Mining the invisible gold – China’s approach to managing geoheritage

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Introduction

Chinese perception of rocks can be quite varied. They can be regarded as raw materials to boost industries, create business opportunities, generate jobs and improve local economy. When being exploited, they can pollute ground and surface waters, soils and landscape, cause fatal accidents and safety concerns. However, with the remarkable industrial growth of China in recent decades, demand for coal, minerals and metals are immense and growing, a trend that will continue for many years to come. Mining is experiencing such continual growth despite increasing environmental and safety concerns.

Some mining sites can be regarded as geological heritage sites, particularly when mining activities have stopped and changes are made to serve tourism and educational purposes. The Chinese approach of transforming the natural landscape – including making use of used mining sites – into another type of gold mine for long term, sustainable development for the benefits of local communities needs to be understood. The opportunity to encourage visitation from overseas visitors is clearly an additional benefit.

Visible versus invisible

To many Chinese, minerals are ‘visible gold’ for industries. However, they bear invisible values that are often under-estimated or totally ignored by local authorities and mining companies. These invisible values, if properly developed and managed, can create extra attraction to a place and provide tremendous economic and social benefits to local people, particularly those in areas in the post-mining period.

Mines can be interesting geological sites with educational, scientific and cultural values. Geological features and processes are records of natural stories of a place, a region and the Earth. These stories should be communicated to local people and visitors through geotourism and an effective interpretation system comprising:

- trained museum interpreters
- tour guides
- simple, understandable and attractive panels
- publicised materials such as guidebooks, brochures and leaflets.

Both operating and disused mines can be transformed into tourism attractions with special focus on their mining history, methods and geology. By doing so, the mines will attract tourists to visit and spend extra time and money, benefiting local business.

Disused mining sites can also be used as:

- field study venues for schools and universities
- scientific study sites for research institutes
- museums.

Suitable sites for these activities are available throughout China. For example, Hu Nan Shizhuyuan Non-ferrous Metal Limited Liability Corporation is a large state-owned enterprise that is engaged in mining and smelting operations from the Shizhuyuan mine which works the largest poly-metallic tungsten skarn deposit in China. Regarded as the ‘Museum of the World’s Nonferrous Metals’ by both Chinese and overseas geologists, it is one of the largest associated fluorite deposits in China.

Managing the invisible gold mines

China is eager to identify the values of disused mines and turn them into mines of invisible gold for sustainable uses. There are obvious advantages by doing so. Firstly, it will uncover the hidden values of these mines to foster economic activities to improve livelihood in areas particularly in the post mining period. Secondly, it aims at upgrading the environment of mining towns by making them more pleasant to live through better management and control. Thirdly, it will develop a sense of place and belonging to local people by encouraging them to stay behind to avoid deserting the areas after mining activities have come to an end.

The reported recent slowdown of the Chinese economy does not decelerate the growth of domestic tourism market. The market is expected to be worth US$640 billion by 2020 (Chinanews.com 2013). The demand for quality domestic and overseas tourist destinations by young travellers and the new, affluent middle class continues to be strong.

China is enriched with countless cultural and historical heritages in every part of the nation. Natural and mining heritages, especially those newly established, require extensive promotion in order to compete. One way of making them known is to acquire recognised status such as National Parks of China, National Geoparks and National Mining Parks or international brands such as UNESCO’s World Heritage and Global Geoparks.

By associating and labelling themselves with powerful national and international brands, the outcome can be quite remarkable.
The table above shows the performance of Hexigten and Alxa Global Geoparks in Inner Mongolia over a three year period between 2009-12. Visitation over this period has increased by nearly 20 per cent per annum in each geopark, with overall annual tourism revenues of US$196m and US$311m respectively being generated. Both geoparks are located at desert areas with very limited natural resources, harsh winter climate and overall poverty. The transformation of these areas into world-class tourist attractions has created jobs and encouraged business development.

Chinese visitors prefer to visit places with big names to which most people would relate. It makes their tours more fruitful by enabling them to return home with stories and experiences to share with their friends and relatives about these famous attractions. Good brand names also imply quality assurance and confidence, particularly when they feature national or world class natural and cultural heritage values. These attributes justify the money Chinese visitors have been saving for a long time to make the trips possible.

In formulating development plans for mining sites, the management approach in sustainable uses of the areas in the post mining period must be clearly set. This is important, not merely for environmental and economic reasons but also for avoiding social and political complications caused by the lack of sound restoration and rehabilitation programs. Mining proposals can consider the inclusion of a future park development plan targeted at establishing a national geopark or mining park. For more aesthetically and scientifically valuable sites, they can acquire international accreditations such as World Heritage Sites and Global Geoparks.

**Managing mining relics and geoheritage**

Managing geological heritage in China is undertaken by branding them with classifications such as National Mining Parks, National Geoparks, World Heritage and Global Geoparks. The parks have to be assessed to ensure they have met the requirements set by the relevant authorities.

National Mining Park is a national program under the Ministry of Land and Resources that aims to preserve the relics and geological features of mines. The program plays an important role in public education, especially in the promotion of appreciation and understanding of past mining activities and the history of mining towns. At present, there are a total of 72 National Mining Parks in China.

