

UNESCO GLOBAL GEOPARKS

*Patrick McKeever¹

1. Ecology and Earthscience division, Natural Science Sector, United Nations Educational, Scientific and Cultural Organization

Since 2004, UNESCO has endorsed areas of international geological heritage significance with a sustainable economic development plan through the Global Geoparks label. However in November 2015, the 38th session of the General Conference of UNESCO, by acclamation, adopted the new designation of UNESCO Global Geoparks and agreed to adopt all pre-existing Global Geoparks as new UNESCO Global Geoparks. This marks the first time since the ratification of the Convention concerning the protection of the World Natural and Cultural Heritage in 1972 (which allowed for the creation of World Heritage Sites) that UNESCO has created a new site-designation of this kind and the first time it has adopted a series of pre-existing sites.

While world heritage sites focus on the fulfilment of one of 10 criteria that demonstrates outstanding universal value, UNESCO Global Geoparks have the concept of community empowerment and sustainable development at their core through appreciation of geological heritage of international value and its link to other aspects of natural, cultural and intangible heritage. Using examples, this presentation will present examples of UNESCO Global Geoparks, explain the concept behind them and discuss the various changes that have resulted from the recent decision by UNESCO.

Keywords: Geopark, International Geosciences and Geoparks Program, UNESCO

40 Years of the International Geoscience Programme (IGCP)

*Shigeki Hada

Based on the UNESCO General Conference in 2015, the existing IGCP and Geoparks Programmes both supported by UNESCO were decided to establish a profound connection as a new international initiative, the International Geoscience and Geoparks Programme (IGGP). In some ways, this reformation has been considered to solve the long pending issues between the parties concerned.

The International Geoscience Programme, formerly the International Geological Correlation Programme (IGCP), was officially launched in 1972 as an outstanding and unique cooperative enterprise between UNESCO and the International Union of Geological Science (IUGS), and the Programme celebrated its 40th Anniversary in 2012 at UNESCO headquarters in Paris.

The speaker was concerned with IGCP for 21 years since 1991 as a member of the Japanese National Committee for IGCP, Leader and Co-Leader of three IGCP Projects.

In the talk of the session entitled "IGGP of the future", a brief history, the growth, and light and shadow to see in the development of the IGGP will be discussed.

Keywords: IGCP, IGGP, IUGS

Activities of Asian Cretaceous IGCPs: IGCP608 and its predecessor programs

*Hisao Ando¹

1. Department of Earth Sciences, College of Science, Ibaraki University

The IGCP608 (2013-2017) is now ongoing the forth-year activities after the project proposal approval by UNESCO-IGCP office in March, 2013. In this talk, H. Ando as a project leader briefly reviews the current status of IGCP608 activities and its predecessor programs.

The project is entitled "Cretaceous Ecosystems and their Responses to Paleoenvironmental Changes in Asia and the Western Pacific", and shortly "Asia-Pacific Cretaceous Ecosystems". In this project, the spatio-temporal paleoenvironmental and paleoecosystem changes during the Cretaceous in the South to East Asia and Western Pacific region have been delineated on the basis of paleoproxy data and a diversified fossil record from wider areas and different locations. This project comprises two groups of major topics to be discussed: 1) Variations of Cretaceous terrestrial and marine environments, and 2) Evolution of Cretaceous terrestrial and marine ecosystems in Asia and the Western Pacific. The terrestrial strata widely distributed in South and East Asia yield abundant indicators, both biotic and lithologic, that are essential for deciphering how the ecosystems were affected by paleoclimatic and paleoenvironmental changes.

The project has an important role in promoting communication at the level of geoscience among the various (over fifteen) Asian countries and half a dozen countries outside Asia, following the pattern of previous East Asian Cretaceous IGCPs: 245 (1987-1991), 350 (1993-1998), 434 (1999-2004) and 507 (2006-2011). Therefore, our Asian Cretaceous geoscience community has been continued over 30 years since late 80's.

