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**RAISING OF COMPETITIVENESS AND TOURIST ATTRACTIVENESS VIA
INNOVATIVE ECOLOGICAL PROJECTS BASED ON A PUBLIC-PRIVATE
PARTNERSHIP**

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Abstract

The image of the country and regions is analyzed in terms of the ecological factor impact on a tourist attractiveness and a regional competitiveness. A mission change of contemporary botanic gardens and their transformation from just botanical and horticultural organizations of agricultural type into multifunctional socio-ecological objects and regional multi-utility is considered. The experience of the development and implementation of the first Russian innovative project of the ecological technopark and a public recreational complex based on the Irkutsk University Botanic Garden resources is described. The economic and institutional problems of the project development are analyzed in relation to a tourists attractiveness, an introduction of ecological innovations and a public-private partnership for the competitiveness of the region.

Key words: *competitiveness of region, tourist attractiveness, ecology, country image, botanic gardens, ecological technopark, public-private partnership.*

1. INTRODUCTION

Tourism is a quickly growing and prospective branch of the economy in competitive countries. The tourism business brought about 10.3% and 12 % in the world gross product in 2006 and in 2007, respectively. More that 8% of the world labour force are employed in tourism. In the countries willing to be the tourist world powers the tourism becomes a significant branch influencing all the aspects of country activities and day-to-day life; and in this context it can be considered as an integrating domain of a national economy. For instance, incomes from tourism is about 7.4% of a total revenue from export in the USA, 4% - in the United Kingdom, 2.1% - in Germany, 35% - in Turkey, respectively (Rozhkov, Kismereshkin, 2008).

Competitiveness of countries and regions is closely linked with a tourism development. However, environmental conditions make a great difference for a country competitiveness and a tourism competitiveness. The analysis of factors of the tourism competitiveness presented in "The International Index of Competitiveness of Tourism and Travel" (Travel and Tourism ..., 2008) proves that the environmental conditions is a governing factor for tourism. There is a direct link between

them - the better environmental conditions provide the better tourist attractiveness of the places and vice versa.

At present the ecology factor makes indirect and mediated value for the country competitiveness only. Nevertheless widespread approaches to the definition of the country and region competitiveness developed in different studies (Cohen, Zysman, 1987; Hart, 1992; Sachs, 1996) and the analysis of factors made on the basis of international indexes of countries competitiveness ("The Global Competitiveness Report") revealed that the environmental conditions and ecology were not considered to be significant factors for a national competitiveness.

Competitiveness of the countries can be reached at the expense of the life quality which is connected with ecological conditions. Subsequently, the competitive goods and products are produced at the expense of ecological resources destruction and environment deterioration. On the inter-regional and national levels there are specific economical conditions and policies applicable for relations of regions and countries in access to ecological resources and on benefit-sharing raised from tourism and ecological well-being. Tourism can keep many people and nations out of poverty but at the price of loss of ecological resources in certain countries, not necessarily located in the same regions.

We are going to demonstrate a growing significance and value of ecological conditions for tourist attractiveness and related regional competitiveness. Based on comparative studies of tourist competitiveness of Bulgaria and Russia we came to a conclusion that a general competitiveness can be higher even at weaker conditions for tourist attractiveness and at the poor environmental management.

The reason is that the environment is one of the freely accessible "public goods" which is under the risk of overconsumption.

There are different incentives for economical activities concerning ecology: the incentives for natural resources preservation/restoration in case of their sustainable use as significant economic resources, and the incentives for natural resources overconsumption as free "public goods".

In this study we investigated an impact of the ecological factor on the overall competitiveness and a tourist competitiveness of countries and regions. We also presented a problem of preservation and improvement of ecological and livable conditions with a case-study related to the growing role of botanic gardens for sustainable development and a competitiveness of the region. We suggest a form of connection of interests of different economic bodies including a state and private sectors via a public-private partnership for the realization of the ecological project of the tourist recreational zone and the first Russian ecological technopark project development based on university botanic garden resources in Siberia.

A specific issue of the article is the importance of intangible (non-material) factors for the country and the regional competitiveness. It raised a problem of the rational use of university botanic gardens as unique ecological resources and innovative scientific, educational and environmental organizations valuable for the regional competitiveness. It shows a new role and a mission of contemporary botanic gardens in preservation of the environment and identification of their intangible resources linking natural resources with human well-being and a society sustainable development. The example of the project of the ecological resources development in the concrete Russian region in Baikalian Siberia considered in the article is based on the concept mentioned above.

2. CONCEPTS AND METHODS

2.1. *Interrelation of the overall and tourist competitiveness of the country*

There are two basic approaches to the country competitiveness definition:

1) Competitiveness of the country is «a set of institutions and economic policies, supporting high rates of economic growth in intermediate term prospect» (The Global Competitiveness Report, 2000). The economy is competitive in the world if economic institutions and country policies provide steady and fast economic growth» (Hart, 1992; Sachs, 1996).

2) Competitiveness is «a degree of possibility of the country under conditions of a free and fair market to make goods and services which meet the requirements of the world markets at simultaneous preservation or increase of real incomes of the citizens» (Cohen, Zysman, 1987). The latest approach considers a non-discrimination in market relations. It reflects the absence of protectionism for national goods, and also absence of discrimination for the population while competitiveness of the national goods is reached at the expense of low living standards, using female and child labour with lower payment, decreasing the real incomes of workers. This approach corresponds to the OECD statement: Competitiveness of the countries ... is an ability of regions, countries or groups of neighboring countries, in conditions of international competition, to make goods and services, simultaneously keeping and expanding the real income of citizens and employment for a long time » (Report ... OECD/TP, 1992).

However, the role of living conditions and ecology were not mentioned in both approaches. Ecological factors were not mentioned among the parameters defining the overall competitiveness of the country.

Estimations of the general competitiveness are carried out by two international institutes: Harvard Institute of the International Development suggesting «The Global Competitiveness Report» within the World Economic Forum (WEF, Geneva); and the Institute of Management of Development (IMD, Lausanne) publishing «World Competitiveness Yearbooks». The approach of World Economic Forum is a generally known methodology since 2006 when it proposed the general index of competitiveness of the country- GCI, and the index of microeconomic competitiveness of the country- MCI.

Main factors constituting GCI are technologies, public institutions and the macroeconomic environment (two latest indexes do not include estimations of the ecological environment). The MCI is to estimate strategy of the companies and characteristics of the national environment.

Table 1 presents a comparison of indicators for Russian Federation and Bulgaria by their positioning among a few other countries in the rating of national competition (including two nearest countries on the rating of 2009).

