

# **RISK FACTORS FOR INTERNATIONAL INFRASTRUCTURE PROJECTS IN BULGARIA IN 2001**

## **2.4. Strategic issues for FDI into Central and Eastern Europe**

### **Workshop paper**

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#### **Abstract:**

The subject of this paper is identification of main **risk factors** for **international infrastructure projects** (IIP) in **Bulgaria** in 2001. The research covers two IIP of great significance for Bulgaria and for the Balkan region, which are exposed to all risk factor, typical for the country and for region.

The first part offers a brief review of the concept of risk as developed in international business and project risk management. The second part summarizes the findings of a desk research about **country and location risk factors**. The third part, based on a field research, explores **project risk factors**, reveals their cause connection with the key expected outcome for the contractor and evaluates their magnitude.

This paper is open. The research work will continue in the field of risk management process as an “ad-in” to the project management process in the construction phase which both project will enter in 2001.

**Key Words:** Project Risk Factors; Infrastructure Projects; Countries in Transition

The end of a decade of transition and the beginning of the new millennium put for discussion to the Bulgarian academicians, businessmen and politicians the key problem how to be achieved successful reintegration of the national economy in the international business in the new realities. The opportunities to find a reliable solution of this problem are quite limited. Bulgaria, like other countries in transition, is not ready for proactive participation in the most dynamic and perspective trends of the business in the 21 century. **Technological lagging behind**, especially in **IT**, is insurmountable. Low competitiveness of the national economy reduces considerably the ability for **profitable participation in the globalization process** and for **reliable protection** from the negative globalization effects. Bulgarian economy **is not** quite **attractive for foreign investors**. Insufficient FDI hampers successful transition process. Bulgaria is **not able to utilize the benefits of the new types of business, e.g. e-commerce**, because it has not solved the fundamental problems of how to produce competitive goods and to revive consumption yet.

One of the very few opportunities for successful reintegration of Bulgaria in the international business in the near future is the **development of international infrastructure, power engineering and telecommunication projects (IPTP)** with transnational importance. This assumption is supported by the following arguments:

- **Development of IPTP corresponds to objective competitive advantages of the country.**

Bulgaria and the Balkans are **natural geocultural link between Europe and Asia**. The development of up-to-date infrastructure and telecommunications will transform Bulgaria and the Balkans into **geostrategic bridge** which to act as one of the **mediators for harmonization and mutual enrichment of different cultures**. Otherwise the Balkans will become a **strong barrier** which separates Europe and Asia and can be **overcome only by force**.

Execution of projects as an **organic extension of the European infrastructure** is a valuable business opportunity for contractors.

- **Development of IHTP offers significant economic and social benefits not only to Bulgaria but also to the West European countries.**

The main benefits can be summarized as follows:

<b>Positive Effects:</b>	<b>West European Countries:</b>	<b>Bulgaria:</b>
<b>Direct, short-term economic effects:</b>		
a) Investments	New feasible opportunities for investments	Attraction of foreign investments
b) Business	Favourable business opportunities for EU and US contractors	New jobs
c) Distribution channels for:	Technologies, technological equipment, industrial know-how	Local machines, construction equipment, raw materials, services
<b>Strategic effects:</b>		
d) Geopolitical and cultural:	Creation of economic space of peaceful co-existence of different cultures	Permanent incorporation to the European economic area
e) Economic growth and development	Taking up key position on the Balkan market which consists of 50 mil. Europeans	Expansion of the home market of business services  Permanent income from operation

	Development of an alternative road for delivery of gas, oil and raw materials from Kazakhstan, Turkmenistan, Azerbaijan Intensification of business contacts with Asia and Africa due to the facilitation of the physical distribution	of the IIPT projects The country to become logistic centre of the Balkans
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As it can be seen from the above table, **utilization of the positive effects does not lead to contradiction between interests of Bulgaria and of the developed countries**. IIPTP have strong intrinsic potential for application of **the “win-win” strategy which to bring mutual benefit for all participants**.

Successful development and operation of IIPTP is possible only under the following pre-conditions:

- lasting political stability on the Balkans;
- unity and no confrontation among the Balkan countries in their attempts to attract foreign investments;
- considerable reduction of the variety of risks which arise in the process of development and operation of IIPTP.

