Proceedings of the 6th Asian Geothermal Symposium, Oct. 26-29, 2004
Mutual Challenges in High- and Low- Temperature Geothermal Resource Fields, 153-157

CONCLUDING REMARKS TO THE SIXTH ASIAN GEOTHERMAL SYMPOSIUM

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ABSTRACT

On behalf of the National Advanced Institute of Industrial Science and Technology (AIST), Japan, this paper gives concluding remarks to the Sixth Asian Geothermal Symposium and acknowledgements to all the supporting organizations and participants. Whether preferable or not, we Asian countries inevitably share the same global environmental issue and the same energy security problem in the current borderless world. Two hot topics are here introduced with the strong expectation. One is that the Russian Cabinet on 30 September 2004 decided to ratify the Kyoto Protocol on global warming, ensuring that the Protocol will soon take effect worldwide. The other is that a serious threat of the final oil crisis is closing within the earlier half of the 21-century. These trends inevitably accelerate geothermal development all over the Asia. Efforts like the Sixth Asian Geothermal Symposium could be believed a foresight to such the future Asia.

Keywords: address, Sixth Asian Geothermal Symposium, Asia, global environmental issue, Kyoto Protocol, final oil crisis, geothermal development

1. INTRODUCTION

Asian Geothermal Symposium has been almost annually held since 1998 and aims at assembling the Asian geothermal fellows as many as possible.

Because East and Southeast Asia is one of the most dynamic spots on the economical growth in the world, energy demands are rapidly increasing. However, most of East- and Southeast-Asian countries are importing great amounts of petroleum resources from oversea areas, excepting a few countries. The more economy will grow, the more a risk of the energy security will increase. In addition, consumption of fossil fuels will face the global environmental issue by the carbon dioxide emission. We also share the borderless environment in the Asian region on the earth.

Geothermal energy resources are domestically available and mitigative to the carbon dioxide emission. They are satisfactory from both points of the energy security and global environmental issue. Geothermal energy resources are abundant in Asia (Figure. 1) and one of the most prospective natural energy resources expanded to the future in Asia, as has been proven by 16 % of electricity supply in the Philippines and 4 % of electricity supply in Indonesia. The Asian Geothermal Symposium was initiated for these demands to spread geothermal utility over Asia.

The author has already described such an issue in detail (Noda, 2003). This paper enhances current two topics on the activity on Kyoto Protocol and a serious threat of the final oil crisis. Then, this paper proposes declaration, asking agreements from all the participants.

2. ACKNOWLEDGEMENTS

First of all, on behalf of the National Institute of Advanced Industrial Science and Technology (AIST), one of sponsors of the Sixth Asian Geothermal Symposium, the author expresses his cordial acknowledgements to the Korea Institute of Geosciences and Mineral Resources (KIGAM) for the strong co-sponsorship, kind hospitality and great cooperative efforts as a host organization that enables us to hold this Symposium in Korea. Particularly, the author is grateful to Dr. Tai Sup Lee, President of KIGAM, Dr. Yoonho Song, Leader of Geothermal Resources Group of KIGAM and Dr. Sung-Rock Lee, Director of Planning & Management Division of KIGAM.

It is our great privilege to have an attendance of Mr. Won Gul Lee, Deputy Minister, Energy and Resource Policy Office, Ministry of Commerce, Industry and Energy, Korea to this Symposium. The author expresses our special gratitude to Deputy Minister, Won Gul Lee. The author expresses his cordial thanks to Mr. Jong Yeon Yoon, Ministry of Commerce, Industry and Energy for his kind input to this Symposium.

