Implementation of Education for Sustainable Development (ESD) in Japan

A qualitative case study of formal education in Kesennuma City

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Department of Education
Master Thesis 30 HE credits
International and Comparative Education
Master Programme in International and Comparative Education
(120 credits)
Spring term 2015
Supervisor: Dr. Mikiko Cars
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Abstract

In today’s world, concern has been raised about that the existing means of development are unsustainable. As a solution Education for Sustainable Development (ESD) has been engaged around the world as a step to build a more sustainable society. Throughout the United Nations Decade of Education for Sustainable Development (DESD), Japan has promoted ESD through addressing it in the national educational law and plans as well as emphasizing it in course of study. As the DESD reached its end, this study aims to shed light on how ESD, an international framework, is understood and implemented on a micro level. Through a qualitative case study focused on the selected elementary and junior high schools in Kesennuma City, Miyagi, Japan, the findings show that local unique characteristics such as environmental and social factors influence the implementation of ESD. Furthermore, the findings also illustrate that learning of ESD takes place at various locations beyond the classrooms where the participants get involved in the local community that provides various professional knowledge and skills. Through the learning of ESD, which emphasizes experience and interaction with the learning partners, the aim is to foster the students’ abilities to think critically, identify a problem independently and take actions as well as to cooperate with others. At the same time, the study also shows that a holistic understanding of ESD from the teachers’ is needed in order to integrate ESD into the entire education.

Keywords

Sustainable Development, Education for Sustainable Development (ESD), implementation, formal education, Japan, critical pedagogy
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<tr>
<td>ACCU</td>
<td>Asia-Pacific Cultural Centre for UNESCO</td>
</tr>
<tr>
<td>ASP</td>
<td>UNESCO Associated Schools Project</td>
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<td>ASPnet</td>
<td>UNESCO Associate Schools Project Network</td>
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<tr>
<td>DESD</td>
<td>Decade of Education for Sustainable Development</td>
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<tr>
<td>DRR</td>
<td>Disaster Risk Reduction</td>
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<td>ESD</td>
<td>Education for Sustainable Development</td>
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<tr>
<td>GAPESD</td>
<td>Global Action Programme on Education for Sustainable Development</td>
</tr>
<tr>
<td>ICT</td>
<td>Information and communications technology</td>
</tr>
<tr>
<td>IS</td>
<td>The Integrated Studies</td>
</tr>
<tr>
<td>MEXT</td>
<td>Ministry of Education, Culture, Sports, Science and Technology (Japan)</td>
</tr>
<tr>
<td>NFUAJ</td>
<td>The National Federation of UNESCO Associations in Japan</td>
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<tr>
<td>NIER</td>
<td>The National Institute for Educational Policy Research (Japan)</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-governmental organization</td>
</tr>
<tr>
<td>NPO</td>
<td>Non-profit organization</td>
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<tr>
<td>PISA</td>
<td>Programme for International Student Assessment</td>
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<tr>
<td>RCE</td>
<td>Regional Center of Expertise</td>
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<tr>
<td>TIMSS</td>
<td>Trends in International Mathematics and Science Study</td>
</tr>
<tr>
<td>UN</td>
<td>The United Nations</td>
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<tr>
<td>UNCED</td>
<td>The United Nations Conference on Environment and Development</td>
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<tr>
<td>UNDP</td>
<td>The United Nations Development Programme</td>
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<tr>
<td>UNESCO</td>
<td>The United Nations Educational Scientific and Cultural Organization</td>
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<td>UNU</td>
<td>United Nations University</td>
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<td>WSSD</td>
<td>The World Summit for Sustainable Development</td>
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Acknowledgements

First of all, I would like to thank Kesennuma City Board of Education, Mr. Yukihiro Oikawa and the teachers for giving me the opportunity to conduct my field research in Kesennuma City for this study. To listen to the practitioners’ experiences and feelings was the most important part of this study and I appreciate everyone’s contributions. I would also like to thank the people who helped me to arrange the field research in Kesennuma City. Without each one’s assistance, the research would not have been able to be carried out.

In addition, I would like to thank my supervisor, Dr. Mikiko Cars for her warm encouragement and support to accomplish this study. Every single discussion with her made me passionate and confident to engage in the research. I would also like to express my gratitude to the faculty and staff at the Institute of International Education (IIE) at Stockholm University for all the support during these two years.

I would also like to give thanks to my family and my friends who always care about and encourage me. Even if some of them were far away physically, their kind words always supported me and gave me power to move forward.

Finally, I would like to thank my partner, Alexander, for always believing in me and encouraging me when I had a difficult time.
Chapter 1 Introduction

1.1 Background

Since the discussion on sustainable development began in the 1970s, the concept has been posing doubt on our way of living (UNESCO, 2006). It is not limited to an awareness of exploitation of natural resources and climate change, but also includes the economic systems which remain disadvantageous to parts of the world and our daily life style. The idea of sustainable development encourages human beings to rethink the existing ways of thinking and living which are often taken for granted and act towards changing them.

Under these circumstances, education has been regarded as a crucial element that enables individuals to be aware of unsustainability and gives necessary knowledge and values for building a more sustainable society (UNESCO, 2005). From this expectation, Education for Sustainable development (ESD) was born. United Nations Educational Scientific and Cultural Organization (UNESCO) defines ESD as follows:

“Education for Sustainable Development (ESD) empowers everyone to make informed decisions for environmental integrity, economic viability and a just society for present and future generations, while respecting cultural diversity” (UNESCO, 2013, cited in UNESCO, 2014, p.20).

As the issue of sustainable development is equally important for each individual, ESD is not limited to formal education, rather, it needs to be addressed in non-formal and informal education as well. Therefore, ESD is dealt with by various actors in society no matter their ages and occupations (ibid).

Since ESD was born in 1992 (see 2.2.1), a series of international world summits and conferences have addressed and developed the concept and the strategies of it. The outcomes of these efforts are shared in each region and country, and today ESD is implemented all over the world (UNESCO, n.d.a). The launch of the United Nations Decade of Education for Sustainable Development (DESD) in 2005 contributed to bringing ESD to various levels and areas of education across the world (ibid). In 2014, the DESD came to an end. Seeing the end of the DESD as a milestone for ESD being reached, this study seeks to understand how ESD is actually understood and implemented in formal education. More specifically, this study explores the case of a city in Japan. Through in-depth research, the researcher aims to provide insight into the reality of ESD implementation.
1.2 Aims and objectives

In this study, the researcher aims to examine how Education for Sustainable Development is implemented at selected elementary and junior high schools in Kesennuma City, Japan and to investigate how the teachers understand ESD and what kinds of challenges these schools face. The objectives of the study are:

- To illustrate the implementation strategies of ESD at the national and the local level.
- To investigate the detail of the implementation of ESD in the selected schools in Kesennuma City in terms of its contents, methods, and evaluation based on the comparative analysis of the selected schools.
- To explore how the teachers at the selected schools understand ESD and what their challenges are with the implementation of ESD.

More specifically, the research questions of the study are as follows:

- What kinds of content (themes or topics) do selected schools deal with as ESD?
- How do the schools implement ESD? When and where do the schools implement ESD and what kind of methods do they use?
- How do the schools evaluate ESD? What kinds of values are aimed at attaining through ESD?
- How do teachers understand ESD?
- What are the challenges in implementing ESD?

1.3 Delimitations and limitations

This study is a case study limited to ESD implementation in formal education, more specifically the elementary and junior high school level. The targets are schools in Kesennuma City, Miyagi, Japan.

As limitations, the research cannot avoid being subjective since this study employs a qualitative approach. Another limitation is that the results of the study cannot be generalized since they are derived by a case study method. Rather, in this type of study, the researcher aims to generate an intensive examination of the chosen cases.

A further limitation is the sample size of the study. The original plan was to conduct the field research at four schools but in the end permission to visit was only granted from two schools. As a result, the number of the interviewees was less than as planned. Therefore, in order to increase the validity of the study, the researcher supplementary conducted the document-based analysis with an additional four schools (see 3.3.1).
1.4 Significance of the study

The research provides insight into the reality of how ESD is understood and implemented in a city of Japan and shows how an international framework influences the micro level. The chosen city has a unique background, which is that the city has been providing one ESD model in Japanese schools and at the same time, it is a region where serious damage was caused by the Great East Japan Earthquake and tsunami in 2011. Illustrating the city’s strategies for implementation, the study will contribute to give some keys for successful implementation for other schools in Japan and the rest of the world. From the influences by the disasters, the study reveals how it affects the sense of sustainability at the local level and ESD implementation.