**Subject** of this paper is the first stage of a project risk management process - the identification of the risk factors, associated with two international infrastructure projects which are to be developed in Bulgaria, namely:

- A. “GORNA ARDA HYDROENERGETIC CASCADE” project, (hereinafter referred to as the Project A) comprising three dams and three hydroelectric power stations, with total nominal power of 170 MW and annual electric energy output of 470 000 000 kWh.. The total investment is estimated to the amount of \$220 million. The construction process is expected to be completed in 6 to 7 years.
- B. A segment “ORIZOVO - KAPITAN ANDREEVO” of “TRAKIYA” highway with a length of 114 km and a total investment of \$300 mil. (hereinafter referred to as the Project B).

Both projects will be implemented by two joint ventures, first one between the Turkish “DJEJLAN” holding and the Bulgarian National Electricity Company and the second one between the Turkish “DJEJLAN” holding and the Bulgarian state-owned “AVTOMAGISTRALI” PLC.

The choice of these projects is motivated by:

- ♦ their significance for Bulgaria, Turkey and the Bolkan region - in August, this year, Bulgarian Prime Minister determined these projects as “the project of the century”;
- ♦ the advanced stage of the preliminary preparation in comparison with all other IIP;
- ♦ the concentration of typical project risk factors, which will manifest themselves, when developing other IIP in Bulgaria, during the next couple of years.

## **1. THE CONCEPT OF RISK**

Risk exists in all spheres of human activity. It comes into being together with man. In its broader sense it can be accepted as a generalized expression of the threats to man's existence and development. Some well-known risk researchers (see, F. Wharthon, E. Ashby, A.S. Boughi, D.H.

Meadows [1], E. Vaughan [2], etc.) support the idea that the history of mankind is basically a history of continuous struggle against risks.

The **etymology** of the word **“risk”** is thought to be either Arabic or Latin, or Greek [3].

Comprehensive understanding of the concept of risk can be obtained by the **definitions of risk**.

If we study books and articles in business, management, finance, insurance, we will find out a general lack of agreement, concerning the definition of risk. Nevertheless, all definitions can be classified in three groups, which correspond to three basic types of the subject understanding.

Predominant number of definitions prove to be the ones, explaining “risk”, as a **probability of deviation from an expected and desirable outcomes**, resulting from uncontrollable events and environmental conditions. Some academicians associate risk only to the **unfavourable** deviations (the so-called **“down-side risk”**), with the argument, that the favourable deviations do not cause any problems to business. Other share the idea that the possibility of **favourable** deviations, creating the so called **“up-side” risk**, deserve equal attention in the contemporary volatile and uncertain business environment.

The second group includes definitions that relate risk to the **event, the factor, the condition**, i.e. the thing, from the surrounding environment, which may cause loss.

The third, small group, comprises definitions, which identify risk only with the **loss**, itself.

The analysis of the definitions reveals the following basic features of business risk :

- ♦ **Risk does exist objectively**. It cannot be eliminated, but only dealt with through reduction to the possible extent, reasonable retention, transfer, sharing, hedging.
- ♦ **Risk arises in the process of management**, within every management function and at each stage of decision taking.
- ♦ Risk exists, when:

- a. there are **at least two possible outcomes** of a certain decision and/or action;
- b. at least **one of these outcomes is negative or undesirable**;
- c. the **probability of occurrence of each possible outcome is higher than zero and lower than one**.

If we apply the basic concept of risk to the IIP, we may develop the following pragmatic, operating definition of project risk, as:

**possible unfavourable deviation** from the desirable **outcome** of a project development, as a result of the objective multivariance and uncertainty of the factors (events, conditions) from business, managerial and physical environment, in which the project is to be constructed and operated.

This definition draws the attention to two, very important, management aspects of project risk:

- ♦ Risk **arises** under the influence of many and different objective environmental **factors, events, conditions, circumstances**;
- ♦ Risk **manifests** itself in relation to **expected future outcomes**.

