

Electric power, environmental problem in Kosovo

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Abstract: Kosovo has an area of 10907 km² and it is located in Balkan Peninsula. As a country, located in a place with very poor economical development, Kosovo has big problems with electric power producing. Kosovo energetic position with other region countries is not favorable. The electricity power producing in these countries is different from Greece (from 42 milliard kw) until Albania with huge problems in electricity producing. Kosovo, its electric power gets from its coal burning power plants which are build in Kosovo. These coal burning power plants are built in Municipality of Obiliq, just 5 km far away for capital Prishtina [2]. Because coal burning power plants are manufactures that use lignite, environment pollution is permanent. As a new country, Kosovo in order to participate in international organizations has to be careful over environment protection and this is should be done with good future-plan and moving towards modern technology. In Kosovo coal burning power plants are built in high quality agriculture fields with adequate terrain-configuration for agriculture development. Because for electric power producing is necessary also raw materials and space for garbage, the degradation level of environment will increase. In Kosovo case are mines, and dust as a product from coal burning power plants named A & B producing. For all of these is necessary also space for machinery and transport parts which someway expand degradation area. For the moment in one zone with narrow influence take place two power-plants, named 'A' and 'B', and to mention that near to them is planned to be build also new power-plant 'C' with expand producing capacity (2100 MW). By doing new one is necessary to find other areas for extract of coal.

Key-Words: Power plant, Dust, Lignite, Degradation, Social problems, Agricultural field, DEM, places.

1 Methodology of work

Based on earlier projects for coal extract and building new power-plants which are done by Kosovo Ministry of Energy and Mining, we have created zones with narrow influence and wide influence as a consequence of degradation of environment from actual and planning power-plants.

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MW). By doing new one is necessary to find other areas for extract of coal.

2 Actual situations

The dust which is produced by power-plants in Obiliq, is concentrated in two position which are to close with living areas, and off-course they cause air and water pollution, and they are a big risk for population [1]. The place is located 500 meters in NW of Obiliq and has a area of 76 ha, while south place is located in triangle Prishtina-Obiliq-Fushe Kosova and

has a area of 142 ha with a distance of just 400 m from Obiliq, 1 000 m from Fushe Kosova and 2 000 m from Prishtina. These places are undressed and without protection, which in certain periods (strong winds) cause spread of dust in above mentioned cities. [3]



Fig 1 Geographic position of Kosovo

Degradation of space is cause also by fallow land which covers an area of 1192.2 ha. Mines are important for getting coal and are live impact in environment. They not only cause damage to agriculture land, but also cause damage in settlements which then are followed by socio-economic and demographic problems, problems in infrastructure etc.

A concrete sample is village Hade, problem which is not yet solved and is not yet finished. Actual positions of mines for coal using are in Bardhi Madh and Mirash village (now merged). This open hole until now covers an area of 625.1 ha.

From earlier plans but also future-plans, which are done by MEM, is planned building of new power-plant named ‘C’ which will be located in front of Obiliq [6]. New power-plant will has a big capacity and it will expand needs for using more coal and it will cause bigger degradation with faster intensity of area. Based on plans which are published also in MEM website, it is planned to open a new mine in field of Sibovc village. By published maps and by using the technology of GIS it is concluded that this mine in future depend of intensity of coal extract will cover a area of 1689 ha [7]. If we add also plan mines in south of Bardhi Madh and its position near of village Oriloviq,

it is seems that all area under mine together with actual hole is around 4517.3 ha(around twice as is city of Prishtina), and for a such small place is to much.

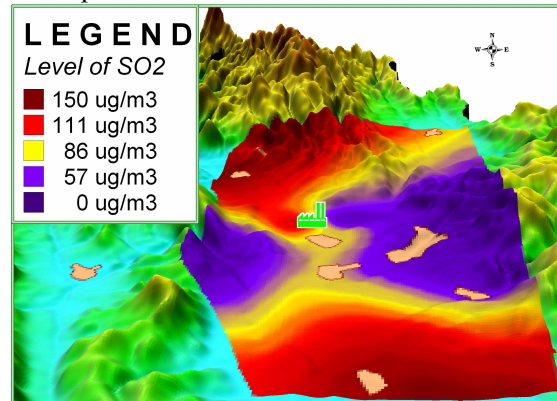


Fig 2 Level and area under SO₂

Particular problem is spreading of SO₂, which in different levels it is spread in all area of wide influence zone [5]. It is understood that its bigger value is around power-plant, by going down in suburb, but the influence perimeter is to worry about, if a new power-plant is going to be build.

3 Problems

Degradation of space contains also socio-economic and demographic problems. Problems that come from this are: land use changes, population migration, social changes etc. All of these take big costs, with expanded investments, psychic traumas etc.

In wide zone influence, caused by actual power-plants and plan for new power-plant together with degradation area for mines that covers a area of 834,8 km², are 138 places (settlements) from them 4 are urban zones (Prishtina, Obiliqi, Fushe Kosova and Lypjan). While in rawer influence zone are 22 places from them 2 are urban zones (Obiliq and Fushe Kosova) [1].

If we see based on size, biggest number of places in this zone contains 1000 – 5000 inhabitants – total 56 or 40.6%, while population that lives in this places is 21.4%, in other side, biggest number of inhabitants lives in places with a population over 5 000 inhabitants (around 71.6%)

Table 1 - Number of places and population based on size of place in a zone with wide influence.

