Chapter 2
Education for Sustainable Development: Trends and Practices

Yukihiko Oikawa

Abstract This chapter analyzes the trends and practices of "Education for Sustainable Development (ESD)" mainly during UN-Decade of ESD. The concept of ESD was shared and its necessity was recognized among almost all countries around the world at the Earth Summit in Rio de Janeiro, Brazil in 1992. At the Earth Summit, the role of education was emphasized for achieving sustainable development in Chapter 36 of Agenda 21 which was launched then. Along with this trend, Japanese government proposed the "Decade of Education for Sustainable Development (DESD)" at the World Summit on Sustainable Development in Johannesburg South Africa in 2002. The proposal of DESD was adopted at UN general assembly in 2002. Pursuant to the resolution of United Nation, DESD has started around the world from 2005 to 2014. The Japanese government established the "Inter-ministerial Meeting on UN-DESD" in 2005 and decided an implementation scheme for the UN-DESD in Japan. The government also has been trying to incorporate ESD concept to reform of educational law and national curriculum. During the decade of ESD, two global networks have been taking prominent roles as the key strategies for Promoting ESD at formal and informal non-formal education sectors. One is "Regional Centres of Expertise (RCE)" launched by United Nation University in 2005, and another is "UNESCO Associated Schools Project network (ASPnet)" promoted by UNESCO since 1953. ASPnet functions at school (formal education) centered ESD along with community. On the other hand, RCE facilitates the ESD of not only schools but also non-formal and informal education sectors also collaborating with each community and region. To survey the strategies, system buildings and programs/activities of these networks gives valuable suggestions and visions for the sustainable development of ESD beyond the Decade.

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2.1 Trend of Decade of Education for Sustainable Development (DESD)

At the end of twentieth century, according as human beings had been facing a lot of crises of environment such as global warming, desert spreading, crisis of bio-diversity, disruption of ozone layer and rain forest, pollutions of water and air, and also social problems such as poverty in many developing countries, disputes in cause of religious and racial problems, gender problem and so on, all of those were not able to sustain society and future at local and global level, "Sustainable Development" was getting a common and crucial issue around the world. And in order to realize "Sustainable Development", it was recognized by many people and nations that "Education" could take key role for the future, so that "Education for Sustainable Development (ESD)" was proposed as the key concept to build the sustainable future of human beings. The Significance and importance of Education for Sustainable Development (ESD) was emphasized by many international conferences, and that was reflected in key documents (Oikawa 2012a, b).

In 1992, the Earth Summit in Rio de Janeiro, Brazil, has recognized the critical role of education in achieving a sustainable development and future. Chapter 36 of Agenda 21 specifically addresses reorienting education towards sustainable development, and encompasses all streams of education, both formal and non-formal, basic education and all the key issues related to education for sustainable development (United Nation University-Institute of Advanced Studies (UNU-IAS) 2005). The four major thrusts of as identified in the Chapter 36 of Agenda 21 are:

- Public awareness and understanding
- Access to quality basic education
- Reorienting existing education
- Training programmes for all sectors

In the process of negotiating a Plan of ESD Implementation of the World Summit on Sustainable Development in Johannesburg South Africa, Japan proposed the "Decade of Education for Sustainable Development (DESD)" in response to the proposals of Japanese NGOs, and a recommendation to the UN General Assembly to consider adopting this idea was included in the Plan. According to this, Japan submitted a resolution as one of the 40 co-sponsors to designate the 10 years as the UN Decade of Education for Sustainable Development (UN-DESD) at the 57th UN General Assembly in 2002. The proposal was adopted unanimously to launch the "Decade of Education for Sustainable Development (DESD)" from January 2005, following the Johannesburg Plan of Implementation. UNESCO was designated as the lead agency for the Decade, which developed a draft International Implementation Scheme for DESD.

In mid-term of DESD, UNESCO World Conference on Education for Sustainable Development was held in Bonn, Germany on 31 March to 2 April 2009. The conference issued Bonn Declaration of following statement and call for action. The declaration pointed "The progress of ESD remains unevenly distributed and requires different approaches in different contexts. In the coming years, there is a clear need for both developed and developing countries, civil society and international organizations to make significant efforts", so that it requires 5 calls for action at policy level and 13 calls for action at practice level. And it also welcomed the intention announced by the Government of Japan to host jointly with UNESCO the end-of-decade world conference on ESD in 2014. In 2010, at beginning of the 2nd half of the DESD, UNESCO stated three priorities in addressing global sustainable development challenges through ESD, by focusing on the following: climate change, biodiversity, disaster risk reduction and preparedness. They are key action themes for the second half of the DESD (2010–2015) as UNESCO strategy. (Interministerial Meeting on the "United Nation Decade of Education for Sustainable Development" Japan 2009)

Twenty years later from the Earth Summit in Rio de Janeiro in 1992, "United Nations Conference on Sustainable Development (Rio+20)" was held in Rio de Janeiro, Brazil in June, 2012. The conference addressed the agenda, "The future we want" as outcome of the conference. In the chapter of V. "Framework for action and follow-up - A. Thematic areas and cross-sectoral issues - education 233", it is described "We resolve to promote education for sustainable development and to integrate sustainable development more actively into education beyond the United Nations Decade of Education for Sustainable Development." (The United Nation 2012)

2.2 Decade of Education for Sustainable Development (DESD) in Japan

At the beginning of the "UN Decade of Education for Sustainable Development (UN-DESD), Pursuant to this resolution for sustainable development, in 2005, the Japanese government established the Inter-ministerial Meeting on UN-DESD" within the Cabinet to strive for close coordination among administrative bodies concerned with implementing the measures related to the UN-DESD and to promote the effective and comprehensive implementation of the measures. The Inter-ministerial Meeting has examined this matter while giving full consideration to opinions from various sources and has decided on an action plan for the UN-DESD in Japan.