Table 1. The position of countries in the overall competitiveness rating in 2009, 2008, 2007

Countries	Years		
	2009	2008	2007
Switzerland	1	2	2
United States	2	1	1
Singapore	3	5	7
Sweden	4	4	4
Denmark	5	3	3
Finland	6	6	6
Germany	7	7	5
Japan	8	9	8
Canada	9	10	13
Netherlands	10	8	10
Turkey	61	63	53
Montenegro	62	65	82
Russian Federation	63	51	58
Romania	64	68	74
Uruguay	65	75	75
Namibia	74	80	89
Vietnam	75	70	68
Bulgaria	76	76	79
El Salvador	77	79	67
Peru	78	83	86

Sources: *Global Competitiveness Index*. http://www.gcr.weforum.org/pages/GCI_2007_2008.aspx
<http://www.weforum.org/pdf/GCR09/GCR20092010fullreport.pdf>

The rating for Russia demonstrates fluctuations while a position of the Bulgaria's competitiveness has not been changed dramatically during last 3 years.

Tourism as a going branch of the economy affects the overall competitiveness. The issue of the international competitiveness of countries based on tourism has become relevant due to a transformation of tourism into the leading branch of economies. The concept of the tourism competitiveness reflects an ability of the country to satisfy requirements of tourists and travelers with better services in comparison with others (as a rule, on a quality-price ratio) and to attract tourists and

travelers in the country. However, factors of the country competitiveness and the tourism development factors are different.

The first international study on tourism and travel competitiveness factors of the countries was carried out in Davos in 2007. It continued a series of works of the World Economic Forum devoted to different aspects competitiveness of countries. A country attractiveness for tourists depends on the preferences and traveling traditions tourists from certain countries, nevertheless, there is a number of general conditions which stipulate a status and prospects of tourism business development in countries. The new indicator is the Travel and Tourism Competitiveness Index (TTCI) integrating different factors which make the development of travel and tourism business in the various countries to be attractive. Characteristics of a tourism product of the county and the factors influencing a development of tourism are reflected in the rating scale.

A value of the WEF studies on the overall and tourist competitiveness of countries is in the international comparison of the numerous countries which was done according to a generally known technique. Correspondently, it is possible to compare different factors in these countries.

A technique of estimation used in TTCI was developed quite recently; it emphasizes the value of environmental parameters. All factors are subdivided into 14 groups. Since 2008 the former factor «Cultural and natural resources» was divided into two independent factors which supports the growing value of natural resources in the estimation. The principal 14 factors of competition of tourism are estimated through 58 indicators are following:

I. Regulating basis of the field of travel and tourism.

1. Political norms and regulations.
2. Environment regulation.
3. Safety and guarantees.
4. Health and hygienic safety issues.
5. Priority of the strategy on travel and tourism.

II. Business environment and infrastructure in field of travel and tourism.

6. Infrastructure of air transportation.
7. Ground transportation infrastructure.
8. Tourism infrastructure.
9. Infrastructure of information and communication technologies.
10. Price competitiveness.

III. Human, cultural and natural resources of travel and tourism.

11. Human resources.
12. Attractiveness of national tourism.
13. Natural resources.
14. Cultural resources.

On the basis of the TTCI we carried out ranking of the countries on conditions and prospects of development of tourism and travel in 2007, 2008 and 2009. Table 2 presents the general ranking of the countries on ITTC for 2009, 2008, 2007 and the ranking on factors (the first 11 countries and the nearest 2 countries to Bulgaria and Russia are taken).

We see as opposed to the general competitiveness a rating of Bulgaria on the tourism competitiveness is higher than the Russia's one, but it has essentially worsened in 2009 in comparison with 2008; the rating of Russia lower, but it trended to grow for all three years. It should be emphasized that the position of Russia on the tourism resources becomes better; but in Bulgaria it has become worsened. However the regulating basis in Russia is much weaker than in Bulgaria though we can see a few positive moves.

Table 2. Rating of competitiveness of countries in travel and tourism in 2009, 2008, 2007

Countries	General rank based on ITTC			Regulating basis			Business environment and infrastructure			Human, cultural and natural resources		
	2009	2008	2007	2009	2008	2007	2009	2008	2007	2009	2008	2007
Switzerland	1	1	1	1	1	2	1	2	2	2	3	2
Austria	2	2	2	27	4	3	15	8	12	3	7	1
Germany	3	3	3	13	6	6	3	3	3	9	9	6
France	4	10	12	8	12	13	7	7	5	11	12	28
Canada	5	9	7	23	23	15	4	4	4	10	10	16
Spain	6	5	15	29	28	25	8	5	7	5	4	19
Sweden	7	8	17	12	9	19	14	15	13	8	8	27
USA	8	7	5	57	49	33	2	1	1	1	2	12
Australia	9	4	13	27	30	16	15	11	10	3	1	26
Singapore	10	16	8	6	7	1	5	13	11	23	37	42
Latvia	48	45	53	32	35	60	43	43	41	86	82	77
Lithuania	49	47	51	30	31	57	46	45	43	89	74	61
Bulgaria	50	43	54	56	50	66	48	52	56	46	31	41
Mexico	51	55	49	80	71	48	62	61	57	13	19	50
Serbia and Montenegro	52	59	61	52*	53	79	66	68	80	35	45	13
Chile	57	51	45	49	45	38	58	54	42	64	54	47
Poland	58	56	63	72	60	63	68	62	62	29	34	60
Russia	59	64	68	79	80	100	61	65	49	38	39	65
Jamaica	60	57	48	51	51	49	57	48	59	80	66	36
South Africa	61	60	62	82	70	59	52	51	44	49	52	96

Source: *Travel and Tourism Competitiveness Report, 2010, 2008.* *

Montenegro only

Looking at positioning of Bulgaria and Russia under the factor «Environment maintenance ability» we can come to a few conclusions. The index in question includes following indicators: the severity/strictness of the environmental regulation, the regulation force, the branch of travel and tourism development ability, the carbon dioxide production, a threat to species, and ratification of the international contract on environment. In 2009 Bulgaria under this factor held the 76th place, Russia - the 114th one, respectively.

Under the factor "Natural resources" Bulgaria held the 68th place, and Russia - the 23rd one. The index includes following indicators: a number of World Heritage Sites, national strictly protected natural territories, quality of natural environment, and a general level of national scientific research of ecology and living organisms.

Therefore we can make a following conclusion. As for Russia, the problem of nature preservation as its major property is relevant, because the natural richness can be lost considering the weakness of current regulations, that is why it is necessary to improve a quality of environmental management as a national priority. As for Bulgaria the problem of improvement of quality of its environment is more crucial. Therefore the recreation project experience presented further can be of interest for Bulgaria.

Despite a difference of ratings of the overall country competitiveness and tourism competitiveness, we should check a hypothesis about interrelation between tourism and national competitiveness. The conducted analysis revealed a high degree of correlation between IGCI and TTCI (for the year 2007) as it constitutes 92.09%. In 2007 a high level of correlation between the overall country competitiveness and the tourism competitiveness was found out and interrelation can be described with the following linear regression equation:

$$A_{2007} = 0.9289 * B_{2007} + 4.0250 \quad (1)$$

A is an index of the overall competitiveness of country (IGCI);

B is a tourism and travel competitiveness index (TTCI);

0.9289 - the contribution of an independent variable B, in this case TTCI;

4.0250 - the constant (a contribution of unknown factors).

