Chair's Summary

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1. Introduction

The GEA International Conference 2011 entitled "Building Sustainable Societies through Reconstruction, ~Working with the International Community for Regenerating Japan~" was held in Tokyo, Japan on 14th and 15th of October, 2011.

The Conference was opened with the attendance of H.I.H. the Crown Prince, GEA Chairman, Mr. Juro Saito and H.E. Mr.Yoshihiko Noda Prime Minister of Japan. Director-General of GEA, Ms. Wakako Hironaka presided over the Conference as its Chair.

The conference was organized by the Global Environmental Action (GEA) supported by the Government of Japan, namely, Ministry of Foreign Affairs, Ministry of Finance, Ministry of Education, Culture, Sports, Science, and Technology, Ministry of Agriculture, Forestry and Fisheries, Ministry of Economy, Trade and Industry, Ministry of Land, Infrastructure, Transport and Tourism, and Ministry of the Environment.

The Conference aimed to undertake a high-level policy dialogue in order to articulate concrete measures to realize sustainable societies not only in Japan, but also in the international community, capitalizing Japan's experience of the disaster.

2. Opening of the Conference

GEA Chairman, Mr. Juro Saito gave his opening speech. He expressed his heartfelt gratitude for the swift supports from all over the world right after the Great East Japan Earthquake. He said he expected the conference would discuss about how to improve quality of life from international point of views and show a clear direction for the regeneration of Japan.

H.I.H. the Crown Prince, in his opening address, stated that he regarded this conference mark the significant epoch to share Japan's experience of the recovery from the disaster with the eminent persons from the world. He expected that the conference have active discussion and the outcome of which be announced toward the world.

Prime Minister Mr. Yoshihiko Noda, in his statement, said the disaster has brought Japan a fundamental question on what social sustainability is. He highlighted the three important points: preparedness to unexpected levels of natural disasters, the role of science and technology especially for nuclear management, and implementation of environment and energy policy for the sustainability of the society, emphasizing introduction of the renewable energy as the key.

As to Rio+20 to be held in June next year, he said Japan, as the presidency of CBD COP10, was committed to lead the international action to realize Aichi Target. Lastly, he envisaged that productive discussions by the collective wisdom from the world would contribute to productive discussions on the timely theme of building sustainable societies through reconstruction.

Mr. Adnan Z. Amin, Director-General of International Renewable Energy Agency (IRENA), in his keynote statement, expressed his gratitude for Japan's support in establishing and taking forward the work of IRENA. He said that renewable energy could make an essential contribution to reconstructing Japan's devastated areas and communities, and renewable energy could play a vital role in Japan's energy landscape and in reviving Japanese entrepreneurship, opening a new growth path for decades to come. He showed the figures that in 2010, renewable energies supplied 20% of the global total electricity generation and, constituted one quarter of global installed power capacity.

Noting the IPCC's Special Report Special Report on Renewable Energy Sources and Climate Change Mitigation (SRREN) released in Abu Dhabi in May 2011, he pointed out that close to 80 percent of the world's energy supply could be met by renewables by mid-century if backed by the right enabling public policies.

He stressed that it was truly a moment of opportunity that must be seized, noting developing renewable energies at a sufficiently rapid pace to restructure the energy mix would lead to investment, jobs and sustainable economic growth as well as improve security of energy supply and reduce dependency from fossil fuels.

He touched upon Japan's R&D efforts in energy, and said it could increasingly continue to target deployment of the best available advancements in infrastructure, renewable energy, energy efficiency and smart grids.

He said the initiative to regenerate Japan and build a sustainable society through reconstruction had seized the imagination of people all over the world and could position Japan as a leader globally in the urgent search for sustainable solutions.

Mentioning innovative eco-model cities using renewable energy sources in the Tohoku area, he described that this was an opportunity to change the way of thinking about energy and urban planning. He said that IRENA hopes to share lessons learned from design and technology in post-disaster reconstruction projects such as the pilot eco-model cities to benefit people all over the world.