1.5 The organization of the study

This study is divided into six chapters. Chapter 1 provides an introduction, which includes the background of the study and the aims and objectives of the study. The delimitations and limitations as well as the significance of the study are covered in this chapter too. Chapter 2 presents the theories and concepts that are relevant to this study. In Chapter 3, the methodological framework is introduced. In this part, the research design, strategy and the methods employed for this study are explained and the ethical consideration is discussed. Chapter 4 deals with the presentation of the case. More specifically, the contexts, educational background and ESD at the national level (Japan) and the local level (Kesennuma City) are presented. Following the contextual information, the specific six schools’ ESD practices are introduced. Chapter 5 shows the findings of the study. Finally, in the last chapter, the findings of the study are discussed with the theories followed by the concluding remarks.
Chapter 2 Relevant Concepts and Theories

2.1 Sustainable Development

According to Redclift (2012), the concept of “sustainable development” does not have a specific way to be used, rather, there are various discourses of it depending on the context. Some researchers have argued that the concept is ambiguous and complex (Jabareen, 2008; Rudawska, Renko & Bilan, 2013; Lessmann & Rauschmayer, 2013). A definition which is referred to most frequently is the one that came out in the World Commission on Environment and Development in 1987 (Rudawska, Renko & Bilan, 2013). The expression “sustainable development” was used for the first time in the report, “Our Common Future” (also known as “Brundtland Report”) and it was described as: “Development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (The World Commission on Environment, 1987, p.43).

According to UNESCO (2005), the concept has evolved constantly starting with the definition above. In 2002 at the World Summit on Sustainable Development (WSSD) held in Johannesburg, three elements were recognized as pillars of sustainable development, which are society, environment and economy (UNESCO, 2010). More specifically, it was further emphasized that sustainable development could only be achieved if all three pillars, social, environmental and economic were met.

In addition to this, UNESCO (2010) underlines that culture is another important dimension since “the values, diversity, knowledge, languages, histories and worldviews associated with culture strongly influence the way issues of sustainable development are perceived and decided” (ibid, p.16).

2.2 Education for Sustainable Development

2.2.1 Historical background of ESD

The “Brundtland Report” popularized sustainable development as a concept. In 1992, five years after the report, the United Nations Conference on Environment and Development (UNCED) was held in Rio de Janeiro. The agreement on a framework for action in Agenda 21 by 178 member states is regarded as the beginning of ESD’s history. Chapter 36 of Agenda 21 recognized the crucial role of education that contributes to sustainable development (De Haan, Bormann & Leicht, 2010). In 2002, WSSD in Johannesburg approved the launch of the DESD (UNESCO, 2005). It was adopted by the UN General Assembly, which designed the Decade from 2005 to 2014.
The overall goals of the DESD was: “integrating the principles and practices of sustainable development into all aspects of education and learning, to encourage changes in knowledge, values and attitudes with the vision of enabling a more sustainable and just society for all” (UNESCO, 2014, p.9). In 2014, the Decade reached its end and the next stage; “The Global Action Programme on Education for Sustainable Development (GAPESD)” followed.

2.2.2 Conceptualizing ESD

According to UNESCO (n.d.a), ESD is not a specific program which has particular contents and methods designed for any particular individuals or groups, it is rather “an umbrella for many forms of education that already exist, and new ones that remains to be created” (para.2). It is designed as life-long learning which allows people of all ages to gain the necessary knowledge and values in order to contribute to building a sustainable society (UNESCO, n.d.b). UNESCO (2014) recommends that the teaching and learning of ESD incorporate the critical issues for sustainable development, such as “climate change, disaster risk reduction, sustainable livelihoods, sustainable consumption and production, biodiversity and poverty reduction” (UNESCO, 2014, p.20). According to UNESCO (2006, p.17), there are seven essential characteristics of ESD as follows:

1. **Interdisciplinary and holistic**: learning for sustainable development embedded in the whole curriculum, not as a separate subject;
2. **Values-driven**: it is critical that the assumed norms – the shared values and principles underpinning sustainable development – are made explicit so that can be examined, debated, tested and applied;
3. **Critical thinking and problem solving**: leading to confidence in addressing the dilemmas and challenges of sustainable development;
4. **Multi-method**: word, art, drama, debate, experience, … different pedagogies which model the processes. Teaching that is geared simply to passing on knowledge should be recast into an approach in which teachers and learners work together to acquire knowledge and play a role in shaping the environment of their educational institutions;
5. **Participatory decision-making**: learners participate in decisions on how they are to learn;
6. **Applicability**: the learning experiences offered are integrated in day to day personal and professional life.
7. **Locally relevant**: addressing local as well as global issues, and using the language(s) which learners most commonly use. Concepts of sustainable development must be carefully expressed in other languages – languages and cultures say things differently, and each language has creative ways of expressing new concepts (UNESCO, 2006, p.17).
As seen above, the learning of ESD is not designed as a specific style, however, there are various possibilities left depending on learners’ needs and circumstances. Choi and Kipp (2009) underline that ESD could be defined based on regional or local contexts.

2.2.3 ESD and Adjectival Educations

As one can understand from UNESCO’s idea of ESD described in the previous part (2.2.2), it is worth noticing that ESD is not a new subject added to the existing curriculum. Rather, it calls for a reorientation of education systems, structures, teaching and learning (UNESCO, 2014).

It has been discussed how ESD can be positioned in already existing education. In learning through ESD, there are several key topics for example climate change, human rights and poverty reduction. Those topics were previously often dealt with various “adjectival educations”.

UNESCO (2012) explains that an adjectival education is “coined to characterize the fields of education that use the term education or study(ies) in their name” (ibid, n.d.). For example, “environmental education”, “human rights education”, “disaster risk reduction education” are included in adjectival educations (ibid). However, UNESCO (2012) underlines that ESD is not a part of adjectival educations. ESD is rather “an overarching paradigm that guides and transforms the core disciplines and adjectival educations towards sustainability” (ibid, n.d.). ESD used to be treated as an adjective education by some people in the mid-1990s, however, one needs to take into consideration the fact that it stretches across the whole education (UNESCO, 2009).

2.3 Whole-school approach/whole-institution approach

A whole-school approach embraces “mainstreaming sustainability into all aspects of the learning environment. This includes embedding sustainability in curriculum and learning processes, facilities and operations, interaction with the surrounding community, governance and capacity-building” (UNESCO, 2014, p.30). It means that the approach focuses not only on what teachers teach to students during classes, but also on the daily practices outside of the classes. One could say that the approach includes “the non-formal or hidden curricula” (Ferreira, Ryan & Tilbury, 2006, p.16).

According to UNESCO (2012, n.d.), whole-school approaches focus on the following points:

- The formal curriculum contains knowledge, skills, perspectives and values related to sustainability.
- Learning includes real-life issues to enhance pupil’s motivation and learning.
- The school has a sustainability ethos which can be seen in the treatment of others, school property, and the environment.
• School management practices reflect sustainability (e.g. procurement, water and energy use, and waste management).
• School policies reflect environmental, social, and economic sustainability.
• Interactions between the school and the community are fostered.
• Special events and extra-curricular activities apply and enhance classroom learning about sustainability.

![Image](image_url)

**Figure 1:** Visualizing the whole-school approach

Hargreaves (2008) states that whole-school approaches also encourage all individuals including students, teachers and all other staff at a school to be aware of the issue of sustainability and actively practice ESD in order for the school to integrate ESD into the entire school.

The approach has been termed as “whole-institution approach” as well since the implementations of ESD are taking place not only at schools but also at various institutions and organizations such as higher education institutions and social education sectors etc. In the final report for the UN Decade of Education for Sustainable Development “*Shaping the Future We Want*”, UNESCO (2014) highlights that whole-institution approaches are increasingly employed. UNESCO also underlines that successful adoption and implementation of ESD is led by the support of school administrators and teachers (ibid).
2.4 Critical pedagogy

Critical pedagogy is an approach which is concerned with transforming relations of power that lead to the oppression of people (Kincheloe, 2007). It points out “the unfair policies of those who have the power to govern and are also responsible for social development and education” (Duobliene, 2013, p.40). Critical pedagogy seeks to allow students to identify such structure, recognize their own position in relation to power and then become more active to participate in a transformed and inclusive democratic community (Kincheloe, 2007). McLaren (1999, cited in Duobliene, 2013) states that critical pedagogy acknowledge, “the existence of the unique features of national educational system and respects the local traditions found in each country” (p.40). Furthermore, it also recognizes that the process of globalization and its strong effects on national educational systems all over the world, which often bring many similar characteristics in different nations. Therefore, there is a need that individuals realize their personal freedom and the right of their own decisions at all educational levels (Duobliene, 2013).

