

# AIDA DOBRUNA, LOW CARBON PRISHTINA, MISSION IM(POSSIBLE)?!

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### I. INTRODUCTION

Kosova, as the newest country in the world, is situated in the center of South Eastern Europe. Its landlocked position certifies its significance as an important crossroad in the entire Balkan Peninsula. Moreover, its geographical position enables a substantial connection with its regional neighboring countries.

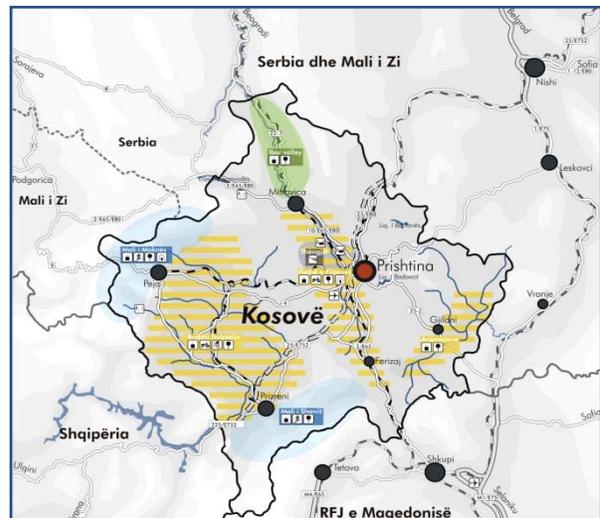
The country has a surface of 10,887 km<sup>2</sup>, bordering Albania in the south-west; FYROM Macedonia in south-east; and Serbia and Montenegro in the north-western part.

The capital of Kosova is Prishtina, situated in the north-eastern part of the country, with a surface of 4334.52 ha. Prishtina is the administrative, educational and cultural center of Kosova. Hence, it serves as the major traffic grid, directly connected to the sole international airport, the international railway line and roughly all the roads connecting it with other cities in the country.

Figure 1: Kosovo in Europe



Figure 2: Map of Kosovo



### II. PRISHTINA THE CAPITAL

#### *II.a. Brief historical background of Prishtina*

The first living traces in the area surrounding Prishtina, take us back to the pre-historic settlements, proven by numerous archeological sites. As a settlement, Prishtina was first mentioned in 13<sup>th</sup> century, whilst in the 15<sup>th</sup> and 16<sup>th</sup> centuries, it was known as a powerful trade and financial center which attracted merchants from Genoa and Florence.

The following table illustrates the growing household/population of Prishtina over a period of five centuries, given the limited available data:

Table 1: Prishtina population over five centuriesi

Year/s	Households	Neighborhoods	Villages	Approx. population
1486-87	392	10	51	/
1569-70	629	29		
1660	2060			
1685	3000			
1689	4000			
1811				12.000
1981				150.000
1999				338.000
2000				545.477 (OSCE*) <sup>ii</sup>

This table depicts that after the late 16th century, Prishtina was an important political, economical and administrative center of the Ottoman Empire. Up until the XX century, the population grew on a massive scale. Currently, in the year 2009, it is estimated that the population of the city stands between 400,000 and 500,000.<sup>iii</sup> In short the city now comprised of 42 villages in its municipal boundaries.

In general, the discrepancies of the actual size of population living in Kosovo and Prishtina, is as a consequence of the lack of an official population census. The last official census was conducted in 1981 and due to numerous political reasons, it has not yet been redone.

