Regional Science-Society Interface within Global Environmental and Social Change towards Sustainability

Aysun UYAR, Makoto TANIGUCHI

ABSTRACT
This paper introduces the GEC (Global Environmental Change)-Japan/Asia platform as one of the attempts to enhance linkages and promote collaboration on transdisciplinarity approaches to global environmental and social change in Asia. This paper also attempts to contribute to discussions about new research directions and frameworks to promote science-society interface for sustainability research in Asia.

KEYWORDS: Global environmental change, GEC-Japan/Asia platform, Future Earth, Region, Science-society Interface

JEL CLASSIFICATION: Y80

1. INTRODUCTION

Impacts of global environmental and social changes on our communities, societies and even international relations have become critical in recent years. Communities have been recalling their traditional knowledge to adapt to these changes, while science communities and service providers are looking for new ways to deal with these challenges. Nevertheless, complex nature and speed of this “global change” in recent years have generated a necessity to look for rather integrative approaches by combining new and traditional knowledge and communicating science with society to deal with these problems.

Science community, in addition to profit-seeking stakeholders, policy makers and non-political social movements, is one of the leading groups of this newly emerging science-society interface. There has been a noticeable attention within this community to take rather participatory and inclusive perspectives and responsibility on the causes and impacts of global change, and deliver proper means for sustainable socio-ecological systems. ICSU (International Council for Science), research-related international organizations, funding agencies and national science councils are important actors behind this large movement within science community.

Most of the methods aim to combine experiences of functional mechanisms and ways with new and innovative ones like co-designing and co-production, top-down framing and bottom-up processing, and transdisciplinary dialogue as the ways to communicate scientists with business groups and policy-makers. Innovative and potential research frameworks at regional (transnational) level have become main venues to transform communities’ needs and capabilities towards global sustainability. There is, hence, an inclination within science communities to promote discussions on regional
mechanisms and collaboration for academic and social innovation in our way of doing science for sustainability. These integrative methods also necessitate a bridging and more interactive scope of implementation at regional level.

Japan has been playing an active role within these regional and other international initiatives of scientific collaboration. This paper introduces the GEC (Global Environmental Change)-Japan/Asia platform as one of these attempts to enhance linkages and collaboration on transdisciplinarity approaches to global environmental and societal change and sustainability research in Asia and further discusses its potential contribution to science-society interface and global transformation in the region. The first part of the paper introduces the recent developments within the global science community by focusing on challenges of global environmental change. The following part focuses on the Asian dynamics, challenges and potentials for global environmental and social change by giving examples of regional/transnational initiatives. And the last part argues the rationale and potential contribution of the GEC-Japan/Asia platform to future science-society interface in Asia.

This paper is not a research paper to introduce new research results for social innovation. It rather aims to contribute to the social innovation literature by introducing the recent discussions on global sustainability and transdisciplinary research within science communities. It also underlines the importance of regional research and scientific collaboration mechanisms as the new and integrative research directions for global environmental and social change. Hence, the method of this paper is an argumentative one, mainly based on the analysis of recent global change discussions and critical elaboration of the GEC-Japan/Asia platform.

2. CHALLENGE OF GLOBAL ENVIRONMENTAL AND SOCIAL CHANGES

Change has always been a natural part of social and ecological systems in history. Then there has been a balance, or to put it in political terms, a compromising agreement between human activity and environmental systems to keep the overall socio-ecological system running without any pitfalls. Due to uncontrolled and then mismanaged industrial and following urban development, as well as demographic pressures on our already limited natural resources and ecosystem services, the concept of change has come to present not only a positive and innovative value but a negative connotation at the same time.

Hence, natural cycle and change of ecosystem services have come to a threshold that it cannot keep up with the phase and scale of changing and accelerating human activity.1 Problems of income inequality, poverty, hunger and pandemic diseases as well as natural and human-related disasters, need for preventive and resilience mechanisms vis a vis disaster risks are some of the issues that are placed on higher ranks of the impact lists, global environmental and social changes have been inducing.2 On top of all, there is a compelling need for receptive and durable governance mechanisms, at least institutions to quickly respond to urgent problems and provide means for long-term discussions for future direction.