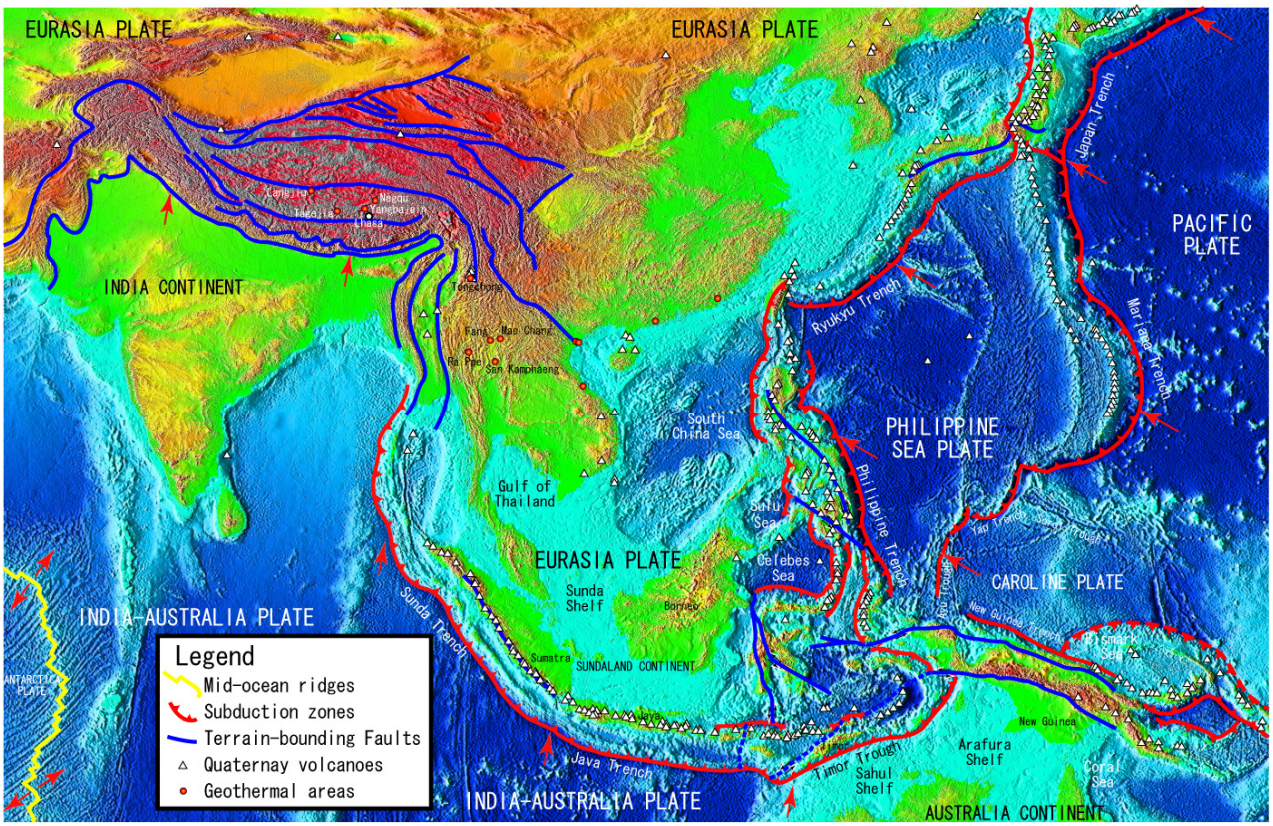

Figure 1. Map of tectonic and geothermal settings of the East and Southeast Asian region on the ETOPO2 of NGDC, NOAA (Muraoka, 2003).

The author also expresses his cordial gratitude to the Coordinating Committee for Geoscience Programs in East and Southeast Asia (CCOP) that has constantly been supporting the Asian Geothermal Symposium since its initiation on 1998. CCOP has promoted the DCGM-IV Project "Asian Geothermal Database" until this year by ten member countries: Cambodia, China, Indonesia, Japan, Korea, Malaysia, Papua New Guinea, the Philippines, Thailand and Vietnam. Some National Compilers of the CCOP Project are invited to this Symposium, and therefore, this Symposium is benefited from the CCOP Project "Asian Geothermal Database". The author is grateful to Dr. Young-soo Park, Regional Expert of CCOP for their kind supports to this Symposium.

The author expresses his cordial appreciation to the New Energy and Industrial Technology Development Organization (NEDO), Japan that has initiated this Symposium and sponsored the past four Symposiums. The author expresses his cordial appreciation to the Geothermal Research Society of Japan that supports this Symposium. The author himself is now acting as the President of the Society. The author is grateful to Prof. Sachio Ehara, Chairman of the International Activities Committee of the Society for his cooperation as a member of the Organizing Committee of this Symposium.

On behalf of AIST and KIGAM, the author expresses his heartful appreciation to invited special lecturers, Prof. Takumi Hashizume from Japan, Prof. Ladislaus Rybach from Switzerland and Dr. Franciska H. Karman from Hungary. Their inputs make the Symposium brilliant and very useful.

The author expresses his cordial gratitude to invited lecturers, Dr. Yoonho Song, Dr. Hyoung Chan Kim and Prof. Min Ho Koo from Korea, Dr. Kamaludin Hassan form Malaysia, Prof. Keyan Zheng and Dr. Liu Jiurong from China, Dr. Sjafra Dwipa and Mr. Kasbani from Indonesia, Mr. Nguyen Hong Bang from Vietnam, Mr. Adriano C. Cabel from the Philippines, Mr. Manop Raksaskulwong from Thailand and Dr. Young-soo Park from CCOP. Their inputs are essential to this Symposium. The author also expresses his special gratitude to Prof. Isao Takashima who enthusiastically attends the Symposium.

Finally, special thanks are expressed to the Mitsubishi Material Natural Resources Development Corporation (MRC) that makes great efforts to prepare this Symposium as the Secretariat. The author is grateful to Dr. Hiroshi Takahashi and Dr. Takeshi Uemoto.