Figure 3: Prishtina in 1937



Figure 4: Prishtina in 1950

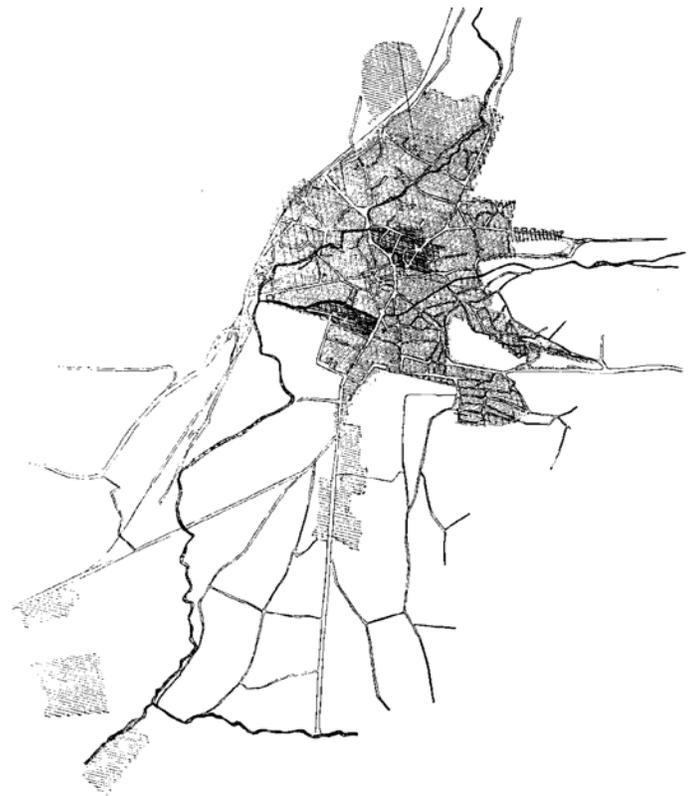


Figure 5: Prishtina in 1960



Figure 6: Prishtina in 1999



### ***II.b. Urban planning background of Prishtina***

Chronologically, actions related to spatial planning and regulation were as follows:

- “Prishtina Regulatory Plan (1937)”- covering the surface of 192.72 ha, for a demographic projection of 16.000 inhabitants.
- “General Urban Plan (1953)”-with a time-span up to year 1980, for a surface of 950 ha and for a demographic projection of 50.000 inhabitants.
- “Zoning and Traffic Plan of Prishtina (1967)”- for a surface of 1950.0 ha and for a demographic projection of 100.000 inhabitants. This plan was substituted by the “General Urban Plan of Prishtina (1969).”
- “General Urban Plan of Prishtina (1988)”- with a time-span up to year 2000, for a surface of 4335 ha and for a demographic projection of 250.000 inhabitants.

The latest urban plan of Prishtina is known as the “Urban Strategic Plan (2004-2020).” This plan was drafted for a population of approx. 420.000 inhabitants.<sup>1</sup> In 2020, it

entails a demographic projection of 700.000 inhabitants. Although the Law on Spatial Planning 2003/14 stipulates that the municipalities have to outline the Municipal Development Plan (MDP), Urban Development Plan (UDP) and Regulatory Plans. The Municipality of Prishtina has only drafted 15 Regulatory Plans, based on the Urban Strategic Plan (2004-2020), which lacks a legal basis. These regulatory plans cover approx. 2688 ha and are drafted from the year 2005 – 2009.

### ***II.c. Prishtina at present***

The urban structure of the city has undergone re-structural phases, continuously influenced by different cultural and political actions. This resulted in the loss of character and architectural inheritance of the city.

The post war period of 1999, was and is mainly characterized by spontaneous development tendencies. This has arisen as a result of private initiatives, in constructing retail and residential buildings, as well as temporary stores. These constructions led to the degradation and loss of agricultural land.

Furthermore, the construction of individual housing in an illegal manner has resulted in further urban structure degradation and to an unplanned sprawl of the capital. The abovementioned urban zones, along with the rural counterparts, have developed into dense neighborhoods and settlements, lacking adequate technical infrastructure and traffic routes. Hence, they have created major barriers which hinder the potential growth of the urban structure of the city, and have led to the increase of privately owned vehicles and traffic intensity.

The city of Prishtina is comprised of three different urban structures:

1. The old town/ Prishtina's historic zone- which has preserved the old streets but most of the historic fabric have not been protected. Unfortunately, these structures are being replaced, on a daily basis, with new forms- depleting the historical character of the area.

2. The urbanized parts of the city –consist of complex mixed use urban structures (residential public and commercial), mainly developed post world War II. These are mainly concentrated in the center and southern part of the city.

3. The outer fringe of the city - into the suburban areas, entailing a mix of residential and commercial developments, which followed a development boom after 1999. These developments, as mentioned above, have mainly been initiated by the private sector. These zones are now mainly populated by the new-comers from all over Kosovo, following the end of the war and in search of better living conditions and job opportunities. This process of uncontrollable growth can be seen in the map below, showing the density within previous city borders and the sprawl beyond them. This uncontrollable development is mainly individual and unplanned construction.

