

# Studies regarding Tourism Development Perspectives in the Existing Economical and Environmental Context

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*Abstract:* - Jiu Valley is a mountain area placed in the central part of Romania, surrounded by four main groups of mountains, two of them higher than 2500m. This fact made climate to be cold and rainy and limit the economical development. The traditional occupation was for a long period of time shepherd. In this period in the area live 12.000 people. In the second part of 19<sup>th</sup> century, coal was discovered and begun a fast development of area. Coal production increased with a low ratio till 1960, when a forced production increasing begun. The inhabitants increasing followed the coal production's evolution. After 1960 the area has a forced development that exceeds the local supplies. These facts decreased the standard of life and affect strongly the environment. After 1990 the coal production was reduced to 4.0 millions tones, but all mine kept the employees. The coal production may be sustained in these conditions only by subsidies. In 1996 was obvious that the mining industry had to be reorganized because the Romanian economy cannot sustain it further. The government planning for mining industry is not well seen by the Parliament, because a mining reorganization will unemployed hundreds of thousands' miners and will decrease all economical activities in respective areas. By this reason, mining industry is too large developed yet, which need very large subsidies from government. All mining area is developed in mountain area with very precious landscape resources. These resources are strongly affected by mining buildings and dumps and in some cases when the extraction is made in quarries are completely destroyed. The reorganization has to be made keeping the efficient mine. One alternative to develop the area that are taken into consideration is the higher touristic potential of Jiu Valley which was not explored till now, but in the future could become one of the most serious resources to ensure an opportunity for further development. This touristic industry in Jiu Valley can create many secure jobs in specific activities like: accommodation, services, touristic objective service, and can generate profits, and also, in time we could talk about a touristic industry in Jiu Valley. The tourism development involves the environmental improvement. This paper presents the local context in which tourism must be developed.

*Key words:* coal, biosphere, aerographical condition, air pollution, water pollution, sterile dump.

## 1 Introduction

In Romania, in Meridional Carpathian Mountain, in the upper basin of river Jiu there is the most important coal field that produce coke coal named Jiu Valley.

Coal field is placed in an intermountain depression surrounding by four mountain massifs, two of them with high over 2,500 m and one of them was declared Biosphere Reservation. This geographical placement made that in this field air circulation to be disturbed by the relief forms. For this reason the air pollution in area is a very sensitive issue.

## 2 Climatic conditions in Jiu Valley

In same characterization Jiu Valley is considered to be an southern extension of Hateg depression. In a way this think is true, taking into account the relief feature, the another features makes it very particularly. The Jiu Valley is characterized to be the most specific discontinuity geographic area from Meridional Carpathian Mountain.

The oblong form of this field, surrounding by mountains, has a great importance for climatic feature, because air circulation is made more easy along the Jiu Cerna corridor, following the longitudinal splitting of Meridional Carpathian

Mountain and less from north to south through transversal broken of mountain, Banita-Merisor and Surduc Lainici. The mountains are weir against air circulation, hampering its moving. The mountain protection hampers the air refresh in the depression. In the huge trough between mountains there is one more interesting phenomena: the stagnation and cooling of air slide from hills to the depression ground, named thermal inversion, well-known in all Carpathian depression. Under thermal inversion influence, the lowest temperature are under minus 30°C while at Parang meteorological station the lowest temperature is not exceed minus 24°C. Consequently, the most severe cold but no longer was in the bottom part of depression and no on the hills that are under the weather air circulation influence. Even if the severe cold there is not on the hills, the number of cold days, with temperature under minus 10°C is greater then bottom of depression. The frosty weather from Petrosani is due to air cooling by radiation (air that is stationed between mountains). By this reason days with white frost or hard frost are even in the may. Even if by geographical position and altitude the climate should be a sub mountain one, taking into account the average temperature oh the most hot month (July with an average by 16.7°C) and the year average temperature (6.8°C) the climate may be

considered a low altitude mountain one. The sub mountain climate, characteristic for Sub-Carpathian area, have the July month average temperature greater with 3 ÷ 4°C and the year average greater with 2 ÷ 3°C. The number of hot days with an average temperature over 10°C is more reduced at Petrosani then in other places that are considered colder, and the summer days , with the temperature over 25°C is about 50 in the central part of Jiu Valley. Through western part, simultaneously with the altitude the number of summer days decreased. The climate character results obviously from thermal amplitudes that is greater than 64°C. The tropical days are in number of 4 ÷ 5 on years, while at north (Deva) and south (Targu Jiu) they are almost 35. Generally, the climatic data show that it is an excessive feature climate due to great thermal oscillation that in the winter months are over 20°C. This fact proves the same influence of thermal inversion climate due to relief features. The monthly average temperature evolution in Jiu Valley in comparison with surrounded areas in shown in Fig. 1.