Huckle (2012, cited in Springett, 2015) argues that the discourse of sustainable development calls for critical pedagogy. He underlines that, through critical pedagogy, learners need to “become more firmly anchored in the realities of the dominant forms of unsustainable development and underdevelopment that shape the contemporary world” (Springett, 2015, p.115). In other words, critical pedagogy allows learners to realize that the existing measures of development are unsustainable and empower them to seek alternative direction.

ESD has a transformational role since it aims at encouraging the transformation of education and reorientation of societies in order to reach sustainable development (UNESCO, 2014). Teaching and learning for ESD are encouraged to promote critical thinking, to imagine the future and make decisions in order to empower learners to take action towards building a sustainable society (ibid).
Chapter 3 Methodology

3.1 Research strategy

In this study, the researcher takes a qualitative research approach with an interpretivist epistemological and constructivist ontological perspective. By taking such a standpoint, first, the researcher assumes that social phenomena and the meaning of it are subject to the influence of social actors; they are produced and constantly changed by social interaction (Bryman, 2012). Second, through the understanding of human behavior, the researcher tries to grasp the subjective meaning of social action. This strategy employs an inductive approach rather than a deductive approach, which means the researcher aims to generate a theory/theories based on the study’s findings rather than to prove specific hypothesis or theories through the study (ibid).

The researcher applies grounded theory as an analytical approach that generates theories out of data (ibid). Thornberg and Charmaz (2014) explain that grounded theory is a research approach in which data collection and analysis take place simultaneously. It provides “rigorous yet flexible guidelines that begin with openly exploring and analysing inductive data and leads to developing a theory grounded in data” (ibid, p.153).

The researcher analyzes the collected data by “coding” which means that transcripts are reviewed by giving tags to the parts that seem to be important in order to generate a theory (Bryman, 2012). There are several coding methods developed by different researchers, however, this study applies one which entails two steps (1) initial coding and (2) focused coding. Thornberg and Charmaz (2014) underline that those two phases are not a liner process, however, researchers flexibly move back and forth between initial coding and focused coding in order to be sensitive to theoretical possibilities.

In the process of initial coding, also known as “open coding”, the researcher breaks down the data, compares the data and tries to conceptualize and categorize it (Bryman, 2012). At this stage, the researcher needs to deal with the data critically, asking questions such as “What is this data a study of?” “What category does this incident indicate?” “What is actually happening in the data?” and so on (Glaser, 1978, cited in Thornberg & Charmaz, 2014, p.156). This process allows the researcher to gain concepts that are to be categorized (Bryman, 2012). The next stage is focused coding, also known as “selective coding”, in which the researcher identifies and selects one core category. A core category is “the central issue or focus around which all other categories are integrated” (ibid, p.569). It refers to the most important and frequent code and it guides further data gathering and coding (Thornberg & Charmaz, 2014). Researchers can take more than one core category as Charmarz suggests (ibid). By
being sensitive and open to discover more codes, it enables the researcher to determine the adequacy of those codes during the process. Following the focused coding, the researcher tries to explore the relationships of emerged categories and creates hypotheses. Then, another cycle of data collection, coding and analyzing is conducted to attain further data. The emerging hypotheses are to be tested throughout these processes and it leads to the specification of substantive theory (ibid).

The analysis of the data is continued until so called “theoretical saturation” is achieved (Bryman, 2012, p.568), when assembling new data no longer give the researcher new ingredients for the grounded theory (Thornberg & Charmarz, 2014).

### 3.2 Research design

In this study, the case study method is employed. Stake (1995) explains that a case study focuses on the specific characteristics of a single case and the complexity of it. It is not necessary to focus on a single case, however, researchers may seek to use case study method to carry out comparative research, or to use multiple cases as examples of general categories they intend to study. Shauming and Huishu (2014) state that the case study approach provides a strong grounding in reality, meanwhile it develops detailed, intense knowledge about topics. Therefore, the method is primarily qualitative, which intends to explore complex holistic patterns rather than quantitative, which seeks to map statistical and/or casual relationships between abstracted variables (Stake, 1995).

This study also takes a comparative design which enables researchers to “understand social phenomena better when they are compared in relation to two or more meaningfully contrasting cases or situations” (Bryman, 2012, p.72). If a study takes a qualitative approach with a comparative design, the study becomes a multiple-case study (ibid). One of the advantages of the multiple-case study is that it allows the researcher to be “in a better position to establish the circumstances in which a theory will or will not hold by comparing multiple cases” (Eisenhardt, 1989; Yin, 2009, cited in Bryman, 2012, p.74).

In this study, the researcher aims to examine the current state of the implementation of ESD in the specific location, Kesennuma City, Miyagi, Japan. More specifically, the researcher conducts the study mainly by comparing two specific schools, one primary and one junior high school by in-depth qualitative research. Additional comparisons are made with of four other schools (two primary and two junior high schools) which are document based.
3.3 Research methods

3.3.1 Methods

Employing multiple qualitative research methods enables researchers to be more reliable (Newman et al., 2003, cited in Choi & Kipp, 2009), therefore the researcher applied these three methods for this study; (1) document analysis, (2) semi-structured interviews and (3) questionnaires.

Document Analysis

Document analysis was conducted for two purposes. First, the researchers used mainly UNESCO reports and documents in order to grasp the development of the concept of ESD, its strategies, achievements and challenges experienced around the world. In addition, ESD related documents and reports yield in Japan and Kesennuma City were analyzed in order to better understand the context of the case study. Through these works, the researcher intended to gain a holistic understanding of the field of ESD at the international, national and local levels. Document analysis was conducted throughout the research period. Second, the researcher conducted a qualitative content analysis of the report, “Kesennuma ESD Joint Research Report: Towards the Education of Future Leaders in Restoration and Creation Following Disasters” (2013) as a comparative analysis of the implementation of ESD at six schools. Among the schools in the report, two schools were visited and interviews were conducted, which is described in the next section. The other four schools, two each from primary and junior high schools, were chosen by the researcher. In this report, ESD practices are recorded in 20 primary schools, 13 junior high schools, 2 high schools and 5 kindergartens in Kesennuma City. The researcher chose the four schools additionally for the comparative analysis based on the diverse areas the schools focus on. This is because the variety of ESD topics is one of the significant characteristics of ESD implementation in the city and the researcher assumed that diverse approaches could be discovered from those schools. Table 1 below shows the selected six schools and the research methods for each school.

<table>
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<tr>
<th>Name</th>
<th>Level</th>
<th>Research methods</th>
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<tbody>
<tr>
<td>School A</td>
<td>Elementary school</td>
<td>Interview, questionnaire &amp; document analysis</td>
</tr>
<tr>
<td>School B</td>
<td>Elementary school</td>
<td>Document analysis</td>
</tr>
<tr>
<td>School C</td>
<td>Elementary school</td>
<td>Document analysis</td>
</tr>
<tr>
<td>School D</td>
<td>Junior high school</td>
<td>Interview, questionnaire &amp; document analysis</td>
</tr>
<tr>
<td>School E</td>
<td>Junior high school</td>
<td>Document analysis</td>
</tr>
<tr>
<td>School F</td>
<td>Junior high school</td>
<td>Document analysis</td>
</tr>
</tbody>
</table>

Table 1: The selected schools and research methods

Semi-structured interview

Semi-structured interview was employed as the main method for data collection in this study. The researcher regarded interviews as an important method to learn what the informants’ feelings and experiences were in regards to the implementation of ESD. The interviews were conducted by making
use of prepared questions that were in the general form of an interview schedule, however, the flow of each interview could differ. Despite the interview schedule, the questions sometimes did not follow the exact outlined way and several additional questions were asked in response to what was seen as significant replies (Bryman, 2012). Semi-structured interviews give the researcher a possibility to adjust the interview depending on the replies and experiences of each interviewee and thereby derive each interviewee’s unique insight and knowledge (Gubrium & Holstein, 2001).

