnatural opposition and resistance of power. As a result of the Referendum held on 30 August 1995, a new Constitution of the Republic of Kazakhstan was adopted, eliminating he shortcomings of the former constitution. The new Constitution established a Presidential Republic, and solved rationally the problem of divided responsibilities among different branches of power, while also welcoming changes to the market system. In October 1997 President N. Nazarbayev

²¹ The President of Kazakhstan, having served since before the nation's independence from the Soviet Union in 1991. In April 2011, Nazarbayev was re-elected to another five-year term.

addressed the people of Kazakhstan with a message spelling out the “Country Development Strategy till 2030” (Sultanov 2010 pp.63-64) This paper analyses the Modern History of independent Kazakhstan and sets out the major thrusts of the country's development for the forthcoming 30 years. Since 2007, when the country’s constitution was amended, the institution of presidency has preserved its role as an element stabilizing system, concentrating the efforts of elite groups on solving important political problems. The need for political first emerged in the second half of the 1990s. The events of autumn 2001 showed that the need to further democratize the political system was increasing and was acquiring a more shaped and systematic nature. In other words, it was clearly seen that the pace of political reforms was far behind of economic reforms. The country and the government faced problem of finding formula for stability, which, in turn demanded the creation of a mechanism for coordination of the interests of major socio-political and social groups (Ibid. p.21) A presidential decree, issued on 20 March 2006, set up a state commission to draft and specify a program of democratic reforms (Ibid. p.85) New constitutional amendments, based on the results of this commission’s work and recommended by the head of state, passed by parliament in spring 2007 opened wide opportunities to boost the entire political process in Kazakhstan. New ideas touch various aspects of political life. Obviously, those new reforms in domestic policy brought to changes in foreign policy of Kazakhstan. Foreign policy has become an integral part of Kazakhstan’s state policy. Consequently, the Republic has found ways to coordinate its own interests with those of other countries. Kazakhstan’s diplomacy was successful in developing positive relations with 140 countries and helping it to become a member of 64 international political and economic organizations. In March 1992, Kazakhstan was accepted into the United Nations Organization and has played an active role in its initiatives for the past 18 years. There have been no conflicts or confrontations between Kazakhstan and other countries to date, thus further underscoring the effectiveness of the nation’s diplomacy. For the first time in its history, Kazakhstan was elected to the United Nations Economic and Social Council (ECOSOC) in November 2006. It gained the support of 187 of 192 UN member states at the General Assembly—significantly more than the required two-thirds vote. Furthermore, to create conditions required for integration into global and regional processes, Kazakhstan has established active cooperation with the majority of North American, European, and Asian countries as well as their chief regional organizations, including the:

- Organization for Security and Co-operation in Europe (OSCE)
- Economic Cooperation Organization (ECO)
- Organization of the Islamic Conference (OIC)

In its role as the 2010 OSCE Chairman-in-Office (CiO), the Republic of Kazakhstan intends to follow the “Ministerial Troika” of 2009-2011 and the newly developed “Quintet” format. Kazakhstan, the first non-European CiO, will pay specific attention to its Chairmanship agenda by focusing on longstanding OSCE agenda items, such as:

- Democracy
- Human rights
- Unresolved conflicts

Kazakhstan continues to develop regional alliances in every corner of the world because of the increasing significance of globalization and economic integration. Many countries recognize their national goals can only be achieved through developing regional cooperation. For this reason, Kazakhstan has undertaken efforts to promote regional economic integration. For example, the city of Astana has increased its cooperation with the:

- Commonwealth of Independent States (CIS)
- Eurasian Economic Association
- Central Asian Economic Association
- Shanghai Cooperation Organization

One of the most important decisions Kazakhstan made during the last 15 years was to become a non-nuclear state and pursue a policy of nonproliferation. Kazakhstan has signed more than 1,300 international and intergovernmental contracts and agreements establishing a practical, contractual, and legal framework for relations with other countries. Initiative of Kazakhstan to carry out reforms in internal policy, the active integration into the world community and peace dialogue in cooperation with regional and international organizations contributes to political stability of the country thereby creating favorable conditions for achieving sustainable development. Such activity of the government and state support rise awareness and gives motivation to civil society on participation in actions for sustainable development.

2.2. Economic development of Kazakhstan since first days of independence

Taking into account the economic background of the region, being in past as nomadic live-stock breeders to a region with a large-scale and manifold industrial complex, Kazakhstan became a large producer of raw material sources supplier during Soviet time. By 1991 Kazakhstan was producing 70% of the USSR production of lead, zinc, titanium, magnesium tin, 90% of its phosphorus and chrome and more than 60% of its silver and molybdenum. The methods of "social industrialization" caused numerous tragedies, such as the 1930s campaign of collectivization, with subsequent famine on a massive scale. As a result, a section of the Kazakh people fled with their livestock to China and other neighboring Central Asian countries. Between 1931 and 1934, some 1.5 million of the remaining Kazakhs died from starvation and disease: this represents more than 40% of the total Kazakh population at that time (Demko 1997, p.24). The main economic content of more than 10 years of independence has become transition from the central command planning to a market system. During these years, Kazakhstan has made considerable progress in implementing complex political, economic and social reforms to establish a democratic state with a market economy. While the country has not experienced political disturbances during the transition period, it has faced numerous economic, social and environmental challenges. Today Kazakhstan is important to world energy markets because it has significant oil and natural gas reserves. With sufficient export options, Kazakhstan could become one of the world's largest oil producers and exporters in the next decade. But Kazakhstan's strategic aspiration is to become a modern, diversified economy with a high value added and high-tech component, well integrated in to the global economy. The perspective of the Economy of Kazakhstan is closely connected with further integration into international economic relations, utilization of unique reserves of energy and mineral resources, vast possibilities to export industrial and agricultural products, optimum employment of country's transit potential and also with availability of highly qualified specialists in different spheres. The first few years of Kazakhstan's independence were characterized by an economic decline (mostly due to the destabilizing force of disintegration of the Soviet Union): by 1995 real GDP dropped to 61,4% of its 1990 level (Ertz 2005, p.132). This economic deterioration exceeded the losses experienced during the Great Depression of the 1930s. The wide-ranging inflation observed

in the early 1990s peaked at annual rate of up to 3000% in mid-nineties (Ibid. p.145). Since 1992, Kazakhstan has actively pursued a program of economic reform designed to establish a free market economy through privatization of state enterprises and deregulation and today is generally considered to be more advanced in this respect than most other countries of the CIS. Kazakhstan has enjoyed impressive economic growth over the past five years, buoyed by increased oil exports, as well as by bold economic reforms, prudent fiscal policies and economic initiatives that were instituted in 1999. This has resulted in a stable level of inflation (2002 - 6.6%, 2003 - 6.8%, 2004 - 6.7%, 2005 - 6.6%), a budget surplus, a firm currency, and a decreasing unemployment rate (2003 - 8.8%, 2004 - 8.4%). After posting moderate growth of 2.7% in 1999 as a whole, Kazakhstan's real gross domestic product (GDP) rose 9.6% in 2000, 13.2% (2001), easily the country's best year of economic performance since independence, 9% in 2002, 9.1% in 2003, 9.3% in 2004 and according to The Economist Intelligent Unit Kazakhstan is within Top 10 world fastest-growing economies in 2005 (IMF 2013, p.3) The main driver behind Kazakhstan's economic growth has been foreign investment, mainly in the country's booming oil and natural gas industries. Since independence from Soviet rule in 1991, Kazakhstan has received more than 30 bln. US\$ of foreign direct investment - the highest per capita indicator in the former Eastern Bloc (see Figure 1)



Figure 1 Source: World Economic Outlook by IMF about Kazakhstan

Since 2000, the Kazakh economy has been expanding at an annual rate of between 8% and 9%, placing it among the 10 fastest-growing economies in the world. However, this high growth rate has largely been driven by the oil and gas sector. Oil exports alone currently

account for 65% of the country's whole, on a value basis. In addition, foreign direct investment in Kazakhstan – which accounts for over 80% of total FDI in the Central Asian region – is concentrated in oil- and gas-related companies (World Bank/Data & Statistics 2012 p.16). The main goals of current structural policy are diversification and the strengthening of the non-oil sector. A number of development agencies and research centers (Development Institutions) have been established and the Government is looking at establishing techno and science parks to support the diversification of higher-value added industries. But there are certain obstacles inherited from the past to quickly achieve this. The World Economic Forum's Global Competitiveness report for 2010 – 2011 places Kazakhstan at rank 67 in the Human Development Index's, just ahead of Latvia but behind Russia (63), Lithuania (53) and Azerbaijan (51). The Heritage Foundation ranks Kazakhstan at a medium level of economic freedom, defined as the absence of government interference in questions of production and services, and with civil rights protected in general. Its rank of 82nd out of 179 countries placed it one slot behind Kyrgyzstan. In the Human Poverty Index, Kazakhstan was given 34th place out of 135 developing countries (World Bank/Data & Statistics 2012 p.12). Roughly 15.4% of the population lives below the national poverty line, and the country has a particularly high number of deaths from non-communicable diseases. GDP per capita is \$11,353, and average life expectancy is 66 (See table 1). On 19 March 2010 a “state program for the development of industrial innovation of the Republic of Kazakhstan 2010 – 2014” was issued as a presidential decree. One of its key goals is “economic diversification and the increase of competition,” aiming to create conditions enabling the deepening of industrialization. It was conceived as part of the general Program of Strategic Development of Kazakhstan until 2030. Until 2015, the report writes, the key investment sectors will remain the traditional export-oriented sectors, with Samruk-Kazyn as the key driver, but new sectors of the economy should be developed at the same time. The president issued an additional program in April 2010 encouraging new entrepreneurs, particularly those in the export-oriented sector (BTI/Stiftung 2012, p.6).

Economic indicators of the Republic of Kazakhstan

Economic indicators	2007	2008	2009	2010
GDP (\$mn.)	104853.5	133441.6	115306.1	149058.9
GDP Growth %	8.9	3.3	1.2	7.3
Inflation (CPI) %	10.8	17.2	7.3	7.1
Unemployment %	7.3	6.6	6.6	
Foreign direct investment % of GDP	10.6	10.7	11.9	11.4
Export growth %	9	0.8	-11.5	1.9
Import growth %	25.8	-11.5	-15.8	-4
Current account balance (\$mn.)	-8321.9	6325.5	-4067.9	3012.7
Public debt % of GDP	5.9	6.7	10.4	11.4
External debt (\$mn.)	95541.9	107278.3	111115	118722.9
Total debt service (\$mn.)	27171.1	33426.4	25779.6	47760.6
Cash surplus of deficit % of GDP	1.2	4.4	-2	
Tax revenue % of GDP	12.3	12.7	8.1	
Government consumption % of GDP	11.1	10.2	11.7	10.8
Public expnd. on edu. % of GDP	2.8			
Public expnd. on health % of GDP	3.4	3.9	4.5	
RGD expenditure % of GDP	0.21	0.22		
Military expenditure % of GDP	1.3	1.1	1.2	
Sources: the World Bank, World Development Indicators 2011/International Monetary Fund (IMF)/World Economic Outlook 2011/Stockholm International Peace Research Institute (SIPRI)				

Table 1

By the beginning of 2009, the country's credit and construction boom had slowed considerably (roughly half the GDP growth in the prior two years had been attributable to the finance and construction sectors). A sudden halt in capital flows to Kazakh banks triggered a sharp reduction in lending volumes and a downturn in the non-oil economy. According to the IMF, GDP grew by 1.2% in 2009 and by about 6.0% in 2010, driven by higher oil prices, a recovery in domestic spending, and the assistance of government bail-outs (See Table1). However, it has not yet come close to the double-digit growth figures

achieved in the early 21st century. GDP per capita by the end of 2010 was \$7,000. FDI in 2009 fell from its previous year's levels, but picked up again in 2010 when the worst of the recession had passed. Among the biggest investors were the Netherlands, the United States, the United Kingdom, France, Italy, Russia, China and South Korea. In an effort to stimulate FDI, Kazakhstan reduced its corporate income tax from 30% to 20% as of 2009, and as of the time of writing, planned to further reduce the rate to 15% in 2011 (See Table 2). Foreign trade has contributed significantly to economic development by improving the country's balance of payments, attracting foreign direct investment and promoting competition. Foreign trade is liberalized in principle, but significant exceptions remain, including the presence of differentiated tariffs and special rules for individual companies or sectors. A first round of WTO membership negotiations began in June 2008, but talks have stalled in part due to tariff issues, and in part because Russia has brought pressure to bear on the proposed accession. Kazakhstan is active in integration processes on a regional level as well as on a global one, proven by the current Customs Union with the Russian Federation and Belarus. The Customs Union, with a market capacity of about 170 million people, provides additional possibilities for investors and new horizons for effective realization of investment projects in Kazakhstan. The country's competitive advantage is its more favorable business environment in comparison with the other countries in the Customs Union. According to the World Bank Doing Business 2012 report, the Russian Federation and Belarus (MFA/Government 2012 p.2) Fundamental exclusion as a result of poverty and education continue, though female participation rates in education, as well as enrollment rates in both primary and secondary education, are high. The ratio of women to men in higher education (university level) settings is relatively high. According to the UNDP, gender-specific discrimination is relatively uncommon. Informal discrimination based on ethnicity, sub-ethnicity (clan) or economic group affiliation continues. A decentralized system might better be able to cope with these inequalities by offering compensatory mechanisms, but the state remains unitary.

