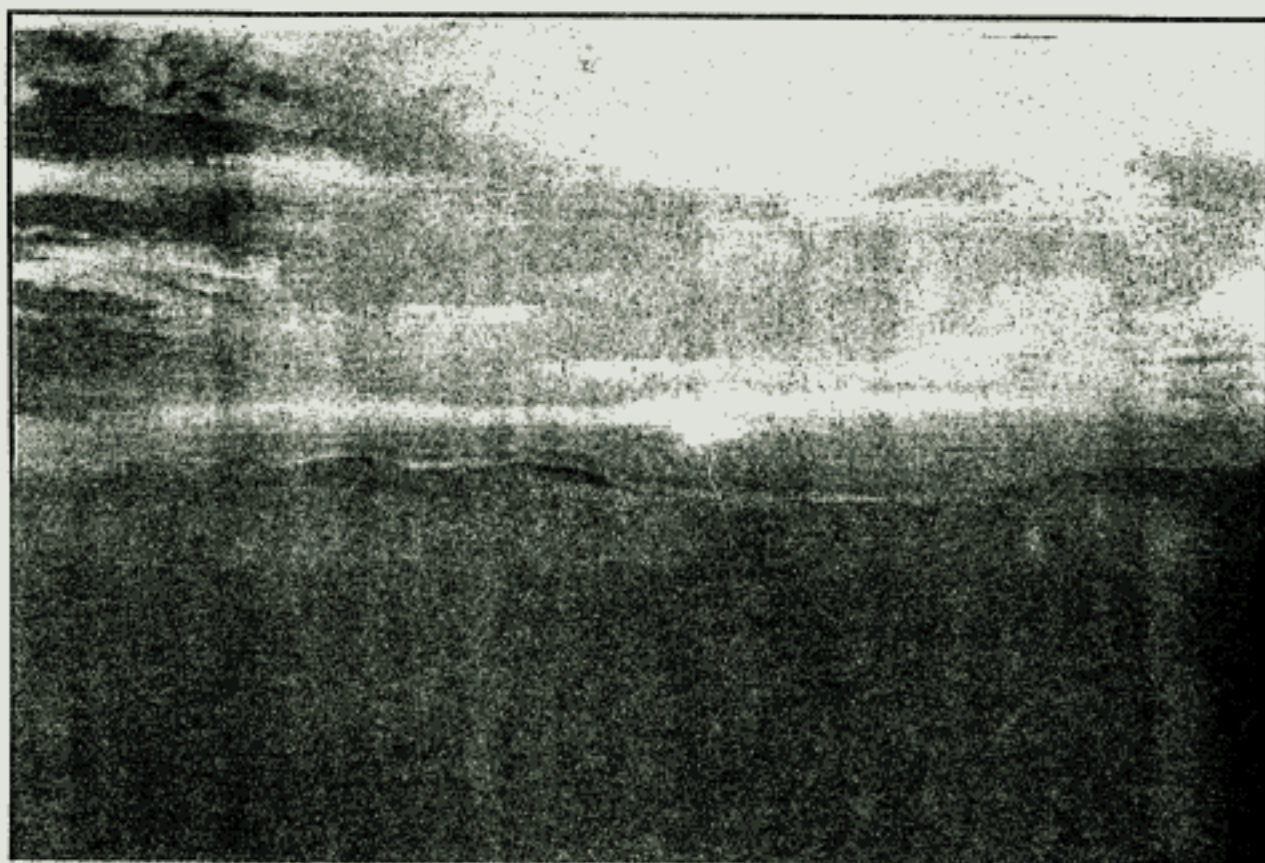




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# НАУКА НА ГРАНИ ТЫСЯЧЕЛЕТИЙ

Выпуск 1



Министерство общего и профессионального образования Российской Федерации

Новосибирский государственный университет

# НАУКА НА ГРАНИ ТЫСЯЧЕЛЕТИЙ

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## ВОЗМОЖНА ЛИ РАЗРАБОТКА СТРАТЕГИИ УСТОЙЧИВОГО РАЗВИТИЯ РОССИИ В НАСТОЯЩЕЕ ВРЕМЯ?

**Валентин Афанасьевич Коптюг,**  
академик, председатель СО РАН, вице-президент РАН

*Лекция 25 сентября 1996 года.*

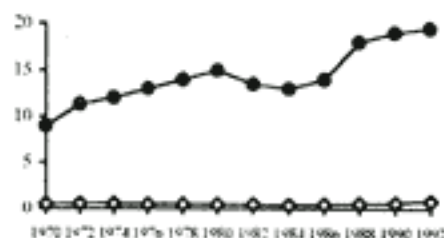
Уважаемые товарищи, студенты и преподаватели, поздравляю вас с открытием лектория!