In closing, he reiterated IRENA's deep sense of solidarity with Japan for its the brighter future that renewable energy can bring.

3. Thematic Sessions

In the thematic sessions, the facilitator of each session steered discussions based on the lead presentations in accordance with the Programme of the Conference. Presentations and general discussions are summarized as follows:

(1) Session 1: Vision of a New Sustainable Society in Post-Reconstruction Japan
Shaping the future upon the experience of the Great Earthquake

Facilitator:

- **Takejiro Sueyoshi** (Special Advisor, Finance Initiative, UNEP)

Lead-off Speakers:

- **Shiro Wakui**
  (Professor, Department of Environmental and Information Studies, Tokyo City University)
- **Takashi Onishi**
  (Professor, Department of Urban Engineering, Graduate School of Engineering, the University of Tokyo)
- **Bang-Fu Mo** (Journalist / Writer)

Overviews of the 3.11 tragedy

- Japan was hit by the triple-disaster; earthquake, tsunami and the accident of nuclear power plants. Now, Japan is on its critical crossroad between successful regeneration and gradual downfall. Japan is expected to demonstrate to the world a sustainable development model to be derived from Japanese eminent characteristics.

- The Great East Japan Earthquake has lead to drastic change in the mindset of Japanese people, including a shift in emphasis from private to public benefits as well as from national to global interests. They started to doubt the values built upon the existing social frameworks. These changes in people's mind should be a basis of the reconstruction.

Paradigm shift of sense of value

- To cope with a severe catastrophe, everyone has to help oneself at first, and supports from the public organizations and community are indispensable. After the disaster, people rediscovered the value of bonding among members of a local community or "kizuna (tie)", which is sometimes forgotten under the shade of economic growth. The reconstruction of a community should emphasize the importance of the value created by local identity composed of its history, culture and livelihood.

- Acknowledging the "environmental carrying capacity" and appreciating bounty from the nature should be our starting point. The "Industrial Revolution" aiming to

maximize economic profits should be displaced by "Environmental Revolution", the idea of which is to prioritize conservation of intangible assets, such as natural capital and cultural diversity.

- Traditionally, Japanese people live in harmony with nature and are good at avoiding the critical impact of natural disasters while partially accepting small one. The concept of resilience should be nurtured through upgrading social system and lifestyles.

- "Disaster Prevention" is ideal, but complete prevention was not possible as we faced the level of disaster that exceeded our imagination in reality. Therefore, a new concept to minimize damages, "Disaster Reduction," should prevail as a guiding principle. To mitigate the damages, we need to pay attention to hardware (e.g. infrastructures) as well as software (e.g. emergency evacuation drills). In addition, the newly developed city should be designed compactly, retreating from the sprawled urban areas that are much more vulnerable to the natural disasters, since the rural population is declining.

Defining guiding principles toward reconstruction

- Long-term community planning should be developed based on the "environmental carrying capacity" while paying attention to the regional characteristics and encouraging active participation of the local residents.

- The current centralized and homogenized society needs to be transformed into more decentralized and diversified one. The regional development plan should be designed to formulate clusters of self-sufficient cities in a decentralized manner with respect to energy, information, transportation accessibility, and natural ecosystems. It is expected that local people have ownership, share the common values, and feel prides of their community.

Modalities to achieve the guiding principles

- To design an autonomous and sustainable society, following modalities should be applied and utilized;

< Regional development>

- Soft measures in addition to hard infrastructures play vital role to re-create the vibrant Tohoku region. Such measures contain a) formation of clusters composed of entrepreneurship and nature-technology, b) creation of "Reconstruction Company," aiming to accelerate the reconstructing process, in partnership between public and private sectors, c) promotion of sustainable tourism, and d) establishment of special zones enabling decentralization of power, financial incentive, and regulatory reform.