The researcher conducted interviews at two schools, School A and D (see Table 1 on the previous page). From the two schools, two teachers and a principle participated in the interview. Additionally, the researcher interviewed a researcher from a higher education institution. The detailed information about these interviewees and the rationale of the selection of the interviewees will be described in 3.3.2. The interviews were conducted in Japanese. The researcher recorded all the interviews and later transcribed them. Translation from Japanese to English was done by the researcher.

**Questionnaires**

The researcher conducted questionnaires to teachers whom the researcher did not interview in order to maximize the number of respondents. The questions were designed as open questions, which respondents were able to reply to in the way they wanted (Bryman, 2012). The questionnaires were distributed to the two schools (School A and D) where the researcher conducted the interviews. The questions were the same as the interview questions, which included background questions such as the number of years of an interviewee’s teaching experience and ESD as well as questions concerning the implementation of ESD. A complete list of the questions can be found in Appendix 2.

**3.3.2 Rationale for the selecting case**

First, the research chose Japan for this study because Japan is one of the countries that have been actively promoting ESD. According to Nomura and Abe (2009), the DESD was initially suggested by the Japanese government and Non-governmental organization (NGO)s at WSSD in 2002. At the end of the Decade, Japan hosted the UNESCO World Conference on Education for Sustainable Development in Nagoya, Aichi in November 2014. Throughout the Decade, Japan promoted ESD in school education and social education settings (The Interministerial Meeting on the “United Nations Decade of Education for Sustainable Development”, 2014).

Kesennuma City, located in Miyagi Prefecture, Japan was chosen for the case study since the city has been engaging in ESD at the city level and their practices are regarded as one of the successful models in the Japanese ESD implementation. Another reason for choosing this city is its uniqueness; the schools have been continuing their active ESD implementations even after the city was seriously damaged by the Great East Japan Earthquake and tsunami in 2011. The researcher assumed that the
disaster might bring about changes in the interpretation of “sustainability” and it might have an effect on the implementation of ESD in schools.

In terms of the selection of the two schools for the interviews and questionnaires, the Kesennuma City Board of Education recommended those schools to the researcher. The Board of Education suggested when the researcher had the opportunity to attend the annual round-table meeting on ESD held in Kesennuma City in November 2014, where the two schools held presentations about their ESD practices. It allowed the researcher to understand the context of those two schools in advance of the field research.

There are four key informants for the interviews (see Table 2 below). Informant 1 is a teacher at School A (elementary school), who is in charge of ESD for the whole school. Informant 2 and 3 are from School D. Informant 2 is the principle of the school and Informant 3 is a class teacher as well as the person in charge of ESD for the whole school. These three informants were chosen by the schools for the researcher to interview. Informant 4 is currently a researcher but used to be an elementary school teacher in the city. The researcher interviewed him since he has been a great contributor for the ESD practices in Kesennuma City since the initial ESD practice was born in the city in 2002.

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informant 1</td>
<td>School A (elementary school)</td>
<td>Teacher in charge of ESD</td>
</tr>
<tr>
<td>Informant 2</td>
<td>School D (junior high school)</td>
<td>Principal</td>
</tr>
<tr>
<td>Informant 3</td>
<td>School D (junior high school)</td>
<td>Teacher in charge of ESD, class teacher</td>
</tr>
<tr>
<td>Informant 4</td>
<td>Higher education institution</td>
<td>Researcher, former teacher at elementary schools in Kesennuma City</td>
</tr>
</tbody>
</table>

Table 2: Information about key informants

### 3.4 Ethical considerations

First of all, the researcher sent the informants two documents which were “the letter of request of the research” and “the research plan”. In the former document, the researcher informed the informant of the aims of the study and when and how the researcher would like to conduct the research. It also included that the researcher would take care in order to protect the informants’ privacy during her study. In the latter document, more detailed information was given concerning the research questions and the specific methods of the research. Second, using anonym names for the schools and interviewees, their privacy was protected.
Chapter 4 Presentation of the cases

4.1 National context: Japan

4.1.1 Background

Japan is an island nation located in East Asia. The country consists of the four main islands; Honshu, Hokkaido, Kyushu and Shikoku with the population of 127.3 million (The World Bank, 2013). The land area is 377, 915 km$^2$ (CIA, 2014). The GDP (purchasing power parity) was $4.729 trillion in 2013 which ranks Japan as the world’s fifth largest economy (ibid). According to the United Nations Development Programme (UNDP), Japan’s Human Development Index (HDI) was 0.890 in 2013 and was ranked 17 in the category of “very high human development” among the total of 185 countries (UNDP, 2014).

The ethnic majority is Japanese (98.5%) and the remaining population is made up of Koreans (0.5%), Chinese (0.4%) and other (0.6%) (CIA, 2014). Japan’s population pyramid showed on the next page illustrates that Japan is experiencing an unprecedented aging of population compared to the rest of the world (Muramatsu & Akiyama, 2011). It is estimated that one in three people will be over 65 years and one in five people over 75 years by 2030 (ibid). The total fertility rate in Japan has stagnated from the end of the 1990s and it records 1.40 today (CIA, 2014). With such rapidly growing of the older population and declining of the younger age population, Japan is facing a problematic
Since the country achieved phenomenal economic growth in the 1970s, the Japanese citizens enjoy high living standards and material wealth, however, due to the increasing global competition as well as the collapse of “bubble” economy in the early 90s and a continuous recession since then, Japan faces a turning point today (Watanabe, 2010). Watanabe (2010) points out that such social changes bring the Japanese citizens to “losing their confidence and previous sense of values, creating what can be called a vicious cycle of decline in social and moral consciousness” (p.227). He continues that such social circumstances affect children seriously. For example, he raises the notion that it has become difficult for children to have a dream and therefore have lost their willingness to study. Furthermore, due to urbanization and the trend shifting away from extended families to nuclear families, children of today do not have the same possibility to socialize with the older generation as previous generations had. These changes make it difficult for the children to build desirable interpersonal relationships (ibid).

4.1.2 Education in Japan

Education system

In Japan, early childhood education is provided at kindergartens and day-care centers. Compulsory education starts from elementary education (6 years) at the age of six and finish at lower secondary school (3 years) at the age of fifteen, which means the total is nine years. At elementary school, a single teacher is in charge of a class and he/she teaches most of the subjects. On the other hand, teachers at lower secondary school are in charge of specific subjects rather than classes (Web Japan, n.d.). After the completing compulsory education, one is able to apply for upper secondary school.
Usually, students need to take entrance examinations to enter upper secondary school. Most of upper secondary schools offer three-year courses. As institutions of higher education, there are universities, junior colleges and colleges of technology. Additionally, specialized training colleges offer postsecondary courses (Ministry of Education, Culture, Sports, Science and Technology (MEXT), n.d.c).

In elementary and secondary school, the ministry of education regulates the subjects and the standard number of yearly school hours for each subject (Watanabe, 2010). The subjects and extra-curricular subjects as well as their allocated time for a year of elementary and junior high school can be found in Appendix 1.

**Recent educational reform**

As described in the previous part (see 4.1.1), Japan is experiencing rapid social changes as seen in any other part of the world: internationalization, modifications in the industrial and employment structure and changing the national demography. All over the Japanese society essential reforms have been conducted due to these transitions that have caused Japan to face various social and economic distortions (Watanabe, 2010).

In terms of education, international achievement tests, for example, the Programme for International Student Assessment (PISA) and the Trends in International Mathematics and Science Study (TIMSS) show that the Japanese students score high points in general (OECD, n.d.). However, MEXT is concerned whether the Japanese youth attain enough skills and attitudes necessary for their life after school education or not (MEXT, 2002a, 2002b, cited in Bjork, 2009). It has been the drive of various reforms, which enable students to gain essential abilities in today’s rapidly changing world.

In 1996, the Central Council for Education produced a report “The Model for Japanese Education in the Perspective of the Twenty-First Century” and it called for a new perspective called “ikiru-chikara (zest for life)” (Watanabe, 2010). In the report, the concept of zest for life includes: (1) “Solid academic prowess”: to find a problem, learn and think independently; make a decision and take actions proactively; solve a problem effectively, (2) “To be rich in humanity”: to nurture self-discipline; to cooperate with others, and (3) “Health and fitness”: good health to live vigorously (MEXT, n.d.b; MEXT, n.d.g, p.4). According to the report, in order to foster zest for life, the cooperation between schools, families and local communities needs to work well and be balanced. Moreover, apart from the traditional way of teaching which focuses on the delivering of knowledge, experience learning, hands-on activities and volunteer activities were recommended to cultivate students’ humanity and ability to care about others (ibid). Those ideas are reflected in the new curriculum, which was introduced in 2002.