A determination coefficient shows that 84.80% of variation of the IGCI are explained with the given linear regression model that reveals high degree of interrelation between ratings of the overall and tourism competitiveness (Kaljuzhnova, Lidin, 2008).

The linear regression equation for the year 2009 is following:

$$A_{2009} = 0.8356 * B_{2009} + 5.430 \quad (2)$$

A determination coefficient is 79,14%.

Consequences of the industrial competitiveness could be harmful to the environment, which is important factor for tourists. Certainly, tourists are appealed with the environment and ecology. But the touristic product should take into account the features of certain sites responsible for different directions of tourism attractions development. There is a cultural tourism in centers of concentration of a spiritual cultural traditions (museums, theatres, religious centers, ashrams, etc.); the tourism of events, connected with specific activities and actions (the Olympic Games, movie festivals, musical or sport activities), the ecological tourism connected with objects of the nature (mountain tops, glaciers, volcanoes, lakes, etc.). Despite a variety of different kind of tourism, the ecology is always an important factor of tourism because the recreational potential is connected with the environment.

The ecology and environment are important factors not just for tourism development. Good and healthy ecological conditions positively correlate with life expectancy. It is an important factor of environmental liveability and a parameter of a life quality. City forests, parks, rivers and water reservoirs play a role of natural ecological buffers for possible environmental changes. Their architectural landscapes and design organization can essentially improve an environment on urbanized territories.

Attraction of visitors and tourists to the Lake Baikal region depends on a great variety of factors where purity of water and air as well as quality of lake environs and quality of city services are most valuable ones. A positive image of nearest cities and their branding are also important factors.

2.2. The image of place as an intangible resource for tourism competitiveness

The image of any place is a factor of a consumer choice for prospective tourism. If imagination and expectations about the object of tourism and the real impressions mismatch a cognition then discord occurs. According to the definition of Festinger, a cognition discord is the condition of disharmony caused by discrepancy of two different information concerning the same object. If real impressions differ to the worst then a consumer repentance appears because of the spent in vain money. It can be found out in responses of tourists in the Internet and personal communications. Therefore it is necessary to reveal an image of the country and a prospective place of tourism from a feedback of potential tourists, in particularly foreign ones.

We have tried to define the emotions connected with image of the Lake Baikal region and Irkutsk city and we have performed a sociological investigation among foreign respondents using a method of associations. As a preliminary interrogation shows, Irkutsk is known among foreign respondents, first of all, as a city associated with Lake Baikal. Therefore most of the questions were set concerning Lake Baikal. Another Russian city - Sochi near Black Sea - has been taken into consideration for comparison purposes since it has become widely known abroad in relation to the right of Russia to hold the Winter Olympic Games-2014.

The interrogation has been conducted in Switzerland (2007) and Turkey (2009). In Switzerland respondents represent an audience of a scientific school and a hotel management staff, a sample constitutes 76 persons. In both cases sample is carried out by "the Nurnberg method» with an accessible sample when the object of a study is the units of population which have appeared "near at hand", joint under a common basis into an indistinct set. A common basis was their identity as "foreigners". The 55% of respondents appeared in Switzerland from European countries, the other groups represented countries in Asia and the Near East; the USA, Canada, Mexico and the South America; and Africa. Only 10 persons have ever been in Russia, the rest 66 persons have demonstrated all those attitudes and sets created under the influence of mass-media, movies, books and other indirect sources of information (Kaljuzhnova, Lidin, Sharafutdinova, 2008).

The respondents in Turkey are students and teachers of the Middle-East Technological University (METU, Ankara). A sample constitutes of 61 persons. Discovered results of interrogation showing a perception of Baikal and Sochi as tourist objects are presented in the table 3. Total number of scores exposed by all respondents on each question is specified.

Table 3

Results of the poll with the request: "Please put a score reflecting the different sides of attractiveness of such tourism places in Russia as Sochi and Baikal for you.(0 - the worst estimation, 3 points - the highest estimation, 1 and 2 points - intermediate variants)

	Variants of questions	Total number of scores			
		In Switzerland		in Turkey	
		Sochi	Baikal	Sochi	Baikal
A	What do you think - What is a tourism attractiveness of the object as a whole (in conditional points)?	123	104	91	80
B	What do you think - How comfortable is the climate there?	89	67	79	50
C	What do you think - How high is the aesthetic value of the specified objects of tourism?	115	106	83	82
D	What is your expectation on the quality level of services in the specified tourism objects?	86	77	68	46
E	What is the degree of your wish to visit this place? (3 - visit necessarily, 2 - may be, 1 - unlikely, 0 - never visit)	113	106	80	79

As we can see the tourism attractiveness to Sochi is estimated approximately by 15% higher in average; all estimations, except service (Question E), are better for Sochi comparing with Baikal. However, a desire to visit Baikal is the same as for Sochi. Table 4 represents the distinctions in perception of Sochi and Baikal which includes reasons named by the respondents of why they would visit these places, grouped into some incentives.

Weak popularity is inherent to both tourism objects, but especially Lake Baikal. Attractiveness of Sochi is associated, first of all, with the Olympic Games, another brightly expressed treats of this object has not been revealed which means that there is no an internationally recognized brand for Sochi.

Lake Baikal is a well known international brand itself, and it is strongly linked with the image of Siberia which attracts people by its severity and the bright image and recognition which can be also regarded as a clear brand. «Siberia - that's cool!», one of the respondent wrote. In answers it is marked also «want to see Siberia», «it would be desirable to visit Siberia». An image with which Lake Baikal is associated with includes landscapes, a cold climate, purity. Thus, though we did not investigate an image of Irkutsk, we have revealed that the tourist coming to Irkutsk, first of all, aimed to the Lake Baikal and expected a pure and severe nature (36%), but also impressions of a miracle and self-checking (22%). It is possible to consider this image is as an intangible resource of tourism competitiveness of region which is necessary to use adequately (Kaljuzhnova, Lidin, 2009). It means that the city and outskirts are to be green and unusual, keeping uniqueness of a natural landscape and architecture. Are there these conditions in reality? The real condition of the natural and cultural environment can cause a certain discord with tourists' expectations. That is the problem of our case-study, because condition of the natural and cultural environment could be destroyed easily. And the ecological problems in countries of the world are not only a heritage of a planned economy or of the harmful industrial development.

Here is the clear-eyed problem of resources of common use ("common-pool resources"). Table 4.