<Energy>

- Energy policy has been developed from the viewpoint of low-carbon and stable supply,

and now "safety" has emerged as a new pillar in energy policy. We need to abandon nuclear power, which is uncontrollable in case of an accident. Renewable energy, such as wind, solar, geothermal and biomass energies, improves energy self-reliance and revives local industries.

<Agriculture, fishery and forestry>

- Primary industries, such as agriculture, have multiple societal functions including income generation, job creation, and protection of the local community and its landscape. It is essential to evaluate and enhance those different functions so that primary industries can be sustainable, competitive and attractive.

<International cooperation>

- It is responsibility of Japan to disseminate the lessons learned from the reconstruction which would contribute to improve the global sustainability. International society observed with surprise the very calm attitude of Japanese people at the event of disaster, which attributed to Japanese mental characteristics as well as physical preparedness such as reserving emergency packs on a routine basis.

(2) Session 2: Creating Communities Where the Elderly Live Feeling Reassured

Support social infrastructure for the elderly, children and others, transportation, hospitals schools, municipal services, shopping, etc.

Facilitator:

- **Hikaru Kobayashi**
  (Professor, Faculty of Environment and Information Studies, Keio University)

Lead-off Speakers:

- **Ulf Ranhagen**
  (Chief Architect, SWECO Sweden; Professor in Urban Planning, KTH-Royal Institute of Technology)
- **Shuzo Murakami** (Chief Executive, Building Research Institute (BRI))
- **Mariko Saigo** (Urban Planner)

<u>Inevitable for considering a community focus on elderly</u>

- The vulnerability of elderly in the face of disasters was illustrated by the statistics of that people over 60 years old accounted for 65.2% of the death caused by the Great East Japan Earthquake, which largely exceeded in its proportion in demographic composition.

- The experience of Hanshin Earthquake(1995) shows that mutual cooperation among a community not only prevented death in isolation but also contributed to maintain the health level of the people even under the harsh conditions.

Community development initiated by local people

- Reinforcement of community bonds or ties and promotion of local culture will be required to revitalize the affected areas. Without relying on the exogenous values, the endogenous and autonomous frameworks for community development (e.g. community developing authority initiated by local people) should be formulated with making maximum use of local resources and unique characteristics such as history and lifestyle.

- The population was increased by 2 – 3 times, while the urban area expanded by 20 – 30 times in Ishinomaki City. The mainly affected area by the Great East Japan Earthquake was those urban areas sprawled after the World War II. Not to repeat recent disaster, it is important to establish the compact city within its historical geographical boundary while keeping and further developing its traditional features.

- It must be effective for revitalizing a community and reinforcing its bonds to make major public spaces (e.g. public center, hospital, park, café, and train station) comfortable and enjoyable using locally produced materials and traditional technologies.

- The experience of Minamata city tells us that it is possible to transform negative heritages of environmental pollution into positive asset values through collaborative activities of citizens to restore the local community bonds, implement environmental measures, promote local products, and thereby revitalize the community.

City planning

- Sweden takes a method of city planning called Symbiocity as also applied in Canada, Russia, China, under which "health, sense of security, quality of life" are created based on the holistic harmonization of economy, environment, society, culture and space. There is an example of a city where the maximum distances from a bus or tram stop to public or commercial facilities are limited within 300-400m so that elderly people can also enjoy liberty of mobility. To implement such a planning, financial support to the city is indispensable.

Housing and Health

- It is reported that more than 30% of the factors that explain health condition attributed to the housing environment and relationship with the local community. Among which, improvement of thermal insulation has non-energy benefits such as decreasing prevalence rate, preventing diseases, in addition to reduction of energy consumption. It is recommended as for new houses to set mandatory compliance to the thermal insulation performance and as for existing houses to the labeling of housing performance, or"health inspection of a house".

Welfare for elderly people

- In Sweden, in order for elderly people to spend as much time as possible in their homes,

several measures are taken including 1) "Informalizationn" or shift of responsibility, from the public to families, regarding welfare of the elderly, 2) "Marketization" in the are of the elderly, care for the elderly is opened up for new providers (producers) of services and care, 3) "De-institutionalization", i.e. a reduction of beds or apartments in municipal institutional care.

