Executive Summary

1. Background of the thesis

In the 2014 academic year, Japan had two crucial world conferences related to the sustainability of human being. One is “UNESCO World Conference on Education for Sustainable Development (WCESD)” in November 2014 which launched “Global Action Programme on ESD (GAP)”, and another is “The 3rd UN World Conference on Disaster Risk Reduction (WCDRR)” in March 2015 which also launched “Sendai Framework for Disaster Risk Reduction (SFDRR)”. On the process to two conferences, Japan experienced unprecedented tragedy that is called “East Japan Earthquake and Tsunami (EJET)” in Mach, 2011. Not only Japan but also other countries in the world have been facing massive and many types of disasters and suffering serious damage. The commonality of GAP and SFDRR is to emphasize “Sustainable Development”, “Education”, “Cooperation” and “recovery and reconstruction to Build Back Better”.

In this context, the linkage of ESD and DRR should be identified. Disaster education takes a crucial role to realize sustainable society by accelerating the progress of disaster risk reduction toward disaster resilience as well as increasing awareness and developing proper knowledge and skills among individuals. Also ESD accelerates DRR promotion and opened the door to disseminate disaster education in the world. In Japan the schools which promote disaster education as ESD are getting more after the EJET.

With regard to the synergy between ESD and disaster education, it is discussed as three types (patterns) of synergy so far (Fig.E.1): A) ESD and disaster education are individual category, B) Some part of ESD and disaster education is overlapping, and C) ESD includes whole disaster education. In this research, the synergy between ESD and disaster education should be identified as “Pattern B” mainly, therefore, overlapping part is very important and it would be catalysts for the synergy between ESD and disaster education as concepts, methods and promotion systems.

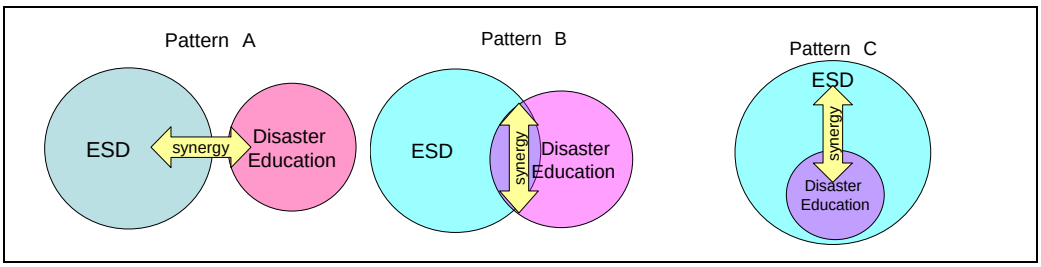

Fig.E.1 Patterns of Synergy between ESD and Disaster Education

2. Research objectives and questions

With the background, the study aims to analyze the synergy between Education for Sustainable Development (ESD) and disaster education in the post-tsunami recovery context of EJET. The research attempt to analyze how ESD and efforts made by schools (UNESCO Associated Schools) are utilized and how they contribute to disaster risk management, disaster risk reduction and the process of recovery and reconstruction in critical situations caused by disaster of EJET from the synergy perspective, with disaster education, taking the specific case study and analysis from target study city, Kesennuma City, Miyagi Prefecture in Japan. In addition, for the purpose of the promoting ESD and disaster education, the synergy concept, the strategies for governance, and the methods for curriculum development and network bindings which are brought by this research are suggested as way forward to other regions and schools which have similar issues and attempts including building consortiums for accelerating ESD and DRR activities.

Hypothesis of this research is "The synergy of ESD and Disaster Education can be effective for disaster risk reduction and recovery", especially to the post-tsunami recovery process of EJET. Through infusing the concept and method of ESD to disaster education, it is possible to raise the quality of disaster education and DRR. As a result, it could contribute to the recovery process. However, the synergy between ESD and disaster education is many aspects. Therefore, interview, questionnaire survey, group discussions, workshop and action-based research were conducted under this hypothesis with BOE, school principals and teachers, specialists and community members that covered the following four research questions and structure of thesis (Fig. E.2).

