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Archaeological heritage between natural hazard and anthropic destruction: the negative impact of social non-involvement in the protection of archaeological sites

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Abstract

From its beginnings and until January 2000, Romanian archaeology did not benefit from a specific legislation. The lack of specialised administrative structures that support initiatives and of a set of minimal rules or of a unique system of professional licensing has had negative effects such as the lack of any legislative initiative concerning archaeology, the perpetuation of old, customary standards with relative application in archaeological diggings and in the interpretation of professional criteria and quality, the lack of any legal duty to report diggings results (except for the standards of certain institutions), and the lack of higher education in the field. Despite the fact that Romania has been a member of the European Convention concerning the archaeological heritage (signed at La Valetta on January 16, 1992) ever since 1997, it was only in 2000 that they enacted the first law concerning the protection of the archaeological heritage. Law No. 462 from 2003 defined from a legal point of view the types of archaeological research, classifying them into systematic, preventive, and salvation, introduced the “polluter pays” principle, and contained measures for the prevention of archaeological poaching. However, the law omitted taking measures against the second major enemy of archaeological sites, after manmade destruction: natural hazard. The present study is an analysis of the consequences of the non-involvement of centralised and local public administration, as well as of civil society, in general, in the protection, conservation, and capitalisation of the archaeological heritage subjected to both natural (increasingly frequent) and manmade destruction in the Romania of the 21st century.

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In the context of the more and more frequent salvation diggings caused by the infrastructure works (highways, national roads, gas pipes, etc.), of the development of real estate or industrial constructions (industrial parks, warehouses, etc.), the County Offices for Culture, Cults, and National Cultural Heritage have been under constant pressure between constructors, owners, and beneficiaries – on the one hand – and the Ministry of Culture – on the other hand – in the attempt to control, in accordance with legislation, all the works that might alter known or unidentified archaeological sites. In such a situation, it would be ideal to have a reliable map of the archaeological potential of each county, as well as a reliable repertoire of the archaeological sites that allow efficient management of the heritage. These archaeological sites should also be inventoried and grouped in accordance with the standards of the Ministry of Culture and National Heritage so that every county manager know the value of each archaeological site, i.e. if it is rated A (national class) or B (local class).

To do so, we should, first, conduct systematic field archaeological research that produce a full map of the archaeological potential since the major issue real estate or industrial developers are confronted with is the lack of such an instrument; at present, only part of the possible archaeological sites are known. In this case, it is not the developer who is to blame, but the archaeologists (or the institutions affiliated) that do not provide local public administration with a complete map of the archaeological sites that would show if a developer is to build over a possible site or not. On the other hand, archaeologists are also confronted with the shortage of personnel, with the vast areas they need to check, with the lack of money and of proper equipment, as well as with the lack of standardised research methodology. In most cases, the “institutions habilitated” (according to the law) – i.e. museums, universities, and a few research institutes – are so much involved in the research, teaching, and salvation work, that they no longer have the time to do the national mapping of all the archaeological sites in the country.

Our field experience in the last years has shown that (at least, in the Timiș County), there is no land improper for human dwelling. There are archaeological sites – more or less important – all over the place. The proof: the unprecedented situations in Romanian archaeology along the highways under construction. Much to the surprise of the authorities (see the reaction of the Ministry of Transports or of the President of the Republic), they have found an impressive number of archaeological sites “grouped” along the future highways. We believe this is the consequence of the lack of a map of the archaeological potential of each county that would have shown the authorities that our lands are full of history, that there is no land without an archaeological site, that archaeological sites are located everywhere – in the plain, in the hills, or on the mountaintops – and that what we need is to establish the class of the site, its historical and cultural value, if it can be dug and documented and be built over afterwards, if it should be preserved because of its extraordinary value for the national or even international heritage.

Such an effort should be supported at national level and be subjected to a mandatory governmental programme for all the institutions in the field. This is where we should start from, because one should first offer and then demand. Since such a national programme does not exist, developers have to finance not only the archaeological discharge of the known sites, but also preliminary works of identification, mapping, and inventorying of unknown sites – which means to map archaeological potential “on the fly”. Alternatively, we should already rely on such an instrument: it should be used in the checking of a land through the mechanised sampling that should establish the limits of an archaeological site menaced by destruction, in which case the last step would be the salvation digging proper.