Answers on the question: Why would you like to go to the given tourism place? (drop a line)

Lists of reasons	In Switzerland, % from the total number of answers		In Turkey, % from the total number of answers	
	Sochi	Baikal	Sochi	Baikal
Motive of curiosity				
New place, experience, impressions, culture, I like to travel, never was there before; simply to look	13	20	16	8
Informative motive (interest)				
Interest, culture, people, friends	13	20	24	14
Olympic Games	37		19	
Motive of expectation of a miracle				
I wish to be surprised by this place; unique to be surprised, the wonderful scenario, an exciting place	8	3	8	14
Motive of self-checking				
Cold; want freezing; to check up how much cold; Siberia		17		8
Motives connected with the nature				
Black sea, the nature, landscapes	8		16	
Lake; clearness, the wonderful nature, the magnificent nature; the great nature of Siberia		17		36
Other reasons				
I know nothing about this place; heard much, but I will not go	21	23	16	19
Total %	100	100	100	100

2.3. Ecological resources as common-pool resources: tragedy of commons

Sometimes ecological resources characterized as the public goods opened for the free or unrestricted use. It is not applicable to all ecological resources but only to its certain elements, such as air, the open sunny space, beautiful trees in public places, etc. Majority of the ecological resources - garden plantings, city parks, gardens, pure air, city landscapes, beauty of nature - are to our opinion to be resources of common public use (common-pool resources, CPR) which are both public goods and private goods.

Common-pool resources (CPR) are a special kind of resources, combining signs of the public and private goods. They are allocated on the basis of a variation of the following characteristic features: 1) hard / ease achievement of an exception of access to the goods; 2) high / low degree «competition in consumption»), or «subtraction» of the goods that means reduction of the physical volume of goods during its consumption. On the figure 1 two signs and kinds of goods at their combination are presented.

Exception of access	Level of subtraction	
	Low	High
Difficultly achievable	Public goods Sunlight (sunny area) Common-pool knowledge	Common-pool resources Irrigational systems Libraries
Easily achievable	Club goods Kinder gardens Country clubs	Private goods Pies Personal computers

Fig. 1. Typology of goods (according to Hess, Ostrom, 1990)

Ecological resources are made related to private goods by a high degree of subtraction where, for example, the use of green parks, beaches, etc. is impossible by all people simultaneously.

Thus, like a case with the public goods, there is a problem of an insufficient investment. Investments into preservation and improvement of ecological resources will be suboptimal because benefits will be received by investors, but also by everybody having access to CPR. On the other hand, like private goods, there is a problem of over-use of the given goods, it is a struggle for an advancing access to CPR.

A special study of the social dilemmas connected with the use of CPR, is considered by E. Ostrom, the Nobel prize winner of 2009. The problem of CPR analyzed on examples of fishing is given in works of Gordon and Scott, biologist Hardina (see Kapelyushnikov, 2010). The effect of overconsumption of such resources was named a "tragedy of commons". The essence of a tragedy of commons is that resources collapse if an access to them is not limited, and the benefits are got by the first one who grasps the common resource.

For example, in Irkutsk a number of enterprises, especially in construction business, are profitable due to the overconsumption of common resources, at the expense of their exhaustion (Kuzevanov, 2010). The territories with planted trees and shrubs and other ecologically significant resources which are in the public property, belong to all citizens in the city, but operated by the local administration. People and companies have free and uncontrollable access to this public property which is in common possession. Thus, these common resources are underestimated and become overconsumed because they cost nothing for their users. As a result, the quantity of ecological goods (for example, pure and healthy air, water, well-arranged territory, etc.) becomes limited within a city, they turn to the economic goods for townspeople in conditions of not well developed land market. That is a tragedy of green territories of Irkutsk with planted trees and shrubs as common-pool resources.

Economic basis of the effect «a tragedy of commons» is an absence of accurately specified and reliably protected property rights for ecological resources of the city. Non-reconciliation of the property rights and mechanisms of their regulation lead to their perception as common resource with no settled consumption. Such resource is free for everybody and does not represent actual value for anybody, at the same time it can be used by others that generates incentives to capture the resource and finally generates the effect of its "trampling".

A decision of the problems connected with the use of public resources, is traditionally formulated within the limits of state regulation. Before E.Ostrom's works there was a dominated conception that it was possible to avoid tragedy of commons by two ways only: via a transfer the common resources either into a state property or into a private property. «The natural resources which are in a private property are the free goods for the individual and the rare goods for a society. They do not give any rent at uncontrollable private operation; it is possible to rectify this situation transforming them either into private property or into state (governmental) property, that is delivering them under the control of the uniform administrative power" (Kapelyushnikov, 2010).

E.Ostrom has shown in the book «Management of common-pool resources: evolution of institutes of collective action» on many empirical facts that a numerous case-study about various experts of CPR management (land, woods, water) exists. Thus, in many cases individuals possess surprisingly high ability of self-organizing and self-management; that is why local communities can manage them to solve the problem of CPR in order to establish standard rules on access and carry out compulsion to observance of these rules. Besides that, the accepted rules formed by the communities appear to be effective enough. They are diverse and consider the features of the environment. However, their possibilities are not boundless, and «a tragedy of commons» not always can be overcome only by the energy of local community actions.

Thus, self-organization of the territorial communities for the development of the CPR use regimes is one of the most important local institutes serving a society for preservation of the common resources and their effective use.

In the conclusion of the theoretical analysis of the problem in question we will dwell on one aspect of the CPR problem. It deals with the factors of success of self-organization concerning the use of CPR. E.Ostrom formulated a number of principles on an institutional design which do encourage local communities to use common resources more successfully (Ostrom 2003). They are following:

- 1) Establishment of clear boundaries for groups of participants which allows them to understand clearly who cooperate with.
- 2) Rules of access to a resource should impose restrictions in an extent, volume, time, and technology of its use, to distribute benefits equally to expenses. Benefits without expenses on the resource maintenance are inefficient.
- 3) Decisions and "the game rules" should be developed and approved by the community (stakeholders).
- 4) The control is carried out either on the basis of mutual monitoring, or by a choice of accounting controllers in the group.
- 5) Presence of the graduated scale of sanctions depending on a gravity of the infringement, the first or repeating character and an infringement context.
- 6) There should be local platforms for the effective settle/resolution of conflicts.
- 7) The rights of users of a resource to self-organization should be ratified by the local and the central government.
- 8) Different public units should take part in a management of the large-scale resources used by several groups; its hierarchically different level organization would give them a great stability.

The last item is especially relevant for such unique resource of the Irkutsk region as Lake Baikal; decisions on its use should be accepted certainly not just by federal authorities only, but also by local communities — a regional community, a city, a settlement community (stakeholders).

There is an issue not only about the forms of self-regulation of common ecological resource consumption but also about initiators of this reconciliation. We should mention that Irkutsk is a city with a well developed civil society and public organizations, especially in ecological and environmental areas, aimed on the protection of Lake Baikal. Another active player and public motive force in Irkutsk is a scientific community and its representatives offering ideas and projects. Thus, a potential of the necessary ecological transformations is based on a traditional set of socially active motive forces. The problem is a cooperation of these forces on the basis of socially significant projects.

