THE GEOVILLAGE – NEW CONCEPT FOR GEOTOURISM

GEOVILLAGE – NOWY POMYSŁ DLA GEOTURYSTYKI

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Content: The search for economic sustainability by using local geological assets has led Martley, a village in western England to the development of the Geovillage concept. It relies on an interaction between geological resources, produce and cultural features within small localities as apart of a common educational and tourist offering. In Martley, this idea has been in development since 2010. Results to date suggest that it would indeed be possible to implement the concept in other countries. Dobków situated on the Kaczawskie Foothills in the geologically important region of the West Sudetes is one example. Some steps to meet the criteria of a Geovillage have already been taken there and this is illustrated by two case studies.

Key words: geotourism, geovillage, Martley, Worcestershire, Dobków, Pogórze Kaczawskie

Treść: Poszukiwanie lepszych możliwości wykorzystania lokalnych wartości geologicznych doprowadziło w rejonie Martley (zachodnia Anglia) do sformułowania koncepcji tzw. geovillage (brakuje polskiego terminu). Polega ona na kompleksowym włączeniu zasobów geologicznych i cech kulturowych małych miejscowości do wspólnej edukacyjnej i turystycznej oferty. Idea taka jest tam skutecznie realizowana i od 2010 r. ma charakter międzynarodowego projektu. Osiągnięte rezultaty wskazują na możliwość implementacji rozwiązań także w innych krajach. Było to wykazane na przykładzie Dobkowa, usytuowanego na Pogórzu Kaczawskie w ciekawej geologicznie okolicy Sudetów Zachodnich. Pewne kroki w zakresie geoturystyki i geovillage zostały tam już dokonane. Ukazano to w formie dwóch studio przypadku.

Key words: geoturystyka, geovillage, Martley, Worcestershire, Dobków, Pogórze Kaczawskie

Introduction

The decades of the 50s and 60s were dominated by increasing demand for and development of recreational resources, focused around the 3 S's: sun, sand and sea. The next decade saw a swing to the 3 E's: entertainment, excitement and education (Mazurski 2007 pp. 25, 35). The last element translates to educational or study tours, where tourists learn about the different aspects of the environment, from many and varied points of view, they are visiting. Traditionally cultural institutions such as museums, art galleries, stately homes and architecture dominated this genre. Interest in nature, birds, plants and so on formed a much smaller segment. Fewer still were those in search of abiotic pursuit such as landscape and geology. This specialized pursuit was reflected in the UNESCO list of World Heritage of Culture and Nature sites, that in 1972 comprised less than 10% of geological sites. However in a time period of around twenty years, the first Geoparks were established and this gave great impetus to the development of geotourism (Migoń 2012). The potential in using geological resources for education and tourism is, however, significantly greater than that already developed, especially if it draws in other local attributes that could add to economic sustainability such as culture, crafts and produce. This way, geological assets can serve not only to develop geotourism, but also the community at large, where potential visitors are offered one coherent marketing package. This community development project by my English co-authors, is encompassed within the Geovillage concept and has been initiated in Europe with European funding. Case studies from two villages, one English one Polish, are given below.