The First International Meeting of IGCP608 was held at Birbal Sahni Institute of Palaeobotany (BSIP), Lucknow, India, from December 20-22, 2013. The current knowledge of Cretaceous geology and paleontology in Asia, especially south Asia was reviewed in the symposium and the subsequent four-days field excursion to Cretaceous Bagh-Lameta sequences in the western part of the Narmada basin of Central and Western India. The Second Meeting (September 4-10, 2014, Waseda University, Tokyo, Japan) and post-symposium field trip brought together more than 90 earth scientists from 13 countries, including graduate students and representatives of petroleum and resources companies. Session themes include OAEs, land-ocean linkage, Asian geoparks highlighting Cretaceous, etc. In a post-symposium four-day field excursion, we focused the forearc basin siliciclastic successions exposed along the Pacific coast 100 to 250 km east to northeast from Tokyo. The third year activity was held as a Joint Meeting with MTE-12 (The 12th Symposium on Mesozoic Terrestrial Ecosystems) in Shenyang, Liaoning Province, China, during 16-18 August 2015. The two-days field excursion visited and observed the Early Cretaceous "Jehol Biota" and Jurassic "Yanliao Biota" in Western Liaoning very famous in feathered dinosaur faunas.

This year we will hold the Fourth Meeting in Novosibirsk, Western Siberia situated nearly at the center of Russia during 15-20 August 2016. The post-symposium excursion will visit the Early Cretaceous dinosaur localities now excavated, where is very important for reconstructing the terrestrial paleoenvironments and ecosystems in central to east continental Asia. Furthermore, the Joint Symposium with IGCP609 and ICDP Songliao Basin is scheduled in 35th IGC, Cape Town, South Africa during 27 August to 4 September 2016.

Several our scientific results during 2013 and 2015 will be published in the thematic section of "Island Arc", Wiley online journals. Our project information including meetings and publication lists has been frequently updated on the project website (<http://igcp608.sci.ibaraki.ac.jp/>) with links to IGCP609 and 632, as well as Geoparks, some scientific organization and societies. This

website acts as a platform to recognize our IGCP608 activities for public as well as members.

Keywords: IGCP, Cretaceous, Asia, IGCP608, ecosystem, paleoenvironmental changes

Activity of the Japanese Geoparks Network and the Japan Geopark Committee -constructing good relationship between society and geoscientists-

*Mahito Watanabe¹, Seiichi Saito²

1.Institute of Geology and Geoinformation, National Institute of Advanced Industrial Science and Technology, 2.Japanese Geoparks Network

Since its establishment in 2008 Japanese Geopark Committee (JGC) has been playing a crucial role to expand the concept of geopark and to launch geopark projects in Japan. The establishment of the JGC was top-down movement from the academic side. Stimulated by the activity of researchers, mayors and local government officers of seven national geoparks, which were authorized by JGC in 2008, established the Japanese Geoparks Network in 2009. In first few years after the establishment the JGN was not so active network. There happened little mutual cooperation through the network. Gradually networking activity enhanced thanks to the workshops during the annual conferences of JGN and the short courses held two times a year. Scientists, local guides, local governmental officers and also local people who are involved in geopark activity get together and discuss in workshops and short courses. Symposiums which are held in many national and global geoparks also provide opportunities to foster mutual cooperation between geoparks and also between scientists and local people.

Now evaluation of geoparks are conducted both JGC members and experts from JGN members. Those evaluators and candidates for new evaluators have a workshop every year to discuss how to evaluate geoparks based on the GGN guideline. Geologists and other specialists in member geoparks of the JGN plays a key part in network activity such as workshops on various themes and daily discussion by e-mail. Through the evaluation process scientists, specialist and local people can exchange their opinion on geopark.

By the process described above, JGN and JGC have been effective umbrella under which people of various back ground can cooperate for local community. JGN and JGC hve been and will play an important role to make our society more sustainable through the cooperation between earth scientists and citizens.