Reaction to these changes in our socio-ecological systems has been rather apparent since the end of the Cold War. Researchers, who had been concerned about climate change and the state of environmental degradation within countries during the Cold War, were given bigger opportunity to collaborate on country-specific data analysis of already projected environmental problems. Then, environmental concerns were linked with development needs and this led to growing political emphasis and joint actions of various stakeholders at international level through United Nations (UN) environment and human development summits.

1 Incremental impacts of human activity and how the earth system is responding to already passed thresholds are critically analyzed and presented by various researchers. For further information on changing earth system dynamics, see Rockström et.al. (2009) and Raworth (2012).

2 Especially the impacts of climate change and environmental degradation are more visible in the short-term and consequential aspects are in dire need of attention.
Following the UN Conference on the Human Environment (1972) as one of the first global initiatives to get attention on environmental issues, 1987 Brundtland Report “Our Common Future” revealed the fact that there was an urgent need to gather not only scientists but other parties who have direct link and interest in environmental change issues. Then the Earth (Rio) Summit of 1992 was successfully completed, thanks to the promising environment for collective action in the immediate post-Cold War mood of compromise and cooperation in the international arena. Agenda 21 called for collaborative action plan for sustainable development and led to emergence of various environment-related regimes. Johannesburg World Summit of 2002 was also held on sustainable development and by that time, business world had already been engaged with scientific community and policy makers. Concerns on various growth strategies and forthcoming environmental impacts were already discussed within development strategies promoted by business leaders and other decision makers. Since then, business world has been taking bold actions, through joint projects promoting participatory research on sustainability and environmental change, to place themselves within transdisciplinary sustainability discussions.

Not only UN but other international organizations like EU (European Union) and OECD (Organization for Economic Co-operation and Development) are also engaged with this global effort to take part in science-society interface for sustainability. One clear shift within this general movement is to promote more applied research and monitoring models with engagement of service providers and direct business partners on environmental and social changes. The most recent UN conference on sustainable development (Rio+20 Summit of 2012) was also in line with this direction that two main themes of the conference were green economy and institutional framework for sustainable development (UNCSD, 2012a).

It is obvious that the international political environment after the Cold War has shown rather collaborative tendency at international and global levels when compared to the difficulty of the Cold War dynamics to bring countries, especially those from different blocs, to come to the same terms on common environmental problems. In the meantime, it was during the Cold War period that countries could come together and discuss issues on escalating environmental problems (like Vienna Convention for the Protection of the Ozone Layer signed in 1985) and development issues (above-mentioned summits). Today, there is no political or ideological obstacle to bring all countries around the same table to discuss urgent environmental problems but each country has different political security agenda and treats environmental security at different levels, so that it is even more difficult to make all concerned parties to agree on surging environmental issues. This dilemma of countries to reach consensus raises questions on the potential of international diplomacy for global environment issues.

2.1 **Future Earth Initiative as the Scientific Contract towards Global Sustainability**

Nevertheless, liberal and progressive discussions of the 1970s and the end of the Cold War had crucial impacts within the international science community, working on environmental protection and change issues. ICSU, as one of the main science platforms and research networks, has taken fundamental initiatives to divert attention of the scientific community to environmental change issues. One of the first programs within this effort was initiated in 1980 with the title WCRP (World Climate Research Programme) as climate change was one of the first and biggest concerns about global environmental change. Then, environmental change became a major topic by focusing on the change of socio-ecological systems and two major programs, IGBP (International Geosphere-Biosphere Programme, 1986) and DIVERSITAS (International Program on Biodiversity Change, 1991) were initiated. IHDP (International Human Dimensions Programme on Global Environmental Change) was established in 1996 with support of ICSU, UNU (United Nations University) and ISSC (International