У меня обзорный доклад, касающийся того, почему сообщество людей на планете Земля пришло к выводу, что что-то не так в развитии нашей цивилизации. Необходимо кардинально менять подходы к развитию. Как же в этих условиях обстоят дела с разработкой соответствующих подходов в России? Мне довелось еще до 1992 года, когда состоялась Конференция в Рио-де-Жанейро по проблемам окружающей среды и развития, участвовать во многих международных форумах, в форумах научных организаций, членом которых я состоял, в частности, Международного союза химиков, Комитета по проблемам окружающей среды, который относится к Международному совету научных союзов и т.д. Поэтому я еще до 1992 года знал общую ситуацию, принимал участие в том, что разрабатывалось в ходе подготовки конференции, в пропаганде идей концепции устойчивого развития в первые годы после нее, включая предыдущий год. Но в начале этого года я отказался работать в рабочей группе правительства по разработке национальной стратегии устойчивого развития России, и попробую объяснить почему. Что, вообще, послужило толчком к проведению в 1992 году конференции ООН по окружающей среде и устойчивому развитию?

Еще Римский Клуб провел ряд важных мероприятий, которые фактически интегрировали очень большой материал, позволивший осознать, что на пути человечества встало несколько глобальных проблем, которые надо осмыслить и сделать из них выводы. Не знаю, многие ли помнят, как были встречены документы Конференции ООН в России, ведь с тех пор прошло уже четыре года. Фактически ситуация развивалась так: были лишь коротенькие заметки в газетах о том, что состоялась Конференция, на которой обсуждались проблемы окружающей среды. Затем, спустя примерно полтора года, под некоторым натиском общественно-

сти, было принято постановление о разработке концепции, связанной с этими документами, применительно к России. Пришлось потратить много сил, чтобы обратить внимание на то, что Конференция была посвящена отнюдь не только проблемам окружающей среды. Что надо иметь в виду три сферы — социальное развитие, экономическое развитие и сохранение окружающей среды, именно такую триаду.

С чего начиналось обсуждение? Начиналось с вопросов, связанных с социальными проблемами. Вот два графика. Нижняя линия — суммарный рост валового национального продукта или национального дохода развивающихся стран мира (в тысячах долларов на душу населения) с 1970 по 1990 год. За двадцать лет он не изменился — почти горизонтальная прямая. А развитые страны (верхняя кривая) существенно, практически вдвое, нарастили свой доход.



К чему это привело? И раньше была довольно серьезная дифференциация уровня жизни и экономического развития развитого и развивающегося мира. За эти годы, за эти 20 лет, она еще более усугубилась. Вот данные из материалов ООН, которые демонстрируются наиболее часто. 20 процентов самой богатой части населения располагают 83-мя процентами общего мирового дохода, национального мирового богатства. На долю 80% самых бедных приходится всего лишь 1,4%. На 80% населения мира приходится примерно 17% мирового дохода, т.е. примерно в пять раз меньше.

## IS IT POSSIBLE TO ELABORATE THE STRATEGY OF SUSTAINABLE DEVELOPMENT OF RUSSIA TODAY?

**Valentin Afanasyevich Koptyug**

*Academician, Chairman of the Siberian Branch of Russian Academy of Sciences,  
Vice-President of Russian Academy of Sciences.*

*Lecture, September 25, 1996*

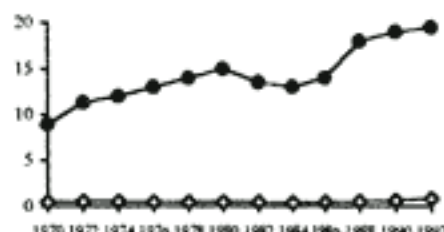
Dear comrades, students and teachers, let me congratulate you on the beginning of the course of lectures!

I don't have a scientific report but a review concerning why the human community of the Earth has come to the conclusion that something is wrong with the development of our civilization. Approaches to development must be changed drastically. In these conditions, what is the situation with the development of the corresponding approaches in Russia? Before 1992, when there was a Conference on the problems of the environment and development in Rio-de-Janeiro, I had participated in many international forums of scientific organizations where I was a member, in particular, in the International Chemists' Union, the Environmental Problems Committee which is part of the International Council of Science Unions, etc. That is why, even before 1992, I knew the general situation and participated in what was being developed in the course of preparation for the Conference, in the promotion of the conception of sustainable development during the first years after the conference including the year before. However, in the beginning of this year I refused to work on the development of the national strategy of Russia's sustainable development in the government working group. I will try to explain why. What acted as an impetus for organizing the UNO Conference on the environment and sustainable development in 1992?

The Club of Rome, too, arranged a number of events which, in fact, integrated a great amount of information which made it possible to realize that humanity was confronted with several global problems which should be comprehended and certain conclusions should be drawn. I do not know whether many people remember how the conference papers were accepted in Russia as four years have passed since then. As a matter of fact, the situation was as follows: at first, there appeared short newspaper articles in which it was written that there had been a Conference where problems of the environment had been discussed. Later, after about half a year, under a certain pressure of public opinion, a resolution was taken to develop a conception referring to Russia on the basis of those documents. A lot of efforts had to be spent to draw attention to the fact that the Conference was not devoted solely to environmental problems, to the fact that three areas, a triad, should be borne in

mind – social development, economic development, and preservation of the environment.

What did the discussion begin with? With the issues concerning social problems. Here are two graphs. The lower line represents the total GNP growth or the national income of developing countries (in thousand dollars per capita) from 1970 to 1990. It did not change in twenty years –the line is almost horizontal. At the same time, the developed countries almost doubled their incomes, i.e. increased them substantially.