The situation is identical for the archaeological sites systematically researched by excavating that are “school-sites” or are considered a priority due to their intrinsic value. They preferred to research mediocre or modest sites and ignore other impressive sites that were unknown in literature in numerous cases. The lack of systematic field research lead to incomplete knowledge of the system of Dacian fortifications in the Orăştie Mountains area (very much mediatised), of the importance of march castra in the same area, or of the lack of a correct demographic analysis (we do not know, not even with approximation, the exact number of the rural Dacian settlements).

Such a national project that standardises field archaeological research aiming at identifying and mapping all the archaeological sites in a county also has a very important administrative component: the opportunity of determining the value class of the archaeological site and identifying (natural or manmade) destructive factors that menace to destroy the site.

Thus, among natural hazards that can affect an archaeological site we could mention:

- Climate hazards (hurricanes, tornadoes, hail, snowstorms, avalanches, drought, desertification, thunders, etc.);
- Hydrological hazards (floods, torrents);
- Geomorphologic hazards (soil erosion, landslides, land collapse, mud torrents, etc.);
Biophysical hazards (fire).

There are mechanical and administrative solutions to these hazards that have also proved useful: embanking, draining, diking, consolidating, renovating, tree planting, and periodical control.

Limiting manmade destructions is much more complex, since archaeological heritage is endangered by:

- Roads (highways, national roads, county roads);
- Real estate developments (residential areas, public interest urbanistic constructions, industrial parks, market halls and warehouses, etc.);
- Networks and infrastructure (water supply and sewage, gas pipes, etc.);
- Agricultural management (scarification, tree and grapevine plantations, etc.).

The solutions to these hazards are few and unsatisfactory, particularly since they seem effective in theory but are either omitted, ignored, or badly applied in practice:

- Developing protected archaeological reserves;
- Identifying and marking archaeological sites and protection areas in the field.

Mapping the archaeological potential and managing the archaeological sites identified and mapped with a GIS system could be a practical solution for the online management of archaeological sites: these could be managed on a Google Earth map, accompanied by a spatial database and map-drawing, legislative, judicial, etc. information accessible to both researchers or fora with attributions in the management of archaeological heritage, and to the public – from town halls and local councils to private people interested in the location of an archaeological site from an economic perspective or purely and simply for cultural and educational interest.

As for the involvement of the central authorities in the management of the archaeological heritage, their activities materialised in a project (good at conceptual level, but that was not entirely put into practice) coordinated by the Ministry of Culture and National Heritage through the Institute for Cultural Memory: the Cartographic server for the national cultural heritage, having as a pilot project the Mostiștei Valley. The project contains theme maps that allow the user to visualise, through different layers, different classes of monuments in Romania. Another “national” project that aimed at using Geographic Information Systems (GIS) to manage archaeological heritage was (it is still a desideratum) is eGISpat established by the Order of the Minister of Culture and Cults No. 2408 from 2005 to develop a GIS for the protection of the immobile national cultural heritage (archaeology and historical monuments). The programme is based on a partnership between the Ministry of Culture and Cults, the National Institute for Historical Monuments and ESRI Romania.

In theory, the project was/is ambitious because, besides the scientific, strictly archaeological and historical component, it also aimed at collecting, structuring, and presenting information from the fields of environment and spatial planning in Romania. Interpreting and correlating these categories of information would allow new data on major importance domains in the protection of the immobile heritage:

- The effect of natural factors on immobile heritage;
- The risk categories in immobile heritage;
- The efficient risk management solutions;
- The correlation with other central administration institutions.

Though there is legislation in force in the field of heritage protection, it is often eluded because there are no proper instruments, at the level of local and county public administration that manages effectively the database and information concerning archaeological sites. At national level, there is only one database of the text type – full of gaps and not corroborated with real data from the field – concerning strictly the archaeological sites classified as

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2 See the ArheoGIS Project, www.arheovest.com
3 For details, visit http://map.cimec.ro/LocalizareExacta/mapserver.html (29.11.2012 - at the time of visiting, it was not functional)
4 The project has not been completed so far: though expected to run between 2006 and 2013, the Ministry of Culture and Cults never made any mention whatsoever concerning its present state, its budget and the results of the project, and nor did it made public any standards that regulate the results of the field and lab work of the people involved in the project.
5 Ministry of Culture and Cults, Program National de implementare a unui Sistem Informațional Geografic (GIS) pentru protecția Patrimoniului Cultural Național Imobil (Arheologie și Monumente Istorice), http://www.cultura.ro/Files/GenericFiles/ProgramGIS.pdf, p. 4 (08.08.2010).
national or regional monument, but omitting all other archaeological site that does not enjoy this status; in addition, this database is not periodically updated as it should. If we add to these deficiencies the lack of systematic field research that identifies all archaeological sites (as it is the case in most European Union Member States) and the fact that the information should contain spatial data (satellite images, ortho-photogrammes, topographic measurements, 3D scans, etc.), be managed in an interactive database with multiple users, and stored on a web server, we can understand the necessity of implementing such a project as well as its practical applicability.