2.2.1 ESD and Education Reform in Japan

There was an on-going reform in school education in Japan at the beginning of this century in Japan. In keeping up with a changing society, Ministry of Education,

Culture, Sports, Science and Technology in Japan (MEXT) had recognized the need to train students to be rich in heart and become able to contribute to sustainable society, acquire the basic skills for educating themselves, and cultivate their "Zest for Living." The Renewal Course of Study, in effect April 2002, in which the World Summit on Sustainable Development was held in Johannesburg South Africa, required schools to set aside time for integrated studies 105 lessons per a year. So that schools and teachers had possibilities to promote ESD program through subjects and integrated studies at each school level. In 2006, Organic Law of Education in Japan was reformed in 60 years, and it prescribed to drawing up the Basic Plan for Promotion of Education by the article of 17th. The Basic Plan for Promotion of Education states that the concept of ESD corresponds with the concept of renewal Organic Law of Education in Japan as well as Key competency of OECD. ESD fosters "Zest for Living (Ikiru-chikara)" to children. Therefore it is a very important educational idea which fosters global and local citizens who should shoulder sustainable future. ESD fosters abilities and attitudes such as critical thinking, system thinking, holistic thinking, ability of communication, ability for collecting and analyzing information, and ability of decision making and action. All of them are very important and indispensable abilities for future leader. On other hands, ESD also emphasizes the linkage and collaboration with community, other regions and institutions for promoting it. These bonds of ESD worked effectively on solving and overcoming the issues in each community or country, such as social, economical and environmental issues.

In 2013, the Basic Plan for Promotion of Education has been renewed as second term plan after the Great East Japan Earthquake. It also defined the significance and promotion of ESD in its chapters. The New Course of Study, in effect April 2011 also includes the concept of ESD to the objects and contents of each subjects at each school level. And it still requires schools to set aside time for integrated studies, so that schools and teachers are able to spread the possibility to promote ESD through each subject and integrated studies at each school level based on national course of study (NIER 2012).

2.2.2 Establish Linkage with Outside for Promoting ESD

In order for schools to realize and reap the benefits of these reforms, it is essential that teachers go beyond the school walls, establish links with community and professional organizations and institutions, and promote educational activities with the support of a broader partnership framework. In particular, with ESD programs such as environmental education and international understanding education, schools devise and implement their own original learning programs, creating and realizing distinct, unique educational activities. By involving community, universities and other professional organizations in this process, teachers can apply the latest expert knowledge, techniques, data, information, and research findings to their teaching and curriculum in pursuit of more in-depth and

comprehensive learning programs of ESD. When all parties form linkages, collaborate to create and implement learning programs, and cultivate these relationships, it should be realized that learning programs tailored to the individual learning styles and educational needs of each child, expanding possibilities and opening doors for students and education. Building this new education networks meets the needs of their future.

2.3 Role of Regional Centres of Expertise (RCE) for DESD

Flowing the resolution on the Decade of Education for Sustainable Development (DESD) of the UN General Assembly in 2002, which based on the Johannesburg Plan of Implementation, United Nation University Institute of Advanced Studies (UNU-IAS) launched the Education for Sustainable Development Programme in 2003 with funding support from Japanese government, in order to contribute the UN-DESD, spanning from 2005 to 2014. The programme of UNU-IAS focuses on advocacy and dissemination of education for sustainable development principals, strengthening of ESD activities in regions and at higher education institutions, and contributing to evidence-based policy dialogue through research, capacity development and strategic engagement with international processes. The programme should be to help in the creation of a Global Learning Space for sustainable development. It promotes research and actions to advance partnerships for ESD across geographic, knowledge and sectoral boundaries (United Nation University-Institute of Advanced Studies (UNU-IAS) 2005).

2.3.1 Regional Centres of Expertise (RCE): Regional ESD Initiative

"Regional Centres of Expertise" is a key project of the ESD programme of UNU-IAS. UNU-IAS assists in developing Regional Centres of Expertise on ESD (RCEs) all over the world. RCE is not a physical center or building, but rather a network of individuals, organizations and experts who are committed to using education as a tool for building a sustainable future. Each RCE is regionally-based and RCE members bring in-depth knowledge of the challenges facing their respective regions. RCEs aspire to achieve the goals of the DESD by building an innovative platform for multi-sectoral and interdisciplinary information-sharing, dialogue and collaboration at local and global levels. Their networks include formal learning institutions, like schools and universities, as well as informal learning establishments, such as museums, private enterprises, local governmental institutions, NGO/NPO and the media (Fig. 2.1). Collaborative undertakings within and across RCEs include policy work, research and development in the key thematic areas of ESD and sustainable development.

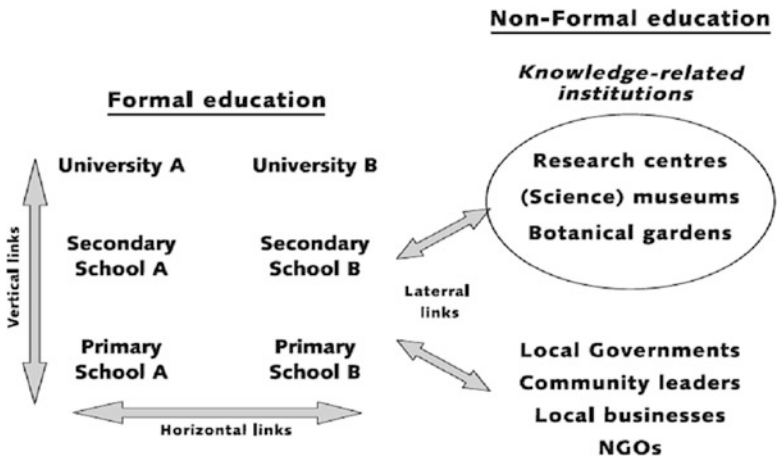

Fig. 2.1 Structure of Regional Centres of Expertise/Source "Mobilising for Education for Sustainable Development" (United Nation University-Institute of Advanced Studies (UNU-IAS) 2005)