2.4. State-of-art of ecological and cultural environment in Irkutsk

Irkutsk was founded 70 km west of Lake Baikal about 300 years ago, in 1661. The peculiarity of Irkutsk is determined by specific cultural traditions of a wooden architecture, which is a characteristic of such Siberian cities as Irkutsk, Tomsk, Tobolsk. One of the key elements of this architecture style is unique wooden laces decorating buildings, specific to frontier cities in Siberia. The nomination of Irkutsk as a prominent cultural heritage site of the wooden architecture was discussed in UNESCO in 1980th, but it was not realized because of lack of appropriate protection measures for wooden buildings. The issue of the wooden buildings preservation is one of the most complicated topic for the town-planning policy, not solved equivocally. The large-scale investment project on restoration of an ancient block of wooden houses in the Irkutsk downtown got a start in 2010 in connection with the forthcoming 350th anniversary of the city. A larger group of wooden houses is being restored; some of the buildings were destroyed for further reproduction of their replicas of old wooden buildings combined with modern infrastructural facilities inside (electricity, a water supply system, a sewage system); furthermore, a several masterful ancient craft shops should be recreated within this district as well.

However, a more complicated issue is the status of the ecological environment of Irkutsk. Unfortunately, there is no enough open space environment in Irkutsk where people would feel themselves in harmony with nature. Moreover, the ecological conditions and greening of Irkutsk and its suburbs degrade. We use the comparative analysis of greening in Irkutsk and other Russian cities (Table 5).

Nowadays, the rating of Irkutsk in terms of the area and quality of city "green lungs" - green areas with planted trees and shrubs, - is the worst one among largest cities of the Volga region, the Ural region and Siberia. At present the area of green plantings of common public use is 373.2 hectares only. And the level of city greening in Irkutsk dropped down to just 6.4 sq. m per person. Such level of city greening is extremely low and does not meet even a 1/3 of city greening standards and town-planning specifications for Russia (Kuzevanov, 2010).

For comparison, even in Moscow - one of the overpopulated cities of the European Russia - green plantings areas reached the level of about 40 sq.m person while a minimal legible area is 16.5 sq.m per person. Establishment and creation of new parks and squares within Irkutsk on additional 235.6 hectares is included in the new Master Plan but even such figure would provide just 10 sq.m of green plantings per person which is not enough for necessary healthy and environmentally safe medium in Irkutsk.

Table 5. Comparison of city greening and green areas in large cities of the Volga and Ural regions and Siberia

City	Total area occupied by the city (sq. km)	Green areas (sq. km)	% of the green plantings in relation to a square of the city
Nizhni Novgorod	410	70	17.07
Kazan	425	98	23.06
Ufa	754	226	29.97
Perm	800	405	50.63
Ekaterinburg	490	125	25.51
Chelyabinsk	530	122	23.02
Tyumen	235	33	14.04
Kurgan	390	63	16.15
Surgut	210	98	46.67
Irkutsk	776	62	7.99

Source: (*Green "lungs" ... 2009; Kuzevanov, 2010*)

According to the Russian standards, 20-25 hectares of parks per each thousand of citizens is necessary for a city sustainability. By our calculations, for southern areas of the East Siberia the norm of the city greening should be increased from minimal 16.5 sq.m to 20-22 sq.m per person considering the shorter growing season for plants (about 100 days) and a duration of snow cover (more than 6 months per year).

The obvious paradox is that Irkutsk city established in former taiga areas has no enough green zones within 20-min accessibility from residential areas. Green plantings are distributed extremely unequally and cannot provide full protection of the environment, sanitary and hygienic and recreational functions. The features of architecture development traditions in Irkutsk lead to green areas replacement from the places of common public use. Green zones and coastal territories are not always used for their designated purpose. A deficiency of the convenient pieces of land around squares, parks and other large forests for city expansion leads to the condensed and so called "dotted" construction of buildings which, in turn, forces builders to cut down trees and destroy green areas around houses for their further attempts to install new constructions on "free" sites. Such cycle being repeated causes the irreparable damage not only to architecturally-aesthetic shape of the city, but also to a quality of the city environment.

Continuing city growth, extending "concrete jungles" of buildings, absorbing groves, green fields, meadows, water reservoirs and bogs, covering the earth with an asphalt and a concrete dramatically change both, natural and cultural, heritage of the city and its environment. There is no enough room or pace for green plantings left near residential areas and in the court yards of houses because they are superseded by parking lots, privately owned vehicles, garages, etc.

The new urbanized environment and environment of grey walls of "concrete jungle» leave traces in mentality and it considerably affects health of a person. According to medical doctors, life expectancy

is about 8-9 years longer among people living in the areas located by the forested areas in comparison with those whose apartment houses are located in the city industrial regions. These facts were published abroad, and also confirmed by recent Russian scientific researches in Yekaterinburg, which is a type of a city similar to Irkutsk in many aspects. Therefore, there is no doubt about the same statistics of beneficial influence of a living near forests which can be a characteristic for Irkutsk also. Destruction of green plantings in Irkutsk becomes lethal for people.

Such environment does not meet the requirements of the tourist recreational industry, it does not correspond to the tourists' image of Lake Baikal and Siberia, and it reduces attractiveness of the territory for a living, and its overall competitiveness.

Such status of the environment is connected with historical development of Irkutsk in the USSR as industrial centre with the developed heavy industry; aircraft engineering, mechanical engineering, the aluminum and chemical industry created for the regional prosperity. In time course of economic transformations in 1990th many machine-constructing plants and facilities were reduced dramatically, reconstructed or shut down. Aircraft engineering, aluminum production, manufacture of chemicals are main industrial businesses left in the Irkutsk region.

However, the ecological environment is not only a heritage of a planned economy and of the harmful industrial development.

2.5. Botanic gardens in urban environment: transformation of resources and functions

Taking into account a changing role of strategic subjects involved in a creation of public groups (networks) we should consider an important issue of the access and benefit sharing applicable to public resources, their common use and preservation by the general public. For instance, we can see a changing role and a new mission of university botanic gardens - a subject and active player in complex field of education, science, ecology, nature protection, public services, etc. in the urban environment.

There is a traditional but very incorrect conception that a botanic garden is just a kitchen garden or a park where plants are labeled with difficult names. Such simple materialistic point of view was criticized by Rinker (2002). This utilitarian concept of botanic gardens rooted in the 16-19th centuries when first botanic gardens were established exclusively as university supportive substructures and academic museums, «pharmaceutical kitchen gardens» or sources of seedlings for homes and for medical curation. Even now, such a limited view is still widespread among the general population in the countries with poorly developed networks of botanic gardens.

Botanic gardens are distributed non-uniformly on the planet. There are mostly concentrated gardens in highly populated areas in developed world, in industrial and postindustrial regions and countries (in Europe, the North America, Asia, Australia) where new botanic garden are often created and old historical botanic gardens are extended to meet public needs. But there is still a few of them in poor or developing countries.

University botanic gardens in Russia were traditionally considered as highly specialized botany related and supportive bodies, «pharmaceutical kitchen gardens» (apothecary or medical plants gardens). Later many of them were transformed into university and academic gardens with exclusive functions for science and education. However, according to ongoing global trends, many world botanic gardens with their rich plant collections, natural resources and architectural features are being transformed from narrow oriented institutions into important elements of the national natural and cultural heritage (Kuzevanov, Sizykh, 2007).