Main socio-economic indicators (Table 2)

Population (1.03.2013, thsd., person)	16 954
Rate of unemployment (March 2013, %)	5,3
Average monthly wages and salary (February 2013., tenge)	108 836
Inflation:	
(April 2013, per December 2012., %)	2,2
(April 2013, per April 2012., %)	6,4
GDP (January-December 2012 %)	105,0
Short-term economic indicator	103,7
(January-March 2013 to January-March 2012)	

Growth rate of sectors of the national economy (volume index, %)	
Industry (January-March 2013 to January-March 2012)	101,9
Agriculture (January-March 2013 to January-March 2012)	100,4
Construction (January-March 2013 to January-March 2012)	95,1
Trade (January-March 2013 to January-March 2012)	112,8
Transport (January-March 2013 to January-March 2012)	107,0
Communication (January-March 2013 to January-March 2012)	111,5
Source: Agency of Statistics of the Republic of Kazakhstan (ASRK)	

Affirmative action policies remain underfunded. The UN Gender Inequality Index 2010 reveals that the percentage of women in parliament is relatively low throughout the region. In addition, it says, *Reports from Kazakhstan, Kyrgyzstan and Uzbekistan suggest an upsurge in traditionalism, with calls to reestablish polygamy and change laws to make it more difficult for women to initiate divorce* (HDR/UN 2011 p.4). Kazakhstan's current leaders are laying the foundation for its integration into the global economy. At independence in 1991, Kazakhstan had a promising resource base, from its sizable hydrocarbon reserves to its well-educated workforce. More importantly, though, it had the wisdom to move quickly away from the failed policies of the past. Kazakhstan's leadership embarked on a new - transformational-course. In a little over ten years, Kazakhstan implemented a series of broad-based reforms that brought Kazakhstan from planned to market economy. Kazakhstan undertook a process of demonopolization, privatization, debt restructuring, price liberalization, customs reform, and tax restructuring. Kazakhstan established a securities and exchange commission, liberalized trade, enacted laws on investment, established a new government procurement process, and reformed the banking system. The United States formally recognized this

achievement when, in March 2002, it accorded Kazakhstan the status of a market economy, and these reforms yielded impressive results at home (Human Rights Report 2008 p.15). The Government of Kazakhstan has privatized much of the economy, although much work needs to be done to restructure major sectors such as telecommunications. The financial system has been a leader in innovation, including the emergence of successful private pension funds, the establishment of a national fund to preserve oil wealth for future generations, and a budding mortgage-lending market. Unemployment, while still high in Western terms, is lower than elsewhere in the region. These impressive reforms took place against a background of internal political stability and gradual advance of democratic reform and a civil society. Introducing diversity into Kazakhstan's economy and freeing its human potential will require a huge national effort and, a renewed commitment to democratic and market reforms; and a key objective will be making this new economy open to outside investors. Kazakhstan is intensively searching for new ways to exit the deep economic and social crisis which has arisen during the last years. The main way is to improve the basic branches of economy. Proposed by Kazakhstan's President Nursultan Nazarbayev at the UN General Assembly in September 2011, the Green Bridge Partnership Program for 2011-2020 is supported by the members of the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) and United Nations Economic Commission for Europe (UNECE). This represents 95 countries and almost three quarters of the population of the planet, including over 1 billion of the world's poor. Central Asia faces a number of environmental challenges including water scarcity and inefficiency of energy use. In Kazakhstan alone, the Government has calculated that the Green Economy has the potential to increase energy efficiency by 40-60%, water saving by 50%, and reduce industrial waste by 30 billion tons. At the same time, the Government predicts huge opportunities for green industry, including organic agriculture, eco-tourism, renewable energy, and a potential fishery industry worth over \$1Bn a year (Kazakhstan President Nazarbayev 2013, p.3). In addition to the Green Bridge initiative, Kazakhstan will also use the Rio Summit to put forward a Global Energy and Environment Strategy, aimed at managing the long-term transition from conventional to sustainable energy. All above mentioned initiatives and recent reforms proposed by Kazakhstan does certify global potential to successful achievement of sustainable development hereafter.

2.3. Formation of education system in the Republic of Kazakhstan

The development of education and science is one of the strategic priorities of Kazakhstan's state policy. There are a significance influence on the pace of economic, social and cultural progress and will determine the nation's competitiveness in the forthcoming years. *...Almost all successful modern states that are proactively integrated with the system of global economic relationships banked on smart economy. However, to create it, we need, first of all, to develop our own human capital*, said President Nazarbayev in his State-of-the-Nation Address *"New Kazakhstan in the New World. A Strategy for the Next Stage of Development"* (Strategy of Industrial and Innovation Development/Government documents) To this end, the government has adopted a number of policies with the objective of making domestic education and science match the best international standards and meet the needs of economic and social modernization. To achieve this, the government is taking measures to reform education and science, adapt them to modern requirements, and integrate them with global educational and scientific processes. Over the years of independence, Kazakhstan's education system has passed through several stages and the following have been achieved:

- A legislative framework for the educational process has been formed;
- A differentiated, multi-tier education system (preschool, school, vocational, higher and postgraduate education) has been developed;
- The principles of, and approaches to, education management have been adjusted taking into account the objectives of the market and state development;
- A system of public and private schools and institutions of higher education has been formed to meet the basic needs for education;
- The National Educational Quality System, which includes the unifies national testing for school graduates, has been developed and adopted;
- Educational institutions have been computerized and all schools and institutions of higher education are now being connected to Internet;
- The mechanism of free and paid for education has been standardized;
- A mechanism of educational grants and loans has been created;
- Kazakhstan's education system has entered the global educational space by joining the UNESCO Education For All Initiative and the Bologna Convention;

- A three-tier higher and postgraduate education system (Bachelor's, Master's, and PhD program) has been developed;
- Credit technologies for institutes of higher education have been introduced;
- Distance learning is being developed; and
- The technical and financial base of educational institutions has improved significantly (Ministry of Education and Science of RK/official web site).

The basic law which is defining the structure of development of the higher education in Kazakhstan is law "On Education" (1999, 2007). In July 2004 were adopted by law "the introduction of changes and amendments to basic law about education" (UNESCO 2010/2011 p.7). This became an important step in strengthening and improvement legislative and standard provisions in the sphere of the higher and postgraduate educations. New law considerably improved the qualification requirements to higher educational institutions and their affiliates. In particular, were presented new requirements for the teachers. Kazakhstan's education system is continuing to be improved. The legislative framework has been changed significantly. The laws on *Education, on the rights of the Child in the Republic of Kazakhstan, on the Social and Medical and Pedagogical Correctional Support to Disabled Children have been adopted*. In accordance with President Nazarbayev's State-of-the-Nation Address dated 19 March 2004, *Towards a Competitive Kazakhstan, the Education system Development in Kazakhstan*, the Blueprint for the Education system Development in Kazakhstan until 2015 and the State Education Development Program for 2005-2010 were approved in 2004 (MES of RK 2012 p.5). The program objectives are to modernize the national multitier education system, improve the quality of education, and meet the needs of people in pursuance of the Nation's Strategic Development Plan until 2010. In order to form an effective education model, the program has set the following goals:

- Transition to a 12-year school education and setting up of a system of vocational education for high school students;
- Development of a new level – post-secondary vocational education;
- Development of a three-tier system of higher education (Bachelor's, Master's and PhD program) to be financed through academic loans; and
- Creation of the National System for the Education Quality Assessment (Decree of the President № 735, 2001 p.8).

According to further reform of the President of Kazakhstan in education is [...] *one of the most important instruments in ensuring Kazakhstan's real competitiveness. The main criterion of success of the educational reform is reaching a level when every national of Kazakhstan, who has the respective education and qualifications, is in demand in any country. We should ensure that quality educational services that meet world standards are provided nationwide* (SEDP 2001 p.2). Within the framework of this program and in accordance with the Law on Education, the government is focusing on the development of preschool, school, vocational, higher and postgraduate education. Preschool education is important to develop communicative speech and skills in children, ensure their physical development, and prepare them for school. During the educational reform, the most significant objectives were to determine and implement the measures that would protect children's rights to preschool education. As a result, the preschool system has seen positive changes since 2000. The number of preschool institutions closures has fallen, and many have been reopened (after kindergartens and day nurseries had been returned into municipal ownership). The number of children in preschools has grown over the recent years. Preschool preparation of children aged five and six has been made compulsory and free of charge. This socially important resolution has enhanced the accessibility of education and provided an equal start for all children who enter school. At present, more than 80% of future students study in preschool groups at schools and kindergartens (ASRK/Education 2013 p.11). Special private institutions (with English, fine arts, or music classes) are being set up for gifted children. Kazakhstan's preschool institutions are held in high esteem by parents and teachers and have been positively evaluated by international organizations such as UNESCO, UNICEF, Asian Development Bank (ADB), and the Russian Regional Development Bank (RRDB), and others. Having joined Education for All's (EFA) Dakar Framework for Action, Kazakhstan is now working to achieve the goals set by the World Educational Forum (UNESCO Summary Report 2005 p.23). In the recent years, global community has begun to pay significant attention to the quality of fundamental education, which is an integral and paramount condition for improving quality of life. The EFA global movement reflects this process to the fullest extent possible. The country's educational policy aims at ensuring the quality development of all people. The implementation of the EFA Framework for Action in Kazakhstan is conducive to the sustainable and comprehensive functioning of the sector, and its harmonization with the strategies for the improvement of the quality of education. The

system of higher education has also been changed significantly during the years of independence. The non-government education sector has been developed, a new entrance model has been introduced, and new requirements for the quality of education have been adopted. In 1999, the system of higher education in Kazakhstan became multi-level: base higher education (Bachelor's degree), higher research and teaching education (Master's degree), and special higher education. Classical-type universities have been established from regional institutions of higher education. Teachers', agricultural and technical institutes have progressed. A new law "On Education" adopted on July 27, 2007, considers the international standards in education in the context of the entry of Kazakhstan in the World Trade Organization and integration into Bologna Process. According to law "On Education" (2007) following levels and qualifications were introduced:

- 1) The higher basic education is bachelor degree program with the period of 4 years;
- 2) The postgraduate education including the scientific and pedagogical direction of preparation is Master program with duration: on the basis of the higher education is 2 years, and on the basis of the higher vocational education is 1 year;
- 3) The program of preparation of doctors of philosophy (PhD) is after Master diploma. Program duration is at least 3 years. According to the legislation, the state and private educational institutions are equal. In separate aspects of work all universities possess a certain level of autonomy (MES of RK 2012 p.3-5).

Both the state and private universities independently employ workers (except for rectors of state universities), have the right to establish direct connection with national and international partners, and to sign contracts on mutual cooperation in various areas. In comparison with state, private higher education institutions possess a bigger operational autonomy and show more flexible management. While the state higher educational institutions have own budget and the right independently dispose of them according to the parameters set by the ministry, private institutions can to acquire the equipment, books and training materials. However many important decisions influencing the academic activity of higher education institutions is recommended by the Ministry of Education and Science. State university funding for acquisition of necessary equipment, salary payment of professors are centralized. Rectors of the state universities are appointed by the President of the country (for national universities), and by government (for other state universities). The autonomy does not extend for both types of higher institutions concerning training programs, the

organization of educational process, enrollment of students, award of own degrees. For example, in order to develop new courses it is required for state universities the permission from Ministry. They also have to appropriate to the standards connected with maintenance of educational programs, examination, completion of studying and award of the academic degrees, and procedures of ensuring quality. The development of study programs and their realization is usually regulated by the Ministry of Education and Science (MES of RK 2012 p.4). State standards are observed in regard with basic courses according to all academic programs offered both by state, and private higher education institutions. The state obligatory educational standards are developed according to the Government Decree "On development order, approval and periods of validity of the State Obligatory Standards of Education (SOSE)" (EACEA 2012 p.8). The Ministry of Education and Science arranges and holds competition for development of the state obligatory standards of education. Department for the higher and postgraduate education is responsible for the competition organization for development of standards for the higher education (Bachelor degree and Master). The contest committee usually consists of representatives from Ministry of Education and Science, National Center of State Standards and Testing, Academy of Education, rectors (vice rectors) of higher education institutions, and also well-known researchers and teachers (MSE of RK 2012, p.3). The obligatory component includes list of disciplines and number of the credits which have to be received. Component for choice represents the list of disciplines and the minimum number of the credits or the class periods offered by higher education institution selected by students during any academic period. As a whole, about 50% of the general academic loading according to all academic programs make an obligatory component, other 50% is elective component (component for choice) (MSE of RK 2012 p.11). At national level students cannot influence on the content of educational process however at the institutional level of a wish and opinions of students are accepted on consideration at definition of disciplines for choice. In many higher education institutions students are members of Academic Councils thus can protect the interests.