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3 Some of the products of the Rio Summit of 1992 were the Forest Principles, Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity, see Uyar (2012) and Conca and Debalke (2010).
Social Science Council) to focus on human dimensions of global environmental change by integrating social sciences to the process to promote recent multidisciplinary and interdisciplinary joint research projects. These four programs are called as the Global Environmental Change (GEC) programs and due to their connection and similar mission of approaching environmental as well as societal change issues, GEC programs were interlinked via joint projects and initiatives under ESSP (Earth System Science Partnership) platform from 2001 to 2012. ESSP platform successfully completed its mission of promoting further integration and interdisciplinary collaboration towards global change issues. In the meantime, GEC programs have got into further institutionalization within their own spheres and the usual impacts of deepening institutionalization, i.e. compartmentalization and less communication between the projects of different programs have become more apparent. At the same time, global environmental and social changes have naturally taken different dimensions since the content and phase of changes were not the same as they were 20 or 10 years ago. Change now means rather complex and impenetrable environmental issues that require not only scientific but also policy-related and direct involvement and possible immediate reactions from society. This structural and natural drive of global change towards further complicated facets of our socio-ecological and political-economic systems, was also realized within the scientific community that there is a need to further integrate not only our science groups with more interdisciplinary foundations but also other stakeholders and local as well as regional parties of global environmental and social change issues for better solutions.

Figure 1: Development of the Future Earth System within the Scheme of Earth System Science for Global Sustainability

Source: GEC-Japan Platform, 2012. Retrieved from http://www.chikyu.ac.jp/gec-jp.

4 Cross projects of ESSP are Global Carbon Project (GCP), Global Environmental Change and Food Systems (GECAFS), Global Water System Project (GWSP), and Global Environmental Change and Human Health (GECHH). For further information on ESSP projects, see ESSP website. Retrieved from http://www.essp.org.
As the need was obvious to integrate all possible scientific approaches and collaborative linkages in a way to strengthen the scientific community to interact with policymaking and policy initiating communities as well as service providers, a historic step was taken in 2012. Future Earth is the outcome and latest phase of this three-decade long research collaboration and experience of the international scientific community. Figure 1 presents the overall relationship among the sustainability and environmental change programs, and the recent direction of the science community towards the Future Earth system for global sustainability.

Future Earth is an encompassing research design for global sustainability and based on the alliance of ICSU, Belmont Forum, IGFA (International Group of Funding Agencies for Global Change Research), ISSC, UNU, UNESCO (United National Educational, Scientific and Cultural Organization), UNEP (United Nations Environment Programme) and WMO (World Meteorological Organization) as an observer. It was first announced during the Planet under Pressure Conference, organized by ICSU and GEC Programs, in March 2012 (ICSU, 2012b) and officially launched during the Rio+20 summit of the United Nations (UNCSD, 2012). Then regional workshops were organized in Africa, Latin America and Asia-Pacific where main themes, targets, organizational structure and implementation mechanisms were discussed with representatives of research and funding organizations to convey their regional concerns and expectations to the overall process. An interim governing council and scientific committee will be in charge of the overall preparation and establishment of the Future Earth system, and then official mechanism and implementation will take place from April 2014 until the end of its 10-year period in 2022.

Future Earth initially aims to integrate sciences by connecting social and natural sciences as well as humanities in an interdisciplinary perspective. Co-design between funders, researchers and service providers and co-production of solution-oriented knowledge for mechanisms of observing, monitoring, adaptation and transformation with selected themes of “human well-being”, “human and natural drivers” and “global environmental changes with policy-science interface” are other targets of the process in its short and mid-terms. Research themes of “dynamic planet, global development and transformation towards sustainability” are designated to integrate science into development and policy-making processes by extending the boundaries of the academic community through transdisciplinary linkages.

Future Earth is also initiated as an endeavor to connect local and regional groups as well as research experiences and methods to global efforts. It is widely accepted by all parties to the process that global environmental and social change issues are quite fundamental and in most cases region-specific and intertwined with local cultural and historical features of those areas. For these reasons, any mere international or global collaboration to face these challenges might overlook some fundamental and region-based sources of global environmental and social change. It is also a common understanding that there have been already successful initiatives at both local/community and regional levels in different parts of the world. For these reasons, it is especially underlined from the very beginning of this global transformation to sustainability process that regional discussions are the core elements of transition. “Regional nodes” are usually noted in most of the Future Earth and global research collaboration endeavor at international arena. Transforming research dynamics (to promote further interdisciplinary research and involve other stakeholders of global change within science programs) and need to actively engage the already established local/regional wisdom and science interaction with global efforts are the main causes that encouraged researchers in Japan to take the lead to initiate GEC-Japan/Asia platform and fill these gaps in Asia.