A new program, called “Integrated Studies (IS)” was introduced and it is the prominent feature of the reforms. It was added from elementary to upper secondary education in 2002. IS is different
from the traditional subjects in the sense that it allows the schools themselves to decide the content. The learning in IS emphasizes on “experimental and problem-solving learning in cross-curricular topics” (Watanabe, 2010, p.231). Through such learning, students are expected to gain the ability to apply what they learn in school in their own life.

4.2 Education for Sustainable Development in Japan

4.2.1 Historical background

In response to the launch of the DESD, the Interministerial Meeting was held in the Cabinet Office in 2005. It consisted of more than ten government agencies. The meeting established Japan’s Action Plan for the DESD in March 2006 (The Interministerial Meeting on the “United Nations Decade of Education for Sustainable Development”, 2014). In the plan, the goals of ESD were described as “to provide high quality education to all the world’s people with a vision that principles, values, and behaviour needed for sustainable development are incorporated in all education and places of learning, and to bring about a change in behaviour so that a sustainable future can be realized in the areas of the environment, the economy, and society”, (Liaison Council of Ministries and Agencies, 2006, p.3, cited in Nakayama, Wada & Takata, 2015).

The Basic Plan for the Promotion of Education which was formulated in 2008 included ESD as one of the crucial principles and encouraged the promotion of it as a policy to be practiced throughout the next five years. Moreover, the second plan revised in 2013 further emphasized the promotion of ESD (The Interministerial Meeting on the “United Nations Decade of Education for Sustainable Development”, 2014).

In addition, the idea of building sustainable development was embodied in the course of study for elementary and junior high school in 2008 and for high school in 2009 (ibid). The revised versions highlight ESD across the entire curriculum mentioning “sustainable society” in various subjects (Maruyama, 2014).

In June 2011, Japan’s Action Plan for the DESD was revised with the review of the first five years’ efforts and the recommendations to promote ESD based on the revised Courses of Study (The Interministerial Meeting on the “United Nations Decade of Education for Sustainable Development”, 2014).

In 2014, at the end of the Decade, the UNESCO World Conference on Education for Sustainable Development was held in Aichi-Nagoya, Japan. The conference closed with the adoption of the Aichi-Nagoya Declaration, which calls on all countries to implement the Global Action Programme on ESD to keep improving the ESD agenda (UNESCO, 2014).
4.2.2 Current situation

In this part, the current situation of ESD implementation in Japan is illustrated. More specifically, “UNESCO Associated School” and a framework given by the Japanese educational policy institution are described since both of them take important roles in ESD implementation in Japan. Additionally, the stakeholders of ESD in Japan and their roles are explained.

Environment for implementation of ESD

1. UNESCO Associated School

In Japan, MEXT and the Japanese National Commission for UNESCO place UNESCO Associated Schools as a foundation for the promotion of ESD (Japanese National Commission for UNESCO, 2012). The UNESCO Associated Schools Project (ASP) began in 1956, which was five years after Japan joined UNESCO (Nakayama et al., 2015). UNESCO Associated Schools “practice peace and international cooperation in order to realize the ideals of UNESCO as set forth in the Constitution of UNESCO” (Japanese National Commission for UNESCO, 2012, p.11). According to the Japanese National Commission for UNESCO (2012), educational institutions including all national, public or private “preschools, elementary schools, junior high schools, high schools, technical schools, vocational schools, and teacher training institutions” (p.17) are eligible to apply to become a UNESCO Associated School. A member school needs to “continuously make efforts in line with the ideals of UNESCO” (ibid, p.17). Furthermore, the implementation of activities based on UNESCO’s vision are not legally binding, however, active participation is needed. Each member school has opportunities to utilize educational materials recommended by UNESCO and the school is occasionally asked to report their outcomes. Member schools are also given the opportunity to take part in sponsored events hosted by UNESCO and its related organizations (ibid).

There are 9,556 UNESCO Associated Schools spread over 180 countries (as of February 2014) and in Japan, the number of member schools drastically increased from 20 in 2006 to 913 as of April 2015 (UNESCO Associate Schools Project Network (ASPnet) in Japan, 2015). The member schools are encouraged to share experiences learned from their educational activities taking advantage of the network of ASPnet worldwide. By utilizing the network, the member schools are able to attain several benefits such as: opportunities to interact with other member schools including exchanges of information/experiences/materials as well as interpersonal exchanges with students and teachers both at the national and international level (Japanese National Commission for UNESCO, 2012).
Figure 3: The transition in the number of UNESCO Associated Schools in Japan (2005-2013)
Source: MEXT, 2013, cited in Oikawa, 2014b, p.31

Figure 3 above shows how the number of the member school has been growing in Japan since 2005. According to MEXT (n.d.), the number has been increasing since the launch of the DESD and as of April 2014 Japan has the highest number (total of 705) of UNESCO Associated Schools in the world. Almost all of Japan’s prefectures (44 out of 47) have UNESCO Associated Schools and in some areas such as Kesennuma City (Miyagi), Tama City (Tokyo), and Omuta City (Fukuoka), municipal governments take strong initiatives to make all schools in the city UNESCO Associated Schools (The Interministerial Meeting on the “United Nations Decade of Education for Sustainable Development”, 2014). In order to encourage ASP, the Japanese government provides financial support to consortiums for the promotion of ESD (ibid). Japan report (2014), which summarized the national efforts over the DESD, underlines that UNESCO Associated Schools have been contributing to the promotion of ESD, especially in formal education. However, it also points out that ESD is often regarded as practices that only UNESCO Associated Schools should engage in (ibid). Taking consideration of such a trend, the promotion of ESD in schools other than the member schools as well as in other sectors in the society have been a challenge (ibid).

2. Frameworks for the implementation of ESD in schools
The National Institute for Education Policy Research (NIER) has researched the implementation of ESD at schools; how curricula, teaching materials and instruction and evaluation methods should be constructed (Okamoto, Goto, Jyono & Fukuda, 2013). They developed a “framework necessary to
design and develop learning instruction processes for ESD” based on the analysis of the efforts which have been made in Japan and in other countries.

The research team points out a need to clarify what kind of concepts and elements are necessary for creating a sustainable society. They reviewed the efforts made by the Interministerial Meeting on the DESD, ESD-J (NGO) and various organizations in other countries and made a list of the necessary concepts for building a sustainable society. It resulted in the findings of plenty of concepts and allowed them to recognize the complexity of the concepts included in a sustainable society. Based on the findings, the research team derived six concepts that a sustainable society consists of: “(I) Diversity, (II) Interdependence, (III) Limitation, (IV) Fairness, (V) Cooperation, (VI) Responsibility” (See Table 3 on the next page) (NIER, 2012, p.4).

Furthermore, the abilities and attitudes to be fostered through ESD were researched. The derived seven abilities and attitudes were: “(1) Critical thinking ability, (2) Ability to forecast the future plan, (3) Ability to think in a multifaceted and comprehensive way, (4) Ability to communicate, (5) Attitude to cooperate with other people, (6) Attitude to respect connections, and (7) Attitude to participate willingly” (See Table 4 on the page 31) (ibid, p.4).

![Figure 4: Framework necessary to design and develop learning instruction processes of ESD](image)

Source: Okamoto et al., 2013, p.61

As the Figure 4 shows, the research team suggests to build “linkages” in (1) teaching materials both spatially and temporally, (2) human and facilities which means to connect leaners with each other/people who have different point of views/communities and society, (3) abilities and attitudes to connect what learners attain to actions in practice (NIER, 2012).
ESD Implementation Systems and their roles and efforts in Japan

Since Japan initiated the proposal of the DESD, Japan has continuously made efforts to promote ESD. In this part, ESD implementation systems at the government level as well as the ones by other stakeholders such as NGOs and Non-profit organizations (NPOs) are described.