Keywords: Geopark, International Geosciences and Geoparks Program, Japanese Geoparks Network

Supporting the geopark activity by the Volcanological Society of Japan

*Setsuya Nakada¹

1. Earthquake Research Institute, University of Tokyo

Since Japan is one of island arcs showing geologically dynamical moving such as volcanic eruptions and earthquakes, two thirds of 39 national geoparks in Japan, including 8 UNESCO global geoparks, have the Miocene-Quaternary volcanic fields and the related volcanological heritages. Therefore, regarding scientific interpretation and utilization of these heritages, especially increasing people's awareness for natural hazards, contribution by members of the Volcanological Society of Japan (VSJ) becomes very essential. In fact, staffs and supporting scientists of several geoparks are members of VSJ, which is one of 5 academic societies sending the members of the Japan Geopark Committee. In the VSJ Committee for Supporting Geoparks Activity, we are exchanging information on domestic/foreign movement of Geoparks and discussing the related issues raised through the VSJ members' personal activity; scientific confirmation of explanation contents on major volcanological heritages, how to issue the information outside from the geoparks faced to eruption crises, and so on. In every fall meeting of VSJ, special public session on "geoparks" is set for a half day and a pre-meeting geotour is organized by the geoparks of or near the venue.

The International Association of Volcanology and Chemistry in the Earth's Interior (IAVCEI), which is one of associations under the International Union of Geodesy and Geophysics (IUGG), organizes the Commission on Volcano Geoheritage and Protected Volcanic Landscapes (VGPL). CVGPL held the VOLCANDPARK international forums in Olot (Spain) in 2012, and Lanzarote (Spain) in 2015. Although its purposes noticed are similar to those in the guideline of Geoparks, any specific activity does not exist as of today, except for holding the above meetings; similar to the "Cities on Volcanoes Conference" by the Commission of Cities and Volcanoes in IAVCEI. The bottom-up activity of people involved in Geoparks, World Natural Heritages, and National Parks would not be promoted by these meetings, although they can be helpful for attendees to exchange information and ideas among those projects.

Combining the activities of Geoparks and IGCP, as IGGP, is one of appropriate processes to promote the transparent relationship between science and society. The scientific results from the IGCP research can be transferred directly to Geoparks and are utilized effectively for geotourism and for increasing the geological value of heritages. Especially, volcanological research results will be used effectively to increase the resilience of local society against volcanic disasters in the volcanic areas in and around Geoparks. By feedback through Geoparks from the society, we may be able to choose scientific research directions.

Keywords: Committee for Supporting Geoparks Activity, Volcanological Society of Japan, Natural hazards

Origin and future of Global Geoparks

*Guy Martini¹

1. Reserve Géologique de Haute-Provence

Geoparks are in gestation for more than 30 years, appearing from the development and evolution of the geological site conservation conscience and from its recent heritage value consideration. An important milestone on the way to Geoparks was the adoption, in 1991, of the «International Declaration of the rights of the Earth memory »(Digne, France)..

In the years 1995-2000 meanwhile the Geoparks where in development in China under a concept of «Geological Park », Four territories in Europe (France, Greece, Germany, Spain) have developed an European program, in partnership with UNESCO to experiment the concept of Geopark as tool of sustainable development. This program has provided the bases of the Global Geoparks concept as territories presenting a geological heritage of an international value linked with the other territorial heritages (natural,cultural, intangible) and, where are implemented new strategies of integrate economical sustainable development.

In 2000, under the UNESCO auspices, is created the European Geopark Network (EGN) and due to the great succes of this young network, UNESCO launched in 2004, on the same concept, the Global Geopark Network (GGN). Very quickly this network expands all over the world to reach in 2015, 120 Geoparks inside 33 State Members of United Nations.

Considering the great success and the strong interest generated, all around the planet, by these territories their weakness was mainly located inside their «light »or unformal support provided by UNESCO. This is the reason why a solution was looked for a new and formal UNESCO strong involvement. Involvement which was finded throught the vote of IGGP program, in November 2015, By the UNESCO General Assembly transforming the previous Geoparks in official UNESCO Global Geopark program fully supported and managed by UNESCO in partnership with the Global Geopark Network Association.