Case study I: Martley, Great Britain

Martley is a charming village in the county of Worcestershire, 12 km to the west of the City of Worcester, close to the English-Welsh borderland. It is a parish of great geological diversity with seven geological periods spanning some 450Ma and over 30 documented sites of geological interest. Martley lies on the east side of the valley of the River Teme, the longest tributary of the River Severn, itself Great Britain's longest river. In addition to those mentioned above, there are many other sites of geological interest in the Teme valley, but the most important is that known as Martley Rock. Here lies a dividing line between geologically ancient and modern Britain, between the Palaeozoic to the west and the Mesozoic strata to the east. This divide, a deep-seated and ancient line of weakness in the Earth's crust, is known as the East Malvern Fault and within a small site of less than $1000m^{2,}$ rocks and sediments representing six geological periods can be found. When we start to interpret the different rocks seen here and how they relate to each other, there is an incredible story to be told about them and the events that shaped Martley's landscape. The main feature at the site is an exposure of the most northerly outcrop of the Malverns Complex (around 700 Ma old), some 15 km north of the main Malvern Hills ridgeline. The ancient Precambrian Malverns Complex and the Malvern Quartzite (around 530 to 488 Ma old) at the site are surrounded by progressively younger rocks. Silurian mudstones (around 416 Ma old), Carboniferous mudstones, siltstones and sandstones (around 308 Ma old) and Triassic sandstones (around 230 Ma old) are all present. Quaternary sands, deposited sometime over the last one million years, complete the picture. The Malverns Complex consists of igneous and metamorphic rocks. Igneous rocks form deep underground when molten rock (magma) cools and solidifies, forming crystals as it does so, the slower the cooling the larger the crystals. Metamorphic rocks form when igneous or sedimentary rocks are subjected to immense heat and/or pressure. The effect of this stress is to change their appearance and structure. The dominant igneous rock in Martley is a dark, green-speckled, coarse-grained diorite. Also present is pegmatite, a granite-like, coarse-grained rock containing both clear quartz and salmon-pink orthoclase feldspar. Both of these formed deep underground from magma. During their long lifetime they have been subjected to numerous phases of earth movements and unimaginable levels of heat and pressure. It has resulted in them being moulded, fractured and altered to varying degrees i.e. metamorphosed. This geological wealth to the north, south and west has been designated since 2010 as the Abberley and-Malvern Hills Geopark (Mazurski 2013).

Teme Valley Geological Society was established in 2010 and is based in Martley now expanded in 2016 to a group of 90 active members. Its efforts to discover, conserve and spread the knowledge of geology are focused on the valley of the River Teme, part of but independent from the aforementioned Geopark. In Martley parish the Society has developed several trails with fully illustrated guides and placed a number of interpretation boards to assist in those wishing to explore the area. By arrangement, visiting groups can take advantage of local guides at no charge, in order for them to better understand the area and its geology. The Society focusses on engaging its local rural population with its environment, in particular the geological aspects. Initially LGAPs (Local Geodiversity Action Plans), are developed. These result from conducting an audit of all interesting local geological and geomorphologic sites. Quarries – numerous in this region—are important and some have been opened up to visitors. The next step relies on the organization of the local action group whose job it is to manage projects to completion. Various project ideas, apart from trails, interpretation boards and audits, have been put forward, for example the creation of geological gardens at schools, constituted from specimens donated by local quarry owners and individual collectors. In Worcestershire, a major county wide project is currently underway (2015) linking buildings made from stone such as churches, houses, bridges, walls, to the quarries from which the stone came. In turn this leads to the discovery of much fascinating social history of quarry workers, their dwellings, movements, education and so on. The very diverse geology of the Teme Valley area, mentioned above – one of greatest in the country –strongly influences local buildings, their construction and decorative features.

The range of activities by the local society is broad and includes educational courses, workshops, exhibitions and field trips. Smartphone/ tablet technology has been used to create interactive, full colour applications illustrating and teaching many aspects of the geology of the region. Printed materials – leaflets, guides and maps, are also widely distributed. The young people of Britain have their own national society, "Rockwatch", sponsored by the Geologists' Association, which has made several visits to the area.

All of these undertakings have met with a positive response from local community. This is reflected in a growing commitment to and interest in their own environment, with increased numbers of tourists.