What did it lead to? The rather pronounced differentiation in the living standards and economic development of the developed and developing worlds had existed before. During those twenty years it aggravated even more. Here are some data taken from UNO materials which are demonstrated most often. 20% of the richest part of the population dispose of 83% of total world income, world national wealth. The poorest 80% dispose of only 1.4%. 80% of the world's population account for about 17% of world income, i.e. approximately five times less than 20% of the richest. Consequently, if we try to establish social equality in the world, 80% of the population will have to have their incomes raised almost five times.

This part of the population is 4 times larger and, if we make some approximate estimates, the production and consumption of the whole planet will have to be increased about 20 times. Is it possible? If these social problems are not solved, civilization will be faced with the threat of a social outburst due to conflicts inside and outside countries. This is the first problem which is a purely social one.

The second problem which attracts serious attention is a group of ecological problems. It has been mentioned here that there will be a special lecture on the problems of climate change. The change of tem-

perature with some fluctuations does take place. From 1860 to 1990 there was observed a stable growth of the average temperature of the air. What is the role of natural fluctuations here? You know that there are cycles of different characters in nature – the long and the short ones. What is the part of the anthropogenous component in the observed warming of the climate, i.e. the part humankind has brought in as a result of its activity. There are discussions about the quantitative ratio, but everybody agrees that the part of the anthropogenous component is great. If we examine the problem of the climate warming, it is connected primarily with the greenhouse effect. Carbonic acid gas concentration in the atmosphere is growing dramatically. Naturally, if the concentration of carbonic gas grows, the thermal beams which reach the Earth cannot break outside and the Earth is heated due to the greenhouse effect. This leads to the melting of glaciers, gradual melting of polar ice in the Antarctic, to the rising of the ocean level, the flooding of coastal cities, and the changing of climate on the territories of practically all the countries. There are different forecasts as to what will happen and where. All the coastal areas will be drastically affected: port facilities will be flooded, as well as coastal agricultural lands. Agriculture in general will suffer due to the climate change. The problems of agriculture are especially acute (I won't speak about them today). It is forecast that by the year 2020 the production of foodstuffs will have to be doubled. For this reason, there should be appropriate agricultural lands and everything that goes with them.

The consumption of not only foodstuffs but of all other indices of 80% of the population should be somehow raised, it should be increased twenty times. I will cite consumption per capita data of different countries, for example, of India and the USA. The United States consume 34 times more aluminum than India, 45 times more copper, 16 times more steel, 42 times more oil, 184 times more natural gas, and 386 times more wood. If we average out these data we will come to the same conclusion – that the consumption must be increased 20 - 25 times.

In the beginning of perestroika it was very often said that Russia was polluted to the limit during the Soviet period. Yes, there really are places which are seriously polluted. The Siberian Academy has thoroughly studied the problems of environmental pollution and is familiar with the situation. We have some proposals concerning the policy of a better preservation of the environment. Unfortunately, the perestroika started, and the fact that crawfish appeared in Novosibirsk lake is by no means the achievement of ecologists, but the consequence of the stoppage of enterprises on the upper Ob which stopped the disposal of sewage into the river. That is why the lake became clean. If nothing is done water will be clean everywhere.

There is a certain regularity concerning countries' disposal of toxic wastes into the environment. From 1980 to 1990 the USA disposed of 270 mln tons of toxic solid substances into dumps, into the sea, anywhere. At the same time, the united Western Europe, Eastern Europe and the rest of the world together disposed of about 70 mln. tons. This is a typical example! Those who have been consuming and consume much affect the environment in their own country, to say nothing of the negative effect experienced by other countries! For instance, rather a lot of mineral raw materials are exported from Australia. They try to extract them the cheapest way and receive good and clean primary product leaving the waste in Australia. The development of the world in the period of semi-industrial development took place at the expense of and with the damage to the environment.

The fact of the matter is that the anthropogenous pollution of the environment has become comparable to geological and geochemical processes. Here is the comparison of toxic elements dispersion, mainly metals, due to natural processes: evaporation, washing out, volcano eruption, etc. and due to anthropogenous processes. Anthropogenous processes produce 3.5 thousand tons of antimony per year while the natural ones produce only 2.6; figures on arsenic show the same correlation; as for lead, here the situation is frightening: 332 thousand tons are produced by man's activity and only 12 thousand tons are due to natural processes. This is mainly tetraethyl lead which is very widely used as anti-detonation addition to engine fuel. Our automobiles still continue to gravely pollute all the areas adjoining roads, motorways, etc. This means that the scale of anthropogenous pollution is comparable to the processes which took place naturally and this can't but negatively affect our living environment.

Here are some more curious data on municipal wastes and disposals. The more the incomes of the population grow, the more the wastes are. Let us take, for instance, wastes on all kinds of transport. If the average incomes of people exceed ten thousand dollars per capita per year, the waste curve steeply rises. That's what is happening now in Moscow and other large cities of the world – the transport begins to strangle cities. The wastes are so enormous that some drastic measures must be undertaken. Here is a rather curious fact: according to the national strategies of sustainable development of the USA and Great Britain, some very rigid limitations on personal transport are introduced so as to stimulate the transition to the usage of public transport and to transport as many people as possible, i.e. the policy which was developed in our country some time ago.