The enhancement of international cooperation is one of the priorities in reforming the higher education system. Kazakhstan's young people are provided with an opportunity to learn from foreign educational and research centers, and the national education system's achievements are being promoted abroad. In this context, a significant objective of the higher education system is for Kazakhstan to join the global educational space. To achieve this

objective, Kazakhstan is taking measures to implement the Bologna and Lisbon Declarations²², to ensure that Kazakhstan's institutions of higher education are accredited worldwide, and to ensure the notification of diplomas issued in Kazakhstan and other countries. Direct partnerships between Kazakh institutions of higher education and foreign research and educational centers are also being strengthened. The reforms that have been carried out in the recent years have made it possible to make a transition from unified education system to a multiple-option system. Students have been provided with an opportunity to select the forms of education (from full-time attendance to distance learning), teachers' methods, and training materials. Syllabuses have been improved and innovative and authors' training programs have been enhanced. The technical and financial base of the country's education system has also improved significantly. The nation's budget expenses for the development of education are growing each year. Now moment many other important reforms in the field of education are planned or something is already in process of realization. There are: the introduction of 12-year school education; further modernization of the Qualifier of specializations of the higher education, aimed to the transition from narrow to the wide specializations, development and deployment of new systems and methods of teaching and training, including accumulation of the credits and distance learning; strengthening of social partnership for stimulations of employers more actively to participate in the practice organization and employments, and also organization sponsorship in the course of preparation experts on the basis of signing bilateral agreements between universities and enterprises. At the same time there is a potential for further improvement. As for problems it is possible to note:

- The centralized control over content of education (courses and educational programs) and process of its organization (organization of training and standards degrees) still limit freedom universities and their ability to react to requirements of economy, students and employers;
- Serious strengthening is demanded by the scientific research and innovative activity;
- System of an assessment of quality of the highest education is rather difficult. There are a lot of attention is paid to carrying out regular check control procedures, self-assessment and to improvement of universities. The accent should be displaced on

²² Kazakhstan has signed Lisbon Declaration in March 2010.

transition from existing mechanisms of management quality to culture of ensuring quality on the basis of the accounting of interested parties.

- More attention has to be paid to external expert assessment and criteria efficiency in improvement of quality. Such improvements would be helpful in re-orienting teacher training and higher education according to the principles of sustainable development.

Kazakhstan has achieved significant progress in reforming systems of the higher education and transition to market system since obtaining independence. The state policy is directed on reforming system of the higher education for of satisfaction of needs of the modern competitive economy, based on the international experience. For achievements of this purpose the government adopted a number of documents. Among them are State program of development of education in the Republic of Kazakhstan on 2005-2010, Strategy of industrial innovative development of the Republic Kazakhstan for 2003-2015, and also row normative documents (MSE of RK/web site). The National Center of accreditation for solutions of questions of quality and National appraisal Center of quality of education were created which are engaged in the system analysis of education (MSE of RK/web site). The main idea of all of these documents is more effective development of the human capital of country, as a key to success. The purposeful efforts are put in the field of higher education concerning realization of Bologna Process and integration of Kazakhstan into world educational space. Strong political initiative and concrete plans of government are directed on advance of international best practices in area of providing quality, management and scientific research. The tendency of reduction of state standards is observed regarding the content of education, with further expansion of elective component, gradual adoption of Bologna three degree model will give opportunity to reorient higher education for one of the main principles of sustainable development. It is necessary to emphasize the considerable autonomy in regard with the governing and management of higher education institutions in administrative and financial questions which are used by education institutions, especially private. New principles of management of universities are formed on the basis of approaches strategic planning, management quality and autonomies.

Chapter III

3.1. The analysis of Kazakhstan's policy for sustainable development

Since the first days of independence the Republic of Kazakhstan has been successfully integrated into world community in order to find solutions on global issues, including environmental problems. This cooperation is one of the priority directions in foreign policy of the state, where the main tasks become, as a member of many international organizations, participating in mutual work of UN and its specialized institutions such as carrying out activity on ensuring strategic interests of Kazakhstan on the international scene in the field of global and regional security, participating in formation of world order in policy and economy, contribution to the concept of sustainable development etc. The Republic of Kazakhstan, being a full member of world community, assumed obligations for implementation to achieve the tasks set in the Agenda for the 21st century (Rio de Janeiro, 1992) and Millennium Summit declarations (New York, 2000) and the World summit on a sustainable development (Johannesburg, 2002) (UNESCO National Committee of RK 2001 p.1). Consequently, the state has accepted some measures in order to further dissemination of sustainable development. The country has introduced a system of monitoring of Agenda 21 progress at the national level. Moreover, country information on development and environmental protection has been updated annually on the UN website since 1998 (UN 2012 p.2) Kazakhstan became an active member of UN Commission on sustainable development, engaged with processes *Environment for Europe* and *Environment and Sustainable development for Asia*, a participant of regional Eurasian network of the World Council of stakeholders for sustainable development. There were adopted by Government the "The Strategy for development of the Republic of Kazakhstan until the year 2010", the "The Strategy for development of the Republic of Kazakhstan until the year 2030", "Strategy of industrial and innovative development of the Republic of Kazakhstan till 2015", the "Concept of ecological safety of the Republic of Kazakhstan for 2004-2015", the "Strategy of territorial development of the Republic of Kazakhstan till 2015", was formed the "Council for Sustainable development of the Republic of Kazakhstan" and "Corporation Fund of

Sustainable Development Kazyna²³ (Government of RK 2012 p.1). All above mentioned actions proved the urge toward achieving results in sustainable development concept and in ensuring ecological stability of the Eurasian continent.

The transition to sustainable way of development is an urgent need for population of Kazakhstan. Economic growth for the expansion of natural resources can be achieved only at a certain stage. Today, the modern time requires new progressive mechanisms for growth and development. The idea of sustainable development has common overlaps with objectives of Kazakhstan's 2030 Development Strategy. The principle of sustainable development was also put in the basis of strategy of Kazakhstan's entering in fifty most competitive countries of the world, which was announced at the Annual Message of the President to the people of Kazakhstan of March 1, 2006 (Government of RK 2012 p.1). The beginning process of transition to sustainable development started with adoption of the Concept of SD for 2007-2024 (further - the Concept) which defines the vision of principles, purposes, tasks and the main mechanisms of achievement sustainability in all spheres. It is necessary according to this concept that economic, ecological, social and political factors of development were integrated and were considered as the overall process directed on improvement of life quality of the population of Kazakhstan (Concept of transition of Kazakhstan to SD 2006 p.9).

Sustainable development policy of Kazakhstan plays an important role in formation of country as a source of the balanced initiatives for world community. Thus Kazakhstan faces considerable obstacles in the development which pose threat for national security. Currently the economy of the Republic of Kazakhstan depends on prices of raw material in world market and considerable usage of natural resources. There are a great deal of problems connected with environment degradation and devastation of natural capital. The growth of Gross domestic product is accompanied by serious issues in environment. By the available

²³ Joint Stock Company Sovereign Wealth Fund «Samruk-Kazyna» was founded in accordance with the Decree of President of the Republic of Kazakhstan dated October 13, 2008 № 669 «On some measures on competitiveness and sustainability of national economy» and by the Decree of the Government of the Republic of Kazakhstan dated October 17, 2008 № 962 «On measures on realization of the Decree of President of the Republic of Kazakhstan № 669» by merge of two joint stock companies Kazakhstan Holding for the Management of State Assets SAMRUK and KAZYNA Sustainable Development Fund. Sovereign Wealth Fund «Samruk-Kazyna» is established in order to enhance competitiveness and sustainability of national economy and prevent any potential negative impact of changes in the world markets on economic growth of the country.

estimates, around 75% of the territory of country is subjected to enhanced risk of ecological destabilization (ASRK 2013 p.2).

Among one of the sharply reasons for urgent transition to sustainable development is territory desertification. *Historical pollution*²⁴, waste stocks, accruing emissions of toxic substances from stationary and mobile sources which become as serious threaten to environment and population health. Potential threats of stability of national economy are existing dependence on raw sector, low level of some sectors to the entering World Trade Organization (WTO). There is an essential gap in the economic and social development of regions of Kazakhstan. The reason for many social and economic problems became historically developed imbalance when the country disproportionately consumes natural resources in comparison with their production. The Republic of Kazakhstan has quite low indicator of the efficiency of resource usage (ERU) which is equal now to 31 percent (figure 1). It is more than the average world level which is equal to 24 percent, but it is less, than in most technologically developed countries of the world: Japan - 36%, the USA - 34%, Germany - 33% (ASRK 2013 p.14).

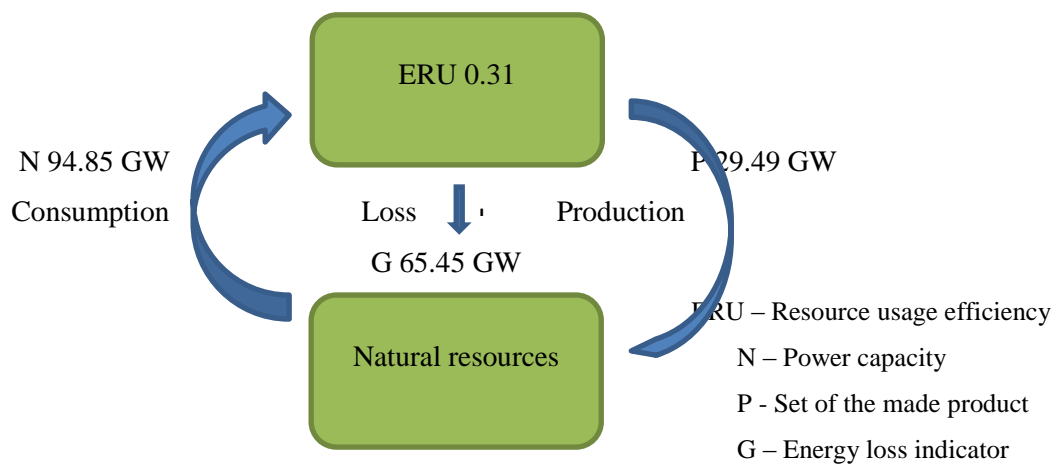


Figure1. Scheme of calculation of indicator for natural resources of the Republic of Kazakhstan, (2005), Efficiency of usage

²⁴ Rough violations in ideology of planning in the past, short-sightedness of ecological projects, features of managing with prevalence of mining and processing sectors of the industry, existence of ranges for test of military equipment and nuclear weapon lead to serious ecological consequences - degradation of forests, erosion of soils, decrease of the Aral Sea, pollution of the rivers, chemical pollution of soils, sour rains, etc.

The Republic of Kazakhstan also lags comparing with the most developed countries of the world on a level of life quality which is the main criterion for sustainable development. This quality of life is defined by the main components such as life expectancy, welfare, education and state of environment. On an index of life quality of the International university of society, nature and humanity, Kazakhstan takes the 78th place with coefficient 1.17 whereas the leader of the rating Norway has coefficient 3.83, Russia – 1.57, China – 0.34. In Kazakhstan the state of health of the population and life expectancy of people significantly lags in comparison with indicators of other countries. So, the average life expectancy of the population in our country in 2005 made 65.9 years whereas in Japan this indicator reaches 80 years. On an index of ecological stability of the Yale Center for the Ecological Legislation and Policy (Yale university, USA) and the Colombian Center of International Information Network of Earth Sciences (The Colombian University, USA), 76 parameters based on calculation, including indicators of ecosystems condition, ecological stress, ecological aspects of population's health, social and institutional opportunities and the international activity of the state, the Republic of Kazakhstan takes the 70th place with an index 63.8, whereas in the leading countries - New Zealand, Sweden and Finland - this indicator reaches 87-88 points. The Saving Index (SI) considering depreciation and loss of the natural capital, according to the World Bank estimates, is -25.5 for the Republic of Kazakhstan, whereas for the Russian Federation -4.4, Norway +14.8, the USA +4.4. Kazakhstan takes the 80th place in a rating of countries for human development index (HDI) (Agenda 21 implementation in Kazakhstan, 2002 p.23-25). Thus, in order to achieve higher level of quality life as one of the basic principle for sustainable development by 2024 the Republic of Kazakhstan steadily enter the 50 most competitive and developed countries of the world, it is necessary to improve the efficiency of resource usage, to increase life expectancy, to provide stability growth of environment sustainability.