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5 Regional workshops and online consultation process is still going on about implementation and future direction of the Future Earth process. Further information can be accessed at ICSU website (ICSU Future Earth, 2013).
6 ICSU 2012a, GEC-Japan/Asia 2012.
7 ICSU 2010a and 2010b.
3. ASIAN DYNAMICS, CHALLENGES AND POTENTIALS FOR GLOBAL ENVIRONMENTAL CHANGE

With recent financial and regional integration crisis in Europe, uncontrollable growth strategies and population rise together with mismanagement of urbanization in most of the developing countries in Asia, Latin America and in Africa (together with poverty and domestic conflicts), governments were forced to deal with their development and stability issues as number one priority items on their agendas. On the one hand, Asia is also one of the fastest developing regions in the world. The region also has its unique dynamism with its wide scope of political regimes, economic and social systems, cultural richness and various environmental sub-systems. On the other hand, rapid change and reaction of the region’s ecological sub-systems to these drastic socio-political and economic changes often cause large-scale natural disasters and environmental degradation. This reality spurs local and sub-regional vulnerability of the communities to face the challenges of environmental and social changes (Yasunari, 2012).

Heterogeneous character of the region already makes it difficult to draw region-wide generalizations and conclusions in term of impacts of environmental and social changes on sustainability of the region. Nevertheless, one thing is clear that environmental issues go beyond the national boundaries of states. Hence, dealing with environmental issues requires inter-state, inter-organization and inter-community mechanisms and negotiation from the very beginning. As the region has various political-economic systems, as well as environmentally defined zones and sub-regions, international cooperation, at scientific, political-economic and societal terms, becomes a grave necessity to deal with the issues of environmental and social changes.

Since the policy makers, service providers, and research community are aware of this potential and dynamic structure of Asia, there are already set initiatives and networks to deal with the potential weak and strong points of the Asian socio-ecological systems. It is obvious and widely accepted that, not any single group of stakeholder, be it policy makers, business initiators, research communities, funders or non-governmental entities, can take the burden to lead encompassing and accountable actions towards sustainability. Going beyond ones’ own sphere and co-designing possible models and co-producing together with other service providers and end-users lay the foundation for transdisciplinary and trans-sectoral interface between science and society. As agreed during the Rio+20 Summit, leading an integrative and progressive dialogue is the starting point to sustain development with fair and timely social, economic and environmental policies. Then, “regional focus” has taken attention of the global community to take action vis-à-vis these changes.

Having one of the largest territories, combination of the most versatile ecological sub-systems and cultural diversity both, Asia can utilize these peculiarities both as a challenge and as potential to stand on its own and take the lead for regional transdisciplinary work towards global sustainability. There are already existing initiatives and networks, connecting scientific community and service providers as well as users, by combining traditional experience with modern science and techniques. Because of its dynamism and potential, global initiatives have also focused on Asia. Table 1 shows the selected list of these recent science and technology led science-society interfaces in the region.
### Table 1: Selected List of Recent Science-Society Interfaces in Asia