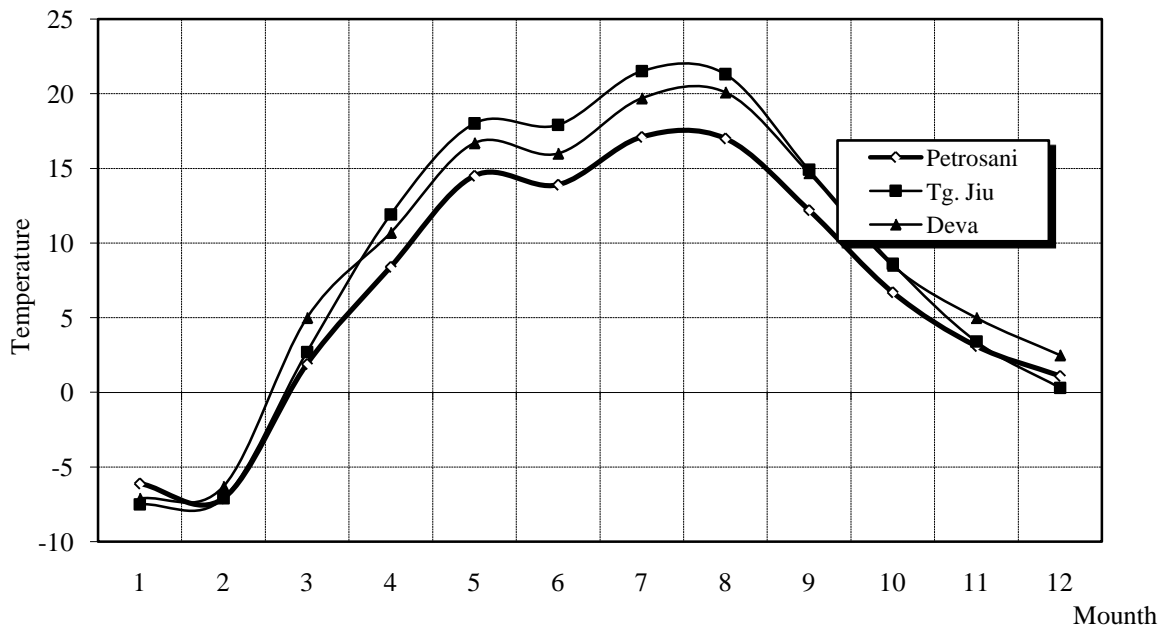


Fig. 1 The monthy average temperature in Jiu Valley.