- In Sweden, about 10% of the population is immigrant, and they play important roles in the field of social welfare and nursing care. Reaching at an aging society, it is a challenge for Japan to ensure necessary human resources for social welfare. There are some discussions about immigrants in Japan.

(3) Session 3: Realizing Vibrant Low-Carbon Communities Built around Renewable Energy

Specific technologies, systems and lifestyles

Facilitator:

- **Stefan Schurig**
  (Director, Climate Energy Department, World Future Council)

Lead-off Speakers:

- **David Singleton**
  (Director, Global Planning Practice and Sustainability Director Arup)
- **Kirit S. Parikh**
  (Chairman, Intergrated Research and Action for Devlopment (IRADe))
- **Junichi Fujino**
  (Senior Researcher, Center for Social and Environmental Systems Research, National Institute for Environmental Studies (NIES))

Creating Low-Carbon Society: Reconstructing Tohoku

- The necessity to build low carbon society has been widely recognized today. It requires reducing energy demand through improving energy efficiency and lifestyle change, and increasing low-carbon energy supply, without lowering the quality of life.

- Community development, since the design of town could affect amount of emissions into the future up to one hundred years, requires the introduction of strategic policies based on the long-term vision and the continuous and stable implementation of those policies. It is important to base community development on the concept of resilience rather than resistance.

- Reconstructing Tohoku provides a valuable opportunity for Japan to build low-carbon communities and appeal its achievement to the world.

- Since Japan has already developed various sorts of key technologies, designing policies

to effectively deliver those technologies and integrate in the society is now required. In this process, the old systems and long-standing customs including regulations that prevent the full use of these technologies need to be reviewed and revised. In case of Japan, the lack of preparedness for inter-transmission in power supply among regionally monopolizing utility companies prevented quick response to recover from electricity shortage caused by the earthquake. Learning from this experience, such preparedness should be enhanced.

- New national strategies should be developed to establish sustainable energy system that achieves low-carbon society and reduce its dependency on nuclear power as much as possible.

- Developing countries are most vulnerable to adverse effects of climate change, though they are not so responsible for climate change. On the other hand, since they are potential large emitters in the near future, leap-frog type development is indispensable in collaboration with the experiences of developed countries.

- India's total CO2 emissions were less than one fifth that of USA and China. In per capita terms, India emitted one fourth of China, one sixteenth of USA. Emission intensity of both China and USA is almost twice as high as India.

Effective promotion of renewable energies

- While promoting renewable energy is an essential element for achieving low-carbon society, the challenge is to overcome various obstacles including the cost, fluctuation of power generation and the difficulty of grid integration.

- The self-reliant and decentralized energy system should be promoted for disaster-resilient and low-carbon society. This energy system enables the wide introduction of renewable energy close to demand side, and contributes to community development based on community's own resources. This requires capacity, skills and willingness at local level to operate and maintain such system.

- Wide diffusion of renewable energy requires smart policy design. Distributing subsidies or establishing the Feed-in-Tariff system is absolutely necessary but not sufficient enough to sustainably diffuse renewable energy.

- R&D for cost reduction should be addressed especially.

Communication of vision of low-carbon society

- Building a low-carbon society does not merely seek reduction of CO2. It also aims at enhancing quality of life and people's happiness with multi-benefits. Sharing such a vision with civil society is a key to bring about low-carbon society.

- Therefore, communication at the regional and national level is vital in considering the construction of low-carbon society on the ground. It fosters community bonds and the sense of ownership. It allows local people to share the vision of low-carbon society that suits to the community's needs and will.

- In order to facilitate smooth and effective communication, analytical tools such as modeling and integrated resource management for building sustainable city have been developed. The full use of these tools at open platform among stakeholders is useful.

