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SOME ETHICAL ISSUES IN EARTH SCIENCES

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ABSTRACT
The article considers topical issues, discussed in relation to the widespread problem areas of globalisation and sustainable development. The author divides the paper into several thematic parts.
The introduction makes a general review of and criticises the phrasing 'sustainable development'. Examples of 'clientelism' are supplied, as practised by scientists orbiting around several Ministries, facilitated by shortcomings in the legal and regulatory framework.
In the closing parts of the publication the author presents the results of his aerospace photo deciphering (made 30 years ago), which today support the search for oil and gas in the shelf and in southern Bulgaria.
As a final part some conclusions are drawn and some recommendations , the most important being the formulation of the term 'sustaiinable development' on a local scale; this is a balanced approach in estimating the interaction between the ecodynamics of the environment with the technosphere, economy and society in a given region, country or district.

INTRODUCTION

There is a very wise Spanish proverb: 'What healed Sancho, made Domingo ill." Today the truth about sustainable development is exactly this: for some peoples it mmeans attainment of a perfectly organised ecologically, socially and economically balancedl life; for other countries (the poor, developing And those in transition) sustainability is a balance between hunger and relatively normal human existence. The great scientist and public figure, former General Director of UNESCO Federico mayor (2000) stresses the burden of this problem: "Globalisation subjects societies to an implacable logic of desintegration…, turning its back to equality and solidarity." If we recollect the formulation of the term 'sustainable development" (Близнаков, 2000) from Rio de Janeiro we will notice that the stress is laid upon the balanced approach in the use of natural resources: on the one hand they should serve to satisfy human needs, but on the other – they should ensure sufficient reserves for the normal existence of future generations. Regrettably, the globalised world nowadays is not planned this way. Moreover, we have to underline the fact that these issues are pressing more than ever in earth sciences. For geology, the mining industry and ecology sustainable development is highly likely to follow this plan. But there are some of the applied earth sciences where sustainability of some sort can hardly be motivated. Let us consider agriculture which can be sustainable in a given natural region for a season or two, but then fall into an apparent imbalance. It is not by accident that French scientists are already prepared to discuss the prospects not of sustainable, but of 'reasonable' farming.

In this interdisciplinary anallysis of ours we shall allow ourselves to touch upon some pressing moral and ethical issues in the fields of geology, geoecology and agroecology.

On Clientelism in the Bulgarian Ecological Practices

Until recently most Bulgarian soil scientists estimated land values based on purely soil, climatic and geomorphological characteristics. The fact that in the Bulgarian lands (as are those on the entire Balkan Peninsula, the Carpathian Mountains and the Alps) there are some zones of obvious pollution by geonoxes (poisonous substances of geological origin) was totally ignored. A deplorable outcome of this ignorance is the series of legal and regulatory documents where this natural phenomenon is not only ignored but even the zones of natural pollution are added to the microregions with technogenic pollution. It trned out that in this important economic sector a lot of issues have been predetermined without the competent standpoints of geologists. Today it is already clear that this has not been caused by accident or borne of ignorance, but is the result of a deliberately negative presentation of the ecological state of the Bulgarian lands, with the distant goal this day (and also in future) to spend the funds allocated for environmental recovery on the absurdity of reclaiming lands with geogenic pollution. This means to attempt to clean the uncleanable! These teams of scientists, agronomists and others are a typical example of Brancaleone's army from the Middle Ages (as seen in the film with Vitorio Gasman). Then the knights on their way to set the Holy Lands free actually brought innumerable calamities to the European peoples (and it is exactly European because today the Eurobureaucrats are in continental unity with our doemstic science speculators who 'implement' ecological subsidies). The allusion to Brancaleone's army would be incomplete if we do not recollect also Andersen's tale of the tailors who brought a whole nation to exclaim: "The king is naked!", but who duly disappeared from the stage of cheating. We must even now be convinced that the authors of the concept of the 'totally polluted' Bulgarian soils will vanish into thin air even in the initial stages of a *Programme for Revision of the Qualities of our Lands*. It is absurd that to this very day they enjoy

institutional support, stimulating their pseudoecological activities and the conservatism of the legal and regulatory framework.