This fundamental evolution without changing anything on the previous Geopark concept will have, therefore, some consequences on the procedures and on the designation process which will be done, in fine, by the UNESCO Executive Committee.

Thanks to this new UNESCO formal visibility, the Global Geopark Network will have in the future more responsibilities by strengthening within its members not only management quality but also communication, networking, methodologies, and common international cooperation.

Geoparks are the new territories of the XXI century where the memory of the Earth meet Mankind memory for a new integrated sustainable economy and they have a great future in front fo them.

Keywords: International Geosciences and Geopark Program, Global Geoparks Network, Geopark

History of conservation of geoheritage in Japan

*Kuniyasu Mokudai¹

1. Pro Natura Foundation Japan

Nature conservation initiatives in Japan are closely linked with the adoption of western science and technology in the Meiji Period. This implies that conservation rules were not developed from within but incorporated from the outside without thorough evaluation of their applicability to the natural environment of Japan. Another major characteristic is that local people tend to attach more importance to promote their local culture and lifestyle, rather than conserving the natural components of the environment. The geopark movements in various parts of Japan show a similar tendency.

Keywords: conservation of landform and outcrops, value of landform and outcrops, protected area

IGGP and Geoscience for Future Society: Exploring a Framework for Managing Earth Heritage

*Abhik Chakraborty¹

1. Izu Peninsula Geopark

This paper reviews potential challenges facing the newly emergent IGGP from the viewpoint of geoconservation and argues for the need of a universal framework to address these issues. In the adoption of the IGGP, UNESCO has created a new formal program for heritage management for the first time in about four decades. The IGGP is expected to become a vital part of the toolkit to achieve Sustainable Development Goals (SDG) at the global level. While other similar global-level UNESCO programs such as the World Heritage Site (WHS) and Biosphere Reserves (BR) primarily operate from the viewpoint of biological diversity, the global geoparks program focuses on the earth as a whole, and the abiotic processes and formations in particular. However, while international heritage management programs such as the WHS and BR are backed up by strong research and conservation initiatives (example: the Convention of Biological Diversity or CBD), which in turn are based on the realization that biological diversity is being degraded at a rapid pace—geoparks do not currently have similar international frameworks for their activities. A major challenge is that even local societies are often not aware of the rapid degradation of resource reserves, extensive fragmentation of landscapes and loss of landforms that inhibit geological processes. It has been argued by scientists like Crutzen (2002) that humanity has propelled the planet to a new geological age of Anthropocene where humans are the dominant agents of planetary change. This requires scientists and planners alike to come together and address change and conserve the planet's dynamic processes wherever possible. While geoparks currently attach value to important geological 'formations', this alone will not be enough and scientists should come together to attach value to earth 'processes' in order to maintain their integrity. Of course this leads to challenges such as hazard or risk management as earth processes can be disruptive to life and property. But the IGGP should nevertheless provide geoparks strong incentives to understand global geological processes and their interconnectivity. It is proposed that a tentative framework can be derived from the works of Christopherson (1991) and Gray (2013), which explore 'geosystems' and the 'intrinsic value of geodiversity' as analytical and ethical frameworks, respectively.

Important role of resident earth scientists in Geopark.-In case of Lesvos and San'in Kaigan UNESCO Global Geoparks collaboration-

*Noritaka Matsubara^{1,2}, Tohru Sakiyama^{1,2}, Atsuko Niina³

1.Graduate School of Regional Resource Management, University of Hyogo, 2.San'in Kaigan Geopark Promotion Council, 3.Faculty of Environmental Studies, Tottori University of Environmental Studies

Geoparks is a "bottom-up" or community-led program. Local people approach to recognize geological significance of each Geopark and they conserve and promote geological heritage and regional resources for science, education and tourism etc.

Basically, local people know local culture, traditional custom and human connection in each area but they are not understand scientific significance of their area. The other hand, scientists understand scientific information but they could not understand local culture, traditional custom and so on. So, it is important that resident earth scientists lead each Geoparks and they share knowledge and experience between Geopark networks.