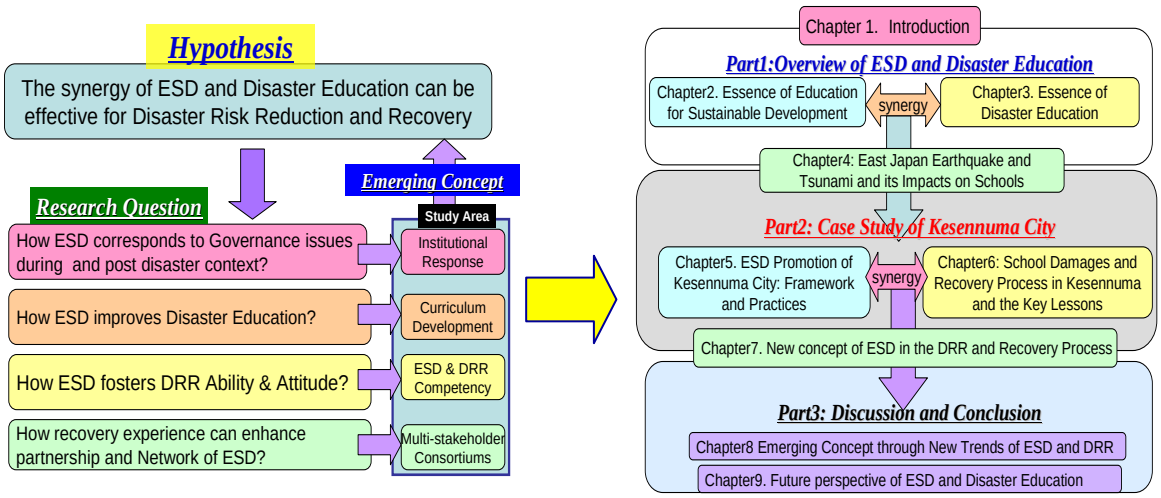

Fig.E.2 Research Questions and Structure of Thesis

(i) How ESD corresponds to Governance issues during and post disaster context?

(ii) How ESD improves Disaster Education?

(iii) How ESD fosters DRR Ability & Attitude?

(iv) How recovery experience can enhance partnership and Network of ESD?

3. Key findings

With regarding governance issue, ESD enhances governance functions for recovery in the midst and aftermath of disaster. Governance, such as the board of education (BOE) takes a significant role to the progress of educational recovery and reconstruction in education sector. Physically, BOE make up and implement the plan of rebuild building and facilities of affected school. Logistically, BOE tends to supply the manpower for educational recovery and psychological supports to affected students and parents. And, instructionally, some BOEs are promoting the new concept of disaster education and recovery education from the lesson of EJET with developing the curricula and teaching method. Through analyzing institutional response of affected Board of Education such and new trend of international initiatives in the midst and aftermath of EJET disaster, it was found out what kind of strategies are needed and effective to the DRR and recovery process as governmental measures.

Firstly, through the analyzing the linkage and relation between damage level to educational governance and educational recovery based on the observation of some case of educational governance in tsunami affected areas, the critical measure of educational governance could be identified for educational recovery in the aftermath of EJET. In the high level damaged case of BOE which lost superintendents by tsunami and the function of educational governance was collapsed, the school principals should take key role of making the decision such as conducting evacuation and shelters to protect students and residents instead of superintendent or BOE. Moreover, the leadership of principal initiated other schools' evacuation and school restart, and contributed to educational recovery process of whole city. In the case of BOEs which lost officials by disaster and faced the shortage of manpower for educational recovery, the manpower support from prefectural BOE and other cities' BOE was very helpful. To get this support, BOEs in affected area needs to establish partnership with prefectural BOE and other BOEs inland preparing for the disaster. In affected area devastated by tsunami, BOE had to determine to evacuate all whole school students to the safe place in other

