

## **ENVIRONMENTAL PROTECTION IN SERBIA; ENVIRONMENTAL CHALLENGES OF A WAR AND AN EXPERIENCE OF THE SUBSEQUENT CONSOLIDATION**

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### ***ABSTRACT***

*The main purpose of the article is to show the development of the state of Serbian environmental protection from the nineties to nowadays. In the first section, it is inevitable to start with the tragic events of the nineties, with the civil war and the subsequent NATO air strikes. In addition, an important part of this section is the discussion of the radioactive pollution caused by the airstrikes. The following section is describing the recent situation according the main environmental factors and also shortly shows the correlating factors like economy, international cooperation and regulations. In the final part, despite the large progress of the approved environmental regulations, probably the most actual and severe issues – the implementation and execution of the regulations – are discussed. It is important to see that despite all the development since the end of war until today, despite the progress in the European Union accession process and the accompanied further integration there are still several hurdles – lack of funding, lack of cross-sector planning or public awareness - to overcome in order to change the state of the Serbian environment.*

Keywords: Serbia, environment protection, war, regulation

*‘Everyone shall have the right to healthy environment and the right to timely and full information about the state of environment.*

*Everyone, especially the Republic of Serbia and autonomous provinces, shall be accountable for the protection of environment.*

*Everyone shall be obliged to preserve and improve the environment’*

*(Constitution of the Republic of Serbia, 2006)*

### **STATE OF ENVIRONMENTAL PROTECTION IN SERBIA**

Due to the main intention of the article to present the decisive events, development and recent state of the environmental protection in the Republic of Serbia, it is inevitable to start the article with the effects of the tragic events in the nineties on the natural and man-made environment of the country and the subsequent economic implications. The almost ten years of civil war and following NATO airborne airstrikes, followed by the political and economical consolidation fundamentally determined the recent state of environmental protection policies in Serbia. Currently, in this field, despite all the positive developments, Serbia is one of the most underdeveloped countries in Europe.

The following factors and events are causing substantially larger damage to the Serbian natural habitat and general health of the public than the later discussed use of depleted uranium:

- the concentrated bombing and demolition of the Serbian industrial centers, energy sector and infrastructure;
- the militarized economy and the UN sanctions of the 90's;
- the unrealized and cancelled investments, the lack of proper maintenance and thus the utilization of inefficient obsolete and environmentally hazardous technology;
- political chaos and extreme corruption;
- lagging, inadequate and incomplete regulatory environment;
- lack of cross-sector policies and – what is even worse
- the implementation and enforcement of the regulations.

The most promising factor during the transformation of the country is the European Union Accession process according to which laws, by-laws, implementation and their execution has to be fully harmonized with the EU *Acquis Communautaire*.

In the following sections I would like to present shortly the main environment related events (not in their chronological order but according to the structure of the article) and their consequences in the nineties. After the past, a brief presentation of the recent state of the Serbian environment, the respective problems, regulations and potential remedies comes.

### **The NATO Airstrike and its consequences**

The NATO military action against the Federal Republic of Yugoslavia – which was strictly limited to airborne – did not only exaggerate the fall of the Milosevic regime, but also substantially deteriorated the ecological and economic potential of the country. In this section, a short presentation of the consequences of the 79 days of airstrikes and a summary and a brief evaluation of the damage will follow.

### **Chemical Contamination**

The main target of the NATO Bombing was to paralyze the vital functions of the Serbian State and at the same time to avoid excessive civil casualties. There was a wide scale airstrike against physical establishments of the political institutions (buildings of the Milosevich Party and certain state administration), police and military outlets. In addition, several crucial infrastructural locations like bridges (Novi Sad) were completely destroyed, and the broadcasting of some TV and Radio stations (TV and radio broadcasts) was disabled by the demolition of TV towers like Fruska Gora near Novi Sad and Avala in Belgrade (where the reconstruction was completed only in 2009). With the above strategy, they wanted to cut off the distribution of information and to substantially make the movements of the Serbian military and supplies difficult. An additional goal was to disable everyday life and to motivate the inhabitants of Serbia to either overthrow the Milosevich regime or to force them at least to cooperate peacefully and constructively with International

Institutions and Forces. Despite all the great plans and announcements to minimize non-military related damage, the list of industrial targets was also substantial and the consequent ecological and human cost, were extremely high.