Case study II: Dobków, Poland

Dobków is a picturesque village (295-390 m a.s.l.) in the Lower-Silesian voivodeship (southwestern Poland), situated in an attractive, deep valley that cuts into a gently undulating area. The village arose as a typical chain-settlement in the 13th century on the Kaczawskie Foothills and lies in the region of the West Sudetes. The geological units are considered to be part of the Caledonides, created in a deep marine environment that was later strongly metamorphosed, hence leaving no trace of fossils. This makes it very difficult to separate out individual layers. Igneous rocks do not occur here. Rocks of the lower Palaeozoic (over 359 Ma), made up from phyllites with intercalated slates, quartzites and calcitic marbles and graphite, are the chief formations found south of the village. These have resulted from the drift of the continents, of rifting that later became deep water with submarine volcanism. They surround an island of green rocks and altered vulcanites on three sides. The formations were formed as a mountain range during the Caledonian orogeny (541-419 Ma), but were later very much eroded. The final uplift took place during the Alpine orogeny, particularly in the Saxonian phase (25-12.5 Ma). After this, an extension phase saw the creation of the Świerzawa Ditch arising as the mountains were being eroded (600-700 m a.s.l.). The rift valley is filled with mudstones, conglomerates and sandstones of lower Permian (299-274 Ma). A zone of sandstones and greywackes from the Upper Carboniferous period and Permian (320-252 Ma) are deposited on the north and east of the rift valley. Most of the area surrounding Dobków is covered with a layer of sediments from the Quaternary (mainly morainic clays) of variable thickness (*Słownik geografii turystycznej Sudetów…*, 2002).

Not far north from here lie several geological sites showing aspects of vulcanism. There are Permian rhyolites but most are basalts from Miocene (23-5,3 Ma). They are linked by an attractive footpath, "Trail of Extinct Volcanoes", situated in the Kaczawskie Foothills.

Dobków takes the lead in geological tourism with the "Sudetic Educational Farm" which was opened in August 2015 (Piepiora 2015). Thanks for this are due to the Dobków Association (established in 2005) and the outcome of its project: "Ecomuseum – active protection of the Lower-Silesian Natural-Cultural Heritage". Close cooperation also exists with the Kaczawskie Association (established in 2002). At the farm, activities include organized geological workshops, the display "Three Epochs of Vulcanism" along with geological collections, and educational stands (Pijet-Migoń 2015). The latest technology is used to learn about vulcanism and its effects in the Western Sudetes through working models and interactive displays. There are stands where earthquakes, river erosion and mini-geysers are simulated and together this makes an excellent foundation for the development of a geovillage. Already, visitors come for the geology of the region.

Development of the concept

Presented case studies rely on the British (especially) and Polish examples. The key belief is that it is possible to use local geological resources as assets to develop tourism in support of the economy and education. The Teme Valley Geological Society of Worcestershire initiated this concept in 2010.

Authors of the present article propose the following definition of a Geovillage:

A geovillage is a community that has distinctive, significant geological values within its bounds, has a policy of locally managed geological discovery and conservation, has developed a viable educational and tourist offer for both school pupils and adults and is using its geological assets in support of the local economy in smaller communities such as villages and small towns.

The ultimate objectives of the geovillage initiative are to make communities aware of the value of their local geological assets, to create a network of accredited communities offering high quality geo-tourism facilities, to help sustain the local economy and to help improve health by interacting with and exploring the local environment.

Accreditation would be against a set of agreed criteria (see below). An important feature would be to identify potential candidates and mentor them to full membership ("pathway to provision"). It is considered that the whole grouping of geovillages would use a web site portal under which each community would present its own details. As a first priority is the need to design the home page of the site. A properly costed and funded programme could then be developed. New geovillage participants would need to be identified perhaps by firstly breaking down the continent into regions such as Scandinavia, Mediterranean, Eastern, Central, Iberia and North-Western Europe (British Isles). Perhaps up to five new communities would be encouraged to participate. Direct contacts with these from the founding partners may prove a useful starting point although existing, established EU routes or a targeted marketing programme might also be appropriate. The key requirements would be to assess a community's geological assets, to identify sources of local advice and assistance that may be available and to identify individuals or groups that are keen to drive it. These could, for example, be teachers. A minimum standard for accreditation would also need to be established. Inevitably communities themselves would need to commit both human and financial resources and gain support from appropriate local government and municipalities. We see this as fundamental if the longer term objectives and detailed outcomes are to be secured in a coordinated approach and genuine partnership.

Roadmap

There are further details below that follow and develop the ultimate vision and objectives. These are centred on the EU, given that the principal funding streams are potentially available there. The vision and objectives also focus on their appeal to geo-tourists, walkers, and other visitors, including minority groups.