Naturally, with such scales of environmental pollution, there couldn't but arise the issue of preserving biological diversity, as the development of production activity leads to the reduction of species diversity. The number of wild animals, birds, and in-

sects is decreasing sharply as the population of people grows. If the population density is 294 people per one square kilometer, half of species diversity is preserved. As soon as the population density reaches 1900 - 2000 people, only 15 % of species diversity remain. Naturally, this can't but cause a certain concern.

Have we taken into account everything when discussing the fact that the pressure on the planet must increase 20 times when we solve the issues of acute social inequality in the existing situation of development? No. The fact is that in this century the population of the Earth has been growing explosively. By 1950 the population of the planet had doubled in comparison with the year 1900. By 1990 it had again doubled. By the year 2030 it will have grown minimum 1.5 times. Then, taking into account the following doubling of the population of the Earth, it is necessary to apply coefficient 2 and consider that we have to achieve the leveling of social living conditions of people on the Earth consuming 40 times less resources per production unit so as not to exhaust the non-replenishable resources and not to destroy nature irreversibly.

Is it possible to develop technologies which would be 40 times more effective in terms of resource, material, and energy consumption in 40 - 50 years? This is very unlikely. Here are the cycles of changes in the fuel-energy sector: first timber (its consumption has almost stopped since 1950), then the increase of coal consumption, and later - the use of nuclear power. As you know, there were protests against the usage of nuclear energy, but there is no way out: we need heating and industry needs power. When it comes to solving problems in the place where you live, to-solving the problems of economic development, social, economic, and ecological balances have to be weighed. These problems must be solved in the framework of this triad. With the passage of time, cycles become narrower but not to the limit when the effectiveness of production can be increased 40 times with the corresponding reduction of resource and energy consumption - our civilization is not ready for that.

In this case, how are social problems to be solved? That is why the General Secretary of the Conference in Rio-de-Janeiro Maurice Strong made the following conclusion: The processes of economic development which generate the unprecedented level of welfare and power of the rich majority at the same time lead to risks and imbalances which pose a threat both to the rich and the poor. Such model of development and the corresponding level of production and consumption is not sustainable for the rich and cannot be repeated by the poor. Pursuing this way can lead our civilization to a collapse." That was the conclusion drawn after about a twenty-year analysis of all the materials available to science, non-governmental, and political organizations and move-

ments in reference to the situation on the Earth on the threshold of the 21 century.

The balance should be sought in terms of new approaches. It is interesting to note that simultaneously with the UNO Conference, a forum of non-governmental organizations was held in Rio-de-ro. About 10 thousand representatives of non-governmental organizations and various social and ecological movements got together to discuss the same problems in Rio-de-Janeiro at the same time. They also came to a conclusion that only studying the balance of the above-mentioned triad can lead mankind out of the dead end. If priority is given only to the protection of the environment or only to the development of economy at the expense of nature, it would be of no avail - civilization will perish. Here is what the non-governmental organizations formulated as a conclusion: "Economic development in isolation from ecology results in making the Earth a desert." Ecology without economic development consolidates poverty", etc. It is only together and in balance that these problems can be viewed and solved, insuring the sustainable development of civilization.

What is the concept of sustainable development<sup>12</sup>? Here are just a few basic notions of the concept of sustainable development. It poses as a priority the dominance of spiritual values over material ones. Humankind shouldn't be induced into excess consumption (in the broad sense of the term).

Recently I have read an article where there was a reference to Marx' words which I have not known before. What is the difference between a man and an animal? An animal wants what it needs while a man strives for what he wants. It is this insatiable desire to have this and that is a great trouble for a man. That is why when the conception of sustainable development was discussed it was stressed that if civilization as a whole and the society of every country do not realize the fatality of the development route followed by humanity nothing can be done. Finding a way out of the deadlock depends only on the level of awareness all people on the planet.

The second basic principle of the conception follows from here. It concerns the old dispute: what interests should be taken into account first of all - individual or social? The answer is: the interests of society are of prior importance, while a person has the freedom of actions in the framework of the norms and limitations introduced by society.

The final basic principle is the priority of government legislative regulation (with the help of economic mechanisms) over the activity of purely market forces. I'll note that the silliest thing assumed in our country, and later I will say why this silly mistake

<sup>12</sup> Under sustainable development such a model of society development is understood under which the major vital necessities of both present and future generations are satisfied. In the framework of this conception, the major value is man who should have the right for healthy and fruitful life in harmony with nature.

was made, was the hope that market forces would regulate everything themselves.

It is often said that the conception of sustainable development is akin to religion. Well, yes. This is because on the way to peaceful sustainable development there are an enormous number of problems which cannot be solved without belief in the rightness and lack of alternatives to this conception.