The number of population of Kazakhstan is another important criterion for sustainable development. Low population density (at the considerable extent of borders) always is considered as instability factor for state development. In spite of the fact that the considerable part of the territory of the country is difficult for economic development and it is impossible to set the task of proportional settling of all regions of Kazakhstan, nevertheless population should be maintained at a certain level, increasing thereby economic opportunities (first of all solving labor market problems), keeping the genetic and cultural potential of Kazakhstan

citizens among world nations, overcoming undesirable differentiation between the regions, caused, in particular, by weakness of infrastructure and demographic disproportions (Agenda 21 implementation in Kazakhstan, 2002 p.9). The most apparent expected level of population is increase to 18 million inhabitants by 2024. For this purpose it is required to accomplish an indicator of natural increase to 12.68 on 1000 people of the population by 2024 (against 8,0 now), average life expectancy - till 73 years, to support a birth rate indicator at the level of not lower than 22 people which born on 1000 person (Ibid. p.13). In the course of economic growth it is necessary to raise ecological requirements, to reduce the anthropogenic pressure on environment. For this purpose it is necessary to bring by 2024 an index of ecological stability, at least, to the value best for today - 88 points (Ibid. p.17). Thereby it is expected the significant improvement of life quality of population which will come closer to the most developed world indicators. A wide range of problems still remains regarding demographic situation and health of the population caused by insufficient level of law, economic, ecological awareness. Overcoming of these obstacles has to become the main landmark task on the way of transition of the Republic of Kazakhstan to sustainable development. However, due to the active integration in world process, membership in the international organizations, participation at the international conferences, adoption of declarations and final documents become the obligation and at the same time engine for implementation of those obligations that are reflected in internal policy of the country. So, for instance, signing in June, 1998 in Arhus, Denmark, by the Minister of Natural resources and environment protection, the Arhus convention and subsequent ratification by the Law of the Republic of Kazakhstan No. 92-II, from October 23rd, 2000 certifies of high level of democratic transformations in Kazakhstan and openness of society that plays crucial role on the way to sustainable development (UNECE 2010 p.1). Also proceeding from the analysis of the concept and the strategy accepted by the government of Kazakhstan, it is possible to allocate the basic principles and priorities such as involvement of all society in process of achievement of sustainable development; creation of political basis for sustainable development; interdepartmental integration, system approach to government management, increasing the effectiveness of forecast, planning and regulation of key indicators for development; economic progress as result of active introduction of high technologies in national economy, increase of efficiency of resource usage; ensuring competitiveness of science and education; improvement of population health, demographic situation; contribution to activity on environmental protection as the most important function

of society; development of territorial infrastructure on the basis of trans-regional ecosystem approach. As it can be seen from all mentioned principles one of the main is concerning education to ensure competitiveness that does mean that the policy of the Republic of Kazakhstan for sustainable development includes direction for re-orienting or reforming education for sustainable development. Transition to sustainable development for the Republic of Kazakhstan is realized on a stage-by-stage basis (Concept of transition of Kazakhstan to SD 2006 p.10). For this purpose there were defined adjusting parameters of sustainable development for each stage (Table 1). Preparatory stage (2007-2009) is preparation of conditions for inclusion of the principles of sustainable development into all spheres of public and political work, diversification of economy, implementation of technological progress. The first stage (2010-2012) is providing the entering of the Republic of Kazakhstan in the 50 most competitive countries of the world (President of Kazakhstan 2012 p.1). The second stage (2013-2018) is strengthening of position of the country among developed the leaders of world by achieving higher level of quality life, essential reduction of losses from irrational usage of natural resources and providing higher level of ecological stability of the country. The third stage (2019-2024) is achievement of the accepted international criteria of sustainable development.

In order to achieve the main objectives and tasks in the field of transition to sustainable development in the Republic of Kazakhstan, the integration of resources, mechanisms and instruments of development has to be provided. The target parameters of development established in the present Concept have to form a basis for indicative planning of development of the country as whole, branches, regions and subjects of economy in particular. Average and long-term plans of transition of the country to sustainable development, including in a frameworks of regions and branches have to be developed in a short time. The development and acceptance of system of indicators of sustainable development are necessary to ensure the integration of mechanisms of sustainable development, including integrated, organizational, economic, power, social, ecological etc. Creation of technical potential for providing a sustainable development of the republic is directly connected with introduction of steady, environmentally friendly and economically effective technologies in the industry, agriculture, an energy and water supply, urban governance and transport. Such technologies are the complex systems combining profitable and safe for environment production schemes, necessary communicative and information

means, and also new mechanisms of management and the reporting (ecological marketing and management, insurance, the accounting of nature protection activity, system of rational environmental management, etc.).

Table1. Assessment of adjusting parameters of transition of the Republic of Kazakhstan to sustainable development (time period 2005-2024)

N	Integrated indicators	2005	2009	2012	2018	2024
1.	Number of population, (mil).	15,05	15,66	16,13	17,13	18,18
2.	Average life expectancy, age	65,91	67,87	68,89	70,99	73,14
3.	Average life-span	0,66	0,68	0,69	0,70	0,73
4.	Excess of average life expectancy for women over men, age	11,47	10,00	9,3	8,5	7,5
5.	Power drain (2004), GW	94,85	130,45	154,86	264,86	468,38
6.	Production of power (2005), GW	29,40	43,05	57,30	113,10	248,24
7.	Power loss, GW	65,45	87,40	97,56	151,77	220,14
8.	Efficiency of resource usage, ERU	0,31	0,33	0,37	0,43	0,53
9.	Quality of Environment	0,91	0,95	0,99	0,93	0,95
10.	Standard of living, KW/per.	1,95	2,75	3,55	6,60	13,65
11.	Quality of life, KW/hour	1,17	1,78	2,43	4,35	9,49
12.	Index of the ecological stability, score	63	68	73	75	88
Source: Concept of transition of Kazakhstan to SD/President's Decree № 216, November, 14/ 2006						

As it can be seen from the Concept of transition of the Republic of Kazakhstan that the priorities for transition to sustainable development are: introduction of sustainability models of production and consumption; application of new and ecologically safe technologies; development of sustainability transport systems; energy efficiency and energy saving; fighting against poverty taking into account ecological and gender aspects; further development of science and education for sustainable development; preservation of historical and cultural heritage; prevention and reduction of ecological threats to population health; decrease in issues, including greenhouse gases and ozone-depleting substances; access to clean drinking water; solution of cross-border environmental problems; radiation and biochemical safety; waste management etc. Therefore the Government put attention and emphasize in the concept about development of science and education for sustainable development that becomes motivation for reorientation and training of professor and teacher staff for further implementation of this initiative.

The promotion of these priorities should be noted also in the importance and crucial role of the recent accepted state document the "Development strategy 2050" in December, 2012 and that has been announced in the Annual Message of the President to people of Kazakhstan. This strategy emphasizes currently the need of transition to sustainable development. For instance, relatively using of natural resources: *It is essentially important to us to rethink our relation to environment. We have to learn how to manage correctly it, accumulating the income from their sale in treasury, and the most important is how to transform most effectively natural resources of our country to sustainable economic development* (quoted in Annual President's message to Kazakhstan population 2012 p.7). Important steps also were undertaken at the international level in foreign policy of Kazakhstan, as participation of the country in June, 2012 in Rio de Janeiro at UN conference, where Kazakhstan promoted the idea of green development at global level. The country initiated the Partnership program *Green Bridge* and global eco-energy strategy at the RIO+20 UN World Summit in 2012. Kazakhstan's initiatives have received wide support of the world community and were included into the final declaration of the summit. Based on results of RIO+20 Conference in support of these initiatives, the President of Kazakhstan, Nursultan Nazarbayev, has instructed the Government of the Republic of Kazakhstan to develop the Strategy of Kazakhstan for the transition to green economy by 2050 (UNDP Kazakhstan

2012 p.3). By the opinion of United Nations Development Program's experts: *Today particular steps are taken for greening the economy in Kazakhstan - the legislation on wind energy, on energy conservation, recycling of industrial and municipal solid waste have been adopted. In order to integrate the principles of green economy in sector policies, business practice and to engage the public, representatives of ministries, Astana local authorities, business, NGOs, international organizations and financial institutions were invited to the seminar to share their experience in implementing 'green' reforms and projects"* (UNDP 2012 p.5).

According to analysis of the activity carried out in past and continuing now moment it can be made a conclusion that the Republic of Kazakhstan exerts every effort in order to implement the basic principles of sustainable development concept not only on international level but also in internal policy locally. By ratifying international agreements and declarations the Government consequently reflects main priorities in internal documents promoting it through state strategies, initiatives, concepts etc. Obviously, there is a great deal of obstacles on the way of promoting SD concept and the main task is to elicit reasons and find solutions in order to overcome it. Thus, further considering of educational policy for sustainable development and suggesting proposal of introducing SD as curriculum subject in higher education will allow us to make a final conclusion regarding achievement and outputs of SD in the Republic of Kazakhstan.

3.2. Government initiatives in educational policy of Kazakhstan for sustainable development

This part is devoted to the main theme of the Master Thesis, thus it is proposed to conduct analysis and overview of what place education for sustainable development (ESD) occupies in educational policy of Kazakhstan today. The results and identifications of stage of ESD practice in the general educational system would allow proceed to the explanation of curriculum subject for higher educational institutions and justification of feature and importance of this subject for further contribution to ESD. From the previous chapter it has been known about the unique geographical position of the Republic of Kazakhstan which is situated between European and Asian regions, occupying 9th largest territory in the world that allows the country to cooperate and follow both world practices in various questions, including ESD. Kazakhstan has opportunity to combine all practices of European Union (EU) and Asia-Pacific region (APR). The history of ESD in Kazakhstan begins from the first days of obtaining independence and entering the world community on the question of promotion and implementation SD concept in Central Asian region. The Republic of Kazakhstan became the member of UNESCO in May, 1992 that gave new impulse to further development of humanitarian cooperation at all levels and led to the expansion of various cultural exchanges. After participating at the Earth Summit on Environment and Development (Rio de Janeiro, 1992) all countries, including Kazakhstan have adopted obligations to implement the Global Agenda-21 (UN 1992 p.13). During the Ministerial Conference of Asian-Pacific region (Japan, September, 2000) the Central Asian states declared about participation for the preparation to forthcoming Earth Summit – RIO+10 (Johannesburg, 2002), which will make the review of progress. ESD is an essential part of one of the expected results of the CA Agenda-21, i.e. development of civil society and democracy, and reflects both global and regional priorities as well as the national needs and requirements of the education systems of the CA countries (Agenda 21 implementation in Kazakhstan, 2002 p.5). Goals and activities in the educational sphere are identified and implemented by CA countries based on participation in the corresponding international processes, including the Strategies on ESD of the UN Economic Commission for Europe and Asian-Pacific Region, and taking into consideration the national priorities and specifications.

In October 2002 a presentation of the National Report Education for all – 2000 was submitted by the Experts of the Ministry of Education and Science within preparation for International Advisory Forum (Bangkok, January, 2000) (UNESCO National Committee 2001 p.2). On April 26-28 Kazakhstan delegation participated in the World Forum Education for all-2000, which took place in Dakar (Senegal) (Ibid. p.3). On May 9-26 the representatives of the Republic of Kazakhstan took part in the 159th session of Executive Council, where during discussion of UNESCO role in the era of globalization Kazakhstan expressed desire to join actively the activities on prevention of ecological disasters consequences of anthropogenic character (The Aral Sea problem and Semipalatinsk regions), and also strengthening the educational activity in the field of environment protection. At the plenary session devoted to results of Dakar forum, the delegation of Kazakhstan had noted the need of special attention to the questions regarding education system of developing countries with transition economy (Ibid. p.5). In April 2001 the Inter-State Commission for Sustainable Development (ISCSD) of Central Asia decided to establish sub-regional Committee on preparation to Rio+10. The Regional Environmental Centre for Central Asia (CA REC), created by the Governments of Central Asian governments, including Kazakhstan, European Commission and UNDP, according to the decision of UNECE ministerial conference, was proposed to render assistance in providing of information and involvement of interested parties in the process of RIO+10 preparation (CAREC 2002, p.2). The Statement of Central Asian countries, made through the Interstate Commission on Sustainable Development (ICSD) concerning the need to integrate active programs, both within Central Asian countries, and with the international community, in order to achieve common development goals. The Central Asian Initiative (CAI) endorsement was proposed by the final documents of World Summit on Sustainable Development – Johannesburg Implementation Plan and Partnership Initiatives. CAI is considered to function as a basis for further cooperation of Central Asian countries with the world community on implementation of the summit's decisions. At the World Summit on Sustainable Development (WSSD) held in Johannesburg, the idea was expressed that the lack of education and the low level of knowledge within the population on issues of sustainable development is possibly a reason for existing problems in environmental, social and economic spheres (Johannesburg Summit 2002 p.5). This directly relates to the current situation in Central Asia as well; the insufficient and sometimes low levels of knowledge on the environment and sustainable development amongst decision makers, users of nature

resources, educators and people at large is one of the reasons for the total worsening of the environmental situation in the sub-region. In 2004, *the Council on Sustainable development of the Republic of Kazakhstan* was created by the Government Decree No. 345 March 19th, 2004 (Government 2005 p.1), with the main goal of its activity to assist to forming of a new state policy on SD issues and implementation of WSSD decisions based on the inter-sector cooperation of state bodies, private sector and public organizations as well as the integration of economic, social and environmental sectors of Kazakhstan development. Therefore it led to adjustment of cross-sector and sub-regional goals in the spheres of environment, water and capacity building (UNECE Kazakhstan 2006 p.4) and referred to the international community to support their efforts for achieving sustainable development. That initiative has combined the experience of Central Asian countries over the years since independence and it has been supported by the final decision of the Summit (Johannesburg Summit/web site). As a follow up of the WSSD, the UN General Assembly adopted the Resolution, *The UN Decade on Education for Sustainable Development, starting from January 1st, 2005* and announced the Decade on Education for Sustainable Development from 2005 to 2014 (UNESCO doc 2005 p.3). According to world practice in many countries educational policy for sustainable development is an important key in achievement of success of transition to sustainable development. Due to this fact Kazakhstan appeals to this practice of education reorientation for sustainable development, following to the accepted concept for sustainable development: the education and research system in the Republic of Kazakhstan will reflect the main purpose and the basic principles sustainable development (MEP of RK 2005 p.8).