In San'in Kaigan UNESCO Global Geopark and Lesvos UNESCO Global Geopark, we share knowledge and experience and promote various Geopark activity by each resident earth scientists. Lesvos UNESCO Global Geopark and San'in Kaigan UNESCO Global Geopark are two Geoparks that share many common features like spectacular volcanic and coastal landscapes, geothermal fields, protected areas, reach biodiversity and endemic species, reach cultural heritage, common approach in geotouristic and educational activities as well as innovative local development initiatives on food and handicrafts. On the 12th of February 2011 they have signed a sistering agreement, aiming to the close collaboration of the two territories in various fields of mutual interest like geotourism, educational programmes and networking.

The geographical distance between them was not an obstacle for fruitful collaboration, Concrete results during the last years shown that there is great potential and opportunities for common activities among Global Geoparks. As a result of the collaboration between Lesvos Global Geopark and San'in Kaigan Global Geopark several visits from both sides have led to the exchange of knowhow and experiences, to a comparative study, collaboration in conferences, capacity building activities and courses, research and educational activities, presentation of Geopark collaboration and preparation for exchange of exhibitions.

Keywords: Resident Earth Scientists , Geoparks, Networking

Geoparks as Vehicles of Change in Attitudes of People

*Kazuhiro Yuhora¹

1.Tokuyama University

Geoparks are not only about communicating knowledge of earth science to people. they are 'bottom-up' movements that result in changes in people's attitudes. This presentation will introduce a number of people whose lives were changed due to geopark movement. The examples show that geoparks can act as a vehicle to change the attitudes of people.

Keywords: Geopark, bottom-up management , life

IGCP-559: Crustal Architecture and Images –Structural controls on landscapes, resources and hazards

*Masaki Kanao¹

1.National Institute of Polar Research

The IGCP-559 project (by Dr. B. Goleby, Geoscience Australia) focus on that part of planet Earth that has the most significance for the world's communities, namely the Earth's crust and upper mantle. The project makes available to communities-at-large a wealth of information and seismic imaging that is commonly only available to research workers but yet has a profound effect on how we think of the landscapes, natural environments and their controlling geological processes and tectonic influences. This information allows an understanding of crustal architecture and tectonic processes that is fundamental to any appreciation and understanding of landscapes, surface geology and natural hazards at a local, regional and global scale.

The IGCP-559 project was formally terminated at the end of 2012, then during this year the working group has a task to finish up the proceeding volume (Tectonophysics, ELSEVIER) of the "15th international symposium on 'Deep Seismic Profiling of the Continents and their Margins; SEISMIX-15" conference held at Beijing, China in 2012. Regarding the Classic Transect program, majority of the data from Australia and Russia have been compiled but the contribution from the other nations is relatively small, then it is recommended to gather the data from involved countries. The Japanese WG member (Dr. Kanao, NIPR) had been focusing on the works of the structure of the Antarctic continent, by using seismic data retrieved from the International Polar Year program. Several fruitful results of the crust and upper mantle structure have been published by the international journals. In this poster presentation, an overview of the activity of IGCP-559 is introduced.

Keywords: IGCP, crustal architecture, structure, landscapes, resources, hazards

History and future perspective of promotion of geopark by the Japan Association for Quaternary Research

*Takeyuki Ueki¹

1. Faculty of Risk and Crisis Management, Chiba Institute of Science

The Japan Association for Quaternary Research focuses on Quaternary science, including geology, geography, archaeology, paleontology, botany, pedology, geophysics, geochemistry, geo-technology, anthropology, zoology. Various types of outreach and education activities have been conducted since the last half of 2000s, based on the research field diversity of association members. The Japan Association for Quaternary Research has also promoted geoparks. Supporting commission of geoparks and research group of Quaternary science for society were held in 2015 and 2016, respectively. Both administration and research groups will facilitate geoparks in Japan.