The main targets of the Serbian Economy were:

- agricultural centers and chemical fertilizer plants;
- fuel, oil and chemical industrial plants;
- electric power-plants
- metallurgical plants;
- pharmaceutical plants;
- food processing plant and several storages;
- and other types of plants, for instance machine manufacturing, battery and plastic processing plants, tobacco factories and even commercial and office centers were included on the list to be bombed.

### **Radioactive Pollution**

Before further discussion, it has to be emphasized that the environmental damage and health problems caused by the use of depleted uranium as a result of the military action against Serbia – were proven to be negligible compared to other much more serious problems.

As it was mentioned earlier, in an article about the state of environment in the Serbian Republic, it is imperative to discuss about the use of depleted uranium and its real ecological and human health related consequences. The employment of depleted uranium in the artillery was confirmed and in addition (in 2001) a detailed list of locations was supplied by the NATO (UNEP, 2002).

In nature, two different kinds of uranium isotopes can be found: the 235 *mass-number* and 238 *mass-number*. For nuclear power-plants the 235 isotope is used for the enrichment of uranium. The by-product of the enrichment process is the so-called depleted uranium. The radioactivity of the depleted uranium is approximately 40 percent less than that of the natural uranium and the half-life is around 4.5 billion years. Due to industrial enrichment processes and the wide use of nuclear energy on a global scale, disposable depleted uranium sources are plenty and cheap. Given the large density of the uranium, the artillery with uranium head penetrates deeper into the armor of the target than a regular bullet. The use of depleted uranium for military purposes is a globally widespread phenomenon (WHO, 2010; [www.wikipedia.org](http://www.wikipedia.org), 2010).

After the conclusion of military actions in Serbia, the issue was raised by the Milosevic propaganda and it became not only a scientific debate, but also a media created hype. Both the use of depleted uranium and its consequence on the human health and on the natural habitat have become one of the hottest topics at that time. Just as an example, in Hungary just after the finish of the NATO Campaign, the topic became popular and exaggerated by the media. Many articles concluded that the so-called Balkan-syndrome (in a relatively short time a large number of peacekeeping – SFOR – soldiers became sick with Leukemia) was caused by the depleted uranium (*origo.hu*, 2001).

Depleted uranium basically damages its environment in two ways: as heavy-metal and as radioactive material. According to independent experts employed by the UN, the Balkan or previously the Gulf-syndrome among other factors is more attributable to the first factor (UNEP, 2002).

To evaluate the environmental damage caused by the depleted uranium, the UN has formed a Balkan Task Force and the group examined the posterior radiation in all the major areas affected by the NATO airstrikes (in Serbia, Montenegro and Kosovo). The international task force (also including Russian scientists) did not find any serious aftermath and the hazard was rated as minimal. The Balkan Task Force has examined all areas twice with a few years difference and they are also planning further evaluations (UNEP, 2002).

### EXAMPLES OF WHAT TO BOMB?

**Panchevo:** around 1.7 million people were affected by the direct consequences of the airstrike, due to the relative proximity of Belgrade and even more because of the fact that industrial zones were/are right on the bank of the Danube. The chemical industry and oil refinery of the city was one of the largest single industrial complex of ex-Yugoslavia and that is why it was one of the first targets of the NATO strategy. Basically, every industrial construction in Panchevo was ruined to the ground. Even today, there are not exact and correct statistics about the quantity of oil, oil derivatives, auxiliary materials and chemicals which contaminated the air, the Danube, underground water reserves and soil. According to estimates, approximately 80 000 tonnes of oil products burned and 5000 more tonnes of oil product leaked into the soil and sewer system (UNEP, 2004).

**Kragujevac:** the airstrikes affected around 175 000 people and the city used to be the center of car, weapon and munitions manufacturing in Yugoslavia. At this hotspot, the bombing of the Zasatava complex led to high concentration of polychlorinated biphenyls and dioxins (approximately 2500 tonnes of PCB oil leaked from the damaged transformers) in the territory of the factory and also in the Lepenica River (UNEP, 2004).