Fig. 2.2 RCEs around the world [*Source*: UNU-IAS (2010)]

2.3.2 Spreading RCEs Around the World: History of RCEs

The first batch of seven RCEs was acknowledged at the UNU-UNESCO Conference on Globalization and Education for Sustainable Development in Nagoya, Japan, June 2005. These first RCEs, consist of Greater Sendai and Okayama in Japan, Toronto in Canada, Penang in Malaysia, Pacific Island Countries, Rhine-Meuse which is part of Netherlands, Belgium and Germany, and Barcelona in Spain. They are called "Initial Seven RCE". Five more RCEs followed toward the end of 2005

and early 2006. The Ubuntu Alliance, in its meeting in April 2006, established the Committee of Pears for the RCEs, to discuss ways to promote RCEs, to review applications and provide recommendations to UNU to acknowledge new RCEs. The Committee recommended UNU to acknowledge 23 new RCEs at its first meeting in December 2006 in Paris. The RCE network continues to expand and today there are RCEs in Africa, the Americas, Asia, Europe, the Middle East and the Pacific. There are 120 acknowledged RCEs as of October 2013 around the world (Fig. 2.2).

2.3.3 Core Elements and Functions Toward Goals of RCEs

There are four core elements of RCE. One is governance—RCEs is addressing issues of RCE management and leadership. Second is collaboration—RCEs is addressing the engagement of actors from all levels of formal (primary, secondary and higher education), and informal education sectors in RCE activities. Third is research and development—RCEs is addressing the role of research and its inclusion in RCE activities, as well as contributing to the design of strategies for collaborative activities, including those with other RCEs. Last is transformative education—RCE contributes to the transformation of the current education and training systems to satisfy ambitions of region regarding sustainable living and livelihood.

RCEs aim to achieve the goals of the UN-DESD from 2005 to 2014 both individually and collectively. While each RCE contributes to the DESD by translating its global objectives into the context of the local communities in which they operate, the worldwide network of RCEs is envisioned to constitute what "The Global Learning Space for Sustainable Development". The Global Learning Space is the articulation of a vision of the DESD put toward by UNESCO: "a world where everyone has the opportunity to benefit from education and learn the values, behaviors and lifestyles required for a sustainable future and for positive societal transformation".

As to the function of RCE, the RCE is a network of existing formal, non-formal and informal education organizations, mobilized to deliver ESD to local and regional communities. RCE builds an innovative platform for multi-sectoral and interdisciplinary information-sharing, dialogue and collaboration for promoting ESD among regional/local stakeholders. It also creates a regional/local knowledge base to support ESD activities. As an innovative platform for dialogue and local knowledge base, RCE promotes four major goals (four thrusts) of ESD, which the Chapter 36 of Agenda 21 described, in a resource-effective manner. (UNU-IAS 2010)

2.3.4 Case of Regional Centres of Expertise (RCE)-RCE Okayama

On the process of DESD, it should be introduced two cases of RCEs in Japan. One is Okayama RCE and another is Greater Sendai RCE. Both of them were

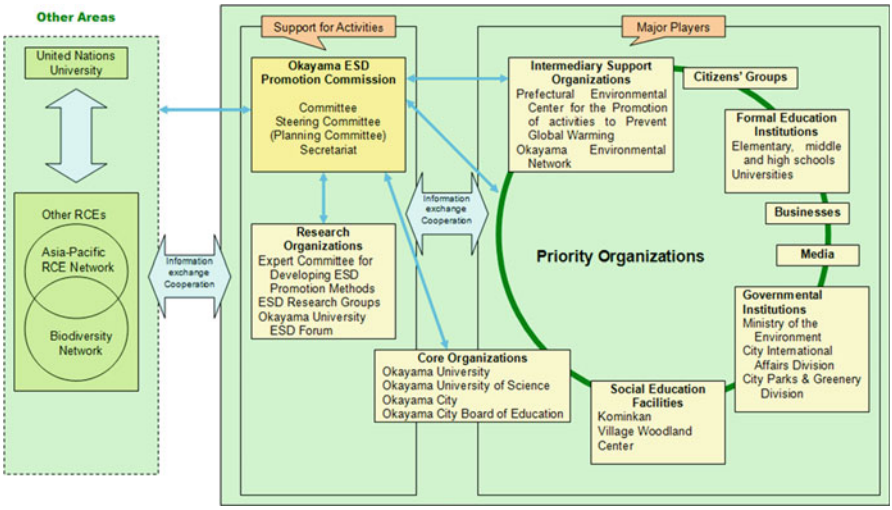

Fig. 2.3 Structure of RCE Okayama [*Source*: Okayama ESD Promotion Commission (2013)]

acknowledged in June, 2005 and they are Initial 7 RCEs. Two RCEs have typical characters of RCE in the world, but backgrounds, experiences, strategies and practices of two RCEs make contrast each other.

RCE Okayama has been promoted by Okayama City. Okayama City is the capital of Okayama Prefecture in west Japan and it is located on the north shore of the Seto Island Sea within National Park. The city is a major hub of transportation as a gateway to Shikoku Island in Chugoku Area of Honshu Island. Okayama City is a city designated by ordinance, and it has a population of approximately 700,000 and the area of 790 km^2. Okayama City is recognized as one of the leading City of ESD promotions in western Japan. At the end of UN-Decade of ESD in 2014, the UNESCO World Conference on ESD will be held in Okayama City as well as Nagoya City of Aichi Prefecture, Japan.