| Networks                                                                 | Area                      | Partners                              |
|--------------------------------------------------------------------------|---------------------------|---------------------------------------|
| **Science promotion platforms**                                          |                           | Academic (A), Policy makers (P),      |
| GEC-Japan/Asia (Global Environmental Change-Japan/Asia Platform)        | Asia                      | Service providers (S), Other stakeholders (O) |
| APN (Asia-Pacific Network)                                               | Asia                      | A, P, S                               |
| ASC (Science Council of Asia)                                            | Asia                      | A                                     |
| AASA (The Association of Academies of Sciences in Asia)                  | Asia                      | A                                     |
| FASAS (Federation of Asian Scientific Academies and Societies)           | Asia-Pacific              | A                                     |
| ICSU ROAP (ICSU Regional Office for Asia and Pacific)                    | Asia-Pacific              | A, S                                  |
| **Resource and training programs**                                        |                           |                                       |
| SPREP (Secretariat of the Pacific Regional Environment Programme)        | Pacific                   | A, P, S                               |
| CAREC (Regional Environmental Center for Central Asia)                   | Central Asia              | A, P, S                               |
| AIT-UNEP Regional Resources Center for Asia and the Pacific (RCC.AP)     | Asia-Pacific              | A, P, S, O                            |
| ELLTA (Exploring Leadership and Learning Theories in Asia)               | Asia                      | A, P, S, O                            |
| START (Global Change System for Analysis, Research and Training)         | Asia-Pacific and Africa   | A, P, S                               |
| SATREPS (Science and Technology Research Partnership for Sustainable Development) | Japan and developing countries | A, P, S                             |
| **Thematic programs**                                                    |                           |                                       |
| GEOSS (Global Earth Observation System of Systems) in Asia-Pacific        | Asia-Pacific              | A                                     |
| LoCARNET (Low Carbon Asia Research Network)                              | Asia                      | A, S                                  |
| APAN (Asia Pacific Adaptation Network)                                   | Asia-Pacific              | A, S                                  |
| CANSA (Climate Action Network South Asia)                                | South Asia                | A, P, S                               |
| MAIRS (Monsoon Asia Integrated Regional Study)                           | Asia                      | A                                     |
| AsiaFLUX (regional network of FLUXNET)                                   | Asia                      | A                                     |
| ICIMOD (International Center for Integrated Mountain Development)        | Asia                      | A, P, S                               |
| AP-BON (Asia-Pacific Biodiversity Observation Network)                   | Asia-Pacific              | A, S                                  |

Source: Authors’ collection, 2013.

These networks can be grouped as science promoting platforms, resource and training programs and thematic programs. In most of the cases, these networks are created by scientific bodies of governments or science communities to advance research collaboration and communication together with other stakeholders (as shown on the right column of the table). At the same time, sustainability and science-society interface issues are discussed and promoted by non-scientific bodies and local platforms as well. One recent examples of this kind of grouping and action can be ICLEI (Local Governments for Sustainability) where local governments take initiative and invite relevant parties to discuss possible ways and methods of sustainability in their local areas as a bottom-up approach. Another example is WBCSD (World Business Council for Sustainable Development) where more

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8 For further information, see ICLEI 2012.
central and top-down framing and actions are coming from big business groups. As mentioned earlier, participatory action from the local communities and business groups is the recent trend that has been a peculiar feature of the Rio+20 Summit as well.

4. **GEC-JAPAN/ASIA PLATFORM AS THE HUB FOR SCIENCE-SOCIETY RESEARCH INTERFACE IN ASIA**

Co-designing is the process of setting clearly defined research questions and jointly framing the methodologies, models and implementation mechanisms of research. Initial connection between funders and securing necessary budget, partners and means are also mobilized during this stage. Co-production rather integrates relevant parties during this actual implementation period as stakeholders and service providers take part in research and communication of research performances and results to end-users and acting parties in public. Namely, research design starts with more interdisciplinary basis and consultation. Then stakeholders take active role in production of scientific implementation and dissemination of research results.

Keeping in mind the previously-mentioned dynamisms, challenges and potentials of Asia, it is also natural that there are already established platforms, either science or business/community led, to improve communication among various stakeholders of sustainability research and policy making on regional basis in Asia. Some of these platforms are listed in Table 1. Most of these platforms work successfully but usually within their own communities or crossing neighboring localities and regions. Of course, there are exceptions to compartmentalization of these programs. For example, APN (Asia-Pacific Network) aims to systematically communicate regional and local scientific groups around targeted research and capacity-building themes. Nevertheless, there is no clear interface, nor any progressive co-design and co-production initiative among these groups. Then this causes further institutionalization and difficulty to communicate among these groups. These groups usually work in the same fields, gather similar data and sometimes produce overlapping data analysis with rather resembling research questions. Lack of interactive communication and information sharing on important and similar data, monitoring records and experiences among these groups most of the time lead to repetitive research results and redundancy. Since global change is a transformative process that always needs better and more complicated reaction and approach from science and policy-making groups, positive adaptation of these groups and platforms to new necessities and complex sustainability issues also force these groups to interact in more collaborative and dynamics ways.