**Novi-Sad:** is the center of Vojvodina with approximately 300 000 inhabitants and also one of the main service and logistical center of the economy. It was one of the main targets of the NATO bombings, due to its gate role (as the main distribution center) in the economic life of Serbia and also due to the bridges on the Danube. Furthermore, the storage facilities and pipelines of the local oil refinery were seriously damaged and approximately 70 000 tonnes of oil products burned and spilled into the soil and groundwater (UNEP, 2004).

**Belgrade:** the full population of the city (around 1.7 Million people) was affected by the consequences of the airstrikes, not just due to its role as the capital of Serbia and as such the administrative, military and cultural center of the country, but as mentioned before also by its proximity to Panchevo. The main military, police and Milosevich Party buildings, the TV tower and TV center (and the be-famed Chinese embassy) were completely destroyed.

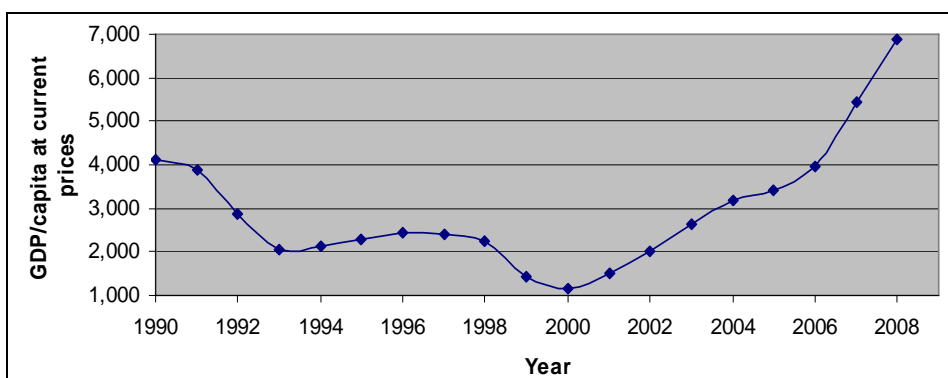
In addition, to the previously mentioned major targets, there were several other seriously damaged industrial centers. Among them, Bor – the main mining and smelting complex and Nis – apart from Panchevo the city was the center of energy and chemical industry of ex-Yugoslavia.

## PRESENT

Since the turn of the millennium, the Serbian economy not only consolidated from a military driven economy, but despite the lost possibilities in the nineties' global prosperity and also all the post-war and post-sanction political problems, it became one of the dynamically growing economies of Europe. Although the present global economic crisis has slowed down the economic recovery and probably due to the large exposure to Greek banks, the economic growth might lose some momentum. However, given the low starting point, further large falls in the productivity and GDP are unlikely. Furthermore, it is in the best interest of European Union itself to support an economically sound and politically stable Serbia.

Figure 1

Changes in the Serbian GDP per capita since 1990  
(at current prices – US dollars)



Source: *UNdata*, 2010

In the nineties, with the existence of the military driven economy the GDP took a free fall. Just for comparison, in 2000 the GDP per capita (1161 USD) was approximately four times less the same 1989 data (4100 USD) (*UNdata*, 2010). In 2006, the same statistics (3979 USD) were again four times higher than in 2000, however, still did not reach the 1989 value. 2007 was the first year again, when the GDP per capita number (5456 USD) was larger than in 1989. In 2005, 2006 and 2007 the annual growth of GDP was around 5-7%. In the recent years, the main driver of the economic growth has been service sector with especially large contribution from the logistic and passenger transportation (in the second quarter of 2006 their performance was almost 27 percent higher than in the same period of

2005) services. The industrial production is also successfully reviving after the great shock of the 90s and its growth reached 5% in 2006 (*UNdata*, 2010).

In ex-Yugoslavia, the heavy industry and machine manufacturing were mainly concentrated in the Serbian Republic, thus now still these are the dominant sectors in the economy. As basically all the segments of the heavy industry are represented in the present territory of Serbia, the level and extent of environmental problems are large and varied. Despite all the development and revival of the Serbian industry it is still in a very immature phase in relation to modern technologies, and what is even more problematic the usage of old, obsolete and inefficient equipment and methods creates serious hazards. Due to these technologies the environmental damage is substantially more serious than what would be implied by the size of the Serbian industry.