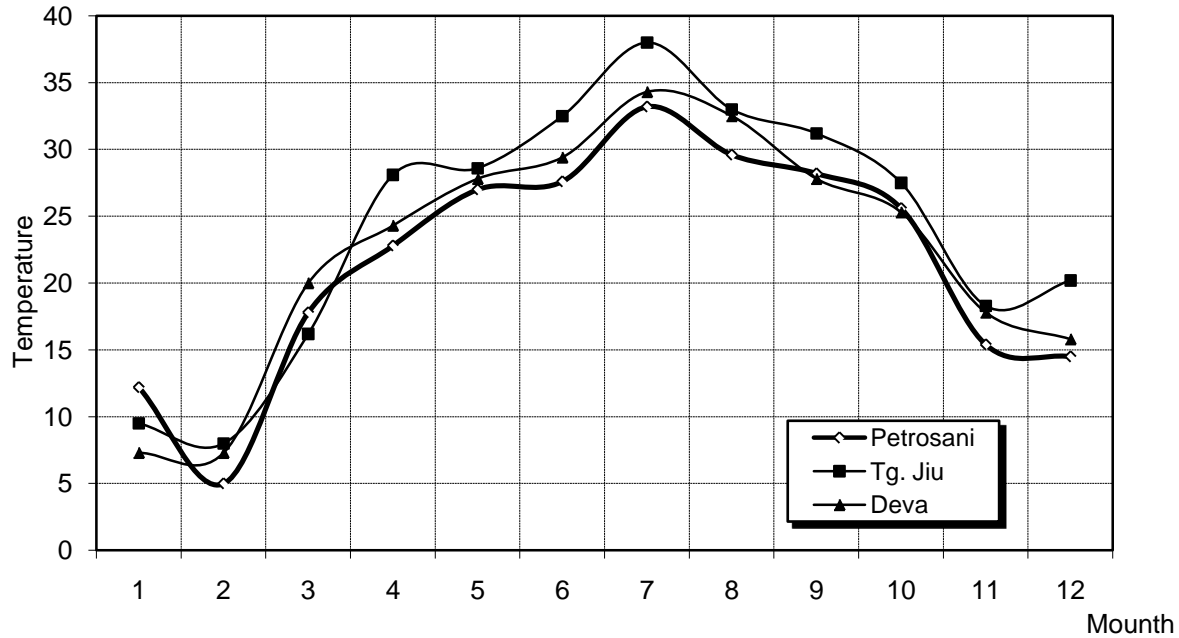


Fig. 2 The evolution of minimal temperature in Jiu Valley.

Figs.2 and 3 show the evolution of minimal and maximal temperature in Jiu valley in comparison with the surrounded areas, Deva at north and Targu

Jiu at south. Aerographical conditions influences feel the effects of air current circulation.

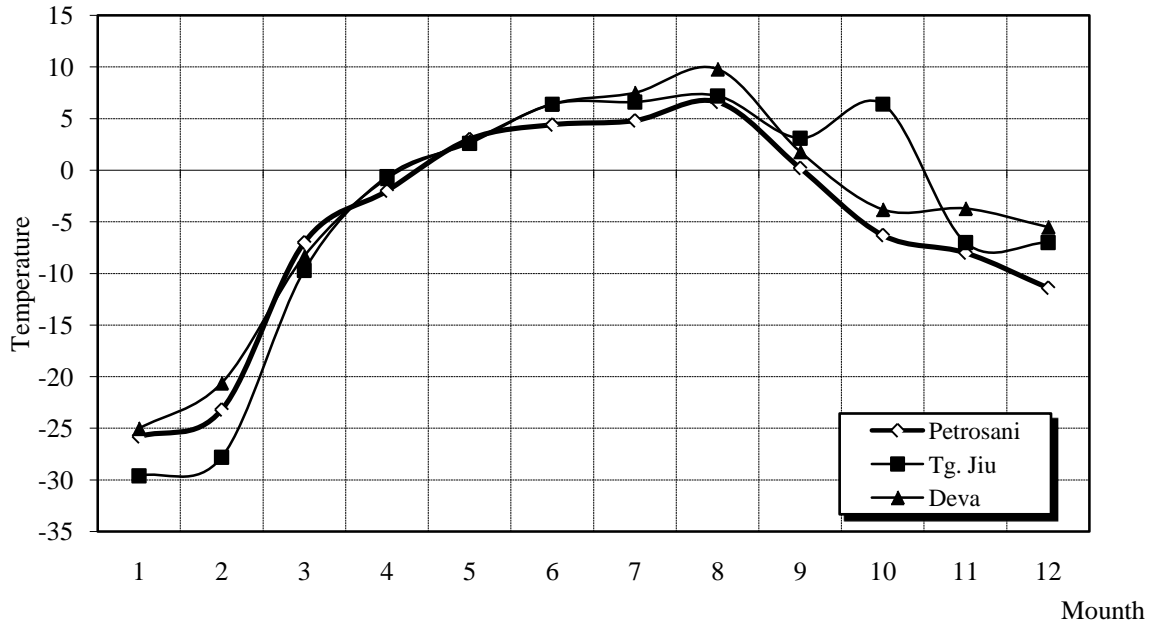


Fig.3.The evolution of maximal temperature in Jiu Valley.

The western part of Romania is under western and north-western air circulation influence. However, in Jiu Valley there is a north-south air circulation due to obstacle effect of Retezat and Godeanu Mountain that are hampered the air circulation. Even if the western direction of wind is not common, these winds are the most strongly. The mountain cover make that cold air to be deposited on the bottom of depression and then there are long period of calmness, especially in January and February (when are 82 ÷ 83% calmly days)

A local feature is the wind that blew from Jiu canyon that is a strong and cold wind especially in spring and

autumn time. In the summer are north-western winds that bring humidity. Southern wind is not wished because they produced cool in spring and winter and drought in summer. Flowing the air current along the main valley is a frequent phenomenon, but local. Along of all valleys may be felt the cool mountain breeze.