city inland. This supports was very crucial for affected schools and BOE to protect students and resume the school education. To achieve this, it is necessary for affected BOE to build a good relationship with other city's BOE from daily time. In many affected area, BOE had to move or merge serious damaged schools to other schools or facilities which are available to evacuate and restart school. This measure was important and main governance measure of affected BOE to rebuild school education in the aftermath of EJET. In the process of the measure, BOE needs to consider the damage level of school, prospect the transition of number of children, and consult with parents and residents. In the case of low level damaged area, as BOE maintained governance function and took a key role of educational recovery, to organize joint events for affected schools is effective measure as the driving force for educational recovery. In low level damaged area, accepting transfer students from other affected area such as nuclear incident area was one of the important missions of educational governance. The schools and students in some affected areas had to evacuate to wide range of area beyond city boarder. In this situation, the partnership and collaboration between affected BOE and non-affected BOE as well as high level damaged BOE and low level damaged BOE are very important to promote disaster recovery in education sector.

Secondary, it can be learned many lessons which have been done by Kesennuma City Board of Education for the educational recovery in the midst and aftermath of EJET. Kesennuma city has been promoting ESD since 2002 establishing the linkage and partnership with diverse sectors and multi-stakeholders in local community and outside institutions and agency. Therefore, in the midst and aftermath of EJET, Educational Governance such as city board of education could took measures to solve many difficulties occurring after EJET utilizing linkage and partnership which were fostered through ESD promotion in Kesennuma. Securing transportation of students is first step for disaster recovery. Resupplying School Lunch is life line for school education. Economical Supports contribute to long-term recovery of affected families. Facility improvement is needed for education and forthcoming disaster. Multi-stakeholder approach establishes Network-help for recovery.

Regarding to Disaster Education, ESD improves and enriches Disaster Education so that it can foster abilities and attitudes for DRR and recovery. After the disaster of EJET, because of catastrophic experience of unprecedented disaster, the importance and significance of disaster education were recognized at schools all over Japan, so that schools especially in tsunami affected area tried to fulfill disaster education in school curriculum and disaster risk management of the schools systems after the EJET. Especially, as to ESD schools in Kesennuma City, schools which had been promoting

ESD as UNESCO Associated School from pre-disaster of EJET shifted their main focus of ESD from Environmental Education and International Understanding Education to Disaster Education more comparing with pre-disaster in order to reinforce disaster education at each school based on the lessons learned from EJET. On the other hand, ESD schools are also strengthening Understanding of Local Community at the same time. This means that people including teachers and students recognized the value and importance of their community for recovery from the disaster through the experience of EJET. Especially, when the school promotes disaster education, it is vital that students should know and understand their each local community as first. And the linkage and collaboration with local community is necessary for school to fulfill disaster education. Therefore, many schools in Kesennuma are focusing disaster education linking and collaborating with local community and various sectors. Schools in Kesennuma also tried to improve and accelerate DRR perspectives in all educational activities and school systems. Disaster education has been incorporated into school curriculum in many of schools and DRR practice has been reinforced in variable school systems since EJET in 2011 through the catastrophic experience and vital lessons of EJET. The schools have been renewing various managements or educational practice from DRR perspectives such as safety checking (school building/yard, school zone and school districts), the disaster prevention manual including evacuation route/place and evocation drills, and storages for emergency situation. Disaster education was also improved more practically and systematically by incorporating into syllabus and implemented by taking expertise of specialists and inviting parents

On the other hand, during Decade of Education for Sustainable Development (DESD), especially after the EJET, the synergy between ESD and DRR was highlighted and comprehended by schools and educators more and more as the new concept of ESD in the context of DRR and recovery process. Making the best use of this synergy concept, the Kesennuma City Board of Education (BOE) have researched and proposed the new strategy by developing “Disaster Education Sheets and Matrix” as a method to incorporate disaster education into school curriculum and educational activities involving parents and residents. Disaster Education Sheets and Matrix were afforded to school teachers as a method or tool of disaster education curriculum development in order for teachers to design DRR program and curriculum at each school. According to the Disaster Education Sheets and Matrix, school teacher could develop and implement suitable disaster education program/curriculum depend on the situation of school curriculum and developmental stage (grade level) of students.