### **Air and Lead**

The greatest air pollutant is the energy and chemical industry, the heating plants, waste sites and construction industry. These have the highest emission not only due to the fact that they are usually the most polluting sectors in any economy, but also because their operations are very far from any contemporary industrial standards. The derivatives and by-products of the productions are not processed at all, but simply burnt without any cleaning and then driven into the air without filtering. The major pollution arises from the use of low quality lignite in power plants (around 62% of the electricity is produced by the use of lignite) In most of industrial zones, which can be called as environmental 'hot-spots' (not surprisingly, many of them are identical with the industrial areas bombed by the NATO, for example: Panchevo, Kragujevac, Nis) the air and water pollution is many times higher than the threshold limits. The production of electricity and heating is done in old power-plants with the usage of low quality lignite. The loss during distribution is enormous and due to the lack of individual meters at the consumers, neither the plants, nor the retail customers are interested in efficient usage. Based on estimates recently only 75 percent of all produced energy has reached the final consumers. Wit the introduction of different incentives, separate consumption meters, and more energy efficient equipments and appliances final consumption could be decreased by as much as 50 percent. The use of renewable energy in the whole energy industry was less than 7 percent in 2006 (*National Environment Strategy*, 2006).

Another serious emission problem is caused by the passenger transportation and logistic sector, as generally both the freight and passenger vehicles are obsolete with high and inefficient fuel consumption. In line with the quickly increasing number of vehicles (approximately 2.3 million registered road vehicles in 2004) pollution is continuously growing. In this sector the main problem is the use of leaded petrol, which is still the most popular type of fuel. At present, there all still no plans to ban its distribution, or not even to introduce a special excise tax to modify consumer behavior. It is simply the cheapest source of fuel (*National Environment Strategy*, 2006).

It is estimated that the total annual damage due to air pollution and greenhouse effects in Serbia amounts to 447.2 – 1 370.1 million Euros, which is equal to 1.8-5.5% of GDP (*National Environment Strategy*, 2006).

### **Soil, Water and some Waste**

In agriculture the major cultivation method is still intensive and it is exploiting the soil. Due to the high proportion of land in private ownership (around 85 percent), the quality of soil is further decreased by inappropriate methods and chemicals for pest control. It is especially problematic in the Vojvodina region, as it contains the most fertile agricultural land (83.5% of its area is in agricultural use). An additional problem is the high level of erosion of soil, as around 80 percent of the agricultural areas are affected by either wind or water caused problems. This section would not give a full picture without mentioning the emissions caused by the low quality industrial processes and traffic related emissions, as the land around industrial cities and major roads is deeply contaminated by various pollutants (*National Environment Strategy*, 2006).

The country possesses sufficient quantities of water resources to meet its needs. Water management, however, stayed as immature/underdeveloped as it was 20 years ago, just like in any other areas, there were no new investments, appropriate maintenance and basically no rehabilitation. One of the main specific reasons of deterioration of fresh water quality is the lack of environmentally sound infrastructure – no satisfactory waste management and storage, water supply and sewage system management. Approximately, 90 percent of industrial wastewater is discharged unfiltered. The quality of water suffers especially from eutrophication caused by nutrients and organic pollutants, (caused by unfiltered sewage and discharged agricultural substances) and along large cities. In the nineties, the use of fertilizers sharply dropped and the level of eutrophication decreased substantially, but since then it has been increasing again mainly due to a rise in livestock. Furthermore, it seems that probably the area of water management suffers most from the lack of regulations and delays compared to the international regulations and best practices due to the relatively high cost. It is important to mention that the low quality of water is also the result of the negligent behaviour of the neighbours, as only 8 percent of the water sources originate in Serbia. The quality of water for human consumption is generally low (*National Environment Strategy*, 2006).

One of the factors which contributes to both the already low quality water sources and soil is the inadequate waste management. Approximately only 60-70 percent of municipalities are collecting solid waste in their territory (mainly in urban areas) and even the hazardous waste is collected and dumped together with household waste. In rural areas the most important way of waste management is burning (*National Environment Strategy*, 2006).

### **Regulatory environment**

In 2004, Serbia adopted the following laws, which comply with the respective EU directives: Law on Environmental Impact Assessment, Law on Strategic Environmental Assessment and Law on Integrated Pollution Prevention and Control. The main importance of these laws is that they allow public participation and access to information (*UNDP*, 2009).