A modern management starts from the design of the conceptual and practical methods of management of archaeological heritage of each county based on interdisciplinary working methods and modern technologies: topography and archaeological mapping and GIS analysis\(^6\) (to which we could add teledetection and 3D laser scanners), establishment of databases, and web dissemination.

In the context of generalised IT technology and of non-invasive techniques of archaeological research and computerised monitoring, the GIS management project model would be but an adjustment of the management of the Romanian archaeological heritage to international standards. Far from being a simple theoretical approach, this approach has a practical goal, i.e. providing the public with a useful and simple to use working tool with positive effects at both cultural and scientific, and economic, tourism, and administrative levels. Protecting the national archaeological heritage is a priority that should rely on real working and control instruments otherwise, it risks remaining a desideratum, a simple concept without practical goals.

This is the kind of model we would like to see implemented at national level so that all interested fora can have unconditional access to this kind of information: a first condition would be to standardise the method of inventory and to have an effective data management.

If, at national level, they have tried different working methods in search of a solution (though some of them were never completed), at county and local levels there are no initiatives concerning the protection and conservation of the archaeological heritage.

As for the protection of the archaeological sites menaced by natural hazards, though they have found mechanical and administrative solutions that, in most cases, were successful – embanking, draining, diking, consolidating, renovating, tree planting, periodical control, etc. – but that are unsuccessful if we do not know first the exact location of the archaeological site. Alternatively, this is another reason why we need a map of the archaeological potential of each county. Site identification in the field and mapping are followed by lab techniques that produce databases and a cartographic server where we can visualise on a Google Earth platform, the exact location and perimeter of the archaeological sites.

If such an instrument existed in 2005, when the Timiș County was seriously affected by the floods\(^7\) from April and May, many archaeological sites in the area of the localities Uivar, Foeni, Cruceni, Deta, Denta, Voiteg, Opatița, Gătaia, Unip, Uliuc, Sacoșu Turcesc, Giarmata, Mănăștur, Făget, Beliț, and Recaș would have benefited from protection and conservation projects or, at least, we could have assessed the damages caused by this natural cataclysm (fig. 1 and 2). But we entered a vicious circle in which the lack of a map containing the exact location of the archaeological sites lead to the failure of protection and conservation projects (embankments or other protective measures): this is why some archaeological sites (ditches, earth wave, hillock, etc.) were washed off or covered by mud.


\(^7\) The term flood designates the temporary coverage with water of a land that is not usually in this state. A flood can be caused by overflow of rivers or during high floods, after heavy rains, after sudden snowmelt, etc.
Fig. 1. Map of floods and their effects in the Timiș County (April 15-May 6, 2005)

Fig. 2. Image of the floods in 2005 near Cruceni, Timiș County

Updating the Land management plan for the Timiș County upon the formal request of the Timiș County Council in accordance with Law No. 575 from 2001 and with Government’s Decision No 1512 from 2005, after the floods
of 2005, stipulates nothing, under Diagnosis and Priorities, on the protection of archaeological and historical heritage which suggests that there is no cooperation between the Office for Culture, Cults and National Patrimony of the Timiş County and the Timiş County Banat Inspectorate for Emergency Situations (ISU Timiş)\(^8\) or the “Apele Române” National Administration\(^9\).

Another natural phenomenon that affects archaeological sites and that is also caused by heavy rainfall and the increase of the river water levels or by torrents or even meanders is erosion. The term \textit{erosion} designates soil or rock degradation materialised in the detachment of unconsolidated matter and their removal by rain or wind. Erosion can be controlled by hydro technical works, by forestations, etc. \textit{Fluvial erosion} consists in the progressive destruction of the material in the bed and the banks of a river, while \textit{erosion by rain} is incipient areolar erosion\(^10\) resulted from the hitting of the soil uncovered by vegetation by raindrops (fig. 3 and 4).