Beginning in 2002, the processes of development and implementation of the regional Strategies on ESD have been actively developed in order to support the UN Decade on ESD in the United Nations Economic Commission for Europe (UNECE) in cooperation with UNESCO, and in the Asia-Pacific Region (APR). CA countries, due to their geopolitical location, have a unique opportunity to take part in the processes of environmental protection and sustainable development in both the European and Asia-Pacific regions. From 2003 to 2006, CAREC with cooperation of CA countries has prepared three analytical reviews on EE and ESD. One review, the *Conditions, perspectives and ways of development education in Central Asia*, was prepared with the support of European Commission in 2003, before Kiev Ministerial Conference devoted to characteristics of the current situation, perspectives and directions for the development of EE in Central Asia. According to the main points of this

report are: formation a number of elite educational institutions and campuses according to the international standards; modernization of education at scientific and methodical level, creation of mainly new structures which will provide interrelation collaboration of educational, scientific and stakeholders; introductions of technological preparation at high school for the purpose of development by students new abilities and skills, including creating own project, make decisions and to implement creative work, to support high level of innovations (CAREC 2006 p.15). The review contains data on laws, concepts and EE programs, as well as number of proposals for the improvement of cooperation for further development of EE system at the sub-regional level, taking into consideration the global and European priorities, and guidelines for sustainable development. The review was prepared based on material provided by state bodies of education and science and environmental, non-governmental organizations.

The second review, the *Situational analysis on ESD in CA*, was prepared by CAREC with the support of UNESCO regional Bureau in Bangkok, and became a part of *Situational Analysis on ESD in the Asia-Pacific region*, which was completed in 2005 and published by UNESCO-Bangkok. The content of Review of SD key topics for APR (information and public access; knowledge system; environmental protection and management in the sphere of environmental protection; peace and equality; local context; transformation; culture; interrelated topics and issues; protection and improvement of public health; environmental education) assisted in better understanding of stakeholders of the ESD context. This included the goals and tasks such as providing the modernization of multilevel educational system taking into consideration the priorities of the strategic development plan of preparation of quality improvement of human resources and satisfaction of personal needs of society in the Republic of Kazakhstan till 2010; providing equal access to full education for different age categories people, creation of conditions for training of senior students according to their individual abilities and intentions to continue self-education, self-realization and defining workplace at labor market; creation of wide opportunities of socialization of students, effective preparation of school graduates for assimilation of professional education programs (CAREC 2002, p.12-13).

The third report, the “Progress review of Central Asia on ESD”, was presented at the 5th Anniversary of CA Conference on ESD, held in Bishkek in October 2006. This Conference was organized by CAREC with the support of UNESCO Cluster Bureau in

Almaty and UNESCO Regional Bureau in Bangkok in the frames with preparation to Belgrade Ministerial Conference (2007). The report was prepared with the participation of experts from CA and was based on ESD indicators developed by the UNECE Expert Group (EG), established to assist the obligations of UNECE strategy on ESD. As with the previous report it was structured around ESD topics which include the monitoring of personnel capacity in order to define necessary requirements for experts of the top scientific skills as on national as on regional level; domestic education with orientation as on own, and foreign traditions, with support not only the scientific directions but also scientific community as a whole, who is considered as important element of sustainable development society; national innovative system (NIS) as the most important condition for providing collaboration between science and stakeholders; institutes of technology and providing financing for carrying out research work in the field of perspective technological development target production schemes can be based on the technologies adapted for local conditions, technologies of rehabilitation of environment, and also the technologies based on traditional knowledge. The value of this report stems from its ability to access the process of implementation of the Strategy in dynamics based on the same UNECE indicators on ESD.

Participation in the ESD processes in both regions provides the CA countries with a unique opportunity to study the best experiences of its partners, exchange best practices and compare priorities. In addition, the CA sub-region can implement the most appropriate practices while taking into consideration the national conditions, priorities and needs. *It could be outlined today that almost all of the CA countries started implementing the process of the UNECE Strategy on ESD; CA countries have prepared their progress reports and it is clear from them that they are situated at varying stages* (CAREC 2003 p.7). The important role in implementation of ESD is carried out by the cluster named The Regional Environmental Center for Central Asia with headquarter in southern capital of Kazakhstan Almaty (CAREC 2006, p.6). Due to the fact that it was mentioned previously that this Center functions since 2001 in cooperation with UNESCO, UNECE, OSCE etc. on ESD implementation in educational policy of Kazakhstan. According to overall analysis of projects and work accomplished by this moment including this organization, it can be designated the following common goals and problems of ESD initiatives : reorientation of education at all levels with the purpose to provide sustainable development, which in my opinion could imply, first of all, the lack of the study component in curriculum programmes of higher institutions;

ensuring of understanding by population of sustainable development principles in order to improve the awareness among civil society and activity over youth projects for sustainable development; preparation/training of professor and teacher staff at all educational institutions that is also plays crucial role in implementation of ESD. There were initiated some of the local projects such as “Promotion of ESD into system of formal and non-formal education of Kazakhstan”, in 2006 taking into consideration the national priorities and particularities as well as based on the six goals of the UNECE Strategy on ESD (UNESCO 2006, p.10). The tasks of ESD development in Kazakhstan that can also be adopted in CA countries were concerning provision of the legal framework of education for sustainable development; creation of conditions for conducting scientific research on ESD and pilot projects on the development of ESD; integration of national ethical values and traditions into the education systems in the ESD context; development of competence on ESD of educators and other experts working in education and enlightenment sectors; provision of informational, teaching and methodology materials on ESD for organizations working on education and enlightenment sectors. The last point gives opportunity to review and propose curriculum subject with methodology recommendations and practice based on the providing research over European Universities experience and with adoption to local conditions.

Central Asia has taken an active part in the development of the UNECE Strategy on ESD and today Central Asian representatives are members of working and expert bodies for the implementation of the UNECE Strategy on ESD and, as a general rule, they represent a common sub-regional position, such as at the Pan-European Conference, held in Kiev (2003), High Level Meeting on ESD, held in Vilnius (2005), and meetings of the UNECE Committee on Environment Policy (2005, 2006) (UNESCO 2001 p.3). The contribution to implement of ESD and EE policies in Kazakhstan, the participation in the above mentioned conferences (and taking international obligations, that confirm the EE and ESD social relevance), are the key priorities for achievement of the goals of SD as well as a prerequisite condition for the implementation of sub-regional and national programs on SD, support the implementation of the UN Decade on ESD, the UNECE Strategy on ESD, and the Vilnius Frameworks of implementation and the activity of the expert group for the development of indicators for implementation of the Strategy. As it was studying theoretical background on the difference of ESD and EE in the third subthemes of first chapter, where is noted that most of the countries in Asia used to mean education for sustainable development under ecological

education and there is no difference there. However, the situation is another in most of the Western countries and North America where ESD is widespread and is distinguished with ecological education. As in regard to Kazakhstan ecological education is one of the main components of ESD, whereas the last one has more general and out of environment tasks and issues. It could be said today, that the Central Asian EE Program has gained good experience and is gradually transforming its ESD Program taking into consideration the global and regional tendencies (CAREC 2007, p.11). The main outputs of this conference was the Program for 2007-2011 which correspond with both the international priorities on education and the needs of the CA countries to provide networking and data bases on ESD in order to share experience between CA countries in implementation of ESD; providing support for the development of the National plans and National standards on ESD in the CA countries and finally, building capacity of ESD through trainings for different target groups. An important distinction of the ESD process in the CA region, as in many countries of EECCA region, is that environmental education still remains one of the main components of ESD in Central Asia. From one side, ESD covers a wider circle of competences and topics regarding sustainable development in comparison with EE. From the other side, there is a possibility to use existing human resources and experience in Central Asia, gained in the EE sphere, in order to develop ESD and a widening cooperative network on ESD in the CA sub-region at all levels, i.e. formal and non-formal, pre-school, school, higher and professional education. The CA EE Program provides practical support for educational institutions, ministries and NGOs in CA countries, including new manuals, educational, methodological and informational materials, trainings and projects. *The annual conducting of the sub-regional conferences is evidence of the sustainability of the Central Asian ESD process; it can be considered as a model of successful CA experience on ESD and represents a unique opportunity for new interested partners to join the process. Information received at the annual conferences, experience and materials are used by CA countries in the educational process at national and local levels through trainings, seminars and practical activities by educators, state officials and NGOs* (CAREC 2006 p.9). The “ESD-2006” project has produced a final result on the procedures and content of the State Standards for higher education in Kazakhstan (CAREC 2007, p.17). The analysis and prepared Recommendations on the improvement of standards in the sub-system of higher education (improvement of higher education IHE) scientists of the leading IHE of Kazakhstan (Kazakh National

University, Pavlodar State Pedagogic Institute, Eurasian University, North Kazakhstan University and others) have served as a base for the new project on ESD in 2007. A decision was made to develop an ESD model in IHE, including methodology manuals and practical examples by using the example of the pilot project in one of the pedagogic IHE, due to the fact that it is not easy to submit amendments to existing state standards of higher education. An additional value of the project will contain a provision for education for future teachers and capacity building of the existing master staff of IHE. Pavlodar State Pedagogic Institute (PSPI) was proposed as a pilot institution for the development of the ESD strategy for IHE. The goals of the project are the promotion of ESD into the system of higher education of the Republic of Kazakhstan through the introduction of special courses on ESD at bachelor's and master's programmes, as well as recommendations of key topics on ESD based on the interdisciplinary principle in PSPI. The aims of the project are: to promote legal and institutional frameworks for the introduction of ESD courses in IHE; to provide IHE educators with knowledge and skills for ESD teaching; to conduct a study of the connection between ESD competencies and national cultural traditions and ethical philosophy in the context of the educational system of Kazakhstan; to disseminate experience of the project between stakeholders and corresponding target groups in Kazakhstan and Central Asia (CAREC 2003, p.14). As it has been already mentioned that Kazakhstan has opportunity to follow practice and experience of both region European Union and Asia-Pacific as well, so there have been gained following results by in the implementation of the UNECE Strategy on ESD in CA (Ibid. p.14). In Kazakhstan, the President adopted the "Concept of Transfer to Sustainable Development for 2007-2024" and the Action Plan on the implementation of the Concept. The Plan includes issues of residency and training on SD and the introduction of ESD into curricula and programs. In April 2007, issues on the introduction of ESD into the educational system, preparation of the Belgrade Ministerial Conference and reporting on ESD were considered at the third meeting of the Council on SD for Kazakhstan, under the guidance of the Prime Minister.

- In most of the CA countries, the UNECE Strategy on ESD has been translated into national languages and published as separate publications.
- At the moment, projects are planned as well as implemented in Central Asia on the implementation of the UNECE Strategy on ESD and the development of the National

Plans on ESD in accordance with international obligations and national priorities and needs.

- Cooperation of CAREC with the Regional Environmental Centre of Central and Eastern Europe (REC CEE), in the sphere of ESD, in particular, common projects are planning for development and adaptation of REC CEE educational resource Green Pack in Kazakhstan and Kyrgyzstan and capacity building of state officials in the sphere of sustainable development.

It could be outlined today that almost all countries, including Kazakhstan have started the process of implementing the UN Decade on ESD and the UNECE Strategy on ESD. In order to accelerate the ESD processes in Kazakhstan, CAREC, in cooperation with its partners, the Ministry of Environment Protection, the Ministry of Education and Science, Parliament, representatives of science, business, public organizations and mass media, and with the support of the OSCE Centre in Almaty and the European Commission, implemented the project on “Promotion of ESD into system of formal and non-formal education of Kazakhstan”, in 2006 (CAREC 2006, p.2). The most important result for further implementation of ESD in Kazakhstan must be noted as conducted an analysis of Kazakhstan’s legislation for the purpose of correlation with the UNECE Strategy and developed recommendations for the strengthening of legislation and policy for the ESD sphere (Concept of transition of RK to SD 2006 p.23) that practice would allow to raise more activities of local non-governmental sector for ESD; the UNECE Strategy on ESD, with annexes, was translated into the state language, published and disseminated between stakeholders, as well as presented at the following web site that contributes to improve the knowledge awareness of grassroots and public access to information about sustainable development; developed a draft of the “National Plan on orienting education for the sustainable development of Kazakhstan” that gives opportunity to propose study program for sustainable development at all level of educational institutions despite the fact of it is a draft which can be considered as an initiative. Giving overall estimate it can be concluded that during recent years, Kazakhstan has achieved significant results within ESD sphere:

- It was created and developed a coordination mechanism of EE and ESD process not only in Kazakhstan but also in other CA countries and involved all stakeholders, including Ministries of Education and Environment, scientific institutions, educational

institutions, public and international organizations (The Decree No. 697 of the Ministry of Education and Science of the Republic of Kazakhstan, from September 25th, 2002, and the Decree No. 229-p, of the Ministry of Environmental Protection of the Republic of Kazakhstan, from September 24th, 2002).