First, there are three organizations at the government level: (1) The Interministerial Meeting on the “United Nations Decade of Education for Sustainable Development”, (2) Roundtable Meeting on the “United Nations Decade of Education for Sustainable Development”, and (3) Japanese
• The Interministerial Meeting on the “United Nations Decade of Education for Sustainable Development”

In response to the initiation of the DESD, the Interministerial Meeting was established in 2005 in order to build cooperation among the related government organizations and promote ESD together with all of them. The Deputy Chief Cabinet Secretary chaired the meeting and a total of 11 Ministries took part in it, which included the Cabinet Secretariat, MEXT, the Ministry of Foreign Affairs, and the Ministry of Environment (Iwamoto, 2014). The meeting established Japan’s Action Plan for the DESD in March 2006, which proposes “the Guidelines for implementing ESD, such as programmes leading to community building, diverse places of education and implementing actors, integrated approaches under various agendas, learning from participation, and communication and collaboration between diverse actors” (ibid, p.90).

• The Roundtable Meeting on the “United Nations Decade of Education for Sustainable Development”

The Roundtable Meeting was created in order to facilitate sharing of knowledge, experiences and opinions about specific measures based on the national implementation plan as well as to contribute to the evaluation of the DESD. The members were including relevant specialists from NPOs, educational institutions and corporate representatives (The Interministerial Meeting on the “United Nations Decade of Education for Sustainable Development”, 2014). The results of the meeting contributed to the “Japan Report” published in 2009 and 2014 and to the revision of the domestic implementation plan in 2011 as well.

• Japanese National Commission for UNESCO

The Japanese National Commission for UNESCO takes the role as an agency to advise the Japanese government and other actors concerning UNESCO-related matters, to make plans, manage communication and implement surveys in regard to UNESCO activities on the basis of the Law Concerning UNESCO Activities” (The Interministerial Meeting on the “United Nations Decade of Education for Sustainable Development”, 2014). The commission is engaged in the promotion of ESD on both global and national levels in cooperation with UNESCO, other UNESCO national commissions and other government departments. Together with MEXT, the commission works to increase the amount of UNESCO Associated School. In 2012, the commission established guidelines for UNESCO Associated Schools to ensure their quality (ibid).
Second, other non-governmental organizations that have contributed to promotion of ESD in Japan are: (1) Japan Council on the United Nations Decade of Education for Sustainable Development (ESD-J), (2) National Federation of UNESCO Associations in Japan (NEUAJ), (3) Asia-Pacific Cultural Centre for UNESCO (ACCU), and (4) United Nations University (UNU) (The Interministerial Meeting on the “United Nations Decade of Education for Sustainable Development”, 2014, p.16).


ESD-J was founded in 2003, aiming to promote ESD through partnerships in Japan and overseas (The Interministerial Meeting on the “United Nations Decade of Education for Sustainable Development”, 2014). It consists of roughly 100 corporations, NPOs, NGOs and individuals. Its main activities are as follows:

- International networking including the transmission of information in other languages
- National networking and support for exchange workshops
- Information gathering/sharing and publication
- Training and promulgation/education
- Research and policy advocacy
- Working with companies and government (ESD-J, 2014).

- National Federation of UNESCO Associations in Japan (NEUAJ)

NEUAJ is a NGO aligned with the principles of the UNESCO Constitution that aims for international peace and the realization of equal welfare for all people, as well as solutions to various educational and cultural issues (The Interministerial Meeting on the “United Nations Decade of Education for Sustainable Development”, 2014). Collaborating with Tokyo Mitsubishi UFJ Bank, it offers financial support for ASPnet schools’ activities (Iwamoto, 2014). In addition, the Federation has also engaged in various activities such as “ESD International Exchange Programs” and “ESD Essay Contests” (ibid).
The Asia-Pacific Cultural Centre for UNESCO (ACCU)
Founded in 1971, the Asia-Pacific Cultural Centre for UNESCO (ACCU) has engaged in promoting cultural and educational cooperation as well as human exchange between Asia-Pacific countries. For the promotion of ESD, it provided forums, training and projects to communicate the principles of ESD to domestic and overseas governments, international organizations, NGOs, universities etc. during the decade (The Interministerial Meeting on the “United Nations Decade of Education for Sustainable Development”, 2014).

• United Nations University (UNU)
In 2003, United Nations University (UNU) initiated the Education for Sustainable Development programme within the UNU Institute of Advanced Studies supported by the Ministry of the Environment (As of 2014, renamed the UNU Institute for the Advanced Study of Sustainability (UNU-IAS)). The program has six areas: “1) advocacy and awareness raising about ESD, 2) promotion of Regional Centres of Expertise on Education for Sustainable Development (RCEs), 3) development of ESD curricula and learning materials, 4) support of Resource Project of the Global Higher Education for Sustainable Partnership (GHESP), 5) promotion of distance on-line learning through Information and communications technology (ICT), and 6) training the trainers” (UNU-IAS, 2005, p.iii).

4.3 Local context: Kesennuma City
4.3.1 General background
Kesennuma City is a port city facing the Pacific Ocean, located in the northeast part of Miyagi Prefecture which in turn is located in the northeast of Japan (see Figure 5 on the next page). The land area of the city is approximately 333km² and its population is 67,268 as of March 2015 (Kesennuma City, 2015b). The city’s main industries lay in fishery and tourism (Oikawa, 2014a). The city has been the home of the movement called “Mori wa Umi no Koibito (The forest is longing for the sea, the sea is longing for the forest)” for more than 20 years and it became the principle of sustainable social development in Kesennuma City. The main activity of the movement is reforestation based on the idea that conserving the rich ecosystem in the forest results in maintaining the rich sea. In addition to such nature conservation activities, the movement also aims to “raise peoples’ awareness of the linkage between human and nature through hands-on experiences involved the local residents and educational programs for school children” (“Mori wa umi no koibito”, n.d.).
The city’s rich natural environment with oceans, rivers, and forest has formed the characteristics of the city, for example, the city declared itself Japan’s first “International Cultural Fisheries Industries City” as well as “Slow Food City” (Oikawa, 2014b). These slogans express that the city aims to “create a more unique and attractive community sustained by rich variety of local food while conserving nature and culture” (UNU-IAS, 2005, p.40-41). According to Oikawa (2014b), school education has also taken advantage of the city’s uniqueness and has engaged in environmental education, food education and international education.

Another characteristic of the city is that it is facing an urgent problem, which is the rapid decrease in population. According to the city’s report (2014), the population reached a peak in 1980 with 92,246, and since then it has continued to decrease. Today the population amounts to 67,268. By age brackets, both youth population (under 15 years old) and the population of productive age (from 15 to 64 years old) are decreasing, while the aging population (over 64 years old) is increasing. This trend is assumed to continue even more rapidly and the population is estimated to decrease by 42% in 30 years (Kesennuma City, 2014). One of the causes of the decrease is the emigration of the younger generation. This is because there is no higher education institution in the city and therefore many students move out after their high school graduation. Furthermore, there are only a few young people who stay and work in the city (ibid).

4.3.2 The Great East Japan Earthquake and its effects to the city

One important fact about Kesennuma City is the Great East Japan Earthquake which caused immense damage to the city in 2011. On March 11, an earthquake of magnitude 9.0 struck East Japan and approximately 30 minutes later, a tsunami struck Japan’s eastern coastline. The highest tsunami
recorded 40.4m in Iwate Prefecture (MEXT, n.d.f). It is considered as a “once-in-one-thousand-years” event (Kesennuma City Board of Education, 2009, p.7). The coastal areas were severely damaged by the tsunami and moreover, the city suffered from widespread fire caused by oil tanks and propane gas which were swept away by the tsunami (Oikawa, 2014a). The scale of the fire was enormous and it took over a month to completely bring the fire under control (ibid). In Kesennuma City, the disaster caused 1029 deaths, later another 107 deaths could be related to the earthquake disaster and 222 people are still missing (as of March 31, 2015). In regards to material loss, 15.815 homes were damaged (as of March 31, 2014) and the amount of affected households was estimated to around 9,500 (as of April 27, 2011) (Kesennuma City, 2015).