It is envisaged that these high quality *community-based localities* will be spread across the whole of the European Union and ultimately worldwide. Their key quality is that they are importantly smaller and separate from well-known National and International Geoparks and stand-alone sites and areas, such as the Jurassic Coast or Cheddar Gorge in Great Britain. They will use their geological assets to discover and maximise the potential for local geo-tourism, and, as a consequence, will bring financial benefits to less well known and perhaps more disadvantaged communities. Some communities may already be working along these lines, but not yet within the concept of a geovillage network.

We envisage that applicant communities might generally have few, if any, other conflicting priorities. The concept depends on bringing together community groups to voluntarily support the project, and to take advantage of funding and grant streams that might be available from time to time.

Important accreditation criteria may include some or all of the following suggestions, but discussion is clearly needed to reach agreement first. The most important criteria appear to be:

•an existing important key site (or sites) of geological interest (to be assessed by a professional team);

•the potential to link geo-sites to other local attractions and amenities;

•locally-based community support;

•an active local volunteer support group to ensure that trails, sites and interpretation material are maintained;

•easily accessible site locations;

•signposted trails;

•local geo-displays and information;

•access to local volunteer guides;

•an undertaking from the community to extend a welcome to visitors;

•local public transport;

•local service outlets in the form of shops, accommodation and/or refreshments;

•local produce availability.

A key part of the process to consider is how to develop the geological feature as the initial "attractor", but to add to it other layers – local producers, craftworkers and so on. Increased exposure will help to develop these rural businesses and will encourage others to start up.

It is clear that there is the desire to open up less developed sites in some of the newer EU member states, where the related visitor infrastructure may still be at an early stage of development. There should be a means whereby communities are able and encouraged to move forward on an agreed programme, with agreed timescales, to meet these core criteria and achieve accreditation. Certainly, the aim should be to offer more development and potential rather than to just remain, for example, as the location of a small natural history museum or rock collection. The geological site(s) should be signposted by means of international standard symbols, with access for the elderly, wheelchair users, and the visually impaired, and also be included within related walking or cycling routes and trails promoted through leaflets or downloadable on-line. Websites would need to be in at least three languages to promote wider access for all visitors.

It is hoped that a standardised format and accreditation could also be considered and possibly agreed through the further discussions with the founding partners.

Anticipated Benefits

Based on the authors' own experiences in Martley, the benefits of communities joining the scheme could include:

•Creating rural regeneration and employment potential – bringing additional visitors to the area spending money in local shops, pubs, bed & breakfast accommodation;

•Encouraging community cohesion – combating rural isolation through social interaction, education across the ages, engaging and valuing older people in their experiences of the history and changes to their community;

•Promoting health and wellbeing – through newly established or enhanced walking, cycling and horse riding trails;

•Enhancing links with landowners – for example, in Martley local landowners have offered access to geology sites and, in return, it would be appropriate to examine ways we can offer support through promoting local produce, like cheese, butter, bread, honey, fruit, chutney and preserves, beer, lamb, sausages, home-spun wool - the potential list could go on!

•Enhancing links with local businesses – such as we saw in Sentheim (France), where they worked with their local wineries on their geology day, to promote the use of locally produced items such as stone, and wine, and to seek opportunities for sponsorship.

•Promoting biodiversity – for example, to preserve and encourage the planting of old fruit varieties like apples, pears and cherries and encourage and promote the wildlife that lives there and secure habitats for future generations.

•Promoting traditional industries – for example, to reinstate old cider/perry pressing machinery and flour milling equipment that still exists, for the production of produce for sale. Initiate an audit of such machinery

and methods for the community for heritage purposes. In Boyabat in Turkey, we saw the promotion of the wood burning art with an emphasis on geology;

•Promoting the use of public transport to access geovillages;

•Examining and where possible to establish wheelchair access to key geological sites and special trails, based on the Martley experience, and, based on Eichstätt's experience in Germany, to establish sensory trails for visually impaired visitors;

•Providing educational benefits for all ages – including promoting geology courses and career opportunities;

•Encouraging social cohesion and awareness through organised educational visits to see the geological assets and to experience rural communities in action.