An active part was taken in similar processes within the European and Asian regions, and considered it as a unique opportunity for the coordination and integration of sub-regional programs with global and regional initiatives (CAREC 2006, p.13). The sustainability of EE and ESD processes was observed in Central Asia and possess good practices in the area of annual conferences on EE and ESD (Dushanbe-2002, Bishkek-2003, Almaty-2004, Almaty-2005 and Bishkek-2006) and embraces its further development and support by all stakeholders (CAREC 2013, p.1). One of the last initiatives of Kazakhstan's Government regarding reorientation of educational system in higher educational institutions became a consequence of transition of existing economy to "green economy" that according to the Minister of Environmental Protection of the Republic of Kazakhstan, Nurlan Kapparov says: *In order to transit to "green economy" it is necessary to reconsider drastically industrial sector, to strengthen environmental protection institutes, ecological and innovative orientation of national and regional programs. Such approach will provide the creation of workplaces for young generation, will give a powerful impulse to development of small and mid-scale business, and will make favorable of investment in restoration and building of natural capital* (Tbilisi+35 Conference 2012 p.1). At the same time another strong initiative was expressed by Government during participation of Kazakhstan delegation at Intergovernmental conference on Ecological education for sustainable development Tbilisi+35 organized under the auspices of UNESCO and UNEP became on September 6-7, 2012. Addressing to all participants of conference, the Minister of Environmental Protection of RK N. Kapparov expressed interest of Kazakhstan in discussion of topical issues of ecological education, receiving and introduction of new experience and readiness to share the experience in this sphere. Tbilisi+35 Conference brought together more than 400 delegates from 100 countries of the world who discussed current state and prospects of ecological education. Following the results of Conference delegates accepted final document which contains the plan of action on development of global bases of education in the field of environment after 2015.

According to the Decree No. 229-p, of the Ministry of Environmental Protection of the Republic of Kazakhstan, from September 24th, 2002 about the statement of Concept of Ecological Education of the Republic of Kazakhstan there was proposed to do a short interview by questionnaire to the present Ministry of Education and Science and at the same moment to the Ministry of Environment Protection by maintaining and equivalent question structure to both ministries. Moreover the item 6.7 of the Plan of activities on implementation of Kazakhstan's transition to sustainable development for 2007-2014 years²⁵ confirms the necessity to create scientific principles of sustainable development theory in the application of adoption to local conditions and also the main item 1.3.1 and 1.3.2. are to take measures on teacher training for sustainable development and on introduction of study program to sustainable development. So, this enquiry contains 5 questions, which are more general and can be put to both national ministers that are responsible for implementation of sustainable development concept. The questions are concerning public as well as educational policy for sustainable development in Kazakhstan.

According to analytical review in the 1st chapter of this master thesis about theoretical approach to sustainable development concept, it is well-known that there is a challenge in all countries of the world on implementation of educational policy for sustainable development, therefore the activity of government agencies such as Ministers play a crucial role in promoting SD concept, thus it is important to do this interview. The main purpose of this enquiry is to collect knowledge and details about some implicit notions as, for example, there is a difference between EE or ESD in Kazakhstan? Also one of the main objects is to define the scientific and theoretical content of SD concept and finally further activities of two Ministries in the development of this concept on the basis of mutual cooperation.

The Department of Higher and Post-graduate studies on the behalf of Minister of Education and Science, with reference N 03-3/803 from May 6th 2013, gives not full answers. For example on the first and fourth questions the Ministry refers to the official web sites of Minister of Environment Protection and Tbilisi+35 Conference, where can be found information regarding indicators, principles and future plans of both ministries for further implementation of SD policy in Kazakhstan. However, due to the response on the second

²⁵ The plan contains amendments introduced by government resolutions of RK 17.07.2008 N 704; and 10.11.2009 № 1803.

question about estimation of the cooperation of the Minister of Education and Science with the Minister of Environment Protection in development of SD concept, it has been clarified that the main activity is the preparation of teacher training for sustainable development as well as providing research work in educational institutions and other centers. The answer on the third question confirms that EE is a part of ESD as the concept of last one contains more general and widespread principles in three different aspects of our life: economic, social and environment. Also it is mentioned that ecological study program includes compulsory subjects for students from all areas and what is regarding curriculum discipline it is possible to introduce as an elective component in curriculum syllabus.

The results of interview of the Ministry of Education and Science allow researchers to make analysis about further direction and plans of implementation of educational policy for sustainable development. The important result was to get information about current process of ESD and EE in Kazakhstan as well as future plans together with the Minister of Environment Protection. According to the answer on the second and third question it is possible to make conclusion that the proposal of curriculum subject for sustainable development plays crucial role for reorientation educational system for sustainable development and may be introduced as an elective component into all levels of higher educational institutions. But, more important, is the confirmation of mutual activity on the improvement of teacher training programmes for sustainable development that also means that the proposed syllabus attached to this dissertation can serve as recommendation for similar programmes for teachers and educators (universities, secondary and primary education and kindergarten). The vision of the proposed programme contains new methodologies, approach and qualifications which should have every teacher who motivates students to choose their subject for studying sustainable development.

3.3. The importance of introduction of sustainable development discipline into curriculum of higher education system of Kazakhstan

The most important condition of creation of education for sustainable development system in the Republic of Kazakhstan is participation in this process of all state and social institutes, social groups and segments of the population, staff of the enterprises, organizations, NGOs, irrespectively of kind of activity and type of property. During the process of formation of ecological culture the most direct part have to take: family, educational institutions of all levels, state, public, political and trade-union organizations, cultural institutions, sciences, tourism and sports, mass media, armed forces and religious faiths. In final chapter of this master thesis it is supposed a consideration of a new subject "Sustainable development within traditional culture" which was created on the basis of studying the experience in the countries of European Union as well as analysis of already existed curriculum discipline "Ecology and Sustainable Development" which was integrated only within natural sciences and technical-engineering specialties However many scholars and supporters of ESD concept are strongly believe in success of introduction this subject at all levels (Gough S., Scott W. 2007, p.113).

As was previously mentioned, many of pilot projects on ESD, including the one on implementation of the UNECE Strategy on ESD, were implemented in the Republic of Kazakhstan and then their experience has been disseminated throughout the CA sub-region. It is important to mention that today Kazakhstan has favorable conditions regarding priorities of international policy on ESD and priorities of national policy (see The Resolution of the Government of the Republic of Kazakhstan No 111-1 February 14, 2007; The Law on Education (June, 7, 1999) of the Republic of Kazakhstan; Strategy of industrial-innovative development of the Republic of Kazakhstan for 2003-2015 etc.) A draft of the National Plan on ESD of Kazakhstan was developed in 2006, which became a part of the Activity Plan of implementation of the "Concept of Transfer of the Republic of Kazakhstan to SD for 2007-2024". Nevertheless, it can be outlined with confidence that today ESD issues are the main priority of national policy in the educational sphere; however, such components of ESD as quality of education, transfer to international standards, continuity of education, etc., are the

priorities. At the present time, such activity on the integration of key statements of SD into curricula, syllabi, and standards at different levels of formal education in CA countries, is in the process of studying international experience, discussion and the beginning of implementation. Mainly it takes place within the framework of international environmental and educational initiatives (the UN 16 Decade on ESD, the UNECE Strategy on ESD and others) and under support of international organizations and donor-countries. In some high schools of Kazakhstan, innovative teachers of specialized environmental schools, associated schools of UNESCO, higher education institutions (HEI), with support of international organizations, would have an opportunity and some experience of developing the author's programs of introducing key topics of SD into the teaching process, development of educational modules on ESD, new modern educational materials on ESD and others. However, it does not yet have the nature of a permanent process and is not supported from the state budget. The concept of life-long teacher training was created in Kazakhstan according to the standard and legal base operating in the sphere of educational system law "On Education", Government 2005/State programme of education development in the Republic of Kazakhstan for 2005-2010, Nazarbayev 2012/Message to Kazakhstan's population, UNESCO 2012/Learning & Training Tools. The above international documents give evidence about deep concern of the world community in existing education crisis which becomes apparent in different ways and forms all around the world. It is connected not only with insufficient quality of education, with omissions in intellectual, personal, moral and spiritual development of young generation, but also in unavailability of an education system to form mentality of the personality and therefore all society in the spirit of universal values, tolerances and cooperation. At the same time, education as a sphere which most closely connected with formation of the identity of the person is able to overcome negative tendencies in society development. Teacher plays a crucial role in this sphere who is the competent expert owning all means, socially mature, creative person that is capable to seek his/hers professional self-improvement. The existing daunting problems in pedagogical education of the country, the need of improvement of quality of preparation of teachers demand the reformation of new competences according to the tendencies of world educational space in a context of sustainable development of society.

The object of the Concept of life-long pedagogical education of new formation of the Republic of Kazakhstan (MES RK 2005, p.4) is to define the main directions, contents and

developments of system of initial and/or continuous teacher training programmes. The requirements of modern society to the teacher new formation in recent years are significantly raised. The teacher of new formation is a spiritually developed, creative person possessing ability to reflection, professional skills, pedagogical talent and aspiration to new. Ideally the teacher has to understand clearly an education worthiness, to be *the person in culture* (McKeown R. 2002, p.46) to know perfectly own subject, pedagogics and psychology, to use personal-focused pedagogical methods and to possess motivation to the further growth and development of the personality. The professional teacher has to know not only perfectly the subject, but also to see a place of each participant in pedagogical process, to be able to organize activity of pupils, to expect the results, to correct possible deviations, therefore has to be the competent personality. Competence of the teacher depends on level of formation of three groups of competences which the teacher of a new formation has to own: methodological (psycho-educational) competences; common cultural (world-view) competences; subject-oriented competences (Ministry of Education and Science of RK/Concept of pedagogical education). Kazakhstan has experience with special courses which were set up within the frameworks of curricula of 19 majors of the Master's Program, where ESD topics could be included based on an inter-disciplinary approach: Business and Management, Management, Education Quality Management System, Modern Educational Technologies, Educational information and problems of education, Methodological problems of professional and pedagogic education, Theoretic and methodological problems of geography, challenges of natural resource use in economic and social geography, Physiological basis for athletic training management in charge with PE, Modern problems of physical, social and economic geography, Environment and biodiversity preservation, Fundamental problems of World history, Modern theories of evolution (CAREC 2003, p.3). The following activities have already been implemented by the project:

1. Two curricula have been selected from 25 majors of the bachelor's program (Biology 050607 and 050113), which will be recommended for approbation and further facultative/mandatory introduction of the new ESD course, developed within the framework of the project, i.e. "Environment and SD".
2. Identified courses which will contain specific ESD topics.

3. Developed a joint strategy of the Working Group of the project on development of the new course curricula, “Environment and SD”; beginning of common effort on the development of the content of the Curricula.

Discussed and recommended tests for analysis of world view opinions on ESD amongst teachers/students at enter in and out of ESD studying (CAREC 2003 p.5)

According to analysis of already experienced curriculum subject of “Ecology and Sustainable Development” it can be made a conclusion that this discipline has focused specified ecological direction which can be interested only for natural studies or other technic faculties. Also this subject of “Ecology and Sustainable development” can be taught only by specialists from Ecological faculties, whereas ESD implies reorientation and re-training of professors from all faculties, not depending on the study area.