The sheltering and the isolation of area are reflected in the rain year average quantities. In the depression the rainfall are among 700 ÷ 800 mm in comparison with the mountain area where are 1000 ÷ 1500 mm. The monthly average of rainfall is shown in Fig. 4.

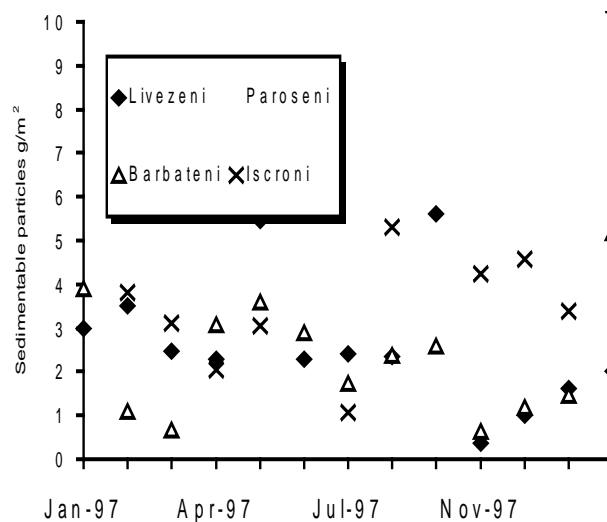


Fig. 4 The monthly average of rainfall.

The number of cloudy days is over 200 per year. In the central part of depression, where the industrial activity is more developed and atmosphere is more polluted, the rain are more frequently due to dust and smog particles which are condensation centers. By this reason, in autumn the smog and drizzling rains are more frequently.

Many days, even weeks in every morning fog cover all this area. Even if the wind blows the fog, a translucent fog remains almost all year. Only in climatic changes period this fog disappears (March - April) when the air turbulence is maximal.

In conclusion can say that Petrosani area has long winters, but not very cold, short and cool summers with fog and rainfalls, with cool and long autumns.

### 3 Environmental impacts

Air is polluted by a power station and by mining and coal processing activity with dust. Other pollutants are between legal limits can see in Table 1.

Sedimentable particles in air in the reorganization period are presented in Figure 5. Figure 5 show that air pollution was not reduced by mining reorganization.

To assess what are the pollution sources with dust is interesting to show the daily evolution of suspension particles in air (Fig.5).

Table 1 Legal limits of other pollutants.

No.	Pollutant	U.M.	Legal	Value
1	HCl	mg/m <sup>3</sup>	0.100	0.000
2	NO <sub>2</sub>	mg/m <sup>3</sup>	0.100	0.023
3	SO <sub>2</sub>	mg/m <sup>3</sup>	0.250	0.018
4	Suspension particles	mg/m <sup>3</sup>	0.150	0.101

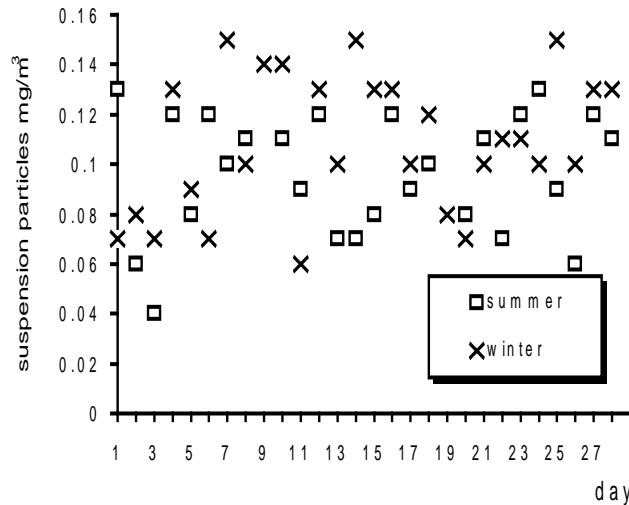


Fig.5 The daily evolution of suspension particles in air.

In mining companies Saturday and Sunday are free days so that it was expected that suspension particles in air to be reduced in these days. The fact that Suspension particles have not a weekly variation show that air is polluted in a large measure by other companies like power station.