The time period since 2006 can be characterized as a continuous election campaign, which completely disqualified any issues (including environmental

matters) among politicians and lawmakers apart from daily political survival. In 2006, after the separation of Montenegro, the new Serbian Constitution had to be quickly completed and approved, in January of 2007 parliamentary elections were held (resulting in a fragile majority) and in 2008 on the presidential election Boris Tadic, pro-European and a democratic politician was elected. In February 2008, Kosovo announced its independence and completed its separation from Serbia. In May 2008, early parliamentary and municipal elections were held, after which with the lead of the Boris Tadic Democratic Party, and despite the participation of the post-Milosevich party in the coalition, a pro-European and stable cabinet was formed. The main goal of the cabinet is to prepare Serbia for the EU accession (the first great achievement was to reach the abolishment of Visa requirement for Serbian citizens into the Schengen countries), and to conduct an open and multilateral communication and cooperation with the EU member countries to improve the external evaluation of Serbia. The EU accession process and the cooperative behaviour were giving place for high hopes in the area of environmental protection regulations, administration, implementation and execution as well. The accession itself requires the harmonization of all Serbian laws and by-laws including the environmental ones too.

In 2005 Serbia and the EU started negotiations on the Stabilization and Association Agreement, which regulates its relationship with the EU and the main questions of the integration. In 2006 the negotiations were suspended, as the International Criminal Tribunal for the Former Yugoslavia (the Hague Tribunal is responsible for war crimes committed in the territory of the former Yugoslavia), found Serbia as non-compliant. In April 2008, the agreement was finally ratified by the EU and Serbia (*Official Gazette of Republic of Serbia*, 2008). However, for the full implementation of the agreement, the EU is expecting the approval of the Dutch government, which requires the full cooperation of Serbia with the Haag human rights court. In July 2008 Serbia arrested and extradited Radovan Karadzis, who was charged with crime against humanity and genocide. The capture of Ratko Mladic, the last big name fugitive, did not occur yet and probably Serbia also expects further political commitments from the EU before fully complying with the Haag court.

Despite political battles, until recently Serbia has ratified several of the following multilateral and international environmental treaties, for instance: Kyoto Protocol (*Official Gazette of Republic of Serbia*, 2007); The Framework Convention on the Protection and Sustainable Development of the Carpathians; Convention on the Conservation of European Wildlife and Natural Habitats; Convention on Migratory Species; Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction (*National Environmental Strategy*, 2006).

The most important regulations about the environment have been completed and they were enacted by the Serbian parliament, as the 'Green Package', in 2009. These laws are the following: Act on Waste Management, Act on Ionizing Radiation Protection and Nuclear Safety; Act on Non-Ionizing Radiation Protection; Amendments in the Act on Environmental Protection; Act on



Chemicals, Act on Air Protection; Act on Packaging and Packaging Waste; Act on the Ratification of the Rotterdam Convention on the Prior Informed Consent Procedures for Certain Hazardous Chemicals and Pesticides in International Trade; Act on Biocides, Act on Ratification of Conventions and Trans-boundary Effects of Industrial Accidents; Act on the Protection and Improvement of Green Areas; Act on Protection and Sustainable use of Fish Fund, the Act on Noise Protection (*Official Gazeta of Republic of Serbia*, 2009). All the listed acts or their amendments are done in accordance with the harmonization requirements of the EU accession. In addition, law on Access to Public Information, which was approved in June of 2004, was also absolutely vital for the further development of the Serbian environmental regulatory framework (*UNDP*, 2009). The authorities are continuously working on a completely new proposal according to international standards and on the harmonization of the existing regulations according to the EU requirements.

### **The administration of the regulations**

Responsibilities of the Ministry of Environmental Protection:

- Preparation of strategic documents, plans and programmes,
- Estimation of groundwater reserves and preparation of standards for geological maps,
- Protection from ionizing and non-ionizing radiation, chemical substances, waste and hazardous substances in production, transport, storage and disposal,
- Transboundary pollution of air and water,
- Control of transboundary waste movements and transboundary movements of protected flora and fauna,
- Climate change and protection of the ozone layer,
- Environmental protection measures in the process of spatial planning and construction,
- Early warning system against accidents,
- International cooperation in environmental matters and nature protection,
- Protection from noise and vibration,
- Preparation of programmes for basic geological investigations aimed at sustainable use of natural resources and underground water,
- Nature conservation and identification of potential natural areas of significance for preservation of nature,
- Permitting relevant to the import, export and transit of waste and vulnerable wild flora and fauna, ozone-depleting substances, chemicals and radioactive materials,
- Environmental and sustainable-development-related inspection (*UN*, 2007).

