SOME INTSTITUTIONAL ISSUES RELATED TO ENVIRONMENTAL IMPACT OF MINING AND INDUSTRIAL ENTERPRISES

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ABSTRACT

Some institutional issues related to estimation of the impact of mining and other industrial enterprises on the environment are disputed in the present paper. The list of the Council of Ministers, concerning Regulation No 50 of 1993 about areas industrially contaminated with heavy metal as well as the inadequate policy of the Government in respect of re-cultivation of contaminated lands is also commented. Examples of irrational strategy are also given in respect to the restoration of the ecologically clean status of the environment.

INTRODUCTION

The idea of a balanced economic development under a sustainable ecological condition in some Bulgarian areas has been rather deformed for the recent years. This refers not only to high institutional levels but also to subordination of local authorities of municipalities of extreme negatives environmental conditions.

Worth mentioning is the fact that according to our investigations hyperbolizing the ecological status in some "hot points" of the strategy is a result of the following factors:

- Insufficient professional knowledge and in some cases incompetence of some representatives of the high departmental institutions;
- Inadequate legislation and regulations, established in the last years;
- Comprehensiveness of the issue of real estate properties and in particular ownership of the agricultural lands. These are the consequences of the reforms concerning restoration of private ownership restoration of these lands. A lack of information is quite characteristic in a scale concerning issues such as natural (geo-genetic) soil contamination with geonoxes (poisonous agents of geological origin) and separation of areas of such contamination from areas of a technogenic ecological harm.

INVESTIGATION AND METHODOLOGY

Our detailed review of recent Bulgarian and world investigations in the field of land ecological status, geoecology and the legislation for the real estates in our country concluded that institutional information in Bulgaria is inadequate in respect of problems of negative impact of natural and technogenic factors on nature and public environment. Based on a review of methodologies, applied all over the world, which concern the separation of human contamination from the geogenic one, it was established that soil science and geological methodologies of early 60ties had been applied to environmental protection even in the most developed countries. Only in Bulgaria, after a period of a geoecology development (in a collaboration with French, Russian and Serbian scientists - Frolov, 1991) the so-called Discrete Point Geoecological Profile Method was developed (Dachev, 1996, Dachev, Theoharov et al., 1997, Dachev and Uzunov, 2000, Dachev and Borisova, 2000, Borisova, 2001, Theoharov and Dachev, 2001). The environmental contamination (autocontamination zones) caused by technogenic invasion into soils could be determined by the above methodology. This method is a priority for Europe is practically interesting and is applicable for:

- Expert estimations of private and state-owned real estates in the sale of real estates, for assessment of ecological, market and the strategic risks;
- Assessment of former technogenic and self-geogenic contaminations;
- National and regional ecological programs.

RESULTS AND INTERPRETATION

In this case, an application of the so-called multidisciplinary approach to the effect of the mining and the industrial plants on environment as well as the role of the institutions is necessary for adequate assessment of the issue. That means all the mentioned above factors should be taken into account: competency of institutional experts, legislation basis and the integrated character of real-estate interrelations.

On competency of institutional expert. It should be noted that regardless of the endorsed international standards and operating legislation concerning the problems of Environmental

Impact Assessment (EIA), there are a number of EIA procedures in Bulgaria practiced in a usually by reduced by number expert boards. As a rule, they consist of chemists, biologists, geographers, and economists and rarely of geologists and geoecologists. This goes on despite the fact that there are highly qualified specialists exactly in the same area – in specialty of "Geoecology" trained and educated at the University of Mining and Geology (UMG) "St Ivan Rilsky" in Sofia.

Reasons for not including geologists from the University of Mining and Geology into the commissions is the lack of information of high level officials from Ministry of Environment and Waters as well as the badly formulated legislation.

For example, recently operating Environment Protection Act and relevant regulations say that only graduate professional of at least five years of experience possess the right to take part into EIA commissions.