The tsunami reached 1 kindergarten, 3 elementary schools, 1 junior high school, and 1 high school in Kesennuma City (Kesennuma City Board of Education, 2013, p.8). Among them, 1 kindergarten, 2 elementary schools, and 1 high school were so badly damaged that they had to close down. 18 schools located in coastal areas took the role of evacuation centers which were operated by teachers, public officers as well as people in the local community. Some schools were used as bases for rescue teams such as the Self-Defence Force, the police, and the fire crew while some were used as temporary morgues (ibid). The disasters immediately cut off all lifelines, communication networks and transportations. Schools in Kesennuma had engaged in evacuation drills utilizing their disaster-preparedness manuals in case of various situations, however, the disaster was “truly unprecedented - far exceeding the predictions and the manual guidelines” (ibid, p.8). Under such severe circumstances, each school made a great effort to save the students’ lives as possible.

All of the children who were at school survived thanks to the teachers’ knowledge, experience and quick response. However, more than 10 children who were not at school when the tsunami hit lost their lives. Since that day, disaster-preparedness has been a crucial issue in Kesennuma City and schools have engaged in improving the related education and training (ibid).

4.4 Education for Sustainable Development in Kesennuma City

4.4.1 Background

Today, the city is known as one of the models for the implementation of ESD in Japan. It has developed ESD originally focusing on environmental education. The city’s engagement has been contributing to offer a model of ESD activities to other schools in Japan.

The root of the ESD activities in Kesennuma City can be found more than 10 years ago at one of the city’s elementary schools, Omose Elementary School. In 2002, an environmental education program with a global perspective was started by the school. The school collaborated with schools in the United States. These activities have expanded into international joint environmental studies, as a
Japan Fulbright Memorial Fund program, with a school in the United States which combines local and global perspectives (Oikawa, 2014a). With the elementary school as a start, junior high schools and public high schools in Kesennuma later took part in the program in 2004. The activities expanded, not only among different levels of education but also involving various sectors in the society, for example local community centres, specialist organizations, universities and overseas institutions (ibid).

The implementations across the city were acknowledged and UNU designated Kesennuma City as a model for the Greater Sendai region, a Regional Center of Expertise (RCE) for implementation of the DESD (Oikawa, 2013). RCE, a project designed by UNU, is a network that aims to strengthen the collaboration for ESD among regional and local actors (UNU-IAS, 2005). The members of an RCE could include various organizations such as schools, universities, museums, local governments, NGOs, local enterprises etc. UNU explains an RCE as a network that “should be able to identify local concerns and address them in an integrated manner” (ibid, p.22). Today the number of RCEs in the world amount to 135 (as of December 2014) (UNU-IAS, n.d.). Among them, the Greater Sendai region was chosen as one of the “Initial Seven RCEs” in 2005 (Oikawa, 2014b).

In Kesennuma City, the City Board of Education has been promoting the schools to become the UNESCO Associated School (see 4.2.2). In 2008, the first 15 elementary, junior high and high schools became a member of the UNESCO Associated School (Kesennuma City Board of Education, 2009). Since then, other schools have followed, and today all 17 public elementary schools and 12 public junior high schools are the members (as of May 2015).

### 4.4.2 Implementation Strategies in Kesennuma City

In Kesennuma City ESD has been implemented in many schools, from pre-school to high school levels supported by Kesennuma City Board of Education. Figure 6 below shows the implementation system across different sectors in Kesennuma City. The strategies to promote ESD implementation have been developed in the city by: (1) Strengthening vertical and horizontal links among different educational levels, (2) Establishing partnerships with organization outside of schools, (3) Developing the curriculums, and (4) Building support systems.
Figure 6: Coalition to promote ESD in Kesennuma City
Source: Kesennuma City Board of Education, 2009, p.4
(1) Vertical and horizontal links among different educational levels

In Kesennuma City, vertical and horizontal links among elementary, junior high and high schools have been built. Through developing long-term and continuous ESD projects from primary education to secondary education, it aims to develop and educate future leaders (Kesennuma City Board of Education, 2009). For example, Omose Elementary School, Omose Junior High School and Kesennuma High School have conducted international environmental education programs together with schools in the United States. Through such partnerships, learning of ESD could become both continuous and systematic from the elementary to the high school level (ibid). Figure 7 below shows what kinds of abilities and competencies should be fostered through different learning approaches at each level.

![Figure 7: Systematic ESD from elementary to high school](image)

Source: Kesennuma City Board of Education, 2009, p.4

As seen in Figure 7 above, in Kesennuma City, not only does each school engage in implementing ESD, but continuous development of the students to become future leaders in a sustainable society is also sought.
(2) Partnerships with organizations outside of schools
To promote ESD, Kesennuma City Board of Education and the schools have established partnerships with local experts, for example universities, local industries, the government, NPO/NGOs, media sectors and so on (Oikawa, 2014b). In order to put ESD programs into practice, it is necessary to make the most of the resources that each local community and professional organization offer. The more detail of what kinds of organizations take part in the ESD implementation will be described in the following section, (4) (see Kesennuma RCE Promotion Committee). Taking advantages of provided knowledge, techniques and materials, schools are able to create unique and in-depth ESD programs (ibid).

(3) Curriculum Development
The development of the curriculum for ESD in Kesennuma City started in 2007, initially focusing mainly on environmental education. Based on the experiences from pioneering works by Omose Elementary School and other schools, Kesennuma City established their environmental education focused ESD curriculum guide for elementary schools. The curriculum was revised several times and a curriculum for junior high schools was also established. According to the curriculum guide published in 2010, there are two important perspectives. First, it is considered that abilities and skills to be fostered through ESD are not developed at a specific developmental stage or at a specific grade; rather those should systematically be fostered in stages. Therefore, the curriculum has to be tailored based on each developmental stage and at the same time take the connection between grades and different educational levels into consideration. Second, the programs are aimed to be community-based and inquiry-based learning. The curriculum guide emphasizes the importance of reviewing the learning materials from an ESD viewpoint and taking advantage of the characteristics of the local community (Kesennuma City Board of Education, 2010).

(4) Building support systems to promote ESD
Under the strong initiative taken by Kesennuma City Board of Education, various support systems for ESD promotion have been established.

- Kesennuma RCE Promotion Committee
In response to the designation of Greater Sendai region as a RCE by UNU in 2005, Kesennuma City established “Kesennuma RCE Promotion Committee” in 2006 for the further promotion of ESD (Oikawa, 2014b). The members of the committee are shown in Table 5 below.

<table>
<thead>
<tr>
<th>Constituent of Committee</th>
<th>Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialized knowledge Institutes</td>
<td>Miyagi University of Education, Kesennuma City Library, Rias Ark Museum of Art, Miyagi Architect Association</td>
</tr>
<tr>
<td>Local Government (Public sector)</td>
<td>Miyagi Prefectural Kesennuma City Engineering Office, Kesennuma City Environmental and Health Division</td>
</tr>
<tr>
<td>Planning and Policy Division, Kesennuma City Board of Education</td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Local industry and press organizations</td>
<td>Kesennuma Office of Tohoku Electric Power Co., Inc., Kesennuma Chamber of Commerce, Sanriku-Shinpo Newspaper, Kahoku-Shinpo Newspaper</td>
</tr>
<tr>
<td>Educational organizations</td>
<td>Omose Elementary School, Hashikami Elementary School, Shishiori Elementary School, Nakai Elementary School, Omose Junior High School, Shishiori Junior High School, Kesennuma High School, Kesennuma West High School</td>
</tr>
</tbody>
</table>

**Table 5:** Member organizations of Kesennuma RCE Promotion Committee

Source: Oikawa, 2014a, p.158, redesigned by the researcher

- **Kesennuma Round-Table Conference**

The Kesennuma Round-Table Conference has been held annually since 2002 (Oikawa, 2014b) and it offers a place where various local stakeholders can meet. It is hosted by Kesennuma ESD/RCE Promotion Committee and teachers from elementary to high schools in Kesennuma and other cities in Japan, professors and researchers, people from private companies, NGO/NPOs, and the local community participates. The meetings offer participants the opportunity of having “lectures and discussions on ESD to plan future programs and motive the practitioners while sharing knowledge and experience with peers guided by ESD experts from universities and institutions” (Oikawa, 2014b, p.27).

In November 2014, the researcher got a chance to participate in the Kesennuma Round-Table Conference. At the meeting reports about the UNESCO World Conference on Education for Sustainable Development held in Nagoya, Japan in November 2014 were given by the experts who took part in it. Furthermore, one kindergarten, two elementary schools and one junior high school from Kesennuma City, which participated in the UNESCO Associated Schools Project Network International ESD event, gave presentations about their practices of ESD. Lastly, the discussion on future ESD promotion in Kesennuma City towards the sustainable regional development with various stakeholders’ consortium was conducted. Participants coming from different sectors made remarks on their experiences and opinions on today’s ESD in Kesennuma City.