Through these learning of disaster education, abilities and attitudes for DRR and recovery could be fostered, such as the critical, systematic and holistic way of thinking, the ability of communication, collecting and analyzing information, and decision making and action, in other words, the abilities for problem solving, imagination and creativity to overcome the difficulties for the future. These are also common abilities and attitude for ESD.

With regarding network, ESD builds linkage and network for DRR. ESD emphasizes and establishes the linkage and collaboration with the local community, other regions and related organizations or institutions, and ESD is being promoted through collaboration and cooperation with them. Following the disaster, these ESD ties or solidarities also functioned to disaster risk management and disaster risk reduction effectively in each local community in terms of evacuation actions and evacuation center operation. Under these circumstances, rooted in and having promoted ESD in cooperation with their local communities, schools were able to play a leadership role as evacuation bases in this crisis situation while working in cooperation with local residents. It also helped to progress partnerships with domestic and international institutions so that Kesennuma City and schools could make the best use of the support from other regions and countries. And also in the process to recovery and reconstruction of communities in future, it is sure that ESD becomes more crucial concept again. These concepts and links were very useful and effective in the recovery process. In this context, ESD surely functions as a key concept of DRR and also as the concept towards recovery from the disaster.

Following the EJET, those areas where there are good ties between schools and their communities had high potential for successful evacuation, evacuation center operation, and reconstruction. Accordingly, cultivating good relationships between schools and communities by promoting ESD is extremely important for post-disaster recovery.

Furthermore, global networks with overseas institutions and organizations also provide tremendous power and strength for reconstruction. In this way, from the perspectives of both educational approaches and network-building, ESD is regarded as providing an undoubtedly important function as a major principle and means for promoting disaster education and carrying out reconstruction. In future, Kesennuma intend to continue to stride towards recovery and reconstruction by creating and establishing rich learning with the participation and collaboration among diverse actors through ESD. These linkages expand as “Self-help”, “Mutual-help” and “Public-help” including collaboration with NPO/NGO. Kesennuma City Board of Education calls this

linkage “N-help”. “N” means NPO/NGO and Network, that’s a Next and New help. In this context, ESD surely functions as a key concept towards DRR and recovery process from the disaster.

4. Emerging Concept

As international perspective, United Nations Education for Sustainable Development (UN-DESD) ended in 2014, and Hyogo Framework for Action also ends in 2015. However, new momentum of ESD and DRR are emerging by new frameworks and proposals in the world such as Global Action programme on ESD (GAP) and Sendai Framework for Disaster Risk Reduction (SFDRR). There is the linkage and synergy identifies in both concepts and priory action areas of GAP and SFDRR. Through the promotion of disaster education according to five priority action areas, disaster education could be more effectively enhanced and brushed up. Because disaster education is one of the crucial components and priority action themes of ESD, therefore, whole five priorities of GAP can be adapted to the promotion and improvement of disaster education. Thus, adapting GAP for the disaster education is very significant for further promotion of disaster education.

On the other hand, SFDRR has also close synergy with ESD. SFDRR is emphasizing sustainable development as well as sustainable world, society and community through the promotion of Disaster Risk Reduction. To achieve this, disaster education takes a key role as the bridge between also ESD and DRR. Also, cooperation, collaboration and partnership, which are kinds of “Linkage (Kizuna in Japanese), is very important to accelerate the implementation of SFDRR. In this context, ESD also can be done in the framework of SFDRR from DRR perspective thorough disaster education in contrast of GAP. For this reason, disaster education should be contained ESD curriculum or program and DRR activity should be introduced to ESD practices in not only formal education but also non-formal and informal education.