**The factors**, which generate project risk, are formed on several levels - country; location and project level.

**The expected outcomes** depend mainly on the **position of the company in the organizational and financial scheme of the project implementation and operation**. For the most simplified scheme of an international “turn-key” project, one can clearly distinguish three groups of different, and sometimes contradictory, expected outcomes - for the contractor, for the client and for the host country.

In order to achieve a profound identification of the risk factors, it is expedient to bind them with the particular interests of each counterparty, participating in the project development.

At this stage of the research, we shall identify only the risk for the foreign contractor of two IIP, in 2001.

## **2. COUNTRY AND LOCATION RISK FACTOR FOR IIP IN BULGARIA IN 2001**

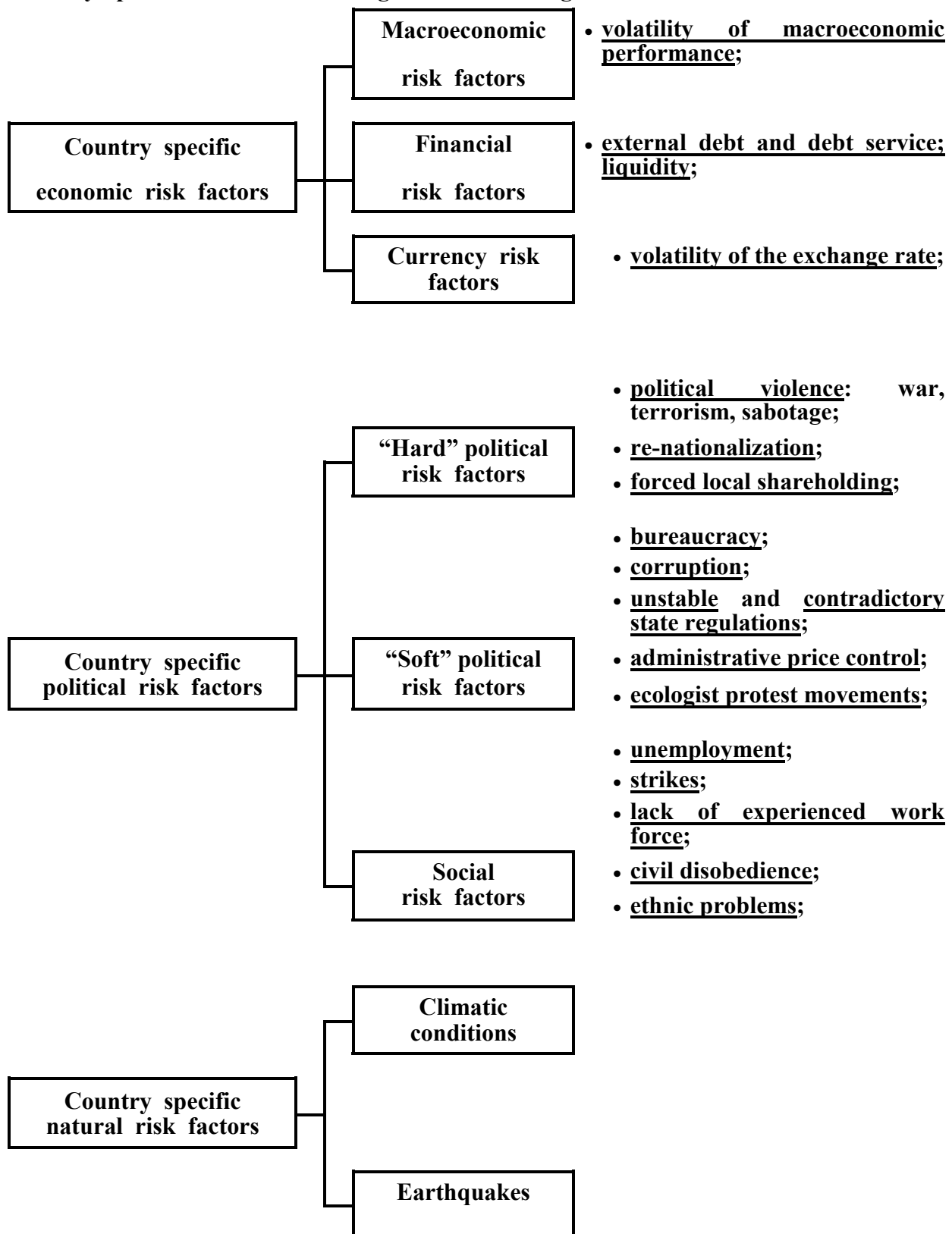
The achievement of the expected outcomes of IIP construction depends to a great extent on the economic, political and social conditions in the host country. The impediments to business success, created by certain events and/or decisions and acts of the state administration, the political parties and the trade-unions, etc., are usually treated as **country risk factors**. The theoretical foundations of the country risk concept were laid in the sixties and developed, during the following decade. For the purposes of this paper, we shall assume the broad understanding of country specific risk, based on the research publications of E. Clark, B. Marois [3, pp.45-63], W. Smith [7, pp.48-54], etc. The basic country risk factors, for the foreign contractors of infrastructure projects are presented in Figure 1.