Table 1. Brief history of the Asian Geothermal Symposium

Name of symposium	Year	Period	Country	City	Theme	Sponsor
1st Asian Geothermal Symposium	1998	October 28	Philippines	Subic	Current and Future Geothermal Energy Development in Asia	NEDO
2nd Asian Geothermal Symposium	1999	October 22	Vietnam	Hanoi	Difficulties in Geothermal Development and Their Solutions	NEDO
3rd Asian Geothermal Symposium	2000	October 25-26	Thailand	Bangkok	Geothermal Direct Use	NEDO
4th Asian Geothermal Symposium	2002	February 25-26	Indonesia	Bandung	Strategy of Asian Geothermal Development in the 21st Century	NEDO
5th Asian Geothermal Symposium	2003	March 25-26	Malaysia	Kuala Lumpur	Exploration and Exploitation of Geothermal Resources as Dispersive-type Energy	GREEN, AIST
6th Asian Geothermal Symposium	2004	October 26-27	Korea	Daejeon	Mutual Challenges in High- and Low-Temperature Geothermal Resource Fields	GREEN, AIST and KIGAM

3. BRIEF HISTORY OF ASIAN GEOHERMAL SYMPOSIUM

Asian Geothermal Symposium has been annually held since 1998, aiming at information exchange on geothermal resource developments in Asia and promoting international cooperation. Table 1 shows brief history of the Asian Geothermal Symposium. Among the past four symposiums, the earlier three had been held as a side meeting of the Annual Session of the Coordinating Committee for Geoscience Programmes in East and Southeast Asia (CCOP), held at Subic in the Philippines, Hanoi in Vietnam and Bangkok in Thailand, respectively. The fourth symposium was held in Indonesia, separated from CCOP meeting but coupled with the Open Seminar for Indonesia-Japan bilateral project "Research Cooperation Project on the Exploration of Small-scale Geothermal Resources in the Eastern Part of Indonesia (ESSEI)". The Fifth Asian Geothermal Symposium was also held independently from the CCOP Annual Session, successively sponsored by the Institute for Geo-Resources and Environment (GREEN), AIST, while the past four symposiums were sponsored by the New Energy and Industrial Technology Development Organization (NEDO). The Sixth Asian Geothermal Symposium is scheduled with synchronizing it to the ongoing direct use project of KIGAM in Pohang, Korea that is encouraging not only high-temperature geothermal resource countries but also low-temperature geothermal resource countries.

4. TAKING EFFECT OF THE KYOTO PROTOCOL BY THE RUSSIAN RATIFICATION

The Kyoto Protocol has been proposed in COP3, Kyoto, Japan in December 1997, but has not been taken into effect until the present. According to the terms of the protocol, it enters into force "on the ninetieth day after the date on which not less than 55 Parties to the Convention, incorporating Parties included in Annex I which accounted in total for at least 55 per cent of the total carbon dioxide emissions for 1990 of the Parties included in Annex I, have deposited their instruments of ratification, acceptance, approval or accession".

As of September 23, 2004, 125 countries have already ratified the Protocol and the first criterion has already been satisfied. The total carbon dioxide emissions for 1990 of these countries are 44.2 per cent that is still less than the second criterion 55 per cent. However, the Russian Cabinet on 30 September 2004 decided to ratify the Kyoto Protocol on global warming, ensuring that the Protocol will soon take effect worldwide. This could be a monumental event for the global environmental issue.

If the protocol is taken into the force, Japan must reduce 6 per cent of carbon dioxide emissions for 1990. Because the carbon dioxide emissions in the year 2003 in Japan increases 7.6 per cent to 1990, Japan must reduce 13.6 per cent of the present carbon dioxide emissions from 2008 to 2012. This could soon change the less incentive policy to geothermal development in Japan.