Inhabitants	Number of places	%	Number of inhabitants	%
Under 200	15	10.9	1410	0.2

200 – 500	25	18.1	9150	1.8
500 - 1000	33	23.9	25167	5.0
1000 - 5000	56	40.6	108576	21.4
Over 5000	9	6.52	363364	71.6
Total	138	100	507667	100

Source: Number of places is got by GIS method, while number of population is got from SOK register about number of inhabitants as a preparation for census.

In rawer influence zone lives around 85660 inhabitants which permanently are under risk of pollution and no-safety for perspective in their places, because the risk to leave their places is permanent. This problem is especially for 4 places of Sibovc field where will be new mine. Cost for moving away this people are very high, when we know the fact that we have to build new living houses. In these 4 places now leaves 3247 inhabitants (all Albanians). To explain degradation of qualitative agriculture land we used a methodology of well-known American scientist M.Pecsi which has done these estimates based on slope. Based on this methodology by using DEM produced by topographic map 1:25000 has been calculated, slope for rawer influence zone and wide influence zone. As of this methodology area:

- Under 5° terrain slope adequate for agriculture using
- 5°-12° terrain slope adequate for agriculture using with risk of erosion
- 12°-25° border-line for agriculture field using
- 25°-40° terrain slope adequate for agriculture in terrace
- Over 40° terrain slope adequate for forest [4]

From data that we got it comes that over 95% of territory inside the rawer influence zone and wide influence zone is adequate for agriculture, so degradation of this land brings problems in primary sector of economy, while a huge number of inhabitants will be without their lands, and will join the hunger population.

Table 2 - Terrain slope in two influence zone

Slope	% in narrow zone influence	% in wide zone influence
Under 5°	83.6%	75.4%
5°-12°	15.7%	22.4%
12°-25°	0.7%	2.2%

Table 3 - Elevation in narrow and wide zone influence

Elevation in meters	Narrow Km ²	%	Wide zone Km ²	%
500-550	58.28	45.60	202.86	24.3
550-600	34.89	27.30	265.46	31.8
600-650	17.51	13.70	122.71	14.7
650-700	5.75	4.50	72.63	8.7
700-800	9.07	7.10	95.17	11.4
Over 800	2.30	1.80	75.97	9.1
Total	127.8	100	834.8	100

Degradation of area does not bring only socio-economic problems but also material damages. Except buildings, damages will be also on road infrastructure. As in rawer influence or wide influence zone the road infrastructure

belongs to different categories. In wide influence area are main roads that link capital with other cities of Kosovo and neighbor countries. Total length of roads in wide influence zone is 805.64 km, from them,

107,03 are roads of first category, 147,14 km of second category and 551,46 km of third category.

In rawer influence zone, first category of roads contains 9.30 km, second category 30.42 km and third category 146 km.

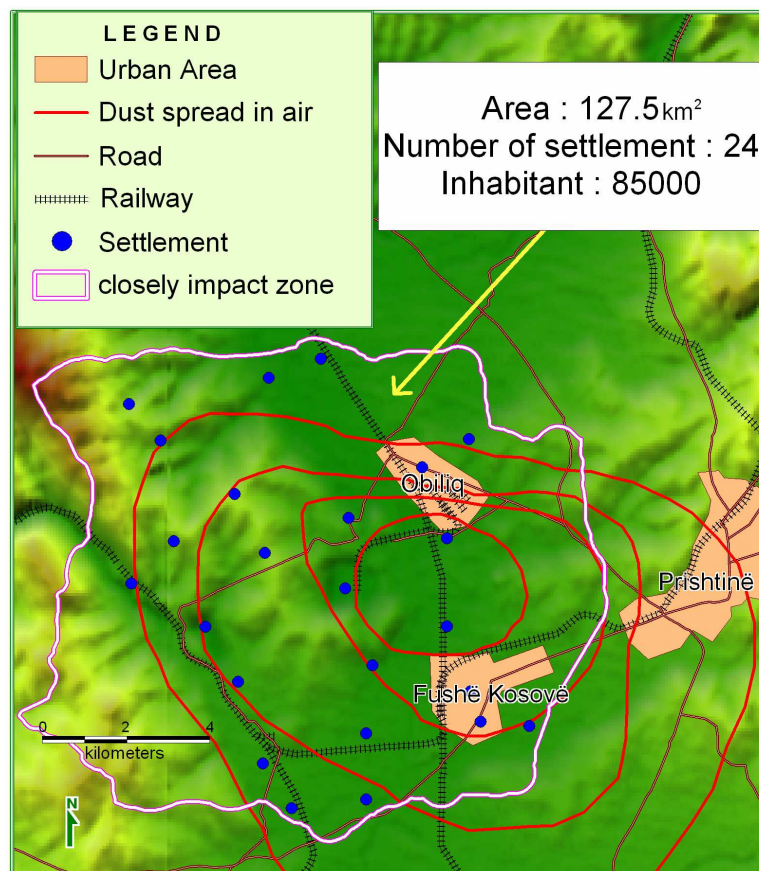


Fig 3 Dust spread in air from power-plants and some socio-ekonomik data.

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