Development of the Initiative

The preliminary groundwork was formulated within a European project 'Geovillages' which started in 2010 as a result of EU Grundtvig funding focussed on earth science adult education in small communities. The partners came from Sentheim (France), Eichstätt (Germany) and Boyabat (Turkey), and were supported throughout by Martley, United Kingdom. Since then, initial contacts have also been made with communities in Portugal, Greece and Poland.

Potential for Development

The potential for development is significant but its realization will depend on the conditions which exist in individual countries. A closer look at the concept of the geovillage shows similarities with the idea of the thematic village. In Poland, for example, such villages have been recognized since 2003, partly using Austrian and German patterns (Idziak 2008). Currently there are about 100 localities, mainly in Lower Silesian and kujavian-pomeranian voivodeships. However, whilst this is not exactly new, what is unique is the idea of moving to a geological focus for development. Historically there have been examples of individual sites in Poland. The old quarry Kadzielnia in the city of Kielce is a good example, as well as Bear (Niedźwiedzia) and Paradise (Raj) caves, or the volcanic sites on the Izerskie Foothills.

In these examples, however, there is a lack of a more complex package, as presented previously in the case study of Martley. The "Trail of Extinct Volcanoes" has almost no information infrastructure, information boards, leaflets or other specialist publications. This subject matter is contained within the "Geological Trail" in Karpacz at the foot of the Karkonosze Mountains (Giant Mts.). Original material describes, among other things, such Sudetes rocks as granite, amphibolite or dolomitic marble. This wider presentation was created for lovers of geological features rather than just flora and fauna. The Karkonosze National Park has marked out several so-called didactic paths, such as one geo-touristic path in the eastern Karkonosze Mountains, and one describing the postglacial heritage. Visitors have at their disposal numerous publications including amongst others a very good atlas for geo-tourism (Knapik, Migoń 2011). It is however worth noting that this area successfully obtained the status of a Geopark in 2010.

The idea of the geovillage is directed not only at the use of geological resources, but their protection as well. For sites in Poland, it would be advisable to propose the formal introduction of a geological protection code similar to Geoparks. The already existing and legally recognized cultural parks would be a good model because they provide an important comprehensive protection for diverse groups of both urban and rural heritage buildings and green parks.

A large part of what has been described above, especially the very real and practical community benefits, could very well feature in Dobków, and, with certainty, in many other localities in Poland and, for that matter, the world. This does indicate that there are significant possibilities for implementing the Geovillage concept, with the resulting benefits for the local population and society as a whole.

Conclusions

Activities realized in Martley for the extensive use of local geological resources show the full potential of the Geovillage idea. Such a locality - with geological resources at its centre - has a significant potential for wider development, due to the enrichment of the tourist experience on offer, particularly geo-tourism. Poland has favourable natural and legal conditions for the implementation of such an idea, as the example of Dobków shows.

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Fig. 1. Martley Rock Site Plan, http://www.geo-village.eu/wp-content/uploads/2013/06/130203-Martley-Rock-Site-Plan-Jan-2013.pdf [20.11.2015]. Szkic budowy geologicznej Martley Rock.

Fig. 2. Church of St Eata (Atcham) – the example for use of three stone types, phot. Krzysztof R. Mazurski. Kościół St Eata (Atcham) – przykład użycia trzech rodzajów kamienia, fot. Krzysztof R. Mazurski.

Fig. 3. Weathering of tufa on outer Wall in Moccas Church, phot. Krzysztof R. Mazurski. Wietrzenie tufu na zewnętrznej ścianie kościoła Moccas, fot. Krzysztof R. Mazurski.

Fig. 4. One of rooms in Sudetic Educational Farm, phot. Krzysztof R. Mazurski. Jedna z sal Sudeckiej Zagrody Edukacyjnej, fot. Krzysztof R. Mazurski.

Fig. 5. Explanation of stone types in outer wall of the farm house in Dobków, phot. Krzysztof R. Mazurski. Objaśnienie rodzajów kamienia w zewnętrznej ścianie budynku gospodarczego w Dobkowie, fot. Krzysztof R. Mazurski.