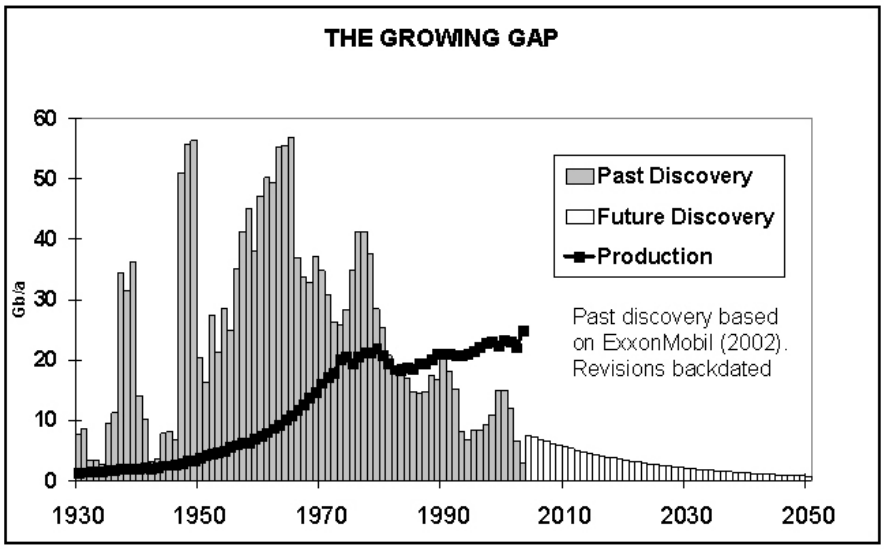

Figure 2. A growing gap of discovery and production of regular oil and natural gas liquids until 2004 (ASPO, 2004).

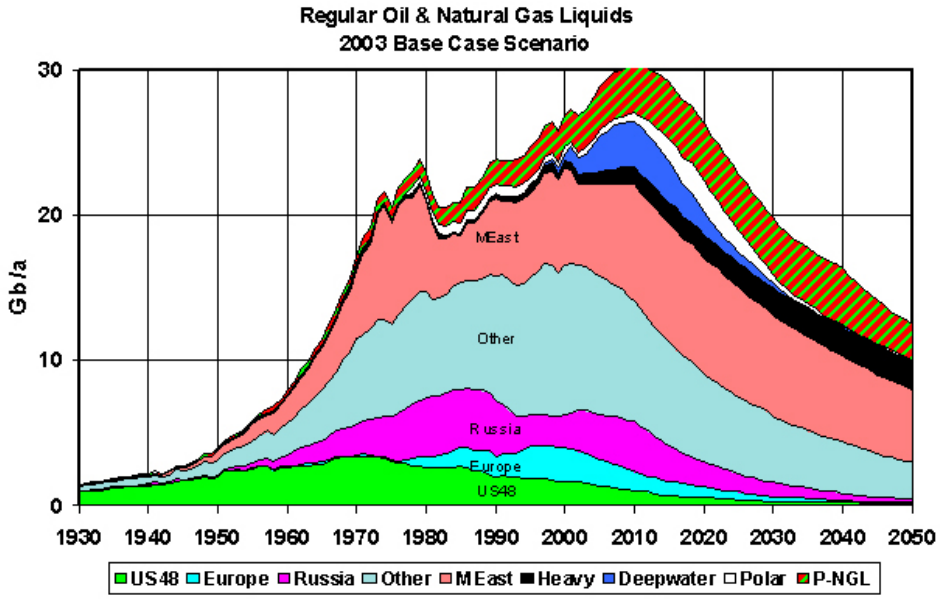

Figure 3. A future scenario of regular oil and natural gas liquids (ASPO, 2004).

5. A THREAT OF THE FINAL OIL CRISIS IN THE EARLIER HALF OF THE 21-CENTURY

Discovery of oil and gas reservoirs has already been decreasing since 1966 (Figure. 2, ASPO, 2004). Production of oil and gas is usually following the discovery with 30 or 40 years delay time (Figure. 2, ASPO, 2004). For example, the peak of discovery in 1950 was traced by the peak of production in 1980 with 30 years delay time. The production peak tends to have recently been lasting longer than before, because of the oil storage or other efforts. However, it seems evident that the final peak of discovery in 1966 will soon be traced at around 2010, at least, within the earlier half of this century. It must be the final oil crisis.

Recent sudden rises of crude oil prices are often ascribed to the unstable policy situation in Middle East Asia, but there is another possibility that could be the sign of the final oil crisis. Therefore, various efforts for development of the oil-alternative energy resources are recommended not only in Asia but also in the world.

6. DECLARATION OF THE SIXTH ASIAN GEOTHERMAL SYMPOSIUM

The author would like to remind you of the Declaration of the Asian Geothermal Symposium that has been adopted since the Fourth Symposium.

1. Participants in this Symposium shall be "fellows" to disseminate the priority of clean geothermal energy to citizens, governments and world hereinafter.

2. Participants in this Symposium shall assist the fellows in promoting the dissemination purpose to each other.

3. Participants in this Symposium shall try to enlarge the fellows' circle.

REFERENCES

ASPO (Association for the Study of Peak Oil&Gas) (2004) Newsletter No.45, 11p, available from http://www.peakoil.net/.

Muraoka, H. (2003) Overview of distribution of geothermal resources in Asia and their present and future utilization. Proceedings of the Fifth Asian Geothermal Symposium, Malaysia, 6-11.

Noda, T. (2003) Welcoming remarks to the Fifth Asian Geothermal Symposium. Proceedings of the Fifth Asian Geothermal Symposium, Malaysia, 1-5.