

The Activity of the Engineering Academy of Japan for the
sustainable growth

by

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Like other Academies, the Engineering Academy of Japan (EAJ) is a non-governmental and non-profit organization, composed of leading experts in engineering and technological sciences, and extends various activities to contribute to the advancement of Japan and the world through the investigations and advises on the policies for the development of engineering and technological sciences, on interdisciplinary and inter-industry activities, on professional and public educations related to technologies and related sciences and on other problems relevant to engineering. In the following, the recent main issues of concern of the EAJ are summarized and its activities concerning energy and sustainable development are described.

1. Recent issues of concern and outputs

1.1 Recommendations and proposals

According to the mission, the EAJ investigates current problems concerning engineering and technological sciences and presents recommendations or proposals to the government and/or to the leaders of industry and provides impartial and highly-knowledgeable messages to the public. In the past few years, the following topics were studied and recommendations were presented:

- (1) The 3rd Basic Plan for Science and Technology: While the plan was being formulated by Science and Technology Council of the government, the EAJ presented a recommendation on the important subjects and the improvement of national R&D systems.
- (2) General policy to counter for the expected crisis: A scenario of possible catastrophe of civilized society due to the shortage of resources including oil and to the global climate change were investigated by the Policy Committee of the EAJ and a proposal was formulated to mitigate the crisis.

- (3) Technological literacy: The working group for this theme made a study on the basic technological knowledge (technological literacy) to be provided for the public and published a report "Technological Literacy and the Civic Education - What should be taught about technology at school". It proposed the revision of the guideline for the curriculum stipulated by the Ministry of Education.
- (4) Engineering and the public: The working group for this theme investigated the measures to promote the understanding of engineering among the public, to attract more capable students in engineering field and subsequently to enhance engineers' status in the society. The report of the study was published recently.

1.2. Ongoing Investigations by working groups

- (1) Environment and Energy: To be described later.
- (2) Manufacturing in the 21st Century and Encouragement of the Public and Youth in the field: The working group is investigating the problems concerning the human resources with skills and technological knowledge in the manufacturing industry and is going to formulate a proposal to enhance the interest of the public, especially of the youth, on manufacturing, to preserve human skills which features Japanese industry and to coordinate technological knowledge and human skills in the advanced manufacturing industry in the future.
- (3) Systematization of safety knowledge: The working group on this theme aims at establishing a liaison system among committees and groups of domestic academic institutions working on safety matters. By sorting out various experiences and views about safety in different areas, the group is planning to share safety knowledge and to systematize it from engineering point of view. Two symposia were held in FY2005 to develop a common understanding about safety and were well received by the public.
- (4) Regional activities on the tasks of engineering: In the North-East (Tohoku-Hokkaido), Central (Chubu) and Southern (Kyushu) regions, working groups have been formed to investigate respective problems in the regions such as engineering education and/or activation of engineering etc.

1.3 International activities

- (1) The 10th East Asia Round Table Meeting (RTM) and Symposium on Institutional Innovation:

The RTM consisting of three engineering academies of China, Japan and Korea enjoyed its 10th meeting hosted by the EAJ on 27 October in Tokyo. This time, a symposium titled “Institutional Innovation in East Asia” was held on 26 and 27 October and about 100 delegates discussed the feature of recent innovation in East Asia and Australia with the aspect of the co-evolution with the dynamic change of institution in respective countries. A brochure to review the proceeding of the RTM in the past 10 years was published by the EAJ.

- (2) The 6th JAFOE (Japan-America Frontiers of Engineering) symposium: A bilateral cooperation between United States and Japan has been continuing as a collaborative project among National Academy of Engineering, USA, EAJ and JST (Japan Science and Technology Agency) for promising young-career Japanese and US engineers. This year, the joint symposium will be held On 9 to 11 November in Tsukuba, Japan.
- (3) As a member of the CAETS (International Council of Academies of Engineering and Technological Sciences), the EAJ is keeping closer linkage with its activity and making efforts to implement its strategy. Main topics of the recent collaboration with CAETS are exploring channels and chances to collaborate with such international organizations as UNESCO, WTO etc. and encouraging Asian and neighbour countries to establish academy of engineering and to join in the CAETS.

2. The activity of the EAJ on energy and environment issues

The problem of energy is vital for industrialized country and is especially important for Japan as 80 % of energy is relying on imported sources. Reflecting the situation, the EAJ has been organizing symposia and lecture meetings on energy and environmental issues from time to time and also publishing informative articles by specialists on the recent topics in this field in the EAJ News. The EAJ is also keeping a standing working group on energy and environment issues and forms some other working groups for the solution of urgent problems. The current activities are as follows:

- (1) Basic Energy Strategy: The working group on this task investigated evolving technologies concerned with the energy saving and renewable energy and tried to establish a systematized policy for fulfilling future demand for energy. This year, the group held a symposium titled “Future of Energy in Japan: The Earth is finite” twice, once in Kyoto and another in Tokyo, and drafted an ‘Urgent Appeal’ on the infrastructure building for information collection, analysis, assessment and dissemination, and distributed it to those concerned including top governmental officials. It also published a book ‘The Oil-Rich Days are Coming to an End : Where humankind are going?’, in order to instruct the public on the difficulty of energy issue.
- (2) Environment and energy: The activity of the above described working group is succeeded by a new working group on “Environment and Energy”. In view of the anticipated limit to production of rich (high-grade) oil in the 21st century, we must prepare for the days of ‘Expensive and Poor-quality Oil.’ As the global environment is closely related to energy issues, the group tries to find out the strategy for harmonizing between the two through discussions with experts and an open symposium. The group also discusses the need to shift from “material” civilization to “spirit” civilization to solve the dilemma of global environment issues and depletion of resources.
- (3) Environment Industries and Environmental Technologies in the Future: The

working group, formed in northern Kyushu district, investigated advanced technology for environment and held a symposium on the subject on the occasion of “Ecology Technology Exhibition 2004”. It also drafted a recommendation on environmental technologies for the next generation.

- (4) The 17th CAETS Convocation and Symposium on “Environment and Sustainable Growth”:

The EAJ is going to host the 17th CAETS Convocation on October 23 to 26, 2007, in Tokyo and is preparing for a three-days symposium on the above title (<http://www.congre.co.jp/caets2007tokyo/>). The program of the symposium is based on the EAJ's view on the environment and energy issues, which put us challenging tasks that require efforts on a global scale. The convocation and symposium will provide an opportunity to discuss what and how we should collaborate with each other to address these major issues common to all humankind, through which new roles and responsibilities expected of engineering and academies will be highlighted. The program of the symposium will consist of three sessions; (1) Global environmental issues, (2) Technical challenges and (3) Scenarios for sustainable growth. Apart from the sessions, keynote speeches by specialists and the panel discussion on the role and statement of engineering academies will be organized. The EAJ hopes there will be many participants from ASEAN countries.

Concluding remarks

The EAJ is an incorporated body supported mostly by membership fee and its activity is somewhat limited by financial reasons. However, it owns most intellectual resources as its members comprising distinguished experts in every field of engineering. As the energy and environment issues are the topics of the most important long-range concern of the EAJ, we are pleased to collaborate with academicians and specialists of other countries as much as possible in the future. //