As an example I will give two acute problems. The first problem. This is the introduction of quotas on the disposal of greenhouse gases, primarily CO<sub>2</sub> into the atmosphere. What quotas are to be used? Quotas per capita or quotas depending on the size of a territory? Perhaps, per capita quotas would be more correct. But the developing countries say: wait! Who has created this situation? The developing countries? It is the developed countries which have created it! Why on Earth then will we pay for your sins? We haven't developed yet! Let us do it this way: we can sell to you what we do not dispose of and you should pay for what you have disposed of in excess of the quotas. Thus, the discussion came to a deadlock.

The second example. The territory of China is 9.6 mln. square kilometers. The territory of Siberia is 10.2 mln. square kilometers. The population of China today is 1 billion 200 mln. people. By 2020 it will reach 1 billion 600 mln. people. Here the population is 25 mln. The density of the population figures differ 40 times! However, all the people on the planet are brothers. Could you, Siberians, squeeze a little and we'll live here too. How can such problems be solved? Are we brothers or not brothers?

If you start studying the problem of sustainable development in detail you will undoubtedly distinguish a great number of extremely complicated problems. However, the belief of mankind in a reasonable and just life arrangement is inexhaustible. Let us take Christianity, Orthodoxy. There certain moral values and behavioral norms are inherent, too. Let us take the norms of socialist society. Why have the socialist parties of Western countries adopted the conception of sustainable development? This is something beyond the horizon, something mankind strives for though it is not easy to achieve. But we do have to strive for it! Today, in different countries, there begin to appear some sects, communities, and societies which try to live in unison with nature and not to strive for luxury, for instance, Kibbutz in Israel or Amish community in the USA. Very many people strive for these forms of life style. In my opinion, this leaving civilization is nonsense in some respect. Let us return to nature, forget everything. However, this is not the way humanity requires.

This is why it was written in the resolutions of the Conference, in "The Agenda for the XXI Century", the document passed by all the state and government heads who participated in the conference (practically all the countries were represented there): The governments of all countries should adopt na-

tional strategies of sustainable development on the basis of the resolutions taken at the conference, including "The Agenda for the XXI Century". These decisions are aimed at providing socially reliable economic development under which measures on the protection of resources and environment are taken. Next year all the countries are to report to the United Nations Organization about the fulfillment of these resolutions. What national strategy has been adopted and how is it being carried out? A scale has been developed, about a hundred of very reasonable indicators of sustainable development, which indeed shows where and how this or that country is moving.

Who should be responsible for the development of a national strategy? The responsibility is held primarily by the governments, i.e. on those to whom the society delegates the right to govern. Naturally, in our country, too, our government is responsible for it. Many countries have already adopted their national strategies of sustainable development. For example, Major, the Prime Minister of Great Britain, signed the national strategy of sustainable development of his country as long as a year ago. Finally, here, on the First of April 1996 (the date is not quite suitable) the president signed a decree: "To develop the project of the State strategy for sustainable development and submit it to President of Russian Federation for consideration in 1996." In April, after the publication of the decree, I received a telephone call from the government apparatus and was asked to participate in the working group on carrying out the project but I refused because no real steps will be undertaken. There will be no reasonable national strategy neither by the end of this year, nor by the end of the next year if Russia follows the same route.

Among the global factors and problems which I have mentioned, there is one more problem which Stanislaw Lem attracted attention to: "The necessity of choice between civilization as a global management by experts-connoisseurs and civilization as the management by political leaders who promise "everything" demagogically but are virtually unable to give anything, - will become more acute. What is left is to wish that time will come when professional suitability of both experts-specialists and politicians is checked (a thorough examination for both). The general tendency noticeable everywhere, as well as in the United States, is that the growing complexity of state, technical, and, finally, global problems is accompanied by the obvious decrease of the level of competence of the government". Lem meant that civilization began to develop so rapidly in terms of its technical, technological, and social complexity, that the old system of the nomination of leaders does not meet the requirements of time.

A leader should have an outlook broad enough to comprehend the problems facing his country and humanity in general. He should have experience in solving such great and global problems on regional



and country levels. Unfortunately, in recent years, I have not seen the people who would satisfy these requirements in our country management. It is for this reason, I believe, the above mentioned "silly thing" was made: the immediate introduction of market relations. The thing is that the pursuit of maximum profits at any expense cannot be viewed as a motive power of social development in terms of the conception of sustainable development. It has always been considered that in market conditions a man will turn inside out striving for higher and higher profits. He will do his utmost to get as much money as possible and to put it back into operation, etc, thus accelerating the economic development in general. However, the requirement for a balance of the triad which I mentioned makes one view many deep-rooted ideas in a new light.