This is obviously unadvisable as the University of Mining and Geology "St Ivan Rilski" in Sofia and the University of Forestry train professionals in the field of environmental sciences for a term of five years. So, the new Environment Protection Act should regulate the right of geoecological specialists to take a part in expert commissions.

An inadequate juridical treatment of the legislation and regulations concerning environmental issues. The disorientation role of certain laws and regulation documents for environmental issues was repeatedly underlined (Dahev, Theohranov, 1995; Dahev, Kiosev et al., 1997; Dahev, Uzunov, 1997). For example, a decisive disorientation role in the agricultural (soil) environmental issues played para 10 of article 10 of the Law for Agricultural Land Management and Usage (LALMU) of 1991 where the following is written: " The lands in the ecologically contaminated areas should be given back to the owners and the expenditures for their ecological restoration should be assumed by the government". The Council of Ministers determines the ecologically contaminated lands as well as the order and the way of their ecological recultivation. There are not comments about the lands and even whole regions with extreme natural geochemical anomalies that impact negatively on the ecological status. It is not clear how the state may re-cultivate such lands in an ecological condition that is again not specified.

That is why an entire series of subsequent laws and regulations were generated, which treated the problem of the ecologically harmed lands in the same wrong direction. For example: Law for agricultural land protection, Law for infrastructure of territory as well as relevant regulations and the number of rules generated by them, etc. Now a new Law for the Cadastre will be discussed and it will be considered in the same way. A working group of UN experts on a base of cadastral investigations and land development systems accepted the following definition (UN bulletin, 1985), quotation: "The cadastre is methodologically ordered governmental list of data about the real estate in a given country or area".

The word DATA, of coarse, includes also a full set of geomorphological and lithogeochemistry facts. At present, in

our country the geological information is neglected. It is shown in an undoubted way by the notorious list (appendix 2 of the Decree \mathbb{N} 50 of 1993) of contaminated lands in Bulgaria, which still is neither cancelled nor at least corrected. That list (table 1) includes hundreds of hectares of Bulgarian lands, industrially contaminated, where "the competent experts" – soil scientists and agronomists included the zones of extreme values of geochemical heavy metal anomalies in the sampling (the dark marked in the text – a. n.) which is unacceptable.

It is known today why that list was neither annulled nor corrected and the answer is:

- Purposefully, the competent specialists in ecology from the University of Mining and Geology "St Ivan Rilski" in Sofia are not drawn into the commissions;
- Authors of the list, due to their undoubted economic interest, started a re-cultivation of those lands, i.e. tried to clean the uncleanable and spent significant amounts of money from the funds of European and United States Organizations in the most unadvisable way.

The clarifying of the problem of the lands contaminated by the mining and industrial enterprises is not referred only to the Land Fund Authority and the other real estates. It is also exclusively important in respect of former contamination and agricultural ecological restructuring. For example, growing of tobacco in the whole Rhodopes is nor advisable because this same plant is a concentrator of heavy metals and radionuclides. A realization of such project, which is obviously stimulated by interested companies of that branch, will render at the end a negative ecological influence on people of the region.

Separation of the natural contamination from the industrial one needs relatively low funds, a little times and not extended teams. It should be a process of re-mapping of the well-known (and already mapped) metalogenic zones with a separation of the minimums and maximums of genoxy content.

Some aspects of taking into account the geoecological risk. The Geoecology is a science for a 3D and polycomponent influences (geological and soil) on the ecological status of the soil, waters, air and the human factor. Generally, the environment contamination, however, is not only of geochemical anomalies and heaps resulting of mining and metallurgical industry. An attention to other geological phenomena, harming the environment and society, is also necessary, as: landslides, earthquakes, strong rain fans, erosion and cumulative processes, etc.

Those are risk factors as of an economical as well as of a health-ecological meaning. Their prognosis is a matter of a system, devices, monitoring and control activities but most of all they are a matter of a principle position in respect of endorsing of the dynamical geoecological systems (Dachev, Uzunov, 1999).

There is no case for underestimation of these geoecological factors, or the environmental contamination.