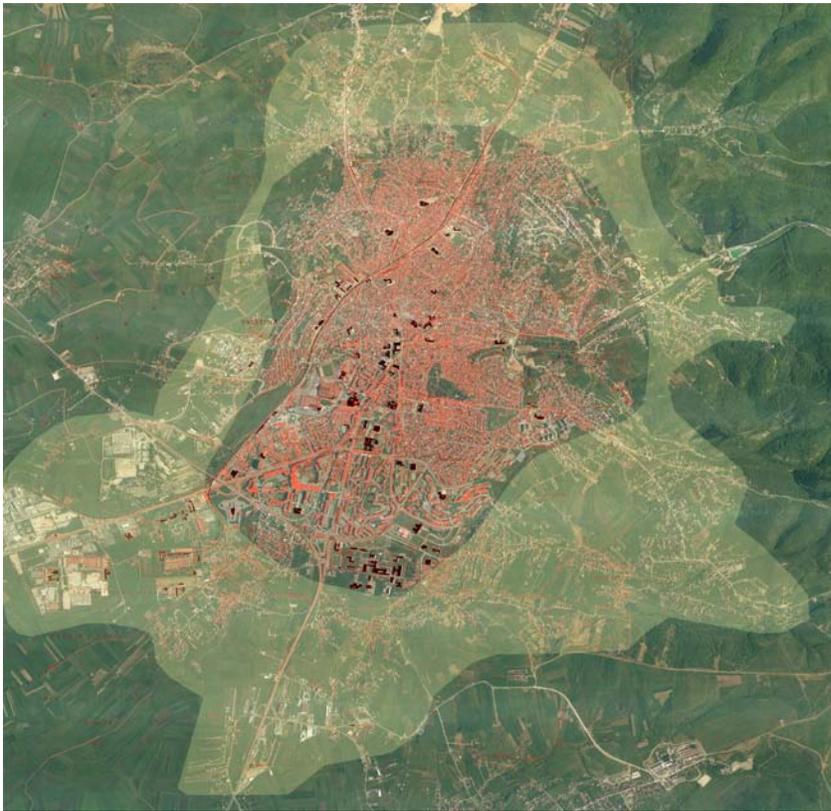


Figure 7: Urban Sprawling in Prishtina 1999 - 2004,

The situation shown above created the city with the high level of pollution.

### III. LEGAL AND INSTITUTIONAL FRAMEWORKS REGARDING ENVIRONMENTAL PROTECTION

As a newborn country, with the intent of joining the European Union in the near future, Kosovo has enriched the legislations concerning Environmental Protection.

#### *III.a. Legal Framework*

The legal framework of different governmental sectors has incorporated environmental protection as an important issue. Given that the Ministry of Environment and Spatial Planning - according to the Constitution- has the responsibility of planning and protecting the space of Kosovo, it has drafted the following laws and administrative instructions:

(At the central level)

1. **Law on Air Protection** 2004/30: The purpose of this Law is to regulate and guarantee the rights of citizens to live in a healthy and clean air environment, whilst protecting human health, fauna, flora and natural and cultural values of Kosovo's environment.
2. **Law on Environmental protection** 2009/03-L-025: This law shall harmonize economical development and social welfare with basic principles for environmental protection, according to the concept of sustainable development. The purpose of this law is to promote the establishment of a healthy environment

by bridging with EU standards, for example through the Environmental Action Plan (KEAP).

3. Law on Natural protection, No-2004/XX
4. Law on Environmental Impact Assessment 2009/03-L-024
5. Law on Environmental Strategic Assessment 03/L-015
6. Strategy in environmental protection and sustainable development 2005
7. Administrative instruction No. 2/2004-MESP on Establishing of Environmental Protection Inspectorate
8. Administrative instruction No.22/05-MESP on Cadastre of the Emission for Environmental Polluters
9. Administrative instruction on the norms of the discharges on air by the mobile sources of pollution
10. Administrative instruction on the rules and standards of the discharges on air by the stationary sources of pollution
11. Administrative instruction on No.04/2009, on the fees and penalties for polluters
12. Law on prevention and integrated control of pollution (*Work in process*)
13. Law on radiation and nuclear safety (*Work in process*)
14. Strategy for Air quality (*Work in process*)