In April 2005, at the beginning of DESD, "the Okayama ESD Promotion Commission" was established in order to propose to RCE. This commission consists of organizations and groups related to ESD activities. By leading of this council, "Okayama ESD Project Fundamental Plan" was formulated and launched the "Okayama ESD Project" for the purpose of promoting ESD in Okayama region as a role of Initial 7 RCE. The number of project participants has increased to more than 160 organizations by September, 2013. Okayama City takes a central role as a secretariat and has set ESD coordinators to help organizations that promote activities in relation to ESD in order to encourage local linkage and to build strong network. Based on these linkages through local and community center and junior high school districts, ESD activities are spreading widely and the practice is gaining attention around world (Fig. 2.3).

The goal of RCE Okayama is to promote ESD which reflects the nature of the region and to create of community where people learn, think and act together

towards realizing a sustainable society through collaborations among diverse individuals and sectors such as schools, universities, Konominkans (community learning center), enterprises and administrations those are involved in ESD. Multiple individuals and organizations within and outside the region, implement ESD with various themes focused on natural environment, international understanding, community development, agriculture, foods, energy, and so on. And objects of the ESD Project by RCE Okayama are as follows (Okayama ESD Promotion Commission 2013);

- Improve knowledge and understanding about sustainable lifestyles among people living in Okayama region.
- Expand the circle of people who take initiative in building sustainable programs throughout the local community.
- Develop each organization involved in ESD and enhance its capabilities.

The ESD activities and networks of RCE Okayama have been developed year by year. As "The Okayama ESD Model", RCE Okayama is trying to disseminate their good points, such as strategies and structures which they have practiced and established since 2005 when RCE Okayama was acknowledged by United Nation University.

There are five points to be noticed as good practices.

1. The first point is providing opportunities for diverse organizations and individuals to engage in ESD. That indicates that opportunities strengthen the network and platform for promoting ESD. These opportunities lead making dialogue and learning, so that they build supportive networks where various organizations can learn from each other. As a result, it leads to increasing the number of organizations and residents who engage in ESD and expanding area of activities.
2. Second point is promoting ESD continuously by government organization proactively. Basically, RCE Okayama is operated by Okayama City government, so that it is insured providing useful and reliable safety procedure, and building organizational power and strong networks. City Government announced ESD to residents as the new pubic issue, and tried to develop acceptance of ESD as a public measure by whole community. This top-down method is very effective on occasion, in order to disseminate ESD concept to not only residents and enterprises, but also formal sectors such as schools and public organizations.
3. Third point is support from ESD professional coordinators at secretariat. ESD coordinators provide continued support to individuals and organizations, for example, connecting various groups inside and outside community and building trusting relationships and cooperative networks with ESD parties. They are also researching new understandings by utilizing experiences of external professionals.
4. Forth point RCE Okayama is promoting ESD with Kominkans (Japanese Community Learning Center) as the central hub. Kominkans provide learning places for each community and Kominkan staffs also can build networks among NPOs,

citizens, and local organizations. According to the promotion of ESD by Kominkan as a central hub, Kominkan was re-acknowledged as a social educational organization and it gave new meaning to community activities.
5. Finally, universities in Okayama City is cooperating with practices of Okayama RCE and supporting local ESD activities, utilizing special perspectives to reevaluate community resources and uncover their true merits. That is the function of "Expertise", so that it is called RCE (Regional Centres of Expertise).

2.3.5 Case of Greater Sendai RCE

Greater Sendai RCE is a wide regional RCE, not only one city. At first, The Greater Sendai RCE consists of three areas, Sendai City, Kesennuma City, and Osaki City. In 2008, Shiroishi-Shichigashuku area also joined Greater Sendai RCE. Sendai City is the capitol of Miyagi Prefecture which has population of approximate one million people. It is located in the center of Miyagi Prefecture and it is also center of transportation, industry, commerce and politics in not only Miyagi Prefecture but also Tohoku Area. Kesennuma City is one of famous fishing port in Japan. It faces to Pacific Ocean and located in rias coast line of Shanriku Area which is north east of Miyagi Prefecture. Its main industry is related to ocean environment, such as fishing industry, processing industry, freezing industry and tourist industry, especially fishing industry of Kesennuma City is composed of all fields, coastal, deep-sea and fish-raising industry. Osaki City is located in Sendai Plan and its main industry is agriculture area. Rice field is spreading in the area and it is famous for a granary of rice in Japan. It also contains the wetlands which are acknowledged by the Ramsar Convention. More than 80 % wild geese gather to the wetlands in winter. Shiroishi-Shichigashuku area consists of Shiroishi City and Shichigashuku town. The area is located in south of Miyagi Prefecture and it contains mountain area and the dam which provide drinking and industrial water to urban area including Sendai City, therefore, this area is important as the catchment area of Miyagi Prefecture. As described above, Greater Sendai RCE is composed of various characteristic areas of urban, coast line, agricultural and mountain area, as compared with RCE Okayama.

In June 2005, the United Nations University RCE Promotion Committee was set up in Miyagi University of Education as a secretariat of Greater Sendai RCE, and at the same time, the activities of the Greater Sendai Area with Miyagi University of Education as the axis of cooperation were acknowledged first in the world (Initial Seven) as one of the RCEs for promoting ESD by United Nations University. The Greater Sendai RCE was expanded from three areas and one university to four areas and one university in October 2008. To promote the regional cooperation without eliminating the characteristics of each area, it was a challenge to develop common awareness of ESD by collaborative activities. The current regional cooperation of the Greater Sendai Area is a peaceful information exchange network where each area has one or two specialties and good point. At present, Miyagi University of

Education are trying to introduce the know-how of their specialties in each area to other areas, and to make ESD activities in each area comprehensive while considering the situation of each area. (Miyagi University of Education 2009)

In the ESD activities of the Greater Sendai Area, the areas forming the Greater Sendai Area practice the following activities respectively, connecting mutually the efforts for ESD in each area.