The economic risk for Bulgaria in 2001, will be generated mostly by:

- ♦ *the low value of the GDP per capita (\$1200, for 1999) and not quite high growth rate (3.5%, for 1998; 2.6%, for 1999; about 3.5, for 2000);*
- ♦ *the very depressed consumption;*
- ♦ *the relatively high inflation rate (about 10%, for 2000, instead of the expected 3.5%);*
- ♦ *the great foreign trade deficit (over \$1 billion, for 2000);*
- ♦ *the considerable external debt (about \$9 billion, for 2000) and the high debt service payments (about \$1,5 billion, for 2001);*
- ♦ *the devaluation of the Bulgarian currency, which has been bound to the euro since 1997, under the conditions of a currency board;*



Country Specific Risk Factors - Bulgaria 2001 Figure 1



The forecasts, regarding the state of the macroeconomic variables in 2001, are rather contradictory. The International Monetary Fund and the government have optimistic expectations for the highest, for the last decade, growth rate of the GNP - about 5%; low inflation rate – below 4 %; stable currency exchange rate; gradual balancing of the foreign trade deficit.

The forecasts of honoured Bulgarian and foreign economists are markedly pessimistic:

- ♦ **the inflation rate will exceed the forecasted level;**
- ♦ **the foreign trade deficit will continue to grow;**
- ♦ **bureaucracy and corruption** will remain the **most powerful risk generator;**
- ♦ **the instability of the economy regulations** will not be overcome, in spite of the positive general trend, imposed by the synchronizing of the national legislation with the European one;
- ♦ **the growing unemployment level** will continue to be a strong source of social and economic risks. In September, the unemployment level reached the 9-year peak of 18%. The qualification structure of the unemployed is inadequate to the needs of work force. The **unemployment** and continuous **impoverishment** of big groups of the population may result in **strikes** and acts of **civil disobedience**.

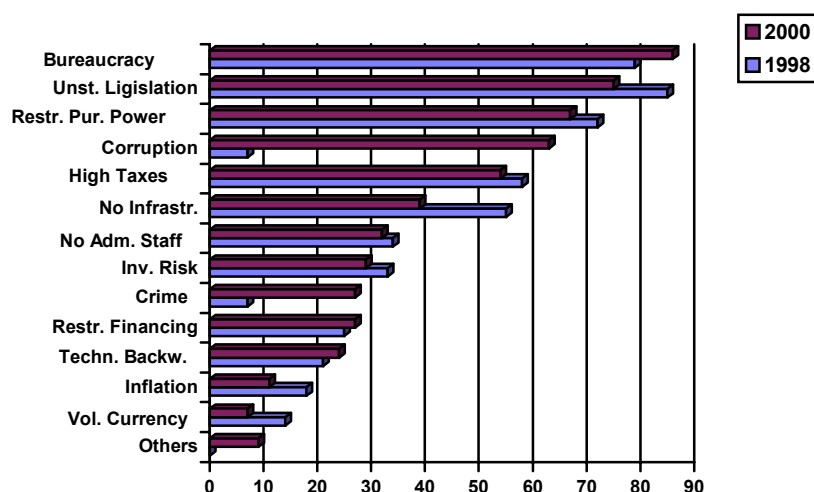
An issue of particular interest is the assessment of the business climate, made by representatives of more than 230 foreign companies doing business in Bulgaria, in a KPMG research, carried out in June, 2000. The generalized data, presented in Table 3, confirms the findings of our research. The most significant factors, for achieving business success in Bulgaria, are arranged by the foreign businessmen, as follows: **flexibility; patience; good interaction with the Bulgarian institutions**. Beyond doubt, this is a kind paraphrase of “overcoming the bureaucracy and corruption”. More direct is the recommendation, quoted in the last report of the “Economist