Despite all the positive changes in the regulatory environment and the establishment of a Ministry fully dedicated to Environmental issues with real European concepts and agenda, and despite all the good intentions of the politicians, regulators and civil organizations, there are serious obstacles to make the accepted laws, by-laws enforceable and executable. There are several reasons of the weak enforcement of the

environmental protection legislation: weak monitoring system, the lack of certain environmental standards and generally low awareness of and compliance with the Acts. In addition, the fines and charges are not sufficiently high to change behaviors.

However, the main reasons of the low enforceability of the legislation are, that in Serbia independently of the political situation and ad-hoc power deals, all planning and execution happens within the given sector and only little horizontal integration and cooperation exist. In addition, the Ministry of Environment Protection itself is not responsible for each environment related area. For example, in case of water quality management, apart from the MEP, the Ministry of Agriculture, Forestry and Water Management is also a responsible institution. Typical examples of non-harmonized cross-sector policies are the environment protection related issues as these areas usually have no centralized normative governance. For example: although the number of environmental assessments is increasing every year, the Strategic Environmental Assessment act (despite that it was enacted in 2004) is still not fully implemented as the Ministry of Environmental Protection has no capacity to carry them out. In addition, the inter-ministerial consultation process is limited to formal governmental comments procedure (UNDP, 2009). Furthermore, there is no real cooperation between central administration and municipal level.

There are also serious problems at the municipalities in this respect, as they are lacking a sufficient number of staff, adequate personnel and equipment and appropriate inspection bodies. Another problem is that as municipalities are trying to manage all the public services solely in their authority and there is not a central normative to aggregate these funds and plans into one nationwide effort, hence the targets and funds are fragmented, they are not reaching a threshold level to refinance them economically either by the central government, or by the EU organizations. Even if municipalities are able to find funding, the investment, maintenance lasts only until the complete utilization of the given funds and usually no renewal or extension of the refinancing is requested (REC, 2007).

Weak monitoring also largely contributes to the low level of enforceability of the regulations. National and local statistics are incomplete and inaccurate and they are based on outdated questionnaires. The relationships with the Eurostat are at an elementary level (also due to the rapid dissolution of the former Yugoslavia to its member states). The above is still true, although since the establishment of the *Environment Protection Agency* (2003) – the main priority of which was to establish an information system, assessment and reporting - statistical databases and coordination have been improving. One of the major difficulties in setting up a generally reliable statistical monitoring and database is again the lack of cross-sector coordination and undefined responsibilities and procedures. Another problem is the issue of public disclosure of the statistics, as there is a large time gap between data collection and dissemination. Generally speaking international relationships and cooperation in the field of Environmental Protection are unsatisfactory but emerging as a future priority (UN, 2007).

The lack of not executing and complying with the regulations can be easily detected during the regular everyday activities in Serbia. Basically all rivers of Serbia

are severely polluted and the pollution is continuously increasing. The quality of air in the big industrial cities (the ones listed earlier) is disastrous and is further deteriorating. These factors are obviously putting an enormous strain on the already insufficient and underfunded healthcare system, and contribute to the underutilization of the Serbian economy. Not to mention that to change the situation huge and ever growing efforts and financing are needed. In 2007, the Ministry of Environmental Protection has adopted an Action Plan about the most polluted areas (Panchevo, Bor and Smederevo) in Serbia.

The Integrated Pollution Prevention and Control System, which as mentioned before has adopted the related norms of the Community Acquis in full extent into the Serbian Legal Framework, was enacted in 2004 and since then most of the by-laws have already been approved. However, the limits and thresholds of allowed emission of different industrial sectors are under approval and implementation has slowly started. An example for this are two plants (Nikola Tesla and Kostolac) where electro filters have been set up according to the domestic and EU legislative, which resulted in a decrease of the emission (80% Nikola Tesla and 54% Kostolac) compared to 2003 (*National Report*, 2008). In addition, there seems to be an insufficient specific technical knowledge of employees participating in the IPPC. By the full implementation of the system, authorities could avoid the burden of ad-hoc individual cases and the control of the polluters could be done at a systematic level. By the use of the integrated system the emphasis from post monitoring and control would move to prevention and to previous control of approval of licenses. Probably it would increase the general trust toward authorities and it would substantially decrease corruption. It is not a topic of this article, but the fight against corruption, due to its wide spread presence at all levels of the administrative and judicial system is vital for the change and ultimate success.