- Collaboration with other countries, especially Asian countries, should be encouraged at not only at national level, but also regional and community level, among citizens, businesses, researchers, NGOs, policymakers and so on. Research institutions to share information, technologies, know-how and experiences to build low-carbon society can contribute to building consensus.

- GDP plays role as an indicator of living standard in developing countries in the light of their need for economic development. However, it is not sufficiently representing any longer the quality of life in developed countries.

- The installation of a governmental advisory committee on renewable energy development, grid infrastructure and sustainable city development could be considered.

- The establishment of a national communication agency on renewable energy can be very helpful in getting the Feed-in-Tariff policy and the development quickly adapted in the communities.

- Germany has abolished obstacles for wide introduction of renewable energy, achieved significant level of penetration, and now has made its decision not to be reliant on nuclear energy by closing all existing eighteen nuclear power stations. The enactment of Feed-in-Tariff this summer in Japan will mark an important step towards meeting new challenges.

(4) Session 4: Societies in Harmony with Nature

Developing affluent societies utilizing natural resources in the community that also contributes to disaster prevention and reconstruction

Facilitator:

- **Kazuhiko Takeuchi**
  (Vice Rector, United Nations University; Director, UNU-Institute for Sustainablility and Peace(ISP))

Lead-off Speakers:

- **Zakri A. Hamid** (Science Advisor to the Prime Minister of Malaysia)
- **Anantha K. Duraiappah**
  (Executive Director International Human Dimensions Programme on Global Environmental Change (IHDP), UNU)
- **Thomas Elmqvist**
  (Professor, Department of Systems Ecology, Stockholm University; Stockholm Resilience Centre)
- **Keith G. Tidball**
  (Senior Extension Associate, Department of Natural Resources, Cornell University)

Key Findings

- There is the potential for conflict between modern demands for economic growth fuelled by energy needs versus traditional life systems focused more on social and cultural relations. However, there are options to mitigate these conflicts through social-ecological productions systems such as Satoyama-Satoumi. These systems can deliver:
  - Renewable energy sources such as biomass, solar, wind and micro-hydro systems;
  - Increased food sufficiency and the supply of organic food and traditional medicine.
  - Increased employment for communities.

- There is a need for building and increasing resilience of socio-ecological systems by adopting the following two principles:
  - Maintaining modularity or the mosaic composition of the landscape
  - Maintaining diversity within the couple socio-ecological system.

- New systems of governance are required to manage the "New Commons" which can be defined as the mosaic landscape comprising of different ecosystem types managed to produce a bundle of ecosystem services required for human well-being.

- Growth of manufactured capital is not sufficient to reflect the true wealth or progress

of a society. It is important to include social, human and natural capital to give a true picture of the wealth of a country and its society.

- Restoration costs can be high but experiences show that the net benefits are positive if all the multiple uses from the multiple services of restored socio-ecological systems are taken into account.

- Active community participation in the rebuilding of socio-ecological systems provides the sense of place, ownership and social healing which are necessary conditions for the continued maintenance of these coupled socio-ecological systems in disaster affected areas.

Key Recommendations

- National and local authorities to revitalize agriculture, forestry, and fisheries industries through the provisioning of incentives to stimulate employment generation.

- National and local authorities to provide social and economic incentives to foster local community-private enterprise partnership for investment in renewable energy.

- National authorities in collaboration with local authorities and local communities to create National Parks along the lines of the New Commons and develop governance systems to mange these parks to produce a bundle of ecosystem services for human well-being in particular disaster risk management.

- National authorities to initiate a system of national accounts that include manufactured, social, human and natural capitals to provide the inclusive wealth and productive capacity of the country and sustainability of its society.

- A ten-year international research program is gaining better understanding of the society-nature interaction. The appropriate responses that might be taken to improve wellbeing should be initiated under the education and research strategies in Japan.