As can be seen, all CA countries need to work on introducing the full range of ESD issues into the national training programmes, as well as teaching various new educational technologies on ESD. Wide scale work is required for the integration of educational strategies supporting ESD into curricula, programmes and state standards at different levels of formal education. A way out of the existing crisis situation is studied by CA scientists, which is also composed by representatives of the Kazakh Academy of Education of Kazakhstan for the development of the ESD system in CA countries, i.e. a complex, integrated educational and up-bringing system based on the paradigm of a natural and cultural congruent pedagogy. The following is proposed by CAREC in order to complete that:

- To adopt the ethnic psychology and pedagogy of CA nations and the ethical values, the rich cultural and historical heritage and traditions of CA nations as a philosophic base and methodological platform for ESD;
- To fully integrate into educational content the ethical heritage of great nationalists of the East, such as Abu Nasr Al-Farabi, Korkyt Ata, Asan Kaigy, Makhmut Kashgari, Khaidar Dulati, Zhusip Balasaguni²⁶, along with the titanic philosophic and poetic

²⁶ Ethical principle of great nationalists implies fidelity and respect for seniors. Representatives of the senior generation are wise thereby having wide life experience behind, seek only to help young to be worthy than their ancestors, to strengthen moral traditions of family, without breaking precepts of fathers. Abu Nasr Al-Farabi is the greatest thinker of the Middle Ages, founder of east rationalism. Korkyt Ata is legendary Turkic poet-song writer and composer of the IX century. Asan Kaigy is the Kazakh poet-philosopher, known as the Adviser of one of founders of the Kazakh state — khan Zhanibek. Makhmut Kashgari is outstanding Turkic philologist and

heritage of Abay and Shakarim²⁷ as well as other classicists of literature; national folklore, classic literature, people's tradition, people's music and art;

- To analyze and colligate separate materials and author's programs possessed in CA into curricula in order to introduce integrated meta-subject on the ethical and cultural up-brining of students;
- To assist in the increase in the number of subjects of a cultural and humanitarian character
- into the basic curricula of the secondary education systems of CA countries; to provide and utilize broader courses devoted to introducing students to the masterpieces of national and world culture;
- To develop scientific, teaching and methodological complexes on the introduction of ethical, national and cultural values, as well as universal values, into ESD for pedagogic staff of the education systems;
- To develop a complex of basic and additional literature, interactive electronic and audio-video manuals for students, teachers and parents;
- To colligate experiences of other countries: China, Finland, Japan, Singapore and Turkey in particular, on the methodology of integration of ethical, national and cultural, as well as universal, values into ESD;

To conduct training and re-training of educational staff and experimental work in educational institutions on the integration of issues of ethical, national and cultural, as well as universal values, into ESD through residency courses, scientific and methodological seminars and trainings (CAREC 2003, p.7-8) The practice of Western universities and recommendations of scholars in ESD show that a important view for curriculum for sustainable development concept is considering the theoretical background, as well its multidisciplinary approach.. "To reorient a curriculum to address sustainability, educational communities need to identify the knowledge, issues, perspectives, skills, and values central to

lexicographer. Khaidar Dulati is author of a number of the historical works XVI century, statesman and military leader of the medieval state. Zhusip Balasaguni outstanding thinker philosophers and writer.

²⁷ Abay is the Kazakh poet, the philosopher, the composer, the educator, the thinker, the public figure, the founder of the Kazakh written literature and its first classic, the reformer of culture in the spirit of rapprochement with the Russian and European culture on the basis of educated liberal Islam. Shakarim is Kazakh poet, writer, translator, composer, historian and philosopher.

sustainable development in each of the three components of sustainability – environment, society, and economy – and integrate them into the curriculum. The education community also needs to decide which of the many existing sustainability issues (e.g. biodiversity, climate change, equity, and poverty) will be part of the curriculum. Ideally, efforts to reorient education will be based on national or local sustainability goals. A properly reoriented curriculum will address local environmental, social, and economic contexts to ensure that it is locally relevant and culturally appropriate. In an effort to save time or resources, governments have imported curricula from other countries or regions. In the case of ESD, this is inappropriate, because local and national sustainability goals and local contexts will not be well targeted” (ESD Toolkit/Toronto Board of Education Curriculum Revision and Reorientation).

Therefore within the new suggested subject it is offered some themes of lectures, devoted to theoretical concept of SD. Furthermore on the basis of studying the experience of European countries, a quite new practice for Post-Soviet countries is proposed within the methodology of the syllabus it is the review and creation of projects by students for SD, particularly one of topic is studying of the existing SD projects and training of skills how to create own local projects with further realization. The reorienting process can also occur at national levels or provincial/state levels in systems of education where the mandated curriculums are written. A national or provincial process should be conducted more systematically and thoroughly than a reorienting process carried out by a teacher working in isolation or by a small team of teachers working in a school. A national or state level process would include inviting stakeholders to a public participation process to gather input (e.g. statements of needs and desires as well as opinions) related to the reorienting process. In this way, a ministry will be modeling public participation and transparency, which are essential elements of sustainability. Also another important feature of introduced discipline is interpretation of sustainability notion within national mentality and attempt to find of own way of sustainable development through cultural traditions and customs. This topic is one of basic and important theme as the purpose of this subject is not simply studying for SD by giving knowledge, but at the same time as a form of task for practical lesson students are required to search in the cultural centers, museums, among the relatives, parents, etc. those examples of sustainability from history of local people, thereby to provide exchange of knowledge between teachers and students. As a whole evident it is offered to look through

differences and originality of the new subject by comparing two subject syllabus which can be found in one of the appendices of this thesis (see Appendix 2). *Sustainable development* subject is urged to give knowledge background, theoretical and practical preparation of students of all specialties in the field of finding decision for further development, including ecological, economic and social spheres. This discipline is directed not only on knowledge acquisition in the field of environmental protection and management, but also studying of adjacent areas entering into the SD concept. The considerable attention is paid to problems which population faces during implementation of sustainable development concept and also to the international cooperation and legal regulation in the field of sustainable development of ecological systems.

Recommendations on integration of national ethical values and traditions into the education system of Kazakhstan in the context of ESD, which will be disseminated in all CA countries, to be directed to the Ministry of Education and Science, are prepared within the framework of the project. The main principles of new subject are directed for studying sustainable development on the review of historical and cultural values through different ethical heritage, for example: globalization in economy and sustainable development; Problems and Perspectives of Sustainable development in the World and Kazakhstan etc. Moreover new subject includes some practical themes about practical experience on implementation of SD projects in different countries, which also can motivate students to explore and create their own projects. The development of the education systems, assisting Central Asian countries to shift to a sustainable development approach, should be focused on the following long-term priorities:

- Increase in the quality of education and curricula at all levels and stages of formal and non-formal education; pre-schools, school and higher professional education;
- Capacity building (trainings and re-trainings) of professional staff, providing competitive ability of experts on domestic and international labor markets and their awareness of trends in national and international development, accessibility of additional professional education for adults;

Creation of learning community, where activity is implemented based on knowledge, skills, values and opinions, providing sustainable implementation of the goals of social and economic development as well as safety of environment (UNESCO 2012, p.14) In addition,

the specific distinction of all CA countries from the other countries of the UNECE region is a started process of evaluation of ethical, national and cultural values and traditions of Eastern nations and their integration into the education systems of CA countries. As a result, a complex set of teaching, literature, interactive electronic learning, audio, video manuals needs to be developed; to collect and assess the experience of China, Finland, Japan, Singapore and Turkey on the methodology of integration of ethical, national, cultural and universal values into education systems of the countries (Ibid. p.19). Therefore, based on the study conducted on ESD conditions, it can be stressed today that the CA sub-region has achieved significant progress towards ESD on the global, regional (Europe and Asia), sub-regional and national levels; therefore, we are provided with an opportunity to face new challenges in the ESD sphere and to use the best experience and achievements of the international community in Central Asia in a more sufficient way.

The considerable attention is paid to the problems of implementation during transition of education to sustainable development that implies such development which has influence on environment, but at the same time providing welfare and growth of living standard of population. The received knowledge is necessary for graduation and post-graduation students in order to prepare, submit and defend their final thesis and during doing research and production tasks in future professional activity. There are many reasons of importance of introduction this subject in all specialties at all levels of higher education due to analysis of state activity on transition of Kazakhstan to sustainable development as due to adoption of international declarations thereby assuming responsibility for implementation of obligations in the field of promotion of SD concept, as well as implementation of transition to green economy are directly connected with life of civil society, which cannot be indifferent in participation of this process. Therefore there is a need for introduction of sustainable development syllabus in all levels of higher education. According to state law on higher education the universities of Kazakhstan are obliged to report to the Ministry of Education and Science and strictly follow to recommended educational standards, for example studying of some obligatory disciplines on all specialties. Therefore it is offered to submit firstly new SD discipline to the Ministry in order to receive recognition and approval for further introduction of this subject at all specialties of higher educational institutions. This discipline subject is based taking into consideration the key aspects that is recognized UNESCO as

support quality education related to the individual learner and to systems of education. Five of these aspects are at the level of the learner, including:

- seeking out the learner,
- acknowledging the learner's knowledge and experience,
- making content relevant,
- using many teaching and learning processes, and enhancing the learning environment (UNESCO 2010 p.8)

By using a variety of teaching techniques, teachers help students to employ and develop different learning processes. With variety, students have a chance to grow as learners and to enhance their skills and capacity to learn and think. A quality education implies that the needs of individual learners will be considered and addressed in developing and delivering lessons. By using a variety of teaching techniques, the teacher attends to the diverse needs of the students in the class. Not all students learn in the same way. Some prefer to listen, others to read, and still others to participate more actively. Unfortunately, traditional pedagogies mainly serve pupils who are good at listening, reading, memorizing and sitting still; however, not all pupils have these abilities. Yet education is for all. Meeting the learning needs of all students in the classroom is a form of social equity, which is a core concept of sustainability (McKeown/Education for Sustainable Development Toolkit 2002 p.8). Pedagogies associated with ESD stimulate pupils to ask questions, analysis, think critically and make decisions. Such pedagogies move from teacher-centered to student-centered lessons and from rote memorization to participatory learning. ESD pedagogies are often place-based or problem/issue-based. ESD pedagogies encourage critical thinking, social critique, and analyses of local contexts. They involve discussion, analysis and application of values. ESD pedagogies often draw upon the arts using drama, play, music, design, and drawing to stimulate creativity and imagine alternative futures. They work towards positive change and help pupils to develop a sense of social justice and self-efficacy as community members. The following are descriptions of and sample activities for four teaching techniques: simulations, class discussions, issue analysis, and storytelling. Each technique stimulates different learning processes. It is necessary to recognize that modern ecological education does not consider the basic reasons of environmental problems as it mainly emphasizes on elimination of symptoms of these problems (such as secondary waste recycling, treatment facilities,

decrease in emissions, energy saving, etc.). As Ken Webster correctly notes: *Considerable efforts in the world are spent for changing individual behavior instead of change of system which maintains unsustainability* (Webster 2011, p.38).

There was studied new methodology and applied within new subject which is based on studying of problem-based learning (PBL) that implies student's stimulation for new information and its synthesis by introducing them a real problem (Vasconcelos 2010, p.2). Also the same author tells about success of PBL in many science classes, where the purpose was to examine the effectiveness of PBL program on student's learning. So as to achieve this goal, a PBL intervention programme was considered effective when capable of both promoting the acquisition of knowledge (for example, knowledge related to natural resources or environmental impact) and developing general competencies (such as the ability to apply knowledge and skills in daily environmental problem solving, the oral and written ability to communicate, the self-directed learning, the ability to search and organize information, the ability to select the proper strategy to solve environmental problems, autonomy, responsibility and the ability to carry out collaborative group work) (Ibid. p.4). Therefore a new curriculum subject for "Sustainable Development" is urged to provide general education, theoretical and practical preparation of students of all specialties, giving theoretical knowledge in the field of finding solutions for the further development, including ecological, economic and social spheres. This subject is directed not only on knowledge acquisition in the field of environmental protection, environmental management, but also studying of adjacent areas entering into the SD concept. As the conclusion made by Vasconcelos that is considering *knowledge in action when student is capable of mobilizing knowledge and integrating it correctly to solve a problem* (Vasconcelos 2010, p.12) In the conditions of transition to a new model of the education focused on result, and also in view of large number of small schools, special relevance is gained by preparation of the teacher of several discipline specialties. In this regard, school, university and postgraduate programmes for teachers training have to provide the possibility of receiving additional education, carried out under the aegis of higher educational institutions. It could be hard to convince teachers that the existing ecological education giving information on how the nature is functioning and how it is possible to protect is not the appropriate approach to ESD even though it is closely connected with it. ESD is much broader than ecological education as it includes a considerable background of social and economic problems.

Conclusion

For the last years it is obvious that mankind has been developing by the industrial way. It is important to find such paradigm of coexistence of mankind and environment which will help them to exist in harmony and will help to solve the problems which have developed at present within environment and coevolution of environment and humanity. As it has been considered during the writing of this thesis, a sharp transition to sustainable development is impossible. Development is always connected with growth rates, but it is also necessary to understand, what growth does not bear harm to development, and it promotes sustainable future. For this reason development of various models of transition and creation of society of sustainable type is one of questions to which scholars pay much attention. Education and research activity are preconditions of sustainable development. It is necessary to the modern world the citizen of new type, people with new knowledge of the lifestyle and environment. Education for sustainable development is an important key on all education levels as it contributed to up bringing high values, behavior and lifestyle which are necessary in order to achieve a sustainable world, and it obviously connected to lifelong continuous education. Education for sustainable development makes the contribution to democracy in developing countries. For successful creation of the sustainable world from the point of view of the field of education it is necessary to improve basic and secondary education; to reorient higher education for sustainable development; to increase understanding of concept by the public; to provide actions of youth activity for sustainable development; to increase training of population in the field of more sustainable management of territories and resources. At the current moment, the mankind is at such level of intensive interaction with environment that yet allows regulate ecological changes on the basis of consolidation of efforts of the various countries, comprehensive research of the created situation, acceptance of practical measures. Thereby it is expected the significant improvement of life quality of population which will come closer to the most developed countries indicators. A wide range of problems still remains regarding demographic situation and health of the population caused by insufficient level of law, economic, ecological awareness.