Again, since there is no map of the archaeological potential, the “Apele Române” National Administration cannot be blamed for not paying enough attention to the archaeological heritage along the rivers and for not taking measures for their protection and conservation because there is no knowledge on the exact location of the sites, on their area, size, or importance: therefore, there was no bank stabilising and consolidating work in the areas where the land collapses and destroys historical and archaeological monuments.

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\(^8\) Under point “c” among ISU Timiş duties there is also “participating in the protection of the cultural, archive, heritage values and of material and environmental assets”, cf. http://www.isutimis.ro/index.php?meniul=3&viewCat=352&lg=ro (12.02.2013)

\(^9\) http://www.rowater.ro/default.aspx

\(^{10}\) Areolar erosion – erosion that acts laterally.
As for manmade destruction, we see that, in most cases, archaeological sites are affected by land management activities (diking, terracing, etc.), agricultural management (scarification, fruit tree and grapevine planting, etc.), real estate development (residential areas, industrial market halls, etc.), or infrastructure works (highways, national and county roads, belt highways, gas pipes, etc.).

If, because of the intense mediatisation, the issue of archaeological discharging along the highways was made public with observance of the legislation in force and the spectacular results popularised the archaeological findings, there are still a few sectors that elude the Law No. 422 from 2001, such as real estate or industrial developments.

In this context, the example of houses, villas, or blocks of flats being built in the areas uptown Timisoara (or in the neighbouring villages) without archaeological discharge is the consequence of the lack of communication between decision-makers resulting in ignoring specialists in immobile heritage protection and in violation of the heritage legislation.

Such a case is the Șag “Mănăstire” area (fig. 5-7), Timiș County, where the comparative analysis of satellite images from 2003 to 2012 show the dynamics of house building over an archaeological site dating from the Stone Age (Neolithic) comparable, in beauty and richness, to those of Parța, Chișoda or Bucovăț (all of which are in the close vicinity). The same goes for the residential areas in Ghiroda, Moșnița, Giroc, Giarmata, Dumbrăvița, etc.

The lack of involvement of the local administration (Timiș County Council, town halls, Timiș County Police Inspectorate, Community Police, Timiș County Office for Culture, Cults and National Heritage), NGOs, water, sewage, electricity, etc. regies, professional associations and organisations of architects, constructors, etc., firms of architecture, topography, and constructions and, last but not least, the public cause the ongoing degradation of the archaeological and historical heritage because of the lack of proper prevention measures, of monitoring, and control.
Fig. 5. Satellite image of the land between Șag and Mănăstirea Șag, Timiș County, in 2003

Fig. 6. Satellite image of the land between Șag and Mănăstirea Șag, Timiș County, in 2006, showing the plan of the new residential area
Our project published in two volumes\(^1\) aims at drawing the attention of the scientific world and of the administrative decision-making fora on the possibility of developing a management model for the archaeological sites of the Timiș County using a GIS system and *open source* software at low costs but doubled by a *sustained involvement* of the authors. The structure of our model can be seen at http://arheovest.com/map/.

*ArheoGIS* is based on a Database Management System model that integrates data of the text, image, map, metadata, etc. type that, starting from concrete data collected from the field through different means (topographic measurements, GPS coordinates, satellite images, aerial photos, etc.) allow the development of complete technical charts for each archaeological site as well as access, change, completion, interrogation, and extraction of specific data by multiple users (fig. 8-10).

Managing the field data is done through interactive web pages that contain the online data basis, the cartographic server, as well as other information related to the legislation in the field, working methodology, scientific opportunity of data processing, institutions and contact people specialised in archaeology and in the management of archaeological heritage.

From a technical point of view, site location data refer to the locality, the higher administrative unit, the point, the landmark in m/km, the hydrographic landmark, the cadastral parcel, the judicial regime, the form of relief, the geographical description, the site area, the state of conservation, the Stereo 70 coordinates, and the present state, while the archaeological data of the site are the ensemble code, the ensemble name, the ensemble type, dating, period, culture, other remarks, surface images, marking on the topographic map 1: 25000, satellite image, and bibliographical references.

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The necessity of implementing projects that “speak” a common language (readable for both specialists and the public) is increasingly stringent nowadays: this is why the few progress of the last years can be a methodological starting point for future regulations and standardisation. We are looking forward for models to follow, but we believe the best solution is to get involved actively and not to just sit and wait for governmental projects.

References