At the municipal/local level, the “Regulation on Air Protection” has been in place as of 2006. This regulation stipulates the legal foundation for the creation of a healthier environment, which endures pollutions and the expenditures on air protection and foresees the penalty provisions for polluters. According to this Regulation, the Municipality should continuously examine the air quality, its impact on the environment and well as the health of the population. This regulation is in accordance with the sustainable economic development of the municipality of Prishtina. Also, its mission is the guaranteeing of citizens’ rights to live in a healthy and clean air environment, while protecting human health, flora and fauna and the natural and cultural environmental values from air pollution. This is merely a “wishful thought” which currently is not applicable. The reasons behind this are linked to the current institutions, which will be explained in detail below.

### ***III.b. Institutional Framework***

Up until November 2008, the full competencies in dealing with Environmental pollution (including air pollution), were exclusively at the central level of management, specifically a responsibility of the Ministry of Environment and Spatial Planning. The ministry’s main department is that on Environmental Protection. This department is in charge of drafting the laws, administrative instructions and policies related to the environment, as well as coordinating related works at the central and local level in the area of environmental protection. Furthermore, the Department on Environmental Protection is comprised of the following sectors of: General Policy for Environment Protection, Environment Protection, Nature Protection and Waste Management and Hydrometeorological Institute.

Additionally, the Environmental Protection Agency was established by the aforementioned Ministry, based on the Law on Environmental Protection 2009/03-L-025. This institution is in charge of carrying out administrative, professional, supportive-scientific

and investigative tasks in the field of environment protection, protected natural zones and biologic diversity. The mission of the agency is the:

#### Monitoring of environment and nature

- Responsible for the creation and maintenance of data base and information system on environment ;
- To provide a professional perspective for procedures of approval for management of protection zones of nature;
- To propose technical solutions for the prevention of pollution of the environment
- To prepare the plans and programs for environmental protection ;
- To execute application of plans on environment and provide professional insight on urban and spatial planning
- To prepare reports for environmental state
- To provide scientific support etc, for the preparation of environmental protection and preventive steps for biodiversity and nature
- To prepare programs and various educational materials for the increase of public knowledge of the environment.

At the central level, there is a satisfactory capacity in dealing with environmental issues but no new human capacities are coming from the Public University of Prishtina, since there are no special studies related to the environment. However, the current staff of the central government has been trained through various programs and a few have gained their Master and PHD degrees abroad.

At the local level, recently, given the Law on Local Self Government, the municipalities have been granted have full and exclusive powers in numerous areas, including local environmental protection. In the capital, Prishtina, the Sector on Environmental Protection is established within the Department of Urbanism, Cadastre and Environmental Protection. As a new sector, established in 2009, it has five employees (one officer and four inspectors) and still not fully able to accomplish the responsibilities derived from the Regulation on Air Protection. Effectiveness is hindered from the International Monetary Fund, which recommended the reduction of the civil servants in governmental institutions.

Moreover, the financial means needed for the protection and improvement of air quality at the municipal level, have to be ensured from the municipal budget, donations and loans; in accordance with the provisions of the Law on Public Financial Management and Accountability 2008/03-L048.

For the moment the environment sector is in the phase of identifying bigger polluters at local level and focused more on the campaigns for the sensitizations of population on environment issues, particularly on the specific days: world earth day, world environment day etc.

Positive thing in minimizing the effects of pollution in Pristine is that the situation regarding public green spaces is improving. This year from the municipality are allocated 250.000 Euros budget for the greening of new spaces and maintenance of existing ones which is double comparing the budget of 2008. Now days there are 460.000 m<sup>2</sup> green spaces maintained addition to 600.000 m<sup>2</sup> which are maintained from private sector.

#### **IV. AIR POLLUTION IN PRISHTINA**

##### ***IV.a. Present situation of Air***

Currently, the monitoring process of environmental pollution is conducted by the National Institute of Public Health and Hydrometeorological Institute. From the Post 1999 and up until today, there was lack of information regarding the monitoring of air contamination in Prishtina. With the purchase of modern Air Pointer equipment for air quality in 2009, Prishtina is now equipped with two measuring units in different parts of the city-for the first time in its history. However, these two units are only capable of measuring air contamination due to SO<sub>2</sub>, NO<sub>2</sub> and emitted particles. The CO<sub>2</sub> levels are only measured on a need-basis. These figures are stated in the Report on Air pollution Jan-Mar 2009. First of all, the NO<sub>2</sub> pollution came out 60% above the permitted value of 85µg/m<sup>3</sup>. Conversely, the SO<sub>2</sub> pollution has always maintained within average borders and without alarming figures. On the contrary, the emitted dust particles have exceeded the yearly limit (of 300µg/m<sup>3</sup>)<sup>iv</sup> 18 times during a 3-month reporting period. Finally, during smog times in the winter and summer, air around Prishtina drops to the worst category.