I will cite an example. Germany is a country which has recently been attaching great importance to the problem of environmental protection. They have a very well developed regulation system and very serious approaches on the level of microregions as well as on the scale of the whole country. They do a lot on the international level. Thus, in 1994 in Germany, the book "Environmental Protection – an Economic Asset" was published by its Federal Service of Environmental Preservation and Protection. What was the reason for it? The fact that the business world began to protest sharply against everything done on the regulatory level. Why? Because the necessity to spend substantial sums of money on the improvement of technology, on the reduction of waste disposal, and on the reduction of the usage of resources has led to a decrease of profits. In this situation, their Federal Service tried to attract the attention of society and business to the fact that, whether they want it or not, they have to take into consideration the problems which arise today due to real revealed threats to humanity and to the inhabitants of every country. In the book it is stressed that if in the eighties there existed an absolute social consensus in the matter of forming an ecologically oriented market economy, recently its critics have become more vociferous, they call for reversing the policy of environmental protection because it does harm to the economic development of the country through the scales of received profits. Here is what statements were voiced by business:

"Such large expenses on environmental protection threaten our welfare. All the new "pros" and "cons" are expensive and are an excessively heavy burden for German economy." "Rigid economic regulation forces companies to move abroad if they want to remain competitive." (This process is well-known. It concerns exporting dirty production, the processing of radioactive waste, in particular, to the developing countries and we had to face it too). The protection of nature undermines business activity and strangles middle and small businesses. Eco-

management is not rewarded. It just puts spokes into the wheels of the business world".

I will cite the words of Francois Mitterand about the role of market forces in the future world. You remember that when he died he was called a great politician, a great statesman, and a great citizen. I wish our leaders paid attention to what he had said in the interests of social development at the International Summit Forum in Copenhagen in March 1995: «I wonder if we will manage to prevent the conversion of the world into an all-embracing market ruled by the law of the strong, where the major goal is receiving maximum profits within the shortest possible time; where, within several hours, speculation brings to naught the fruits of labour of millions of people and threatens the results of negotiations like these. I wonder whether we do not subject the future generations to the play of these blind forces. Shall we manage to create an international order based on progress and, first of all, on social progress?»

I can cite you the words of a great number of really outstanding figures from different countries. Here is what Brigitta Dal, the speaker of the Swedish Parliament said: "What is really absolutely necessary, it is political decisions, leaders' commitment, more improved technologies, a new style of life from everyone, justice, and solidarity. We clearly see that market economy with its uncontrollable exploitation of man and nature and the strict sanctions applied by the International Monetary Fund to the developing countries cannot alone solve the above-mentioned problems. That is why it is not possible to base the survival strategy of mankind on today's technologies and new-liberal market economy."

Don't our statesmen, if they are literate, know what is happening in the world? If you look at the economies of such developed countries as the USA and Japan you will be convinced that, giving credit to market forces, the State does not lose track of their legislative and economic regulation. For instance, in Japan, regulation is infinitely stronger than in our country. It's true that market forces are going full swing there but in strictly regulated and controlled conditions. Purchasing Boeings from American companies and not from those who develop latest models of planes in their country is absolutely unacceptable, absolutely out of the question as it does harm to the State. So, dear businessmen, suffer and invest your money into the development of a national plane – this will be beneficial both to you and to the country.

What is the matter with rice in Japan? The cost-price of rice in Japan is twice higher than its sale price. Why? It is done in order not to let strangle the production of rice inside the country as it is considered national property and one of the elements of the country's security.

Market mechanisms are necessary because they raise labour productivity, increase business activity and make people work hard. However, other things

must be taken into account. The era where only capital created by man's labour was considered is over. Natural capital should be also taken into consideration. We use natural resources and we spend natural resources. The natural resources that we extract and the damage that we inflict on the environment must be translated into monetary units.

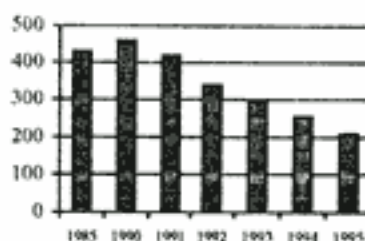
The loss of this natural capital must be taken account of at all stages. It must be included into the price of a product and subtracted from the gross national product. After the year 1997, the gross national product should be adjusted to the loss of natural capital. In connection with this, there develops a special new direction of science – ecological economics the aim of which is to take into account the growth and loss of these two capitals. That's when the cost of an automobile will include all the expenses incurred during the extraction and processing of raw materials, the production of the automobile plus the expenses which reflect damage to nature. And then you will scratch your head and think whether it makes sense to drive a private car when you could use public transport. Of course, you feel yourself more comfortable and it is more pleasant. But large cities, Moscow, for example, begin to feel that they will suffocate due to transport.

Stanislav Lem's requirements are rather rigid and our leaders have by no means satisfied them in the recent period. I will also mention that our leaders have felt some pressure on the part of other countries. Generally speaking, the desire to be friends with the West is quite justifiable but if we view it in terms of sustainable development it must be reasonable, fair, and provide for the interests of our own country. In the resolutions of UNO it is stressed that the strategy of sustainable development is the problem of all mankind. However, each country should take into account its national interests. This is an absolutely indispensable condition for cooperation.