In this context, it can be said again that ESD and disaster education have very close linkage and synergy each other. Some of objectives and components of both educations are overlapping and complemented mutually. Therefore, disaster education should converge in the learning process of ESD which is the learning from the mechanism of disaster to the recovery and reconstruction (Build Back Better) introducing the components of science, climate change, DRR and ESD in order to foster knowledge, understandings, awareness, skills, attitudes and visions for disaster resilience. It will be

emerged as sustainable developing process and it can be proposed as the new type of disaster education based on ESD concept.

As a new proposal for the curriculum development method of disaster education based on ESD at national level, the synergy between ESD and disaster education also can be identified in the method of curriculum development and abilities or attitudes to foster thorough their learning. ESD curriculum development methods are very useful and effective to the curriculum development also in disaster education, because its approach is same as one of ESD such as community-based, experience-based, inquiry-based as well as interdisciplinary and integrated learning method. It could be proposed three types or steps of curriculum development methods: i) Infusion Approach, which utilizes existing curriculum of each subject, ii) Integrated Approach, which organizes specialized disaster education curriculum incorporating DRR activities to integrated learning, and iii) Holistic Approach which promotes disaster education not only in lessons but also school management, teacher trainings and PTA activity etc. as whole school approach. Those methods are expressing stage of curriculum development, so that, very helpful to develop the curriculum of disaster education depends on the progress of disaster education of each school. Schools can select the approach to adjust their school curriculum or progress of disaster education. These three curriculum developing methods could contribute to enrich learning and raise the quality of disaster education. It could be disseminated to schools not only in Japan but also foreign country (Fig.E.3).

On the other hand, as local and regional perspective, it will be established regional consortium for the disaster recovery though the disaster education based on ESD learning from the lesson of East Japan Earthquake and Tsunami. The Consortium is expected to consist of multi-stakeholders such as city board of education, schools, universities and business enterprises especially, in addition, prefectural board of education, NGO/NPOs, non-formal education institutions and sectors. To establish ESD consortium, it is crucial to respect the diversity of characteristics and backgrounds of each prefecture and city in Tohoku. Therefore, on the process of building up the consortium, multilayer method should be taken into consideration: i) the first layer is the city level consortium, ii) the second layer is regional consortium which is Tohoku consortium and iii) the third layer is domestic and international consortium or exchange network. Thus, regional consortium broadens its possibility of ESD and disaster education promotion and collaboration through the process of building up the consortium locally to globally to achieve disaster recovery in Tohoku (Fig.E.3).