During an era of ecological challenges contemporary botanic gardens are perceived as natural treasures especially in the urbanized environment. Botanic gardens in the majority of the capitals and world big cities, as a rule, take great pride of citizens. They are special places of an exclusive attraction for visitors and international tourists for demonstration of exotic, natural and cultural heritage of the region.

But the botanic gardens are not only natural and cultural heritage of regions. Their development is closely connected with the urban development itself. Our studies of the trends of botanic gardens development in 20 world largest countries during last 300 years show that the increase of botanic gardens number in the world correlates positively with the urban population growth rate (Kuzevanov, Sizykh, Gubiy, 2010). Gardens are claimed first of all by townspeople who live mostly in artificial conditions and they are subject to stress by the urban environment all the time, not much mobile and suffer from the polluted environment. As a rule an existence of a botanic garden in the city is an indicator of a high level of ecological culture of townspeople. Thus, botanic gardens as special landscape inventions of mankind are closely linked with civilization development.

A role of botanic gardens in economy and society changes in modern conditions. There is few reasons for that. First of all, there is a transformation of botanic gardens networks into powerful productive and innovative association for human well-being as well as into a universal network for nature protection and ecological restoration. The modern network of more than 2500 botanic gardens all over the world is getting a role of a global resource for sustainable and harmonious development of cities and for improvement of living standards for townspeople.

Scientists argue that «some of the brightest hopes concerning the future development of mankind in a city environment are rooted in the principles of the regional gardening connected with botanic gardens» (Rinker, 2002).

What makes a botanic garden successful and socially important? Its location, availability and accessibility, safe and safety issues, healthy and pleasant environment, a variety of attractive objects and interesting resources, services, a participation in socially significant events for personal self-realization of each visitor.

The following transformation of botanic gardens value is connected with allocation and accentuation of intangible (non-material) resources role in economic relations. Non-material resources are connected with abilities of a person in processing creatively and finding different ways of use of material resources, in using knowledge and relations for increase an efficiency of available resources and discovery of the new resources.

Material economic resources of botanic gardens are the collections of plants and natural vegetation, large forests and landscapes, the ground areas, water objects, buildings, greenhouses and hothouses, wild and domestic animals and birds, nurseries as well as garden tools and equipment, machinery, vehicles, computers, etc. Non-material resources are connected with a variety of possible use of material resources of botanic gardens. They all facilitate a positive influence of nature and man-made plant environment on physiological and mental processes of humans which rooted on the level of a genetic perception of nature as a vital environment for humans.

The figure 2 demonstrates a concept of material resources transformation of botanic gardens, providing their sustainable development and reproduction of their resources through participation of people who are the key factors of creation and transformation of all resources. Staff people are also key carriers and holders of all intangible (non-material) resources of botanic gardens.

Roles and social and ecological functions of botanic gardens in the world were considerably extended due to their nature conservation traditions as well a high scientific and educational potential for people. It is possible identify following basic directions of activities which provide a unique positioning of contemporary botanic gardens (Kuzevanov, Sizykh, Gubiy, 2010):

- 1) Scientific and educational works with the involvement of students and school children.
- 2) Creation of parks of ecological technologies (ecotechnoparks) for development and implementation of innovations in the field of gardening, ecology and urban greening based on available genetic and ecological resources and on the basis of existing parks.
- 3) Creation of genetic banks of natural flora for preservation and restoration of damaged plant populations and biodiversity conservation.
- 4) Creation of tourist and recreational complexes.
- 5) "Garden therapy" studies on social adaptation and rehabilitation for works with orphaned children, persons with disabilities, invalids, elderly and sick people, persons being in the conflict with a law.
- 6) Contribution to an exchange and passing positive environmental and cultural traditions between generations.
- 7) A status of strictly protected natural territory, a nature sanctuary and a natural museum.
- 8) Introduction of new species and forms of ornamental and fruit-trees into farming standards and plant sales to people.
- 9) Protection and restoration of natural territories.
- 10) Rational use of a biodiversity.
- 11) Development of mutually beneficial international cooperation on the basis of nature protection conventions for the sustainable development.

RESOURCES TRANSFORMATION

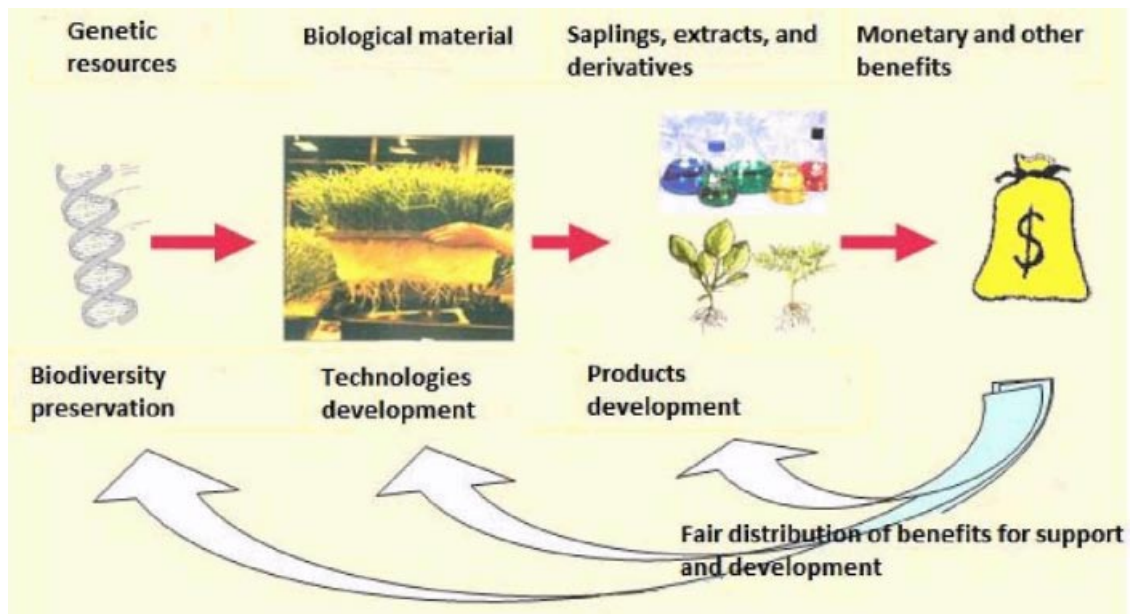


Fig. 2. Transformation of intangible (non-material) and tangible (material) resources of botanic gardens (Kuzevanov, Sizykh, 2006)

Botanic gardens nowadays are on a stage when non-material resources dominate as factors of stability and ecological influence of botanic gardens in high urbanized environment, as factors of increasing the participation in priorities of social and economic development of region and the country.

2.6. Intellectual resources as basis for competitiveness and development of regions and organizations

Such non-material (intangible) resources as knowledge, skills, abilities, images, interrelations, values; reputation, the emotions concerning material resources and relations are considered to be significant economic factors and the intellectual capital of the society.