(5) Session 5: Highly Efficient Recycling-Oriented Societies

Next generation social systems focusing on the 3Rs

Facilitator:

- **Shinichi Sakai**
  (Director and Professor, Environment Preservation Research Center, Kyoto University)

Lead-off Speakers:

- **Pariatamby Agamuthu**
  (Professor, Institute for Biological Sciences, University of Malaya)
- **Yuichi Moriguchi**
  (Professor, Department of Urban Engineering, the University of Tokyo)

Dissemination and contribution to the international community

- In order to treat disaster debris caused by the Great East Japan Earthquake effectively, Japan should learn from previous practices at the international level, and also disseminate Japan's experiences to the world, as well as, contribute to effective reconstruction in the future.
- The important roles of the informal sectors at the event of disasters in Asian countries were reported. The knowledge on how to deal with hazardous materials is vital so that communication with experts who have such knowledge should be enhanced.
- As there are no frameworks for sharing information on the disasters and subsequent problems such as wastes and radioactivity, it is crucial to build such mechanisms on multilateral basis in the domains of academia and politics.
- Mechanisms for exchange of information should be established through a dedicated meeting and conference on disaster waste management.
- In order to restore the trust of the international community in the wake of the recent nuclear power plant accident, Japan needs to reflect on its experience in overcoming severe disasters and to fully disclose information concerning radioactive pollution. Japan should also announce to the world that it will carry out necessary decontamination operations and appropriately manage radioactive contaminated materials as well as implementing those actions.
- In addition, the country should push forward cutting-edge initiatives designed to realize a highly efficient sound material-cycle society and disseminate internationally information about those initiatives as a model.

Efforts towards highly efficient sound material-cycle society

- Concepts of 3R, sound material-cycle society and resource productivity / resource efficiency are widely shared internationally and regionally in Asia and converged with similar concepts and approaches, through international coordination in the G8, the OECD and the UNEP.
- These integrated approaches to address waste management issues in the downstream

of lifecycle and resource management issues in its upstream are very timely, in consideration of the price volatility of resources caused by the increasing demand thereof due to rapid economic development.

- Scientific knowledge on environmental impacts of material use over the whole life-cycle should be enhanced, accumulated and shared.
- Next generation 3R social systems should re-focus on the root causes of solid waste problems, so as to change unsustainable patterns of consumption and production.
- Future developments should consider the root cause of solid waste problems to expedite the establishment of sound material-cycle society.

Efforts for building sound material-cycle society in Japan

- The demand for resources is expected to increase in tandem with global population growth and economic development. Considering such factors as environmental impact from resource extraction and sustainable development of the global economy, it is necessary to continue promoting more efficient use of recyclable resources towards the establishment of sound material-cycle society.

Reconstruction efforts in the Tohoku region

- "Act locally and transparently" on resource and waste management for areas damaged by the Great East Japan Earthquake and the nuclear accident, in order to improve the credibility of science-based policies.
- In order to reconstruct and regenerate the Tohoku region, thorough disclosure of information concerning radioactive contamination is needed, as well as carrying out necessary decontamination operations and appropriately managing radioactive contaminated materials.
- More consideration should be given that recycling practices should depend on the nature of materials and local conditions.
- In addition, it is required to future develop initiatives that are based on regional characteristics and will help realize a low-carbon, sound material-cycle society in harmony with nature.

4. Wrap-up session

Key points of discussions at the thematic sessions were presented and endorsed as summarized in the preceding sections. Additional points were raised as follows:

- As to the earthquake, tsunami, and the accident of nuclear power stations, archives of the electrical records should be established and shared with the international society.
- It is important to develop new information and communication tools and schemes that can deliver emergency information towards international communities in Japan.
- Throughout this meeting, we shared recognition that a) listening to the voices of local community should be the basis of any decision-making; b) facts including both

good ones and bad ones should be recorded as precise as possible, noting experience of failures may prevent to repeat another one; c) learning from a wide range of international experience is essential.

It was also agreed that the outcome of the conference should be disseminated widely to various international fora, such as Rio+20 in June 2012 in Rio de Janeiro, Brazil.