Intelligence Unit”: “The bureaucracy can be overcome most successfully, by appointing former employees of the state administration, who will use their personal contacts, in their new employer's favour.”.

Complex assessment of the investment climate and the country risk is:

- ♦ the Moody's decision of July, 2000, to reduce the credit rating from “B2+” to “B2”;

**Table 1. Barriers for the Foreign Investments in BULGARIA**



- ♦ the OECD decision to refrain from answering positively to the Bulgarian request for raising the country credit rating.

The proper analysis of the country risk in Bulgaria requires taking into consideration the fact that the **Bulgarian economy is strongly dependent on policy**. The political goals and interests are dominant, especially in years of parliamentary elections. The past experience shows that there are real grounds for expecting that the forthcoming parliamentary and presidential elections in 2001 will play an important catalytic role, with regard to all country risk factors.

Project A and Project B will be located in the Southern Central Region (SCR) of the country (Bulgaria is divided into 6 regions), on the territory of three districts - KURDJALI, SMOLYAN and HASKOVO (the district is a territorial and administrative unit, a subject of the National plan for regional development; Bulgaria is divided into 28 districts) and seven municipalities.

A complex research of the social and economic development of the regions and districts in Bulgaria, for the period 1990 to 1998, shows that the SCR is characterized by lower (or worse), than the average for the country, values of fourteen indicators of regional development:

- ♦ *Gross Domestic Product (GDP) per capita (96% of the average GDP for 1997);*
- ♦ *incomes from economic activity (75% of the average value);*
- ♦ *quality of life, measured by the UNDP index of human development;*
- ♦ *monocultural branch structure;*
- ♦ *rate of the employed in private sector;*
- ♦ *speed of transformation and adaptation to the market conditions, measured by: investment activity; entrepreneurship; utilization of natural resources;*
- ♦ *Foreign Direct Investments (FDI): only about 7% of the total amount of FDI;*
- ♦ *density, structure and state of the roads;*
- ♦ *railroad network density: about 16 km, per 1000 km<sup>2</sup> compared to the average of 39 km, per 1000 km<sup>2</sup>, for the country;*
- ♦ *telephone density, measured by the number of telephones, per 1000 inhabitants;*
- ♦ *unemployment level: In the region, as a whole, is about the average value for the country - 18% to 19%, but in two of the districts, it is over 40%;*
- ♦ *education level of the population.*

The value of only one indicator - the *population density* (76 people per 1 km<sup>2</sup>) is higher than the relevant average for the country.

The results of the analysis of the above-presented data show that the SCR and the three districts, where both projects are to be located, have well expressed risk generating profile, determined by two key location specific risk factors, namely:

- ♦ *complex infrastructure deficiency*: poorly developed public transport, communications and telecommunications, difficult access to markets and business information; insufficient and low quality of business services;
- ♦ *underdeveloped regional economy*: a lack of effective economic activities; monocultural branch structure; high unemployment level; uncompetitive structure of the labour force.

### **3. PROJECT RISK FACTORS FOR THE FOREIGN CONTRACTORS IN 2001**

The roots of risk are deep in the project's **unique, change-inducing nature and inherent uncertainty**. The **traditional approach** to the project risk, offered by a number of academicians, puts the emphasis on the **nature of different risks**, which may arise in the course of the project management process, and on the **impact of each separate risk**, on the outcomes of project execution. Research works, about the project risk, identify: constructive, technological, operation risks; market risks; financial risks, including price and exchange rate risks; political and regulatory risks; counter party risk; force-majeure risk.