The theory of development of the intellectual capital as a basic factor of qualitative development of societies and organizations has both supporters and antagonists. That is because of some complexities connected with the estimation of intellectual resources. One of them is a complexity of the account and estimation of cost of the intellectual capital as its many elements are not registered in accounting balances of the organizations including such components as communications with consumers, the personnel qualification, the knowledge base, corporate culture, etc.. Another problem is that non-material capital represents value only under certain conditions developed in the organization.

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The presence of such capital is an important factor itself but its qualitative aspects in practical application, development and potential expansion are very valuable issues as well. One of the features of the intellectual capital is that it cannot entirely belong to just a single organization since many innovations in administrative and economic activities are copied and distributed by competitors very quickly. Moreover, special critical significance is the staff turnover and a "house cleaning" (Gubiy, Kaljuzhnova, Kuzevanov, 2009).

Nevertheless, the approach of development of intellectual resources and the non-material capital as factor of the organizations and regions competitiveness has got the substantiation in a connection with the new economy based on knowledge (Kaljuzhnova, 2003, 2004). The image of a region mentioned above is an example of a non-material resource for competitiveness in a tourist branch.

As E. Ostrom argues, societies have ability in self-organizing for using the common-pool resources. This ability, in our opinion, is one of the non-material resources for the socio-economical development of territories.

However, development and accumulation of the intellectual capital and also transition to the knowledge economy are possible only at a certain threshold of accumulated material resources which are necessary to strengthen along with the intellectual resource base. Only after gaining a certain level of the accumulated capital (both material and intellectual ones) the organization has a chance to step forward to a higher status of its development. Therefore such complex institutions as botanic gardens have many competitive advantages in comparison with other organizations working in just one field of activity only. Such advantages come for the multi-function nature of modern botanic gardens capable to involve as many as possible of their diverse resources in the economic turnover and social development.

3. CASE-STUDY: INNOVATIVE ECOLOGICAL PROJECT

3.1. Necessary economic and ecological transformations in region

39 % of 1633 inhabitants of Irkutsk city took part in a public poll in the spring of 2008 and on a question «What is necessary to do in Irkutsk for more comfortable living?» they answered: "Parks, squares, avenues and other green territories with planted trees and shrubs". The following important need has appeared to be the parking lots and cooperative garages - 32 %, stadiums and sports court - 16 %, the entertaining centers - 7 %, consumer services centre - 4 % (www.irk.ru/vote/2008/233).

In other public poll with a theme «How do you see the future of the Irkutsk region?» 56% of people named the development of tourism and high technologies (www.irk.ru/vote/2004/25). This reflects growing understanding by people that transformation of harmful "urban medium of survival" into the "healthy and safe environment" is possible only by using the advanced technologies in town-planning and introduction and implementation of scientific innovations.

In the updated "Master Plan of Irkutsk-city" (2007) it is declared that: "The main principle of the development of the city green plantings is a formation of a continuous system of the city greening including a natural vegetation structure of the territory in a city planning structure and providing a direct continuous connection of the city green zones with suburban forested areas". However, it is a matter of fact that the city is catastrophically losing a healthy environment and its material basis - a green ecologic structure (Bolshakov, 2009).

City green zones expansion and their connection between each other using green corridors is an urgent issue. Damaged territories, including accumulation of garbage and wastes in city forests and parks became a huge problem now. Natural ageing of trees many of which are more than 80-100 years old is another negative phenomenon, because their main biological processes are slowed down in climacteric forest. These phenomena usually coincide with possible development of plant diseases and pests which finally leads to the degradation of city forests and parks. Forests and parks of Irkutsk are under a high threat of industrial pollution mainly and automobile exhausts. Extensive road construction works lead to a massive tree cutting and to a disintegration of large forested areas into smaller "green islets".

A city infrastructure such as the road networks and traffic system are considered to be the main reasons of segmentation of natural habitats of wild animals and plants. Survival of their populations is under threat because of roads with intensive traffic. Segmentation of large green areas of forest/park system into smaller "green islets" makes an isolation and separation of populations and their subsequent degeneration which leads to a great biodiversity loss. Therefore the sectioning of parks and large green zones by roads or by a construction of buildings (that is a rupture of these communications) leads to the ecological isolation and degradation of ecosystems. Integral continuous green network communication for all city parks and green zones with the nearest large suburban forests, i.e. creation of an urbo-ecological "green" network of a city (Bolshakov, 2009) has a great importance.

In the majority of European countries with a high urbanization some special measures on reduction of influence of segmentation on natural objects within a city are undertaken, that is why in the EU a special town-planning policy "National Ecological Network" has been developed. For this purpose all large forests were interconnected with special «ecological bridges» or «ecological pathways» (ecoducts). They are raised on sufficient height over highways to facilitate possibility of genetic exchanges and transfers between different populations and to provide a barrier-free paths for animals. For this purpose special concrete bridges over roadways in width to 30 m are installed. The natural forest landscape with thick layer of a rich soil and the planted grasses, trees and shrubs is modeled on the bridges (Fig. 3.). The longitudinal borders of concrete with a layer of soil up to 1.5 m thick are built on such ecoducts for protection against a traffic noise and for the reduction of the factor of anxiety for natural environment and walking people.

3.2. The project of a tourist recreational complex and ecological technopark

The investment project of the development of a natural complex in Irkutsk, proposed by the Botanic Garden of Irkutsk State University is directed for the resolution of some environmental problems. This is a collaborative project of the Irkutsk Mayor's Office and Irkutsk State University will bring together a City's largest forest and the University's Botanic Garden into a single Irkutsk Botanic Garden. This is also an investment project of creation of ecological technopark and a tourist and recreational complex of the international level on the basis of the university botanic garden resources and on the reconstruction and restoration of a large forest of a complex nature sanctuary «The Kayskaya Grove».

The project is developed by the international group of experts, and also specialists and students of Irkutsk State University, Irkutsk State Technical University, Moscow State University, University of Erfurt (German) and University of Edinburgh (Great Britain).

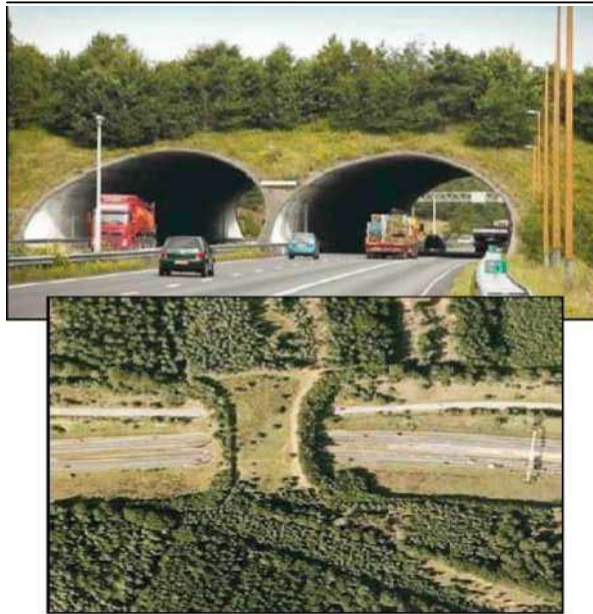


Fig. 3. An example of the ecological "green" bridge (ecoduct) connecting forests and park ecosystems, divided by roads, for creation of a continuous network of green zones and biodiversity preservation (Netherlands)

The project unites two natural areas in Irkutsk - the Kayskaya relic pine grove and the Botanic Garden of Irkutsk State University. These objects are of natural and cultural heritage having ecological, cultural, scientific, educational, historical and recreational significance. The project «Irkutsk Botanic Garden» assumes the reconstruction and restoration of a large city forest of a nature sanctuary and creation of a complex of the multi-purpose public objects on this territory. The site includes about 100 hectare picturesque hilly landscape near the City's transport hub and the Trans-Siberian Railroad on a south-east slope of Kayskaya Mountain between three rivers (Angara, Irkut, Kaya).