Jiu Valley has a very developed hydrological network compound mainly by low flow rivulets. The total length of hydrological network is 380 km covering an area of 1010 km<sup>2</sup> and a flow of 18 m<sup>3</sup>/s. From all this length, just 20 km are polluted, but they are the main receiver area so that all rivulets are affected. River Jiu is not polluted chemically, just with organic substances due to social activities and with slurries due to coal processing activities. Jiu pollution damaged strongly the aquatic life. The Jiu pollution effects were transmitted in areas that are not polluted, reducing trout, mollusks and other

aquatic fauna effective. The daily evolution of pollution with organic substances is shown in Fig.6.

Carrier mining activity development and the great number of sterile and burned coal ash dump affected soil quality on large areas.

These dumps together with the deforestation activities provoke the soil erosion phenomena.

There are 41 waste dumps of which 23 operational and 18 preserved. The amount of waste stocked in this dumps is 37 million m<sup>3</sup> and they are spread on surface of 219 ha.

The existence of this dumps and carriers has a strong negative impact on landscape that was damaged in condition of a great touristic potential existence.

The soil and landscape recovery have to take into account in order to create conditions for tourism developing.

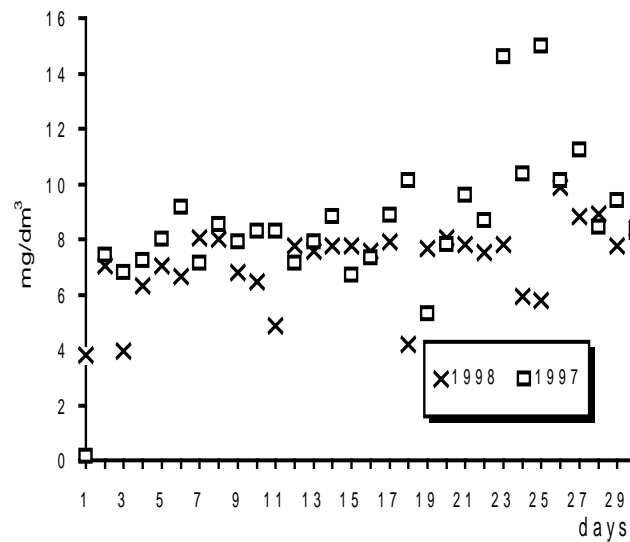


Fig.6 The daily evolution of pollution with organic substances.

#### 4 Redevelopment measures in the area

Restructuring programmers from Coal Company (taking into account the dimension of implications) and social programmed which help to achieve reconstruction and reconversion of the area are strongly interconditioned, the final aim being to create viable and attractive alternatives to ensure in time a sustainable development in Jiu Valley.

The main attention of a managerial team in the mining company is to find and to apply some instruments and methods to minimize the social consequences - more important being the methods of social protection and reconversion of workforce.

All these measures will have a positive effect only on a short term if the basic aspects of initiating and applying some regional development programmers will not become operational.

Regarding all these and programmers of local economic development have to specific the fact that was analyzed only the jobs directly created in that activities but will be jobs indirectly created in concordance with the new business opportunities, the estimated number of indirectly jobs being of 3 to 1 from basic activity.

Another alternative in the area take into consideration the higher touristic potential of Jiu Valley which was no explored till now, but in the future could become one of the most serious resources to ensure an opportunity for further development. This touristic industry in Jiu Valley can create many secure jobs in

specific activities like: accommodation, services, touristic objective service, and can generate profits, and also, in time we could talk about a touristic industry in Jiu Valley.

The major impediment in implementation of these programmers is the lack of funding., but we could say if the local development programmers are consequently applied there is the possibility to create in the following 20 years, almost 20000 to 25000 new jobs in extra mining activities. The new opportunities will lead to improve substantially life quality for inhabitants in Jiu Valley, and to increase the level for economic activities generating profits on long term.

A financial estimation in Jiu Valley in order to create about 15000 jobs in the next 8 years is 450 million \$ (30000 \$ for each job created).

#### 5 Conclusions

Mining re-organization have a strongly negative socio-economic impact because cannot create new jobs or developments.

Air and water impacts are positive but are very small. Landscape impact is expected to appear after some years when the environment will be rebuilt.

The damaging consequences of coal sector restructuring upon local economic activity and social life may be mitigate by resettlement and social protection measures and regional reconversion programmers.

With appropriate action and public and private initiative the social impact of coal sector restructuring can be minimized and a more secure economic future for the coal fields can be foreseen. In spite of these programs at the beginning of 1999 there was in Jiu Valley a very strong strike when miners start to Bucharest and then entire country was destabilized. By this reason, Jiu Valley became a national issue that shows there is a more complex problem than governance believes.

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