The intrinsic value of the traditional approach is in the **profound elaboration of tools and techniques** for risk identification, assessment, transfer, sharing, hedging, etc. In the same time, this approach is to some extent “**management unfriendly**”, because it does not reveal the direct causal connection between each risk factor and the expected outcomes, which motivates investors and contractors to develop a project.

Another difficulty, which confronts the traditional risk factor analysis, is the complex network of many, different and sometimes contradictory, expected outcomes.

These comparative disadvantages motivated our decision to change slightly the traditional approach to risk factor analysis in two aspects:

- a) to find out and to express the **casual connection between each factor of risk and the expected outcome, from a contractor's point of view;**
- b) to simplify the network of desirable outcomes by transforming all partial results in one outcome - **real costs to be equal or less the target costs, covered by contract price.**

Similar ideas are developed by Chapman and Ward [2], Kliem and Ludin [10], and can be seen in the guides on drawing up international contracts for construction., Build-Operate-Transfer and “turn-key” contracts. Simplification is highly appreciated by project managers, as well.

Identification and assessment of the project risk factors for IIP in Bulgaria in 2001, has been based on:

- ♦ desk research of: **reports**, issued by governmental institutions and non-governmental organizations, international and local consultants, publications of Bulgarian and foreign experts in specialized economic magazines and newspapers; risk indices of international organizations; etc.;
- ♦ **field research, based on** inquiries, interviews, discussions in two **2 ministries** and **1 state agency**, dealing with the execution of both projects in Bulgaria; **6 Bulgarian contractors**, with considerable experience in construction of infrastructure projects in Bulgaria and some countries in the Middle East; **3 consulting companies**, performing system research of business environment and macroeconomic indicators.

The sensitivity analyses based on the data gathered within the desk and field research enabled us to identify and assess **16 project specific risk factors**, which could cause unfavourable deviation of the real costs from the target costs, and could reduce the contractor's profit. Each risk factor is assessed according to two indices: “probability” and “impact”. The risk factors are presented in Table 2.

**Project Specific Risk Factors Table 2.**

<u>Expected Outcome at Risk</u> Risk Factor (RF)	P*	I*	M*
<i>A. Overrun of the target costs, due to:</i>			
I. Changes in the scope, volume and/or type of the works, caused by:			
1. Re-design of large parts of the project and/or additional works, materials, equipment, due to insufficient, irrelevant and/or wrong information, supplied by the client at the feasibility study and design phase of the project life cycle	A	H	SM
2. Changes in the scope of works and methods of construction, due to changes in local regulations	A	W	LM
3. Changes in the construction site, due to ecological requirements and/or historic and archaeological monuments, discovered during the construction phase	A	M	MM
<i>B. Overrun of the target costs, due to:</i>			
II. Changes in the purchasing power of money:			
4. Inflation, especially - increase of the prices of raw	H	W	MM

materials, fuel, electrical energy, labour			
5. Unfavourable changes of the exchange rate	H	W	MM
<i>C. <u>Overrun of the target costs, due to:</u></i>			
III. Delays, caused by:			
<b>6. Bureaucracy and sluggishness of the central and local administration</b>	<b>H</b>	<b>S</b>	<b>SM</b>
7. Non-fulfillment of the contractual obligations of the Bulgarian sub-contractors	H	M	SM
8. Temporary interruptions of financing	H	M	SM
9. Unfavourable climatic conditions, which are strongly expressed, because of the mountain character of the region, where the Project “A” is located	A	S	SM
10. Underdeveloped infrastructure, low traffic capacity and bad condition of the roads, bridges, etc.	H	M	SM
11. Inefficient project management	A	M	MM
<i>D. <u>Overrun of the target costs, due to:</u></i>			
IV. Emergency payments to cover unforeseen expenditures, connected with:			
12. Corruption	H	M	SM
13. Correction of low-quality works and/or urgent compulsory change of sub-contractors	H	M	SM
14. Expenditures for preservation of uncompleted works, as	A	M	MM



well as for storage of the materials and equipment, in case of compulsory interruption and consequent resuming of the work

15. Covering damages, due to force-majeure circumstances	A	W	LM
16. Additional measures for security and covering damages, due to thefts of materials and equipment	H	L	MM

P - probability of occurring; L - low; A - average; H - high;  
 I - negative impact; W - weak; M - moderate; S - strong;  
 M - Magnitude;  $M = P \times I$  LM - low; MM - moderate; SM - strong .