The Management and Use of Farming Lands (MUFL) Act was created by a group of economists, geodesists and soil scientists with the assistance of legal advisors of the then (in 19991) Ministry of Agriculture and Food-Processing. A great Act, with great amendments and supplement thereafter! A significant fact is important in this case: Art. 10, Para.10 which reads: "The lands in the ecologically polluted regions shall be returned to the owners and the costs for their ecological recovery shall be borne by the state. The Council of Ministers shall specify the ecologically polluted farming lands and the legal order and methods of their ecological recovery." ***Not a word on the existence of regions with natural (geochemical) anomalies, extremely saturated with geo-noxes, negatively influencing the ecological status of the soils and thence – of the biocenoses.*** The next step was bravely made by soil specialists. They compiled (based only on their digitalised maps, without geological and geoecological information!) a list of the lands polluted as a result of industrial activiites. This list included all natural anomalies with heavy metals. In 1993 the Council of Ministers incorporated the list in a special decree of the Council of Ministers (Fig.1).The geological circles reacted to this incorrect incororation of natural anomalies within technogenic ones. The efforts for cancellation of this list are still going on, but someone is interested that the 'grey' (pseudoscientific) economy should receive great amounts for the cleaning of polluted lands, but actually for imitation cleaning of uncleanable, naturally polluted lands as well. This, in fact, is ***clientelism in action.***

In Bulgarian Geological Circles Disloyalty and Clientelism are of 'Ancient Accumulation'

This typically tectonic term very aptly describes these social and political phenomena among our professional circles. Let us recollect the decades of fights among the various tectonic schools, the dishonourale 'games', played to impose specific theories, as well as the circles of admirers and semiadmirers-semicareerists around the leaders with institutionally firm positions. These conflicts where not unknown in other branches of geology and mining. Then need we wonder that soil scientists, agronomists and sylviculturists do not acknowledge us as authoritative researchers in the various interdisciplinary branches of earth sciences?

We shall give an example with some of our scientific studies that have been especially popular and productive 30 years ago: aerospace photo deciphering.

This activity is now focused in the Institute of Geophysics and the Institute of Space Research in the bulgarian Academy of Sciences. But the first aerospace views were received at the Committee of Geology (CG) at the beginning of the 1980s. Modern equipment was then imported from Germany for the deciphering and processing of these photographs. We are convinced that the deciphering done at the Enterprise for geophysical research and applied mapping was greatly contributive to our colleagues work in the oil-prospecting sphere! The space information fixed on these photographs is often lost in aerial views and independent (i.e. without photographing) field-work. But in our opinion of extreme importance was the information obtained from the satellite ***photos of SALUT*** for the water areas of the Republic of Bulgaria in the spectral ranges (the so called fifth channel then), in which the water volume and ***the morphology of the shelf clearly stands out.***

The author of these lines first deciphered these photographs (of the water areas). Moreover, then, in 1975-77 we used new methods for laboratory (secondary) processing of negatives, slides and positives for multiple improvement of the data-reading possibilities of the space photographs (1977). In our paper, later published in the 'Bulletin of the National Oceanographic Committee" (1977) at least for the Varna gas-bearing structure our prognoses were confirmed.

In the year 2000 we with colleagues V. Yanev and Iv. Bedrinov presented our ocnviction that the diagonal (northeastern and northwestern) fault structures have predestined the ways for inclusion of ores and minerals in the upper parts of the earth's crust, incl. Carbohydrates. Apart from this we insist that the conjugated tectonic movements in these two directions are of very ancient geological accumulation, at least from the old-Alpian cycle and are probably replicas of Hercynian and Caledonian structures. The inclusion of bitumens and gas over them in sediments in the process of formation and in shallow basins is entirely possible. Some of these faults 'come alive' even now: was the earthquake at one of the their cross-points in southern Bulgaria, at the Haskovo villages of Konush and mandra, accidental? We supposed that the bitumenliths there originate from previous inclusion of carbohydrates (Янев, Бедринов, Дачев, 2000).

I am here permitting myself to propose for publication (Appendix 2) my deciphering of the space views from SALUT of the shelf from the beginniing of the 1980s, already textually presented in the "Bulletin of the Oceanographic Committee" (2000).

We consider that special attention deserves the Obzor elliptical structure. It (as well as the other two) is ***geopo-sitioned*** on the photograph. The large diameter of the ellipse is 25 km, expressed at a depth of appr. 100 m. under water. I have interpreted the photographs of clearest visibility but unfortunately south of Nessebar the weather had been cloudy.

The company which have obtained parameters for shelf prospecting very probably have their own space data for these structures, but we think that the Bulgarian public should know that we have long had data on these subjects. Much to our regret institutional scruples of long-standing and dubious ethical and national values were the reason that these data were concealed, along with a number of other valuable materials, for better, 'clientelist' times; these times have now come! In the bulgarian science too little is known even today about the information deriving from the shelf studies for many years by various organisations and institutions.

CONCLUSIONS AN DRECOMMENDATIONS

1. As the new paradigm motto for the world science is: "Think globally, act locally!" we are obliged to put all efforts to reach sustainable development in our country in the prospecting and mining sectors.

2. We think that local sustainable development can be formulated as a balanced approach in estimating the correlation between environmental ecodynamics and the technosphere, economy and society in a given region, country or district.

3. A trend of more massive intervention on the part of geological and mining circles is imperative in the border areas of the earth sciences, such as soil science and agroecology, marine geology and others. It is unwarrantable on the part of professional associations and societies today not to stimulate such an initiative!

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