Overcoming of these obstacles has to become the main landmark task on the way of transition of the Republic of Kazakhstan to sustainable development. However, due to the active integration in world process, membership in the international organizations, participation at the

international conferences, adoption of declarations and final documents become the obligation and at the same time design the implementation of those obligations that are reflected in internal policy of the country.

As it has been considered that the transition to sustainable development for the Republic of Kazakhstan is realized on a stage-by-stage basis which includes preparatory stage (2007-2009) is preparation of conditions for inclusion of the principles of sustainable development into all spheres of public and political work, diversification of economy, implementation of technological progress; the first stage (2010-2012) is providing the entering of the Republic of Kazakhstan in the 50 most competitive countries of the world; the second stage (2013-2018) is strengthening of position of the country among developed the leaders of world by achieving higher level of quality life, essential reduction of losses from irrational usage of natural resources and providing higher level of ecological stability of the country; the third stage (2019-2024) is achievement of the accepted international criteria of sustainable development. So, it can be made a conclusion that the process of sustainable development in Kazakhstan is in the beginning of the second stage where improvement of quality life that include: introduction of sustainability models of production and consumption; application of new and ecologically safe technologies; development of sustainability transport systems; energy efficiency and energy saving; fighting against poverty taking into account ecological and gender aspects; further development of science and education for sustainable development; preservation of historical and cultural heritage; prevention and reduction of ecological threats to population health; decrease in issues, including greenhouse gases and ozone-depleting substances; access to clean drinking water; solution of cross-border environmental problems; radiation and biochemical safety; waste management etc. Therefore the Kazakhstan national authorities put attention and emphasize the concept about development of science and education for sustainable development that becomes motivation for reorientation and training of teacher staff for further implementation of this initiative. Thus, education directly influences the achievement of long-term goals, a way of further development of society. Education reorientation in interests of refusal of unstable models of production and consumption, careful attitude to environment, achievements of mutual understanding and social stability, and also a number of other tasks is effective contribution of population transition to the way of sustainable development.

According to analysis of the activity carried out in past and the ongoing projects, the Republic of Kazakhstan exerts every effort in order to implement the basic principles of sustainable development concept not only on international level but also in national policy. By ratifying international agreements and declarations the Government consequently reflects main priorities in internal documents promoting it through state strategies, initiatives, concepts etc. Obviously, there is a great deal of obstacles on the way of promoting SD concept and the main task is to elicit reasons and find solutions in order to overcome it. Thus, further considering of educational policy for sustainable development and suggesting proposal of introducing SD as curriculum subject in higher education will allow us to make a final conclusion regarding achievement and outputs of SD in the Republic of Kazakhstan.

So, education is an initial element of transformation to sustainable development providing people with opportunity to realize the ideas of society into reality. It not only gives scientific and technical skills but also provides motivation which serves as an explanation and gives social support for development of skills and their application. The international community including Kazakhstan firmly believes that it is possible to impart values, to bring up the relation, behavior and lifestyle necessary for providing the sustainable future through education. Education for sustainable development represents process of training how to make decisions necessary for providing long-term future of economy, ecology and equality of all communities.

Education for sustainable development has to use all opportunities of modern training technologies, mass media in combination with traditions, people's culture and experience of previous generations. The importance and role of teachers plays crucial role. Thus, as it already was mentioned above, the role of teacher and training purpose considerably changes. Now moment it is necessary to introduce ideas of sustainability of our daily life through various school and university disciplines subjects. It is important to teach students at all levels to analyze actions of sustainability positions, to estimate consequences, to predict a situation etc. It is the time of active, well-educated leaders who have desire and opportunity to influence decision-making processes in society. Only such approach will allow reorient life in society according to requirements of sustainable development.

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Appendices

Appendix 1

MINISTRY OF EDUCATION AND SCIENCE OF THE REPUBLIC OF KAZAKHSTAN
THE DEPARTMENT OF HIGHER AND POST-GRADUATE EDUCATION

010000, Astana city “Building of Ministries”
Phone: (7172) 74-24-08

No 03-3/803
«6» _05_ 2013

010000 Astana city
Kenessary str. 93 apt.156
Anara Kakimova

Dear Anara!

According to the questionnaire about implementation of sustainable development concept the Department of Higher and Post-graduate education (further Department) the answers are following:

1. Information regarding the Program of Sustainable Development in Kazakhstan (objects, indicators, principles) you can receive in the Ministry of Environmental Protection;
2. The main direction of cooperation between the Ministry of Education and Science of RK and the Ministry of Environment Protection of RK are the questions related to teacher training for sustainable development as well as providing research work in educational organization and higher institutions;
3. Ecological education include subjects are the obligatory components of study programs in higher education, as in regard to discipline syllabus “Sustainable development” that it can be implemented as selective component.
4. The results of Tbilisi+35 Conference you can find in the Ministry of Environmental Protection.

Director/
F.

Zhakypova

Musalimov I. 742520

**ҚАЗАҚСТАН РЕСПУБЛИКАСЫ
БІЛІМ ЖӘНЕ ҒЫЛЫМ
МИНИСТРЛІГІ**

**ЖОҒАРЫ ЖӘНЕ ЖОҒАРЫ
ОҚУ ОРНЫНАН КЕЙІНГІ БІЛІМ
ДЕПАРТАМЕНТІ**

010000, Астана қ., «Министрліктер үйі»
тел: (7172) 74-24-08



**МИНИСТЕРСТВО
ОБРАЗОВАНИЯ И НАУКИ
РЕСПУБЛИКИ КАЗАХСТАН**

**ДЕПАРТАМЕНТ ВЫСШЕГО И
ПОСЛЕВУЗОВСКОГО
ОБРАЗОВАНИЯ**

010000, г. Астана, «Дом министерств»
тел: (7172) 74-24-08

№ 03-3/803

« 6 » 05 2013 ж.

**010000, г. Астана,
ул. Кенесары 93 кв. 156
Какимовой А.**

Уважаемая Анара!

Департамент высшего и послевузовского образования (далее - Департамент), рассмотрев письмо относительно реализации концепции устойчивого развития, сообщает следующее.

1. Информацию по программе Устойчивого развития в Казахстане (цели, индикаторы, принципы, показатели) Вы можете получить в Министерстве охраны окружающей среды.
2. Основным направлением сотрудничества между Министерством образования и науки Республики Казахстан и Министерством охраны окружающей среды являются вопросы подготовки кадров для указанной программы, а также проведение научно-исследовательской работы в подведомственных организациях и вузах.
3. Экологическое образование включает в себя дисциплины входящие в обязательный компонент учебных планов высшего образования, что касается дисциплины «Образование для устойчивого развития» то данная дисциплина возможна как дисциплина компонента по выбору.
4. Результаты работы конференции «Тбилиси+35» Вы можете получить в Министерстве охраны окружающей среды.

Директор

Ф. Жакыпова

И. Мусалимов
742520

Appendix 2

The proposal of introduction of “Sustainable development” subject syllabus into curriculum at all levels of education by teachers in the Republic of Kazakhstan

This subject syllabus is intended to provide teachers of primary and secondary schools, lyceums, colleges, institutes, universities and the highest pedagogical educational institutions with guide for reorientation curriculum for sustainable development.

DESCRIPTION: “sustainable development” subject is urged to give knowledge background, theoretical and practical preparation of students of all specialties in the field of finding decision for further development, including ecological, economic and social spheres. This discipline is directed not only on knowledge acquisition in the field of environmental protection and management, but also studying of adjacent areas entering into the SD concept. The considerable attention is paid to problems which population faces during implementation of sustainable development concept and also to the international cooperation and legal regulation in the field of sustainable development of ecological systems.

OBJECTIVE: formation of the competent person with the active civic position, who could be able to think critically, to estimate situation and to predict consequences of the activity from the point of view of negative impact on social development and environment.

TASKS:

- to help students to realize why the understanding of sustainable development is significant for everyone;
- actively to involve students in discussion of problems of sustainable development;
- to consider problems from the various points of view;
- to motivate students for reflection of problems not only at the lesson, but also out of system of formal education.

TEACHING TECHNIQUES:

Simulations

Simulations are teaching/learning scenarios in which the teacher defines the context in which the students interact. The students participate in the scenarios and gather meaning from them. For example, students imagine they live in a small fishing village and have to learn how to manage the fishing stocks sustainably (i.e. without depleting the fishing stocks or starving the people). Often, simulations are simplifications of complex abstract concepts. At the same time, because they are distillations of real-world situations, simulations give a sense of reality and thus engage and motivate learners of all ages.

Class discussions

Class discussions allow for the transfer of information amongst pupils and from the pupils to the teacher, in addition to the traditional route from teacher to pupils. Students come to the classroom with a wide variety of life experiences that can enrich the teaching of the mandated

curriculum. Pupils can therefore contribute a great deal to discussions of sustainability with observations from their neighbourhoods about what is sustainable and what is not. Teachers can then incorporate these experiences into their lessons through class discussions that provide pupils with real life applications of concepts.

Issue Analysis Techniques

Issue analysis is a structured technique for exploring the environmental, social, economic, and political roots of problems that face communities. Issue analysis helps pupils identify major arguments related to a community problem as well as key stakeholders and their perspectives, goals, and assumptions related to that problem. Issue analysis also looks critically at the proposed solutions and the costs— financial and otherwise—and at who will bear those costs. Issue analysis can be done briefly or in depth. Issue analysis is interdisciplinary, bridging the natural and social sciences.

Storytelling

Telling stories to convey and illustrate sustainability ideas is an engaging form of teaching. Stories can be taken from current events, history, television programmes, literature, drama, and personal experience. Storytelling also draws on the oral traditions of indigenous societies and folk art. Storytelling has been practised for generations as a means of entertainment, education or cultural preservation and to instil moral values among younger generations. Storytelling is an effective ESD pedagogy as the values reflected in traditional stories often contain the wisdom of the elders or stem from creation stories, which helps to impart respect for cultural heritage as well as the environment.

Combining Teaching Techniques

Many other teaching techniques that engage pupils in participatory learning and high-order thinking skills exist. The Internet is full of lesson plans based on different teaching and learning techniques. Part of the challenge is having a coherent plan to use a variety of techniques to achieve learning goals (e.g. fostering both independent and collaborative learning) as well as teaching the content of the mandated syllabus. The ESD Lens Review Tool 8: Teaching and Learning Strategies is designed to help teachers balance teacher-centred and learner-centred approaches as well as examining how these approaches can be combined in an ESD learning process.

TEACHING SEQUENCE:

Every teacher knows better how to construct the lesson within its subject, what theme to define for subject on issues of economic, social or ecological development. It is possible to give only generalized algorithm of carrying out lesson:

1. Statement of the purpose meeting the requirements of education for sustainable development;
2. Definition of theme connected with sustainable development.
3. Result planning. A variety of planned results will help the teacher to consider features of each pupil (student) will create conditions for achievement of successes. For example, during preparation of lesson the following results of training can be planned:

4. New knowledge and understanding;
5. Application of knowledge and skills in new situations, possible versions of the solution of objective, thus is defined that the problem can be solved in different ways.
6. Material analysis;
7. Synthesis and generalizations;
8. Assessment (comparison).
9. Selection of training material is depends on opportunities of educational institution and teacher.
10. Selection of forms of interaction with students which is not a simple work. The teacher should consider specific features of students and to help to come into contacts, between them and the groups which have developed on interests.
11. Task elaboration: individual, frontal, for work of small groups.
12. Preparation of educational and hand material, meeting the purposes and problems of planned lesson.
13. Determination of duration of lesson, which depends on the chosen theme and objective.
14. Class room preparation.

PROPOSED THEMES:

- Human global issues
- Population and development
- Training for healthy lifestyle
- Culture, traditions and sustainable development
- Gender inequality and development
- Biodiversity
- Climate change
- Poverty reduction
- Sustainable agriculture
- Sustainable forestry
- Sustainable consumption
- Peace and human security

Regardless of any methodical approach used by teacher, it has to be promoted effective acquisition of knowledge by students and necessary skills for creation of sustainable future. Earlier it was already noted that teachers are faced by a complex of challenges to format new outlook, new philosophy of the relation to life which will promote society movement to sustainability. At this stage first of all it is important to integrate the idea of sustainable development into each subject syllabus domain at each level of training. ESD is aimed for development of critical and creative thinking, ability to solve problems, to analyze, make decisions, to study something in common, to be the leader, to develop skill to communicate. Certainly, it is desirable that advance of SD ideas in public consciousness happened faster, but real life lays down the conditions and restrictions. Therefore, at this stage of development of our society and an education system in the Republic it would be rational to introduce sustainable development subject syllabus directly into curriculum and teachers would become the first conductors of SD ideas.