Table 1

List of environmentally contaminate	d agricultural lands from indust	try of heavy metals (Appendix	c 2 of the Decree of Council of
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Ministers № 50)							
Nº Location		Contaminated areas above the		Elements	Source of		
Region		Threshold Permissible Concentration -		contaminants	contamination		
		decares					
		Total	More than twice the TPC				
1. Vidin	Total:	1002	673	-	-		
including:	Bregovo town	671	508	copper. zinc	Timok river (Bor		
	Balley village	45	45	lead, arsenic	mine, Yugoslavia,		
	Vrav village	286	120	lead, arsenic	Serbia)		
2. Vratsa	Total	1310	635	-	-		
including:	Ochin dol village	390	15	arsenic, lead	MMP - Eliseina		
	Zverino village	300	-	lead	MMP - Eliseina		
	Oselna village	300	300	arsenic, lead	MMP - Eliseina		
	Eliseina village	280	280	arsenic, lead	MMP - Eliseina		
	Zli dol village	40	40	arsenic, lead, copper	MMP - Eliseina		
Kardjali	Total:	33500	11500	-	-		
including	Kardjali town	9000	5000	lead, zinc, cadmium	LeadZincP – Kardjali		
	Gledka village	1500	1000	lead, zinc, cadmium	LeadZincP – Kardjali		
	Shiroko pole vill.	2700	1000	lead, zinc, cadmium	LeadZincP – Kardjali		
	Vishegrad vill.	1000	500	lead, zinc, cadmium	LeadZincP – Kardjali		
4. Sofia - district	Total:	47400	11000	-	-		
including	Pirdop town	15000	5000	copper, arsenic	CopperPlant –Pirdop		
	Zlatitsa town						
	Tsarkvishte town	12000	4000	copper, arsenic	CopperPlant –Pirdop		
	Karlievo vill.						
	Anton vill.	6000	2000	copper, arsenic	CopperPlant –Pirdop		
	Chelopech vill.	5000	-	copper, arsenic	CopperPlant –Pirdop		
	Dushantsi vill.	1500	-	copper, arsenic	CopperPlant –Pirdop		
	Grigirevo vill.	1900	-	lead	"Kremikovtsi" Co.		
	Eleshnitsa vill.	2100	-	lead	"Kremikovtsi" Co.		
	Stolnik vill.	1800	-	lead	"Kremikovtsi" Co.		
	Musachevo vill.	2100	-	lead	"Kremikovtsi" Co.		

CONCLUSIONS

1. An intensive intervention on behalf of scientific geoecologic and soil science society is required to change the style and methods applied to issues of institutional factors for re-cultivation of clean Bulgarian environment from geogenic and technogenic contamination.

2. The comprehensive approach toward environmental impact assessment for mining and industrial enterprises should be applied and geologists and mining engineers should be involved in it.

3. A support should be requested in the Parliament and within the Government for corrections in the regulations, relevant to the most important trends of environmental expertise and environmental status of real estates.

- Change in the Environmental Protection Act in the part of required professional experience for enrolling experts in the register of Ministry of Environment and Waters for assessment of environmental impact. Experience of the graduates from the "Geoecology" specialty of the University of Mining and Geology – Sofia and other similar specialities should be one year instead of quoted in the law five years;
- Change in the same law, in the part concerning paying of expenses for the procedure of EIA, according to recent law these expenses are paid by the investor, which is illogic and unmoral. Owner of land, where the project will

be implemented (as it is in Germany and other west-European countries), should pay those expenses;

 Cancellation of the list of contaminated lands to Decree No 50 of the Council of Ministers of 1993 and organizing by the Ministry of Environment and Waters, teams of geologists and soil scientists for reviewing the metallogenic zones with extreme geochemical anomalies and geochemical heaps of heavy metals and radionuclides;

4. Organizing by the University of Mining and Geology "St. Ivan Rilski" of seminars, conferences etc. at a national and international scale for reviewing the economic role of geoecological investigations for assessing the risk of real estate sales, santary and other operations, national and regional strategies for extreme geological situations.

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