These problems of the existing research and interface platforms reveal the fact that there is a crucial need to connect these initiatives in order to set more interactive, adaptive and goal-oriented research priorities and communication mechanisms. Realizing this necessity for regional consciousness and accumulative dialogue for better acknowledgment of common challenges and opportunities at local, cross-national and national levels and sharing experiences, the Research Institute for Humanity and Nature (RIHN) and the representatives of GEC programs in Japan, have initiated the GEC-Japan platform in 2011. Rationale of GEC-Japan is *creation of a networking platform to facilitate and promote institutional and research collaboration among researchers, service users and policy-initiators by co-designing and co-producing transdisciplinary solutions for global change and sustainability with regional focus to reach to Asia* (GEC-Japan/Asia, 2012a). Main activities of the platform are framed as, (a) establishment and promotion of GEC-Japan portal agora for researchers in the short-term, and policy makers, service providers and other stakeholders in the mid- and long-term, to exchange information on global change and sustainability issues; (b) nurturing dialogue and collaboration among GEC-Japan programs and other global environmental change programs in Asia and researchers through joint publications and seminars as well as public presentations; and (c) promotion of active dialogue among Asia scholars worldwide who have interest in global change issues and interdisciplinary research as well as transdisciplinary actions in Asia (GEC-Japan/Asia, 2012a).

* The top-down action has also taken its grounds from the promising Rio Summit of 1992. For further information, see WBCSD 2012.
With these targets and roadmap, the GEC-Japan platform was recently transformed into the GEC-Japan/Asia platform with Future Asia vision to link Asian dynamic, potential and experiences to the Future Earth initiative and activities. Issues of global change, both environmental and social, and sustainability development within socio-ecological systems are obvious items on the agendas of most of the sustainability-oriented networks. New frameworks and alliances, mainly Future Earth initiative of the “Science and Technology Alliance for Global Sustainability”, and other global and above-mentioned regional initiatives reveal the fact that regional nodes and partnerships are critical to link local, sub-regional and global endeavors. Hence, the GEC-Japan/Asia platform with Future Asia vision fills the gap by promoting co-design and co-production of sustainability knowledge through multi-scale communication and multi-scale issue orientation in Asia. GEC-Japan/Asia is a networking hub, with Future Asia (Future Earth in Asia) being its vision, to connect already existing wisdom, initiatives and platforms within Asia, as well as Asian experiences and issues with global efforts (GEC-Japan/Asia, 2012b).

Future Asia vision aims to deepen the understanding and practice of Future Earth in Asia through region-wide interaction and dialogue. The vision further aims to,

- focus on problems and potentials of diversity and dynamic changes in Asia,
- promote pluralist approaches to link various sub-regions and ecosystems,
- convey region-wide and global visions/actions/opportunities to all researchers in the region,
- be inclusive to all interested parties to promote genuine communication on scientific basis, and,
- be perceptive to swift ecosystem and social-economic changes in the region.

Transforming the recent research frameworks by engaging young researchers actively to the main processes, interacting already established wisdom and experiences in the region and connecting all these efforts with other regional and global initiatives are other distinctive features of the vision. Stance of the GEC-Japan/Asia platform and Future Asia Vision within regional and global sustainability initiatives is framed in Figure 2.

Figure 2: Framework and Stance of the GEC-Japan/Asia Platform within Earth System Science for Global Sustainability

Source: GEC-Japan Platform, 2012. Retrieved from http://www.chikyu.ac.jp/gec-jp.

Meanwhile, there are still stages that the GEC-Japan/Asia platform and its fresh Future Asia vision, have to go through to establish close linkages with other existing research and resource programs.
- Data sharing at regional level requires data gathering, quality control, documentation, registration of data, observation and analysis of data. There are already established regional and global data sharing and observation programs and the GEC-Japan/Asia platform can play an active role by promoting qualified data-control and sharing means among these data programs.

- Agenda setting with right and critical research questions according to local, sub-regional and regional priorities is another challenge and opportunity for the platform to communicate research agendas and strategies of the existing networks.