- Sendai City is conducting mainly environmental education/learning, aiming at a recycle-based society, initiated by Environmental Division of Sendai City Office.
- Kesennuma City is promoting the practice of classes of environmental education, food education, disaster education, education for international understanding, etc. in collaboration with elementary schools, junior high schools and high schools, initiated by Kesennuma City Board of Education.
- The Osaki/Tajiri Area is promoting sustainable agriculture and environmental education in the Kabukuri wetlands registered as a wetland designated by the Ramsar Convention initiated by Environmental NPOs
- The Shiroishi/Shichikashuku Area is working on the preservation of Satoyama that is a water source area, initiated by Shiroishi UNESCO Association and NPO.

Miyagi University of Education serves to connect these four areas, and has also been promoting the research and development of education, teacher training, and the development of human resources to create a new sustainable society.

The Greater Sendai RCE is administered by the Steering Committee consisting of 26 committee members representing four areas and two universities, Miyagi Prefecture, the Ministry of the Environment, United Nations University, companies, NPO, etc. Thirteen selected secretaries are in charge of organizing agenda, preparing documents, etc. for the Steering Committee. Each area has respective promotion committees, and in the Steering Committee held several times a year, representatives in each area report their activities (Fig. 2.4).

Kesennuma City Board of Education and schools have developed in-depth programs to implement a unique environmental learning-based "Education for Sustainable Development" (ESD) in partnership with local professional knowledge-providing organizations such as universities, local industries and government, NPO/NGO, Media sectors and so on. Using the local knowledge-base network, they are promoting locally based ESD focused on International Environmental Education Programs mainly.

Kesennuma RCE has been developing and expanding based on flowing five strategies and steps, initiated by Omose Elementary School and Kesennuma City Board of Education.

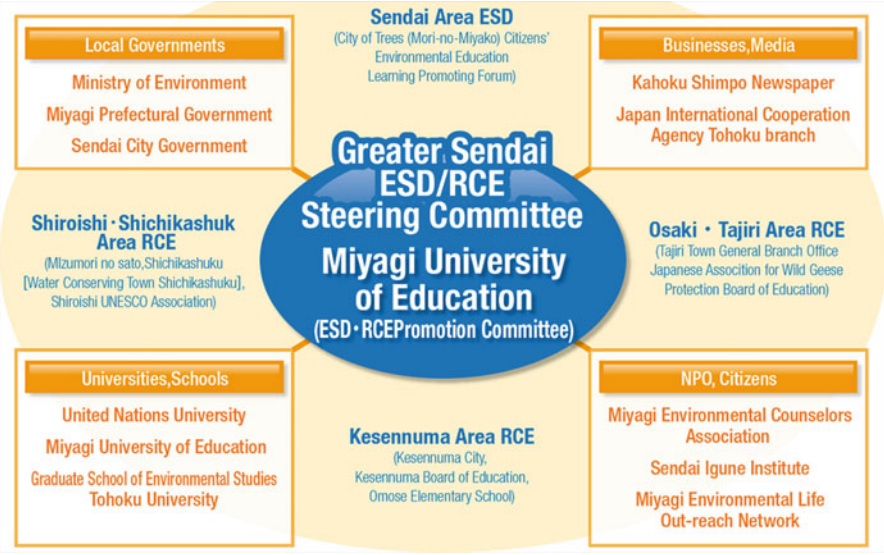

Fig. 2.4 Main body and system for implementation of Greater Sendai RCE [*Source* "Linkage" 2009 (Miyagi University of Education 2009)

Organization of Elementary, Junior High and High School Partnerships

Since 2002, in Kesennuma City, Omose Elementary School has participated in the Master Teacher Program (MTP) of the Japan Fulbright Memorial Fund administered by Japan-U.S. Educational Commission. In this program, the school developed a pair project at each grade level under the theme, "Water Environments and Effects on Human Life". These projects were conducted jointly with Lincoln Elementary School, Wisconsin, the United States, and implemented as exchange-based international environmental learning (Oikawa, Koganezawa & Mikami 2007). Following the success of Omose Elementary School's practice, Omose Junior High and Kesennuma High Schools joined the Master Teacher Program (MTP) in 2005, and began their partnership programs with Callisburg Elementary, Junior High and High Schools in Texas, the United States, to engage in international environmental education programs. Teachers from both regions visited each other and also have international exchanges over the internet. This joint opportunity provides an ESD anchoring environmental education from a global perspective. This partnership has enabled to conduct a systematic development and practice of elementary to high school level as ESD programs (Oikawa 2011).

Hosting the Kesennuma Round-Table Conference for the Promotion of ESD

In 2006, the Kesennuma Round-table Conference for the promotion of ESD was held to share the practices of Omose Elementary School's ESD practice based on environmental education programs with all other elementary and junior high schools in Kesennuma and high schools across Miyagi Prefecture. This forum grew out of the "Project Partnership Meeting" hosted by Omose Elementary School jointly with local universities and organizations as well as partner schools in the U.S. The meeting, held since 2002, aims to promote and improve environmental education. In this forum, participants had lectures and discussions on ESD to plan future programs and motivate the practitioners while sharing knowledge and experience with peers guided by ESD experts from universities and institutions.

Establishment of Kesennuma RCE Promotion Committee

In June, 2005, the United Nations University designated Greater Sendai region including Kesennuma as its Regional Center of Expertise (RCE) to implement the Decade of Education for Sustainable Development. In November 2006, Kesennuma City established "Kesennuma RCE Promotion Committee" to further promote ESD as a model region of the world. This committee consists of 28 organizations that play central roles in local ESD promotion, including schools, businesses, nonprofit organizations, museums, local governments as well as media organizations. These organizations are the leading actors in environmental education, international education, food education and disaster reduction education. Currently, each organization is sharing its own action plans for the partnership with local schools and nonprofit organizations.