Even though Prishtina now has two points of measurement for air pollution, it stands as the sole city with such equipment at the moment in the country.

On the other hand, there is no general monitoring system established yet, which takes into account both air pollution and quality, as well as the administrative supervision of all the polluters. The monitoring is only done on a small scale and for a limited number of industries such as the energy sector. The major polluting industries, apart from the power plants, are not taken into account and have led to the major increase of pollution post the war period of 1999.

##### ***IV.b. Uncontrolled contributors to air pollution***

These uncontrolled contributors include:

- a. The transport sector (as one of the biggest polluters)
    - The intensive increase in the number of automobiles (old engines and without catalyts).
    - The number of registered vehicles in Prishtina has increased substantially.
    - The increase in urban transport lines.  
Only in Prishtina, there are 757 licensed buses routes per day and out of these, only 382 are executed on average, per day.
    - Buses/minibuses for urban and suburban routes, total 151, with 935 departures day.
    - Increase of the number of vehicles entering/transiting Prishtina on a daily basis.
- According to the survey which was done in 2008, on the six traffic points in the approx. distance of 15 to 25 km from Prishtina to six secondary cities, was found that average 87306 vehicles (different kinds) are frequenting daily on these roads and around 40 to 50 % from them enter in the city of Prishtina. Due to this situation, the traffic in Prishtina is very dens, not continuously, long travel time and as result very high pollution.
- The overall depreciated infrastructure and inefficient and old technology
  - The emissions of CO<sub>2</sub>, NO<sub>x</sub>, VOC, lead, SO<sub>2</sub>, and dust.
- b. Increase of heavy construction equipments post 1999 (for the economy and KFOR )
  - c. Increase of the economic activities of small and medium size enterprises (SMEs)
  - d. The pollution costs from the reorientation of the population from electrical to wood usage, for heating purposes
  - e. TERMOKOS heating:

- The central heating facility uses mazut and oil derivatives for burning. It has been in operation since the 1970s, and given the obsolete machinery, it only has 70% efficiency- and the remainder is dumped in the atmosphere.<sup>v</sup> It uses 43million L of imported mazut, covering 885.000m<sup>2</sup> in both private and public sectors.
- f. Loss of agricultural land due to the urban sprawl and illegal constructions (no official data on the amount)
- g. Deforestation and scarcity of arable land surrounding Prishtina
- h. Poor waste management
  - Waste is managed on a regional basis. In Prishtina, 4 municipalities have the same waste landfill, serving 725.000 inhabitants with 40 ha of surface. The average amount of waste generation in Prishtina is approx. 2 kg / capita per day.
  - Waste is not treated or recycled before dumped into landfills, including waste waters.

#### ***IV.c. (Semi)-Controlled contributor to air pollution- KEK***



Figure. 8. Thermo Power Plant,- Kosova B.

Pristina, as well as the entire country, is supplied with electricity which is generated from five coal-burning thermo power plants. These power plants are located in the outskirts of the city, more specifically in the Kastrioti (Obilic) municipality. Their active capacity is 900 MV out of 1500 installed and their annual CO<sub>2</sub> contribution to global warming is 5.5 million tons. The contributions towards greenhouse gases and other pollutants, when regarding KEK, come from the thermal power plants, ash depositions and its heating systems. It is estimated that the same amount of CO<sub>2</sub> is emitted from other uncontrolled sources of pollution, on a yearly basis. In addition, the existing power generating capacities use coal and oil derivatives (non-renewable), of which 70% is stored and the remaining 30% is spread in the atmosphere in the form of ashes and cinder (approx. 1 million t/ year) and dust (78.000 t/year). These rates exceed the European Standards 10 fold.<sup>vi</sup>

Currently, the emitters from the power plants and the mines are not fully calculated and thus, the alarming situation is undervalued. The main pollutants caused from the mining are the lignite ashes. These ashes should be disposed in a hydro manner, as opposed to a mechanical way, to reduce pollution. The burning of lignite emits SO<sub>2</sub>, NO<sub>x</sub> and CO<sub>2</sub>. No de-sulphurisation is applied, but the power plants have installed electrostatic filters.