In 2006, Serbia spent 0.2 percent of the GDP (around EUR 44 Mio) on Environmental Protection (NES) and the related industrial data is absolutely unknown. In addition, no public information is available on the distribution of the expenditures to the most important environmental sectors (*UN*, 2007). In the new EU countries the annual environment related expenditures are around 1.5-2.5 percent. There were no available public data on the amounts distributed by the central budget among environmental sectors and obviously no information on their proportions. According to estimates municipalities are distributing maximum one percent of their budget on this purpose. The National Investment Plan, which was announced in 2006, has proposed 1.2 percent of the full amount (approximately EUR 20 Mio) for such environmental related purposes for the full 5<sup>7</sup> years length of the program (*UN*, 2007). The biggest proportion of the proposal goes to waste, wastewater and clean water management. Given the extent of the pollution, the lack of monitoring, controlling and enforcing functions, the above mentioned amounts can be labeled as insignificant ones. Furthermore, it is also doubtful if the available funds are spent on the most serious environmental issues. In addition, the price paid by the final consumers, despite an increase in the energy prices lately, is still highly subsidized and does not motivate the use of energy efficiently (*REC*, 2007).

An estimate on the expense of environmental damage shows that environmental degradation costs the national economy from 4.4 percent (conservative scenario) to

13.1 percent (maximum scenario) of GDP (2005) annually. The highest loss is incurred by air pollution (53 percent of total costs), followed by water pollution (22 percent) and waste management (11 percent) (*REC*, 2007).

In order to enforce cross-sector planning and implementation – based on the already approved acts – a number of vital strategic documents have to be adopted, for example: National Environmental Strategy; National Program of Environmental Protection; Environmental Quality Standards and Emission Standards; Handling of Hazardous Waste; Environmental monitoring and information systems and an integral cadastre of polluters; Environmental Labeling; National Strategy of Sustainable Utilization of Natural Resources and Goods; Import and Export of Ozone-depleting Substances; Import and Export, Transit of Waste; and finally Economic Instruments to amend behaviors (*UN*, 2007).

## SUMMARY

Due to the originally stated goal to briefly present the environmentally important events and development in Serbia in the last 20 years, many important related areas were not even touched upon (for instance: biodiversity, noise protection, apart from depleted uranium, ionizing and non-ionizing radiation or risk management, correlation of poverty and environmental issues). However, the discussed issues gave a general overview of all the difficulties and shows the size of the job to renovate and hopefully to maintain the quality of the Ecology of Serbia.

Despite all the odds that a nation can face after a civil war and during the consequent political and economic consolidation, there are great and continuous improvements in the field of Environmental Protection in Serbia.

- Serbia has enacted several Environment related laws, several new laws are in completion phase and further new regulations are planned and under development now. All the new laws, policies and their implementation are fully harmonized with the respective European Union Regulations.
- As the international organizations have recognized the elementary level of Serbian Environmental Protection (apart from requiring only strict fulfillment of indicators and guidelines) to enhance the development and to put a pressure on the central government, they also set up several funds and NGOs. The focus of these organizations is that generally, they are not doing their lobbying activity based on the un-enforceable environmental regulations, but rather on the law on access to public information and on health care and health protection related regulations. Here it is important to mention that until recently regional international cooperation has contributed to the largest extent to the development of the Serbian environmental protection (*UN*, 2007).
- There are initiatives to increase the general awareness in Serbia. The significance of environmental education is to increase the interest and understanding of environmental issues of the public. The quality of the natural and man-made environment cannot be greatly improved without the active participation of the whole society.

Without doubt, despite all the efforts of the country and all the progress reached till now, the European Union has a huge responsibility and it is vital self-interest to contribute to the development of the Environmental issues in Serbia.

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