Training and Dissemination for Promotion of ESD

In Kesennuma, Omose Elementary and Junior High Schools as well as Kesennuma High School, in partnership with the City Board of Education played a significant role in providing training to teachers engaged in environmental education. As of 2005, Miyagi University of Education joined this partnership, and began environmental education-related "Satellite Training Seminar," "Science Workshop," and "Friendship Project" with Kesennuma City Board of Education. Kesennuma City Board of Education also started many kinds of workshops and symposiums for the promotion of ESD since 2006. The City of Kesennuma has hosted approximate more than 100 teachers and school administrators from China, South Korea and USA since 2008 through "Korea/China Educator Invitation Program" of the Asia-Pacific Cultural Centre for UNESCO (ACCU) and "ESD Japan-US Teacher Exchange Program" of the Fulbright Japan. Similarly, teachers of Kesennuma

also visited these countries to deepen mutual educational exchanges. In February 2009, Kesennuma City hosted "UNESCO Associated Schools International Forum on ESD in Kesennuma 2009" where teachers and educational experts from China, South Korea and Japan were invited. Even then Kesennuma City suffered serious damages by Great East Japan Earthquake and Tsunami of March, 2011, Kesennuma held "National Research Seminar for Environment Education" in November, 2011 and "UNESCO School Regional Exchange Conference" in January, 2012, inviting educators from all over Japan and foreign country also. Through a variety of these information sharing programs, it was shared that ESD activities were carried out under an organic partnership in inside and outside of Kesennuma and deepened their Friendship, and it will be continued to strive for spreading ESD programs beyond the school and region (Mikami & Oikawa 2012).

Establishing Vertical, Horizontal and Lateral Links for Whole City ESD Promotion

In Kesennuma, the City Board of Education took initiatives to establish three kinds of linkages and partnerships for promoting ESD throughout region. The first is a vertical partnership among elementary, junior and senior high schools and further universities based on systematic ESD program. The second is a horizontal partnership with other schools through the UNESCO Associated School Project Network (ASPnet) and other programs such as projects or programs of Ministry of Education, Ministry of Environment, UNESCO and OECD. And the third is lateral partnership with other non-formal and informal organizations in the community such as local governments, nonprofit organizations, industries and professional organizations through Kesennuma ESD/RCE Promotion Committee. This structure was built up in Kesennuma City for the first time in the world, advised and supported by United Nation University, so that the structure was adopted as the concept of RCE. Kesennuma is now trying to disseminate their good practices as "Kesennuma ESD Model" to the world through international conferences, RCE and ASPnet programs (Kesennuma City Board of Education & Miyagi University of Education 2009) (Fig. 2.5).

2.4 Role of UNESCO Associated School Network Project (ASPnet) for DESD

UNESCO (United Nations Educational, Scientific and Cultural Organization) has a network called the UNESCO Associated Schools Project Network (ASPnet). The system of UNESCO Associated Schools was started as ASPnet (Associated Schools Project Network) in 1953 for the implementation of the idea indicated in the UNESCO charter in schools. Each participating school must continuously make

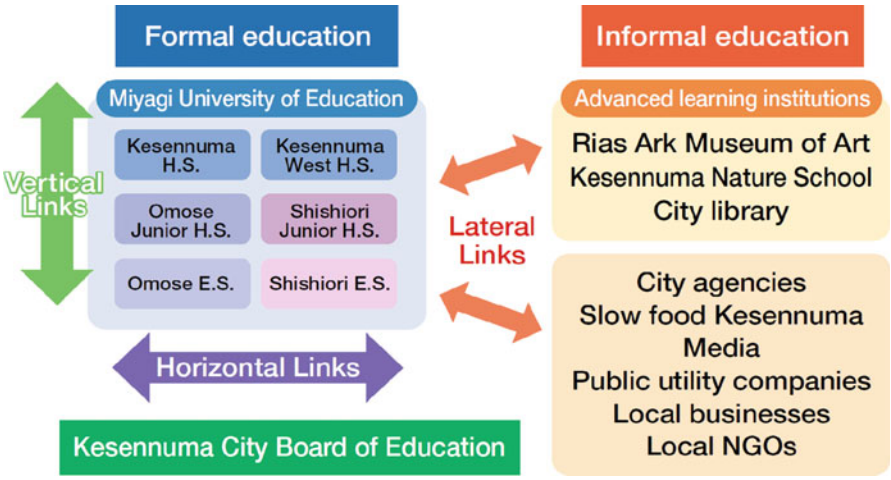

Fig. 2.5 Structure of Kesennuma ESD/RCE Promotion [*Source*: Mobius for Sustainability (Kesennuma City Board of Education & Miyagi University of Education 2009)]

efforts in line with the ideals of UNESCO. In order to develop the contents and the methods of new education enabling young people to tackle global issues, they cooperate and exchange with other associated schools concerning their educational activities while making their own efforts in each associated school. When the network was started in 1953, there were 33 associated schools in 15 countries. The network is constantly expanding, so that now the number has been increased to about 9,700 schools in 180 countries, throughout the world (2013). Growth rate is 23 % during the last decade. It includes pre, primary and secondary schools as well as technical/vocational teacher training institutions. This year, 2013 is 60th anniversary and it was held International Forum for 60th anniversary of UNESCO ASPnet in September, 2013 in Republic of Korea.

ASPnet tries to refine its four themes of study, those are "World concerns and the role of the United Nation system", "Education for Sustainable Development", "Peace and Human Rights", and "Intercultural learning". In the sixth decade, goal of ASPnet is to promote quality education for all in pursuit of justice, liberty, peace and human development. There are five objectives of ASPnet. The first is reinvigorating a global network of school committed to over-all quality improvement in support of EFA. The second is focusing on and promoting quality education as a right of all learners. The third is reinforcing, disseminating and mainstreaming good practices. The forth is promoting local expression as beacon of UNESCO ideas. The last is contributing to sustainable socio-economic and cultural development, which is related to "Education for Sustainable Development (ESD)".