On a positive note, KEK has an environmental department, which calculates the CO<sub>2</sub> emission per year but this calculation is infrequent and exclusive.

Recently, the Government of the Republic of Kosova brought by a decision on the construction of the New Power Plant "Kosova C." This became a controversial topic soon

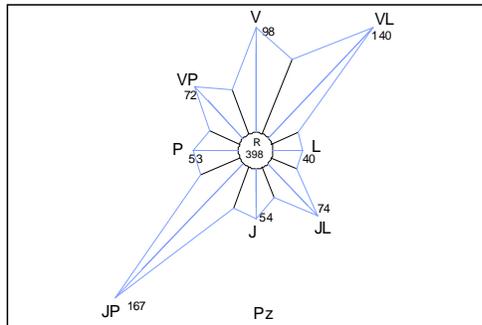
after, with the main counter-argument being the vast environmental pollution stemming from the proposed 2100MW capacity. Hence, the new power plant will undoubtedly be a significant contributor of CO<sub>2</sub> (with an increase of up to 17million tons) after 2030 when the capacities have been installed.<sup>vi</sup>

Conversely, from a positive viewpoint, the new project will establish a new monitoring system, in line with EU standards. This system will calculate the temperatures, concentration from the furnaces, and CO<sub>2</sub>, NO<sub>x</sub>, SO<sub>2</sub> calculations (by taking bi-monthly air samples). A self-correcting mechanism will alert the management if pollutants go beyond the standards. A database will be created, updated and sent to the respected agencies. Yet, this will only calculate the new power plant's emissions –after the completion of construction in 2014-, and without considering the existing capacities.

Unfortunately, air pollution around Prishtina has visible side effects on the population's health and even life expectancy. According to the National Institute on Public Health, the ashes and other particles released from the power plants, cause severe respiratory damage, as well as other chronicle illnesses

*All in all, Kosova needs to drastically reduce hazardous particles in the air that have an impact on regional and global pollution (gases that causes "green house" effect, methane in the landfills and emissions that cause acidification).*

Good thing in this entire situation is the wind condition of Prishtina. Wind flow from the thermo power plants of Kastrioti (Obiliq) according to the wind rose of Prishtina is only 7%.. Prishtina has another wind characteristic in regard to the wind is that starting from the 8 am to 11 am every day the air corridor of Prishtina permeates wind with the speed of 05 to 1 m/sec. This phenomenon has a big impact on the cleaning the air of the city, bringing fresh air from other directions.<sup>viii</sup> Prevalent are the winds north-south, almost 90%.



Figure,9. Wind rose of Prishtina

## V. CHALLENGES FACING KOSOVA AND PRISHTINA AS THE CAPITAL

The involvement of Kosova in approving international conventions and protocols, can only be made possible through the approval of legislation on emissions reduction, including: SO, NO and CO<sub>2</sub>. At the current stage, Kosova is far from reaching European Environmental standards, an issue that can further prolong the pre-accession phase.

Firstly, Kosova needs to establish a wide-ranging air quality monitoring network. This was foreseen by the European Partnership Action Plan (EPAP), under the Environmental duties. Mainly, it recommends the full completion of the legislation in environment before proceeding onto the other issues. This legislation has to partly be transposed from the EU

directives on Environment, and in harmonization with the EU laws. These laws have to clearly define the institutional responsibilities.

Without an effective control and monitoring system of air quality (which has to be backed up by an efficient information system on these substances; currently non-existent and non-systematic), the society will not be motivated to abide by the laws. The implementation of these laws is, however, the most important phase. For the society to be aware of the legislation and the situation that they live in, the EPAP 2008 also foresees public awareness through the involvement of the civil society in environmental issues, mainly by incorporating the environmental subjects in the curricula of all schooling levels. Similarly, on the note of education, human capacity building for action in the field of environmental pollution is needed, so that this specialized labor force can help the country meet the EU standards.