The project objective is to develop science-based and totally new types of recreational, tourism and educational experiences and facilities for tourists and local residents in the Lake Baikal region. The project concept is to create a public complex of natural landscapes, a forest park, living plant collections, tropical greenhouses, such ethnobotanic gardens as Baikalian, Biblical, Korean, Japanese, Chinese, French, English ones etc.), water reservoirs and the river Kaya, scientific and educational «German ecological house», an educational zoo and aquarium, an educational planetarium, a few museums, nature reserve zone, ecologic trails, a crown tree trails, other attractive scientific and educational facilities and places, tourist recreational objects and sites (Oasis of Science ..., 2010). This unique area will attract private investments and businesses like hotels, restaurants and shops to encourage sustainable economic development.

There are no similar projects in Siberia. It is assumed that the project should be a good attraction for high technologies in science and education and as well as facility for the creation of various public oriented businesses within the complex's borders (shops, restaurants, service, and hotels), creation of

new workplaces. It is expected about 600 thousand visitors annually. The Kayskaya grove and its buffer territories can become a second «tourist center» of Irkutsk-city (after the reconstructed wooden architecture centre) and an example for Russian territories that ecology and development of ecological technology, construction and economic advantage could be successfully combined.

The project was promoted by Irkutsk regional administration and ISU at the international and regional investment and innovative exhibitions and forums. Partly its development was supported by the European Union TACIS program, the German government program DAAD, Investment Bank of Berlin, the Ministry of Education and Science of the Russian Federation, the Ministry of Natural Resources and Ecology of Irkutsk region. The international expertise of the project was carried out by the Bureau of a city and landscape planning "Blattwerk" (Erfurt) and at the consulting company «Illig-in-Pankow — the international exchanges») (Berlin).

The project assumes a creation of ecological technopark which present new kinds of additional extended activities of the university Botanic Garden such as: interdisciplinary scientific research; educational programs for students; research activity of students; educational programs for school-children; individual ecological programs for the general public; the horticultural therapy; public actions and events for recreation.

Scientists and students in the technopark will generate and evaluate innovative products in the field of ecological wildlife management and rational land use for their adaptation and distribution within the region.

Problems to be solved are unique, but there is no enough experience in Siberia. There are similar intentions on involvement of regional botanic gardens in creation of ecological technoparks and tourist recreational complexes in Moscow, Tomsk, Rostov, etc. Creation of such ecotechnoparks can be regarded as an experimental breakthrough effort and a large-scale "nursery" for the evaluation and cultivation of plants tolerant to severe Siberian climate, for the purpose of city greening in the region, providing horticultural services. It is relevant for Irkutsk where the ecological technopark idea is supposed to be a scientific and educational institution for scientists, educators and students of the university but also a useful and attractive natural site for townspeople and tourists.

Functional arrangement of the natural objects will give a chance to townspeople to improve well-being, standards of living. Introduction of innovations for economical and commercial use of the natural objects (for example, trading pavilions, playgrounds, etc.) will promote a business development and filling the regional and municipal budgets. Creation of the large Irkutsk Botanic Garden as the ecological technopark and tourist recreational complex within the limits of a nature sanctuary «The Kayskaya Grove» (Kuzevanov, 2009) is one of the innovative tools for ecological land use and involvement of its ecological resources in a public use in the Irkutsk region.

However, the project realization is impossible with just resources of the university botanic garden and other educational institutions. The organization of the public-private partnership is necessary between the government, scientific institutions because of the big scale of the project and its social, economic and ecological importance, and also due to the peculiarities of the land property structure. The lands involved in the project have different patterns of ownership: 75 % are of municipal lands under the regional control (is main part of «The Kayskaya Grove»), and 25 % of the federal lands (the territory of the Botanic Garden of Irkutsk State University). Therefore it is supposed to create a new model of ecological management using the public-private partnership as a mechanism of a civil society control and self-management. It will be realized by creation of non-commercial partnership with participation

of developers and partners for financing, designing and project realization on the basis of a complex estimation of the attractiveness and investment potential of the territory and other resources.

The project is at the organizational stage of decision-making and realization process when different kinds of project works are being performed simultaneously (architecture, landscape planning, project of individual objects, documentation, legal issues, etc.). Project problems are the following: fund-raising, coordination of the efforts and interests of the authorities of all three levels - federal, regional, municipal; and also businesses, scientific community, Irkutsk State University and other high schools. The most complicated problem includes a coordination of interests not only between involved participants of the project, but also effective counteraction to incentives to "capture" the territories included in the project by the different third parties.

4. SUMMARY AND CONCLUSIONS

Ecological resources are direct elements of tourist competitiveness of territories and influence on the general competitiveness of the countries through the quality of inhabitancy in the long-term period. However, the use of ecological resources in a short-term period allows the involved participants to raise industrial competitiveness of the companies at the expense of overconsumption of ecological common-pool resources.

Ecological resources for the tourist sites are more important because their image is associated with the untouched nature, a miracle expectation. The Irkutsk-city and the Irkutsk region is considered to be a one of such places. This image is due to the closeness to the Lake Baikal which is widely known as a world brand.

A real situation in Irkutsk does not coincide catastrophically with the image concerning it. The environment situation in the city is much worse than in other Russian cities. In the long-term period it can dramatically affect the region competitiveness. The status of the regional ecology requires the creation of mechanisms for the improvement of the city environmental and the ecological situation.

Ecological resources in common use can be effectively used by the full specification and protection of the property rights by traditional ways such as an introduction the state control or privatization of the lands as well as with the creation of mechanisms of the public self-control. The public-private partnership could be a prospective mechanism and tool for Irkutsk in terms of the realization of the large investment ecological project of creation technopark and a tourists and recreational zone described above. The role of the project initiator (the Botanic Garden of Irkutsk State University) consists not only in functioning as narrow scientific development tool but also to be the subject of regional strategic development concerning ecological conditions of the region and cities. Such positioning on a regional level will force the Botanic Garden to have new roles as a new type of the organization for multi-purpose use and possessing multi-utility functions of the regional significance.

Further development of the problem consists in highlighting of types of the problems arising at formation of the self-organizing non-commercial partnership with application of principles of institutional design in its functioning.

The important direction for further investigations and studies is the problem of combination of non-material (intangible) factors of the region and organization competitiveness.

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