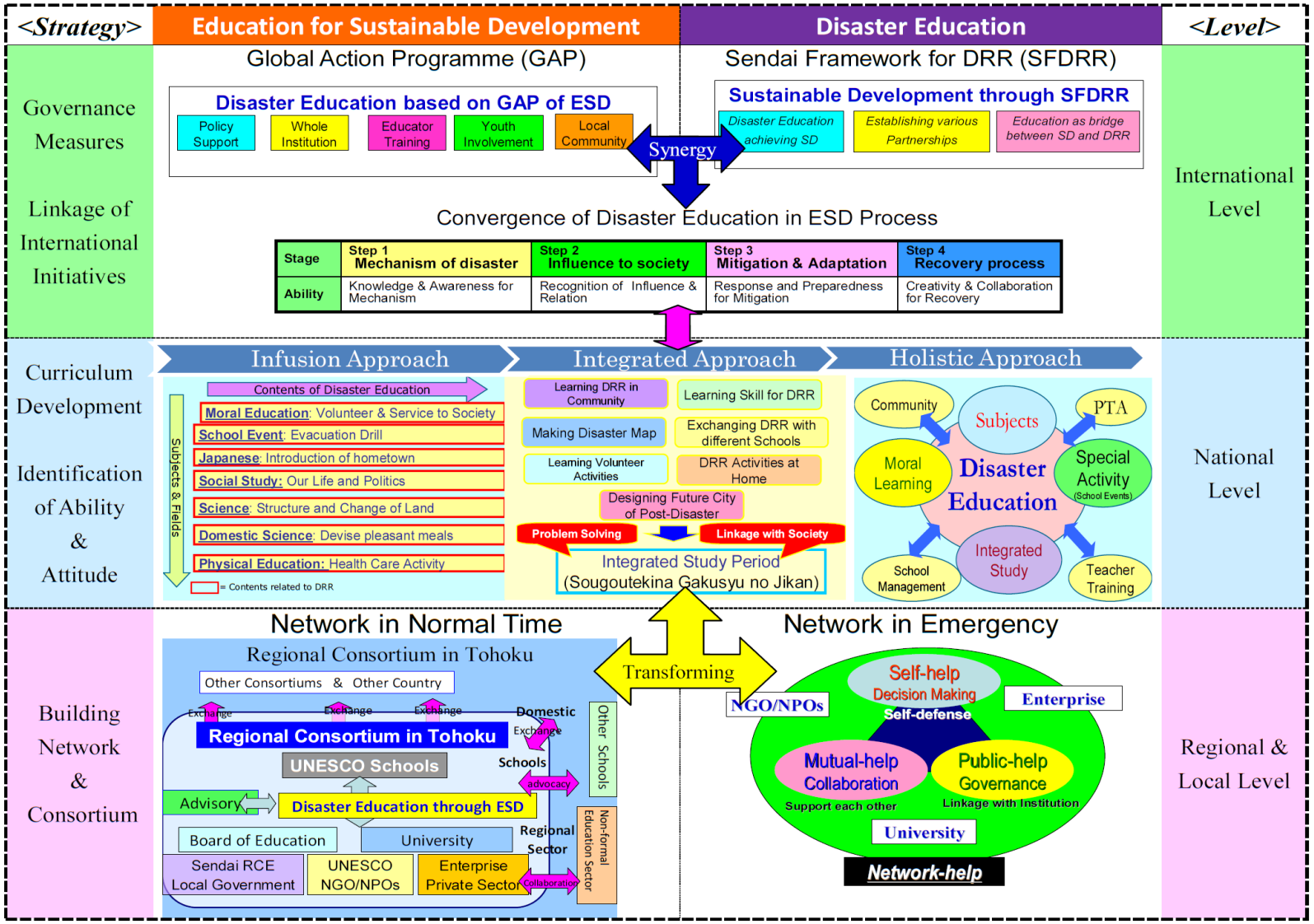

Fig.E.3 Emerging Concept for Further Promotion of ESD and Disaster Education

This consortium is the network in normal time, in order to promote ESD and disaster education for preparing future disasters. But, in emergency time of disaster, Mutual-help, Public-help and Network-help are necessary to response to and recover from the disaster, as mentioned above. At that time of critical situation, the consortium of normal time is transforming to the emergency linkage as Mutual-help, Public-help and Network-help with strong bonds. Thus, another objective of establishing regional consortium is also to foster the bonds in normal time for the emergency situation of disasters (Fig.E.3).

Lastly, this research was conducted based on the case study of Kesennuma City as evidence-based research, so that findings are provided by the evidences through the analysis and observation of case study of ESD and disaster education in Kesennuma. However, although the performance of governance, education and network through ESD in Kesennuma after EJET is outstanding comparing with other cities in affected area as discussed in the thesis, there are some possibilities that all of findings and results related to governance issues, disaster education, DRR ability and attitude, and networks are provided by the effects of not only the synergy of ESD but also other factors such as other education practices, linkage of community, indigenous knowledge and culture for DRR, and other initiatives. Therefore, comparative analysis should be needed to identify the effect of synergy and linkage of ESD and disaster education more clearly by selecting another case study in affected area of EJET which is not promoting ESD. That is the limitation and future challenge of this research to analyze more academically.