On the other hand, there are 45 World Heritage Sites in China. Ten are natural heritage sites and the rest are mostly featuring cultural heritage. Nine out of ten of these natural heritage sites are accredited mainly because of their outstanding geology and landscapes. The World Heritage List is prepared to ‘better reflect the full spectrum of our world’s cultural and natural treasures and to provide a comprehensive framework and operational methodology for implementing the World Heritage Convention’ (World Heritage Centre, 2013). Its main objective is to ‘strengthen the appreciation of the public for World Heritage properties and to enhance their protection through educational and information programs’ (World Heritage Convention, 1972). This is somewhat different from the criteria and guidelines of the Global Geoparks Network (GGN).

**Geoparks – Chinese approach to managing geoheritage**

Unlike the World Heritage List, a geopark is not a UNESCO program. It is an UNESCO supported initiative which is currently undergoing changes to a program by the end of 2013 with similar status as the World Heritage List. Support to individual geoparks is offered through the GGN which is currently made up of 102 members from 29 countries. The original target of GGN is to establish 500 geoparks around the world. The number is growing at a pace of about ten per year.

A geopark embraces an area that ‘integrates the preservation of geological heritage into strategies for regional sustainable economic development’ (GGN, 2013). The establishment of a geopark aims to bring sustainability and real economic benefit to local communities by encouraging sustainable tourism and other economic and cultural activities. It emphasises geoscience ‘popularisation’, community engagement, communication and international networking.
There are three levels of Chinese geoparks: provincial, national and global geoparks. They are all managed by local county or municipal governments under the direct supervision of the Ministry of Land and Resources. Currently, there are more than 320 provincial geoparks in China, among which 200 have already gained national status. Twenty-nine of these national geoparks have acquired global status.

In September 2011, the Geoparks Global Network admitted two new members from China.

**Hong Kong Geopark, China**

The Hong Kong Geopark highlights the natural parts of this industrial site, particularly its 150 km long coastline and hilly topography interspersed with plains. Despite its modest area of 49.85 square kilometres, the Geopark boasts world-class acidic volcanic rock columns and a geological history that exhibits sedimentary environments deposited in the Palaeozoic, 520-250 million years ago. Coastal processes have resulted in diverse erosional and depositional landforms, including fossils that provide an understanding of the ancient palaeoenvironment, geography, climate and biological evolution.

**Tianzhushan Geopark, China**

Tianzhushan Geopark in Anhui Province (west of Shanghai) is a large mountainous landscape, dotted with granite peaks and caves, waterfalls and springs. It is rich in geoheritage such as mammalian fossils and an ultra-high pressure metamorphic belt of eclogite, an unusually dense rock important for driving convection within the solid Earth. The Geopark integrates a healthy ecology and rich cultural elements with scientific research, education and tourism. The Geopark features hiking trails with interpretative signalling, tourist information centres and museums. It has scientific education and research activities targeting students from primary school to college. Geological knowledge is promoted through easy to understand public information and outreach activities involving local communities through home stays and farm tours.

To the local authorities, the geopark initiative is advantageous over the World Heritage List for two obvious reasons:

1. It adopts sustainable development as an important mission. This suits the needs of remote and poor areas where resources are scarce with the exception of good geology and landscapes. Revenue
generated through direct entry tickets or other paid services can then be invested to upgrade the environment and improve the living of local people.

2. It creates a sense of belonging to the area through publicising the values of their local natural heritage and cultural history.

The GGN encourages communication between geoparks for sharing information and exchange of experiences. It also encourages the establishment of sister relationships with geoparks of other countries. Such international networking is absent in the other UNESCO’s conservation programs. The GGN is also pleased to see active involvement of local communities. By doing so, local people will have a stronger sense of their areas through better understanding.

**Conclusion**

Geoparks are probably the most effective way to conserve mining relics and other geological heritage in China. They are not an entirely conservation approach. This strategy serves to care about people living in the area by helping them to improve their living standards through sustainable tourism and development. Geoparks ensure that geology is being made easier to be understood by ordinary people so that they would appreciate their own natural landscape and environment. Geoparks also facilitate regular exchanges and mutual learning amongst geopark counterparts.

Geoparks in China have become an approach to ‘mine’ the invisible gold of tourism, education, science and culture. This approach is destined to thrive both at national and international levels and will serve as one of the powerful instruments to narrow the gap created by uneven wealth distribution in China’s rural areas and cities.

**References**


Dr Young Ng is the founder and current chairman of the Association for Geoconservation, Hong Kong. He is the original proposer of Hong Kong Global Geopark. He is currently advisor of seven UNESCO global geoparks and natural heritage in China and has been involved in planning, nomination, assessment and revalidation of national and global geoparks since 2006.

**An Invitation to AusIMM Members**

The Hong Kong Global Geopark extends a heartfelt welcome to those AusIMM members attending the PACRIM 2015 Congress in Hong Kong and who would like to tour the Geopark and/or other sister geoparks in China.

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