The plan of Actions was structured along the different levels. At international level, it is required as examples to strengthen International Coordination, reinforce ICT, to develop flagship projects, to provide resource materials, to mainstream good practices and to increase visibility. At national level, it is also required to

appoint National Coordinators, to mainstream ASPnet innovations into national education systems, to plan activities, to elaborate fundraising strategy and to involve national media. At regional level, it is indicated to develop training/capacity building and partnerships. Finally, at school level, it is recommended to involve all teaching staff, to draw up annual school plan, to establish participatory democratic approaches and to display ASPnet logo at school.

2.4.1 *UNESCO Associated Schools (ASPnet) for Promoting ESD in Japan*

In 2008, on the process of promoting DESD at national and international level, Japanese National Commission for UNESCO in Ministry of Education, Culture, Sports, Science and Technology in Japan (MEXT) proposed to UNESCO on the "Utilization of UNESCO Associated Schools for the promotion of ESD". According to this proposal, UNESCO Associated Schools (ASPnet) has become the center for Promoting ESD in formal education sectors. Especially in Japan, Japanese National Commission for UNESCO along with Division of Primary and Secondary Education, MEXT also notified all schools of same object as the proposal above.

In addition, MEXT tried to disseminate UNESCO Associated Schools to other schools in Japan by calling it "UNESCO School" shortly. The proposal and notification made Japanese schools and teachers recognize the system and role of UNESCO Associated Schools for promotion of ESD. As a result, the number of UNESCO Associated Schools is increasing year by after the proposal of UNESCO Associated Schools. Although there are only 20 UNESCO Associated Schools around Japan in 2006, it has increased drastically up to 615 schools in July, 2013. It's a remarkable dissemination of ASPnet in Japan (Fig. 2.6, Ministry of Education, Culture, Sports, Science and Technology, Japan (MEXT) 2013).

2.4.2 *Characteristic of Japanese UNESCO Associated Schools (ASPnet)*

Talking about trends of Japanese UNESCO Associated Schools (ASPnet), as for the component of Japanese ASPnet schools, elementary school account for 51.1 %, the ratio of middle (junior high) schools is 23.1 %, high schools' is 14.9 % and other schools' is 10.9 % (Fig. 2.7). That explains that the mainstream of UNESCO Associated Schools in Japan is elementary and secondary education. On the other hand, in world total, the component ratio of elementary/primary schools is 35.7 %

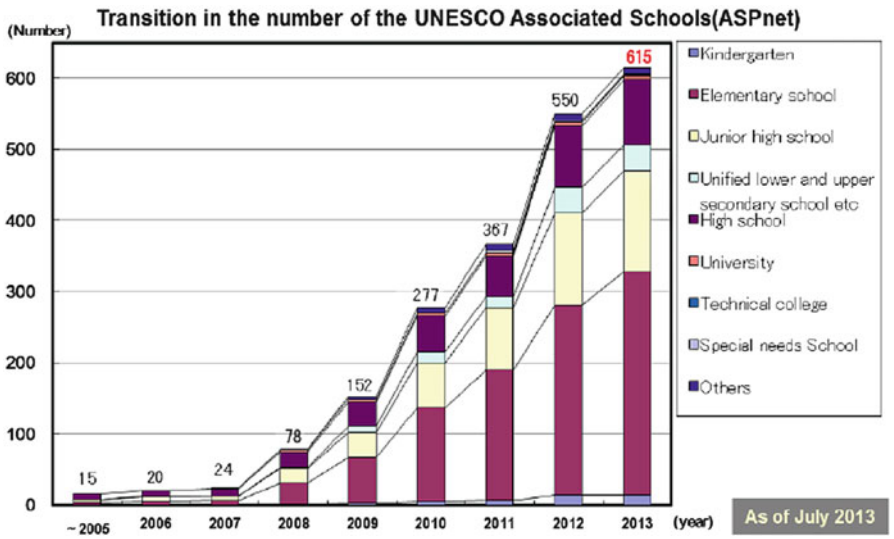

Fig. 2.6 Transition in the number of ASPnet Schools in Japan [*Source*: Ministry of Education, Culture, Sports, Science and Technology, Japan (MEXT) (2013)]

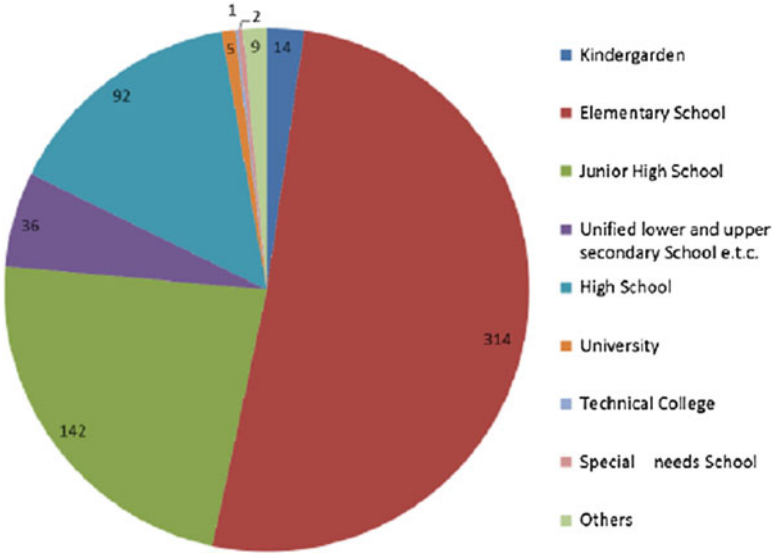

Fig. 2.7 The component of Japanese ASPnet Schools [*Source*: Ministry of Education, Culture, Sports, Science and Technology, Japan (MEXT) (2013)]

and one of middle (primary/secondary) schools is 12.6 %, high (secondary) schools account for 42.0 %. Therefore, it can be indicated that the mainstream by elementary and middle school is one of the characteristic of Japanese ASPnet comparing with the world (Ministry of Education, Culture, Sports, Science and Technology, Japan (MEXT) 2013).