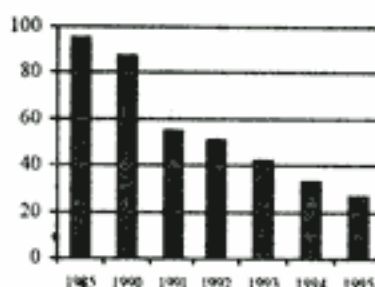
If we take the example of China and Siberia, many questions arise which are not very easy to answer – problems connected with insuring national security – economic and territorial, etc. Not long ago I was invited to China and participated in a special working conference of science and technology leaders of the countries of the Asian-Pacific region. As they are all willing to bring the Russian East closer to them, I was invited from Siberia and academician G.B.Yelyakov was invited from the Far East. There, we saw and heard a lot. First of all, what pace are the countries developing at! If you enter a store you will see that 95% of stock are Chinese goods of a very high quality. The latter has been achieved because these goods are produced either by joint ventures with the West where advanced technologies have been implemented or on the basis of purchased licences. But that is their own production! The 5-7% of foreign deliveries are priced much higher! The Chinese steadily pursue the line of protecting national producers.

What has been done in Russia to protect national production and producers? When Anatoli Chubais visited Akademgorodok we asked him a number of questions. I handed him a service record of Deloitte&Touche company which, in consortium with other companies, acted as a coordinating adviser of the Russian government in the development of the program of mass privatization. In the document there is a list of what has been done – the voucher system and the development of privatization plan. Who developed them? Our State Property Committee headed by Chubais? No, at that time Chubais was discharged from the post of the chairman of State Property Committee and Polevanov was appointed. When Polevanov saw how foreign representatives had entrenched themselves there he wrote serious and well-grounded memoranda to the government – in three months Polevanov no longer held his position.

What happened to our economy as a result? Here are the changes in gross domestic product during the last decade (billion rubles in the prices of 1984):



Here are the figures for agricultural production (billion rubles in the prices of 1984):



Commentaries are hardly necessary! Why is it cheaper to import butter from New Zealand than make our own? This is because prices on energy and transport have been inflated beyond any measure. Vitte wrote that if in Russia we charged for transport what it really cost and if there were no State subsidies, we could say farewell to Russia as it would disintegrate into separate principalities – nobody would stand such transport expenses. This is the specific character of the country, of its climatic conditions, and the scope of its territory. So then, having such a large territory and great natural wealth we should say: "to hell with it, let everything perish and be destroyed"?

In addition, production is so heavily taxed that 95% of elaborations that science could put into production and sale activity turn out to be unprofitable when sold. The production of diamonds practiced by the Institute of Geology is profitable while the production of less exotic things is done at a loss. Only the most unique things appear to be profitable in our conditions, other products are unprofitable.

In *The Agenda for the XXI Century* it is written that all the countries should augment their efforts to eradicate mismanagement in private and social affairs including corruption. The scope corruption in Russia has reached is unheard of. The White Book of Russian special services is an official document revealing the threatening scope of corruption and crime. Organized crime has blended with executive bodies. The total sum of criminal fortunes received by criminal units in 1994 is evaluated by experts as being approximately 2 trillion rubles. About 30 to 50% of this money goes to bribing State officials.

I will cite the words of A. Kulikov, the Minister of Internal Affairs and, in my opinion, a reasonable person and a professional. "The thing is that when three months ago I was appointed to the post of Minister of Internal Affairs I could not imagine the level of corruption of the State bodies and internal affairs bodies, in particular, which I had to face." He had to create an internal security service in the ministry which would provide security inside the ministry.

In conclusion, I will mention certain parameters which help to assess what is happening to the country: whether it is developing, whether it is slightly falling or falling into nowhere. The countries which go beyond the limits of certain acceptable criteria (judging by the two-century observation experience of economists and sociologists) are those which are going nowhere. Here are some of them:

1. Level of fall of gross domestic product. The 30-40% fall is a disaster – the country cannot recover. We had a 50% fall by 1994. This means de-industrialization of the country. It can be easily seen now.

2. Share of imported foodstuffs. It is unacceptable to import more than 30% of food-stuffs. If the figure is exceeded it leads to instability in provisions security. Before 1994 the figure for Russia was 40% and now it has reached 65%. This means strategic dependence of the country on import. We are destroying our agriculture and, naturally, we'll be fully dependent on other countries.

3. Share of highly technological production export. Our level used to be higher than the critical 10-15%. Now we export 1% of sophisticated technological production and this is mainly the export of armaments.

4. Social sphere. The correlation of incomes of 10% of the richest and 10% of the poorest groups of population. Before the perestroika it was 6:1 (for the social situation in the country to be acceptable the

permissible level is considered to be 10:1). In 1994 this ratio was 15:1 and now it is much higher.

5. Demographic situation. An intensive depopulation of the country is taking place (the critical index of the ratio of the number of births to deaths is 1, in Russia it is 1,63).

6. Deviant behaviour. Level of alcohol consumption. The critical index in the world is 8 litres of alcohol per person, a year after which physical degradation follows. Here, the consumption is 14-18 litres per person.

At the forum, where Francois Mitterand made his report, the national report of our country was presented. There are the following words in it: "For the first time in recent decades Russia is faced not only with the problem of growth of material stratification, but also with the problem of mass poverty. Salaries of 29% of the population turned out to be below subsistence level. People start to react negatively to the conducted reforms and they ask quite justifiable questions: why they lived better before the period of reforms, if it was worth while for Russia to sacrifice itself if it brought benefits to the world community but not to the Soviet people?"