As mentioned previously, there currently exists only one agency (Agency on Environmental Protection), which tries to serve as a bridge between the central and local levels of governance. In addition, the regional inspectors aid in making this connection more reliable. However, there still is a lot that needs to be undertaken in this aspect.

One of the biggest challenges facing the country, in regards to environmental protection in general, was the lack of awareness and ignorance among the society. The marginalization of the problem has led to the accumulation of it. Given the lack of emission charges and/or even emission permits, topped with the lack of implementation of the laws and regulations in place, the society has even overused the resources without paying the adequate fees. As air is a public and common good, one that is non-exclusive of the population, has been a victim of *overfishing*. As a country with weak implementation and penalty systems, Kosovo's industries can negatively affect the region's air quality with no consequences or control.

These challenges and possible objectives have a major setback, and that being that the Consolidated Kosovo Budget cannot sustain all of these projects which derive from EPAP<sup>ix</sup> 2008. This will remain the biggest challenge for Kosova, and Prishtina as the biggest polluter, mainly because of the limitation of the human capacities.

#### ***V.a. Strategic orientations***

- Implementation of the Law on Spatial Planning (drafting the Municipal Development Plan, Urban Development Plan and Urban Regulatory Plans for the entire municipality of Prishtina).
- Enforcement of development control
- The harmonization of economic development with gradual acceptance of EU standards
- Establishment of efficient economic instruments for stimulation and enforcement of air protection, as well an application of environmental management system (EMS) and ISO 14001
- Creation of financial conditions for use of renewable sources of energy (biomass, waste, solar energy, wind power, hydropower etc).

## **VI. RECOMMENDATIONS AND CONCLUSIONS**

Politics aside, in order for Kosovo to keep in line with international climate change standards and ever-changing CO<sub>2</sub> regulations, it ought to ratify and implement the Kyoto Protocol. It will only be enabled to once it is recognized as a UN country. Thus, for the

moment, it has to get back to the internal climate change legislation and work on the issues on a domestic level.

First of all, in order to harmonize the legislation with EU directives and standards, Kosova should –at least- put the 20-20-20 EU plan into its agenda. With this in mind, the energy strategists and competent persons should continuously seek to establish a 20% energy source from alternatives; reduce greenhouse gas emissions by 20% (which is unlikely at the current state); and an improvement of efficiency by 20%. On the note of efficiency, the new power plant which will be completed by in 2020 has the mission of increasing energy efficiency (despite the emissions).

On the smaller scale and in relation to Prishtina municipality, there are simple actions that can lead to great results in better air quality and pollution reduction. Factors such as the ever-increasing number of vehicles in circulation in Prishtina; the usage of uncontrolled oil products; the usage of fossil fuels for heating, illegal construction, urban sprawling, deforestation, reduction of arable lands; lead to an increase of emissions. Apart from implementation of laws which can positively affect the environment, a simple expansion of zones in the city, and/or improvement of cleaning of the city –two actions which obviously clear out the city’s air. In addition, the removal of old-engine cars and the mandatory catalysts will help reduce the CO2 accumulation.

Similarly, given the instable continental weather, it is difficult to derive statistics on the intensity of wind power. Consequently, it is impossible to calculate the parameters on the spread of pollution. With the installment of better meteorological measurements, this will be more likely. There is a major lack of information on air quality, hindering a reliable information base. Thus, with simple one-time investments, which serve as fundamental data tools, air quality can be monitored and controlled.

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#### Endnotes

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<sup>i</sup> Strategic Plan of Prishtina, 2004-2020

<sup>ii</sup> OSCE- Organization of Security and Cooperation in Europe: Election survey 2000

<sup>iii</sup> Statistical Office of Kosova

<sup>iv</sup> Air Report January-March 2009,

<sup>v</sup> <http://www.ks-gov.net/eccg/uploads/MEM%20Presentation/Grupi%20punues%20per%20Ngrohje%20Qendrore%20Karburate%20te%20Lengeta%20Gas%20Natyror.ppt#264,8,Slide 8>

<sup>vi</sup> [www.ks-gov.org/mmph/](http://www.ks-gov.org/mmph/)

<sup>vii</sup> SESA study- Strategic Environmental and Social Assessment, June 2008

<sup>viii</sup> Syle Tahirsylaj, "Climate in the Prishtina Region", article

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