The second point which characterizes Japanese ASPnet is that Japanese UNESCO Associated Schools tend to be promoted and administrated by city government, especially, city board of education (BOE). This is the reason why the number of UNESCO Associated School has been increasing rapidly for a couple of years after the notification of MEXT in 2008. Accepting the notification, some BOEs such as Kesennuma City, Nara City, Kanazawa City, Tama City and Omuta City, noticed and recognized the concept of ESD and UNESCO Associated School Project network (ASPnet), and they tried to adopt this concept and system in order to improve their education and foster students who shoulder sustainable future, and also to solve issues and to enhance good points in their communities.

These BOEs also tend to integrate ESD with their characteristic practices which have been done in each city so far effectively, as UNESCO School activities. For example, Nara City Board of Education is integrating ESD into Word Heritage Learning, because Nara City is ancient capitol and has very rich world heritages around the city. They are going to enhance their good point trough the activities of ESD/ASPnet. Kesennuma City tried to develop ESD and UNESCO School activities based on International Environmental Education and to make a linkage with Slow Food Movement in Kesennuma City. Before DESD, Schools in Kesennuma, mainly Omose Elementary School, have been promoting international environmental education collaborating with schools in USA, supported by university, domestic and international institutions, and some regional organizations. Kesennuma City also declared as “Slow Food City” in 2003, utilizing rich nature, marine lives and culture (Kesennuma City Board of Education 2013). Kanazawa City also integrated ESD and their “Kizuna Education” which means linkage or bonds. Kanazawa is historical city and has a lot of traditional legacies and cultures. They also tend to make a linkage with foreign countries through exchange of cultures. So they are promoting ESD and UNESCO School activities through integrated study period as Kizuna Education. At present, Kanazawa is the city that has the largest number of UNESCO Schools in Japan. Omuta City used to be famous for coal-mining area in Japan, and contributed to Japanese industry development of modern period. But the colliery in Omuta was closed in 1997. Omuta City lost their main industry, so that population is decreasing year by year. In this situation, Omuta City Board of Education initiated that all of elementary and junior high schools as well as one special education school in Omuta City submitted UNESCO Associated School in order to promote ESD utilizing remains of colliery as Heritage of Industrial Modernization. In 2012, all schools in Omuta, 22 elementary, 11 junior high schools and 1 special education school, were acknowledged as UNESCO Associated Schools, so they call their city “The City of UNESCO School”.

2.5 Way Forward

Since the latter half of the twentieth century, as international conflicts and global-scale environmental problems that threaten the continued existence of humankind and society have emerged, "Education for Sustainable Development"—that is, ESD—has drawn increasing attention as awareness has increased of the importance of education to nurture future leaders of sustainable societies in order to overcome these global issues. Against this background, at the Johannesburg Summit in 2002, Japan proposed the establishment of the United Nations Decade of Education for Sustainable Development (DESD), to begin in 2005 (Interministerial Meeting on the "United Nation Decade of Education for Sustainable Development" Japan 2009).

During the Decade of Education for Sustainable Development (DESD), ESD has been progressing and disseminating over the world by the efforts of many countries and stakeholders in the world. Japanese ESD practices also have been getting good effects and fruits through good practices such as Regional Centres of Expertise (RCE) and UNESCO Associated School Project network (ASP). Those ESD practices have contributed to enhance the quality of education in not only school education but also non-formal and informal education, by changing values and idea for education. On other hand, ESD also have progressed to establish network and collaboration among diverse actors and sectors in the community, inter-community and in the world. That enhances the power of community for sustainable development.

Concrete outcomes of ESD extracting from ESD practices during the decade is as follows:

1. Improving the quality of education through developing integrated ESD programs and curriculums by interdisciplinary, inquiry based, hands on and problem solving learning methods and approaches
2. Constructing the system and teamwork at school and in community for ESD promotion
3. Establishing the networks and collaborations between schools and communities, among various stakeholders and sectors for ESD promotion
4. Fostering the abilities and attitudes of students, teachers and residents such as values of Sustainable Development, holistic thinking, critical thinking, system thinking, analysis of information, communication skill and leadership through ESD
5. Sharing and disseminating the significance of ESD concept and values among students, teachers, parents and residents.
6. Contributing to solve local & global issues taking actions and responses such as environment issues, economical issues, aging society, human security, food security and the disaster recovery like East Japan Earthquake and Tsunami

These results should be disseminated to world from Japan as evidences of ESD practices during DESD also in DESD World Conference in Japan, 2014.

As mentioned above, Japanese Regional Centres of Expertise (RCE) and UNESCO Associated Schools (ASPnet) are based on their communities, so that their practices and activities focused on local issues or legacies for the purpose of building sustainable regional society and city mainly. ESD aims to solve global issue such as "Bio & Cultural-diversity", "Climate Change", and "Disaster Risk Reduction (DRR)", but ESD also should be promoted locally tackling local urgent issues and problems which are different depend on each community and region. By taking actions locally, ESD will be spreading and move forward to world. Although DESD will be finished in 2014, the world as well as each country and region will face more many challenges such as environmental, economical, social and cultural issues. It is crucial that diverse actors, such as educators, stakeholders and citizens in each region and country, should make efforts together to establish enriched learning to overcome local and global issues through participation and collaboration among beyond DESD, under the slogan of "Think Globally, Act Locally".

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