In financing science we have fallen to the level of Africa and South America. The share of expenditure on science in the developed countries accounts for 2.2 to 2.9% of the gross national product, in Russia it is 0.32%. Here are some curious data about time-wages in industry. If we take time-wages in Germany for 100%, then in the USA they are 69.7%, in Japan – 65%, in Great Britain – 60.5%, in Brazil – 11.5%, and in Russia – 0.3%. One may say that we did not receive much in the previous years. However, this is not the case. We received a lot of social benefits, for instance, free education, free medical care, a very low cost of accommodation in sanatoria, health centres, etc. They were lost and not made up for.

About twenty years ago a doctor from New York and I counted our family budgets with account of housing, medical and kids' education expenses, etc. After that he said: "Your life is not so bad! Besides, you have one great advantage: you do not worry about the future." This complacency has made us unprepared for the struggle for life benefits in rigid market conditions.

I have always considered that there is no other country in the world whose resources, capacities, and spiritual potential so perfectly conform with the possibility of implementing the conception of sustainable development like Russia. It is the country richest in arable lands, oil, gas, non-ferrous metals deposits, etc. True, we had to change mobilization economy and our economic structure. But we should have done it wisely. This is what happened because we acted unreasonably. As a result, the article "Let's Buy Siberia", March, 1994, appeared. Why don't we really sell our enterprises which are disintegrating today, our industry which has gone out of control, whether it be

"Norilsk Nickel" or golden ore deposits? What will the future generations of Russians say about us?

Taking into consideration all of the above, it is clear that it is senseless to speak about the development of the national sustainable development strategy today. Such strategy is important and necessary but today we must think about how to carry Russia out of the abyss and only later think about sustainable development. It is my firm conviction that the course Russia pursues is leading it in the direction opposite to sustainable development. That is why to work for the sake of "pinning one more bow" to the government for producing the conception – for writing one more document, a trivial piece of paper – is not reasonable. We should rather occupy ourselves with smaller-scale activities – closing today's gaps – to stay afloat another half a year, a year, and then our society will become aware of what is happening to the country.

**Question:** *Could you tell us, please, whether after the UNO Conference that you mentioned certain steps have been taken to coordinate inter-governmental activity in the framework of sustainable development conception? Have any economic institutes, research organizations, committees working on a regular basis, etc. been created? What kind of organizations are they?*

**Answer:** There are a lot of such organizations in the world but in Russia there are none. There are only laboratories created here like the one headed by professor V.P.Fofanov.

**Question:** *Who else in the world works on the conception of sustainable development?*

**Answer:** There are many such people and organizations. In the West, these are scientists, representatives of the business world, social figures, etc. Many international organizations are oriented towards different aspects of sustainable development. For example, the International Council of Science Unions works in two directions: one concerns social and partially economic spheres, the other one – biosphere program. All international scientific and professional unions adopted special activity programs on the appropriate directions of sustainable development.

**Question:** *When determining GNP (gross national product) are the goods produced by shadow business taken into account?*

**Answer:** No. In the cited figures they were not taken into account. However, there is a very interesting report by academician V.M.Matrosov, who earlier worked in Irkutsk as the director of computer centre, where this side is specially analyzed.

It concerns mainly consumer goods which are often produced by a very simple method, for instance: there was some alcohol, they coloured it with burnt

sugar and got cognac which was then sold wholesale – that was it. Such shadow production and imported goods sale take place but there is practically no technological production. Generally speaking, shadow businessmen are now moving to a different sphere – the sphere of making money out of the air, that is by financial operations.

**Question:** *Some officials say that the growth has already begun.*

**Answer:** That's what Livshits says. The salaries for June and August for the Siberian Branch have been, they say, "remitted". This phrase is untranslatable into other languages. The economic situation of the country remains extremely distressing and it continues to worsen.

**Question:** *What is your attitude to Yavlinski and his program?*

**Answer:** He has some reasonable ideas. He belongs to the generation of young people who are too fascinated by the Western school which the Western economists themselves do not consider generally acceptable. They have absorbed one viewpoint but they do not know any other ones. They have no outlook, no experience. This is why my attitude to Yavlinski is average. To Chubais it is sharply negative.

**Question:** *If the conception of sustainable development is so important for Russia, why haven't the materials been published yet?*

**Answer:** For a very simple reason. Official mass media have virtually ignored the UNO Conference. It can be very easily explained. The course of "reforming" Russia and the conception of sustainable development are incompatible. The first thorough materials which were published had been prepared in the Siberian Branch of Russian Academy of Sciences. These are various collections of works, articles, and presentations. If the conception of sustainable development and its consequences become public knowledge, the question will arise: what are you doing, leaders, where are you leading us? That is why they have not been published.

They often write that the conception of sustainable development which has not been elaborated in detail looks lopsided in the interpretation of one person. Of course, it has to be discussed and I told you at once that I could give very many reasons why it would be exceptionally hard to implement it. I gave you two examples and I can give many more. True, the conception of sustainable development is a kind of religion of the XXI century. It is a deliberate striving of humanity for such a life where there would be reasonable social equality, developed economy, and preserved environment because otherwise man will perish, too. This is a necessary conception and we should be aware of it.