The results of the assessment of the risk factors can be visualized, on a simple “Probability - Impact”, “three-by-three” - matrix (see Figure 2).

#### COMMENTS:

The **risk profile** of both projects, for 2001, is **unfavourable**. Eight RFs are situated in the strong risk magnitude quadrants, and only two – in the low risk magnitude quadrants.

Risk profile is determined by **high probability** and **moderate negative impact**. The probability of RF to occur is high for 10, out of 16 RFs and average for 6 RFs. Moderate negative impact will be exercised by 9 RFs, 5 RFs are expected to have weak and 1 RF - strong impact. High probability is due to the considerable uncertainty at country, location and project level. Moderate impact can be explained with the early phases of the projects life cycle. Moderate and weak negative impact does not improve very much the general project risk profile, because high probability may lead to the accumulation of negative impact and to cause a considerable downside risk.

The weak negative impact of RF No. 4 is due to the fact that in years of parliamentary elections the government does its best to depress inflation through administrative price control. Therefore, strong negative impact is to be expected in the end of 2001 and in 2002.

**The key RF, for 2001, will be bureaucracy,** followed by interruption of financing, underdeveloped infrastructure, non-fulfillment of contractual obligations, corruption and changes .in scope of works and construction methods.

P R O B A B I L I T Y	H	MM			SM			SM
		4,	5,	16	7,	8,	9	6
					10,	12,	13	
	A	LM			MM			SM
		2,	15		3,	11,	14	1
	L	LM			LM			MM
		W			M			S
N E G A T I V E I M P A C T								

Nevertheless the most relevant responses to these RFs taking into consideration their uncontrollable nature should be:

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- ♦ substantial reduction of all **expenses**, before the complete settlement of all aspects of the project development - subject to legal and administrative regulations;
- ♦ a **comprehensive specification, in writing, of all sub-contractors' liabilities**, in case of non-fulfillment of any contractual obligation;
- ♦ **cost-insentive price formula**, with explicit **adjustment** and **revision** clauses:

The **adjustment clause** should provide an adjustment of the contract price, when the construction is varied, as well as in the following situations:

- a) incorrect data supply, provided by the client;
- b) changes in the scope and volume of the works, required by the client;
- c) unforeseeable natural obstacles, particularly - hydrological and sub-surface conditions, which result in higher costs, reasonably incurred by the contractor;
- d) changes in the local regulations and conditions, which cause changes in the method of construction, the applied materials, etc.;
- e) if the materials, equipment and/or works, foreseen to be produced or done by local companies and sub-contractors, are not delivered or executed and the contractor is forced to look for new sub-contractors.

The **revision clause** should provide a revision of the contract price, in case of:

- a) change in the unit prices of materials, labour, equipment, etc.;
  - b) change in the exchange rate of contract price currency and of local currency.
- ♦ **payment conditions**, should be relevant to the long and costly initial stages and possible delays in partial payment. A payment scheme stipulating high percentage of advance payment, a number of milestone partial payments and low percentage of final payment will be most relevant;

- ♦ **special contract clauses**, which are to guarantee a reliable protection against overrun of target costs, due to delays. Such clauses are: **variation** clause, **penalty** clause; **exemption** clause, **hardship** clause, **force-majeure** clause and **passing of risk** clause;
- ♦ **insurance** against all insurable pure risks, preferably not in Bulgarian insurance companies, which may not be able to cover or to cover on time the damages.

Foreign contractors will face the challenge to find the most reliable form which to enable them to apply these relevant responses to risks in the current management practice.

The identified and characterized country, location and project risk factors will lay their impact on the progress of all IIP which will be implemented in Bulgaria in the next couple of years.

This research is open and will continue in the field of development of the risk management process as an “ad-in” to the project management process in construction phase of the project life cycle which both projects will enter into in 2001.

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