Keywords: The Japan Association for Quaternary Research, Geopark, Outreach

Contribution of seismology for the Geopark activities of Japan

*Kazuyuki Nakagawa¹

1.Commentator ,Jiji Press

Seismological Society of Japan has dispatched a committee to Japan Geopark Committee since 2008.From fiscal 2008 to fiscal 2013. By the Board of Directors recommendation, he was dispatched Kazuyuki Nakagawa.

From 2014 to 2016 fiscal year, by the election of the Geopark Working Group, it has been dispatched and Oike Kazuo, Kazuyuki Nakagawa.

Seismological Society of Japan are co-hosting the earthquake volcano children Summer School since 1999.Of the 17 times of the venue, 13 times is a region that is doing the activities of the Geopark.

Seismological Society of Japan has held a seminar for disaster area residents of the earthquake disaster, four times in the area of the Geopark in the past, have done.

Keywords: Geopark, Seismology

How to make stories of geosites -link between visible and non-visible information

*Marekazu Ohno¹

1. Unzen Volcanic Area Geopark Promotion Office

Geosites in a Geopark have information as to earth's activities necessarily. If all visitors who visited at geosites have knowledge about earth science, they could understand the academic values of geosites easily. However, people who has enough knowledge of earth science is not so much, and furthermore, it is difficult that let many people (mainly inhabitants) understand the values of geosites using only earth scientific information. Because most of people (especially inhabitants) don't show interest in academic and unfamiliar earth scientific information.

Information in Geosites can be divided into two groups; visible and/or touchable one and non-visible one. Representatives of visible one are landscapes (topography), color and textures of strata or rocks and so on. Some of culture, legend and living customs are also visible and/or touchable one. On the other hand, representatives of non-visible one are names, ages of strata or rocks and processes of their origin. Historical information linking up with the Geosites is also divided into non-visible one. In general, almost visitors have seen and enjoyed only visible information at Geosites. However, when they understand non-visible information about geosciences and histories including in Geosites and recognize the link between non-visible and academic information, they could get strong impressions about Geosites.

Many people tend to be more familiar to local history, culture, local legend and living customs than geoscientific information. Thus, it is effective that first we introduce of historical and cultural highlights closely related to geosites, and then explain how their lives are affected by earth's activities. This explanation sequence would bring inhabitants smooth recognition of link between their lives and earth's activities and proud for their hometown.

This poster shows how to connect visible information (landscapes, color and textures of strata or rocks) with non-visible one (especially earth's activities, local histories, cultures, traditions and customs) using geosites in Unzen Volcanic Area UNESCO Global Geopark, and discusses how to make stories at geosites.

Keywords: Geosites, Unzen Volcanic Area UNESCO Global Geopark, sustainable development

The role of cultural geosites in promoting geodiversity to visitors

*Dorota Anna Suzuki¹

1. Research Institute for Science and Engineering, Waseda University

Geosites are attractive geotourist destinations and play important role in increasing knowledge about geology of the area where are located. They can be seen from different perspectives including possible impact on bioecological or anthropic environment. From a cultural point of view, the geodiversity can strongly influence the cultural identity of places, including ancient settlements of cities, spiritual or religious aspects, specific artistic expression (such as painting, literature and poetry, music, photography, etc). This relation can be used to make local communities aware of their natural resources and to support various initiatives for promoting and conserving them. Maintaining an inventory of cultural geosites and its evaluation can serve geoconservation purposes and these can serve as a basis for particular geotourism activities. This work presents reviewed classification of cultural geosites for their appropriate use and management in geotourism.

Keywords: cultural geosite, geodiversity, geotourism

A Tentative Study about Geo-tourism, Take Taining Global Geopark in Southeast China for Example

*YIYI ZHANG¹, WENWU SUN¹, ATSUSHI MATSUOKA²

1.China University of Geosciences(Beijing), 2.Niigata University

Geopark is a unique natural area with various functions such as for tourism, entertainment and education. The bulk of a geopark is geological relics full of scientific, natural and aesthetic values, and integrated with other natural scenery and cultural landscape (Xu, 2010). Like many other countries around the world, Japan has abundant geological resources and good practice on the construction of geoparks as well as the protection of geological relics. By learning from each other's experience, the progress of geo-tourism will be facilitated rapidly. Through investigation about Fujian Taining Global Geopark, we are working on a harmonious way of protecting relics and exploring tourism.