- Dissemination of results and continuation of research with proper funding is yet another target that the platform should be focusing immediately.

- Getting attention of young researchers is another main scope that the platform will face challenges and opportunities to strengthen its stance within the next generation of scientists and other stakeholders. Communicating and integrating social and natural sciences together with humanities while getting attention of young researchers, who are eager to work together, is also one of the most critical and prior targets of the platform to spur scientific openness towards other sustainability-related stakeholders and innovation for transdisciplinary communication.

- The platform is a fresh initiative and yet to improve its own evaluation system to sustain its accountability and scientific quality while integrating various stakeholders towards shared goals. Indeed, improving a liable evaluation system for integrated initiatives is a big challenge, not only the GEC-Japan/Asia platform but other global initiatives, like Future Earth, are also facing.

International Symposium on Future Asia conference, which took place at RIHN, the secretariat of the GEC-Japan/Asia platform, in Kyoto (13-14 December 2012), gathered leading figures and representatives of the global and regional sustainability research groups and science promotion networks in order to discuss the Asian particularities and potentials within the global effort of transdisciplinary research towards global sustainability (GEC-Japan/Asia, 2012b). It was agreed during this gathering that there are still challenges to transform our recent research perspectives and agendas to be able to grasp the global, regional and local needs for sustainability. It was also underlined during discussions that there is no need to typify a discrete Asian type of science-society interface but there are commonly agreed Asian dynamics and initiatives that have already been underlining Asian potentials for global sustainability. Nevertheless, realization and construction of dynamic, goal-oriented, transdisciplinary and inclusive regional platforms provide us with necessary scope and communication mechanisms to support not only interdisciplinary and transdisciplinary integrative work but cross-disciplinary as well as multidisciplinary collaboration to promote science-society interface towards local, regional/trans-national and global sustainability.

5. CONCLUSION

Global environmental and social changes are the most contested issues on the agendas of policy makers, policy initiators, business circles and science communities. This realization is not something new but result of long-term discussions both at local, regional and global levels due to rising impacts of environmental degradation, population rise and urbanization together with other results of development in various regions of the world. Most of the these discussions brings up the need to go beyond our own circles, be it a business circle, local community or an academic society, and interact with other parties to integrate possible approaches and create more plausible and goal-oriented solutions towards global sustainability.

Recent examples of these transdisciplinary discussions also reveal the fact that regional frameworks, linking the local and traditional knowledge with global initiatives are the most feasible platforms to provide scope and means for science and society interface. This paper also introduces GEC-Japan/Asia platform as a new networking hub to connect Asia scholars and other stakeholders in the mid-term to communicate and integrate potentials and experiences of sustainability research in Asia. The first part of the paper summarizes the recent challenges and global actions taken for global
environmental and social changes. The following part looks at the Asian dynamics, challenges and potentials for transdisciplinary research towards global sustainability. Accelerating issues of the global environmental and social change necessitate further structural and research-related transformation within the existing research frameworks at both international and regional levels. Integration in terms of further interdisciplinary research among different science groups, involvement of other stakeholders of global change within these mechanism and promoting interaction and information sharing among already existing platforms are urgent steps that must be taken in the short-term. With these considerations in mind, the GEC-Japan/Asia platform was initiated to enhance communication and collaboration among already established research networks towards more inclusive and pluralist transdisciplinary science-society interface in Asia and the last part discusses the rationale and further challenges of this platform.

As indicated earlier, this paper is not introducing results of a new research, nor does it try to prove that there is only one way of science collaboration to face the needs of global sustainability. This paper rather argues the need for transforming and adapting the way we do our research and scientific collaboration to meet the challenges of the emerging global environmental and social change issues. By arguing the rationale and challenges of the GEC-Japan/Asia platform, we aim to stimulate further discussion in our academic as well as collaborative research circles on the importance of interdisciplinary, and if possible transdisciplinary, research at regional level. We also aim to encourage our scientific community to elaborate potentials of proper scientific and transdisciplinary collaboration mechanisms as the new and integrative research directions to face the challenges of global environmental and social changes.

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