Since the needs of outdoor tours rasing tremendously, geoparks now serve as the best recreation sites for urban people (Li, 2005). As a new choice of tourists, geoparks boost local economy and promote geoscience popularization. The development of tourism brings in varying supports including policies, money and technologies. A part of economic income produced by the geological relics could be set aside for the preservation of it, which reaches a dynamic virtuous cycle of "Preservation-exploitation-development- preservation" (Zhao, 2003). Taking Fujian Taining Global Geopark for example, if the area of some independent parks is not big enough, the preservation of geological relics will be interfered. Therefore, the design, development and management of the geopark should be integrated during the construction in order to protect the geological relics. Although owing to a rich geological landscape, Fujian Taining Global Geopark still lacks cultural landscapes and recreational facilities. Thus, the focus of planning should not only be put on geological relics, but also on natural and cultural landscapes. On the other hand, it will be beneficial for the protection of geological relics to construct more scenery spots which can divert tour flow.

Meanwhile, since a geopark is not a normal park, the contents of its public signs or interpretations are different from those in general tourist publics signs, and thus contain a lot of geo-scientific knowledge (Zhang, 2015), so that the content is expected to explain profound theories in simple language. If the English versions are necessary, the translation needs to be done by professional translators who are both skilled in language of English and knowledge of geoscience.

With the concept of environment protection and sustainable development becoming increasingly popular, geo-tourism will boom in the foreseeable future. However, the tourist exploitation based on preservation involves multifarious fields. More discussions from researchers of geosciences from China and Japan deserve attention to protect geoparks during the exploitation.

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References

- LI J.F., FANG S.M. 2005. The preservation and exploitation of geological relics. *International academic development*. (1) 24-27. (in Chinese)
- XU T., TIAN M.Z. 2010. The progress of China's national geological park tourism system research. *Tourism Tribune*. 25(11) 84-92. (in Chinese)

ZHAO X., ZHAO T. 2003. The process from the geoheritage conservation to the construction of world geoparks. *Geological Review*. (4) 389-399. (in Chinese)

ZHANG Y.Y., SUN W.W. 2015. Geopark Protection versus the Protection of Geological Relics-Take Yangtze River Three Gorges National Geopark for Example. *40th INHIGEO SYMPOSIUM* 65-66.

Keywords: Geopark, Geological Relics, Geo-tourism, Protection

Glocalization in Global Geoparks of Japan

*Atsuko Niina¹

1. Faculty of Environmental Studies, Tottori University of Environmental Studies

In Japan, a wide range of regional promotion policies have been tackled towards the so-called "regional revitalization" because of population concentration in Tokyo and population decline in the other parts of Japan. There are also strong interests in the potential of geoparks as a regional policy. They consider that geoparks are useful and powerful to make the alternative regional action plan with local community. As of February 2016, the Japanese Geopark Network (JGN) owns 39 domestic geoparks including 8 global geoparks (Mt. Apoi, Toya-Utsu, Itoigawa, San'in Kaigan, Oki, Muroto, Aso, and Shimabara) belong to, and the number is increasing.

Geoparks are a holistic approach. The International Geoscience and Geoparks Programme (IGGP) gives geoparks a more important role as the place connecting Earth science with society and as the frontrunner of "glocalization" in the world. Networking geoparks implies the process of horizontal integration among regions as "glocalization" in comparison with an industrialized and urbanized process involving vertical economic integration by multinational corporations.

The JGN International Working Group, which organized at the 5th JGN Kirishima symposium in 2015, is a platform for discussing international contributions and taking actions accordingly. This group consists of staff members of geoparks in Japan who work in cooperation with local communities. Knowledge, experience, and current issues shared by JGN, Asia-Pacific Geoparks Network (APGN), European Geoparks Network (EGN) and Global Geoparks Network (GGN) provide good examples for the development of Japanese geoparks. For sustainable development, glocalization will be achieved in not only eight UNESCO global geoparks but also other domestic geoparks gradually.

The purpose of the presentation is to report on the development of "glocalization" and future prospects in Japanese geoparks, taking the UNESCO Global Geoparks in Japan and the International Working Group as examples.

Keywords: glocalization, UNESCO Global Geopark, Japan

Linking locals to the global network through the IGGP

-From the discussions in the UNESCO Global Geoparks Celebration Forum-

*Shinsuke Nakamura¹, Yoshihiko Iida², Seiichi Saito³

1.Hakusan Tedorigawa Geopark Promotion Council, 2.Operating Unit Ishikawa/Kanazawa, Institute for the Advanced Study of Sustainability, United Nations University, 3.Japanese Geoparks Network

International Geoscience and Geoparks Programme (IGGP) was launched in November 2015, giving a new UNESCO label to the Global Geoparks. Taking this chance, Japanese Geoparks Network (JGN) has organized the UNESCO Global Geoparks Celebration Forum in 23rd-24th January 2016, jointly with Hakusan Tedorigawa Geopark and Operating Unit Ishikawa/Kanazawa, United Nations University (UNU-IAS OUIK) to discuss the future direction of Japanese geoparks. Regarding the discussions from the Forum, we would like to discuss how the locals (mainly focusing on local governments) can be linked to the global network through the IGGP in Japan.

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Geopark is a local lead initiative, while it is an international initiative. In 2004, the Global Geoparks Network (GGN) was formed which lead to this new UNESCO Global Geoparks label. JGN was formed in 2007 (including the predecessor organization) which is now involving over 50 sites and over 10% of the municipalities in Japan. Without these networks, the current geopark movements could not have happened. Therefore, contribution to the network is essential. However, locals are not used to get along with international networks and even in the domestic network, there are some difficulty.

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In Japan, local governments are playing the main role for conducting geoparks, while JGN is playing a significant role for linking all the Japanese geoparks and the aspiring sites. Most of the JGN members get together twice a year during the JpGU and at the National Conference, along with the National Training Workshops, the Regional Conferences, etc. Quite amount of travel expenses are required for these meetings, which is an extraordinary situation for the local governments.

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Most of the local governments have sister cities and exchange some citizens regularly. In addition, many local governments employ foreign young people as Assistant Language Teachers (ALT) or Coordinators for International Relations (CIR). Although "international" is a yearning word for the local governments, these are almost all for contacts with foreign people. In fact, going abroad to attend an international geopark conference itself is a great project for the local governments.

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Therefore, there were not enough participation from Japan to the global network and that was the main focus in the Forum. Locals are wondering "by what" and "how" to make international cooperation. In the Forum, several possibilities were pointed out.

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For "by what", there are two points. Japan, as a tectonically active area, has various geohazards such as earthquakes, tsunamis, volcano eruptions, landslides etc. People in this disastrous country have adopted these hazards historically, which can be more shared with other countries. Another point was the activities of JGN itself. JGN is carrying out various activities, such as public magazines, online journals, various public events and meetings, several working groups, etc. But unfortunately, these experiences are not shared enough with other countries, nor among the whole Japanese community.

For "how", 8 actions we may take immediately, were pointed out as below:

1. Networking in citizens' level or guides' level
2. Publication (For example; translating case studies of Japan into English)
3. Holding international workshops, but not individually
4. Sending evaluators for field evaluation and revalidation
5. Joining (not just reading) the process of establishing guidelines or rules
6. Sending staffs to UNESCO
7. Funding from various national bodies
8. Taking contacts with various people (not only with single channel)

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Local governments do not have enough budget nor know-how for international cooperation. But regarding the discussions pointed out, locals can seek for some ways with various partners to make the real link to the global network.

Keywords: geoparks, international cooperation, local, networking