- **Teacher training**

In Kesennuma City, teacher training has been offered to deepen teachers’ holistic understanding of ESD, develop the ESD curriculum at each school and implement the programs effectively. The

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1. The event was held in Okayama, Japan during the main stakeholder meeting which was taken place simultaneously as the UNESCO World Conference in Nagoya.
pioneering schools, Omose Elementary and Junior High Schools and Kesennuma High School as well as the City Board of Education initially led the teacher training for other schools. In 2005, Miyagi University of Education took part in the partnership and various kinds of training and seminars were provided by professors (Kesennuma City Board of Education, 2009). The teacher training targeted all teachers from elementary schools to high schools in the city. Since 2006, the City Board of Education has started to organize ESD-related workshops and symposiums aiming at improving the promotion of ESD. In 2008, an international symposium was held in Kesennuma City and welcomed more than 100 teachers and school administrators from China, South Korea and the United States (Oikawa, 2014b). Likewise, teachers of Kesennuma City travelled to the participating countries and fostered mutual educational exchanges (Oikawa, 2014b). The ASPnet is also one of the key projects which offer opportunities for collaboration. Taking advantage of this network, Kesennuma City hosted the “UNESCO Associated Schools International Forum on ESD in Kesennuma City 2009” inviting practitioners and experts from China, South Korea and Japan. Furthermore, the “National Research Seminar for Environmental Education” (2011) and the “UNESCO School Regional Exchange Conference” (2012) followed and through these events, teachers of Kesennuma City have learned from national as well as international colleagues and shared their experiences (ibid).

4.5 Presentation of the selected schools’ implementations of ESD

In this section, information about the six selected schools will be presented. It includes the summary of the selected schools’ practices of ESD, learning areas, aims, abilities to be fostered, viewpoints and methods of evaluation, challenges and each school’s characteristics of its implementation.

**School A (elementary school): Environmental education**

School A is implementing environmental education focusing on hands-on activities with oyster farming to experience the richness of the ocean. The oyster farming activities were started with generous support from the local residents in 2004. Due to the earthquake and tsunami, the school faced difficulties in continuing the activities both in terms of material issues as well as the mental health of the students. However, with strong support from the community center, the fishing industry, local residents as well as oyster farmers from other cities in Japan, the school restarted the oyster farming activities in 2012. Through the three years from 4th grade to 6th grade, students learn about the importance of the industry for the local community, techniques and knowledge of producing and marketing and the relationships between the ocean and the forest.

<table>
<thead>
<tr>
<th>Program</th>
<th>Environmental education: oyster farming</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aims</td>
<td>• To learn about the fishing industry to further develop towards a sustainable local industry through hands-on activities focused</td>
</tr>
</tbody>
</table>
on oyster farming.

Abilities to be fostered

- To understand the fishing industry and its relationship with nature.
- To understand ways to protect the nature.
- Attitude to be grateful for the cooperation of all the people who enable learning.
- Ability to disseminate information and express their feelings of appreciation.

Evaluation

Viewpoint:
- Ability to identify issues, gather information, solve problems, think critically and the attitude to tackle issues proactively or cooperatively.

Methods:
- Observations by the teachers, peer evaluation, and portfolios including reports, worksheets and compositions.

Challenges

- To improve the ESD curriculum with an awareness of connections with other subjects.
- To develop students’ abilities to put things into practice.
- To seek full shared understanding of ESD within the school.
- To strengthen cooperation with experts.
- To advance exchange activities at regional, national and international levels.

Characteristics

- Taking advantage of the local industry and the rich natural environment.
- Hands-on activities collaborating with the local residents and NPO.

Table 6: School A's ESD program
Source: Kesennuma City Board of Education, 2013

School B (elementary school): Environmental education and Disaster risk reduction education

Since 2002, the school has developed and put into practice an environmental studies program with the theme of waterside environment, while seeking the cooperation of the local community, universities and special institutions. In addition to the environmental program, the school also implemented a disaster preparedness program based on self-help and mutual-help. While dealing with the two themes, the teaching focuses on writing activities; to think for themselves and to express themselves.

<table>
<thead>
<tr>
<th>Program</th>
<th>Environmental education &amp; DRR education focusing on writing activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aims</td>
<td>• To foster the students’ abilities to think independently and express themselves as well as the skills necessary for the future leaders who will contributes to building a sustainable society.</td>
</tr>
</tbody>
</table>
| Abilities to be fostered | • Ability to think critically.  
• Ability to anticipate the future and make plans for it.  
• Ability to think multilaterally and comprehensively.  
• Ability to communicate.  
• Attitude of cooperating with others.  
• Attitude of respecting connections.  
• Attitude of participating proactively. |
| Evaluation | • Focus on changes in the students’ awareness in regard to the |
two themes through a survey about students’ awareness and attitude.
- From the students’ impressions, see changes in the students’ behavior.
- Carry out evaluations of the teachers to measure their awareness of ESD.
- Disseminate information to the local community and ask them about their opinion on activities.

**Challenges**
- To improve the study program systematically and link the content of each study.
- To re-organize the coordination and cooperation with local human resources based on the study contents and aims.
- To review the study content in relation to the learning environment that has been affected by the disaster.

**Characteristics**
- The school has engaged in ESD actively and their activities offer models of ESD to other schools.
- The school conducted their own research and survey on ESD.
- Taking into consideration the framework by NIER (attitudes and abilities to be fostered in ESD).
- Focus on developing abilities and attitudes rather than themes.

**Table 7: School B's ESD program**

Source: Kesennuma City Board of Education, 2013

**School C (elementary school): Understanding local community**

The school is promoting fostering students who love their hometown. The program aims to encourage students to learn about the positive aspects of their hometown through experimental activities in which they interact with local people. The program takes advantage of the local culture, in this case, a traditional dance inherited in the area from a long time ago. The whole school engages in the dance performance and they had the opportunity to perform in other cities in Japan as well as at an international arts festival held in a foreign country in 2012. The dance program is supported by the local organization for preserving the traditional dance. In addition to the activity, the students engage in hands-on activities utilizing the local natural resources collaborating with the local residents such as harvesting vegetables, cooking and exploring the river.

<table>
<thead>
<tr>
<th>Program</th>
<th>Understanding local community fostering students’ love in their hometown</th>
</tr>
</thead>
</table>
| **Aims** | • To have students develop a real sense of the positive aspects of their hometown through interactions with local people, and foster in students an appreciation for the joy of work.  
• To foster in students a love of their hometown and its culture. |
| **Abilities to be fostered** | • Problem-solving skills (improve them by developing the students’ interests in people, nature, and society through experiential activities taking advantage of local materials, and then identifying problems to solve)  
• Ability to express themselves from their own perspective. |
| **Evaluation** | Viewpoints:  
• Uniqueness of the school’s educational activities. |
How the school respond to the hopes of parents/guardians and the local community.

Method:
- To give presentations to parents/guardians and the local people and get evaluations from them through comments and surveys.

Challenges
- To deepen the current experimental activities.
- To continue to develop the activities while working to create new ties with the local people’s successors.

Characteristics
- Making the most use of local resources including nature, traditional culture and local people’s skills and knowledge.
- The activity led to exchanges with people in other parts of Japan and abroad.

Table 8: School C’s ESD program
Source: Kesennuma City Board of Education, 2013

School D (junior high school): Disaster risk reduction education
Under the slogan “We are disaster prevention warriors of the future”, the school has engaged in disaster risk reduction education through learning about ‘self-help’, ‘mutual-help’ and ‘public-help’ as well as the importance of ‘bonds’. The school is located in an area where there is a danger of tsunamis and has experienced major damage historically. Because of these circumstances, DRR education has been the core-learning topic for the school. The school regards a basic concept of ESD as “to nurture individuals who are aware of their relationships with others, with society and with nature, and who are able to value ‘involvement’ and ‘connections’”. Utilizing the period for Integrated Studies, the school carries out DRR education incorporating the ESD concepts into it. Specifically, the students engage in evacuation drills and disaster prevention activities with the local residents etc.

<table>
<thead>
<tr>
<th>Program</th>
<th>DRR education fostering preparedness for natural disasters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aims</td>
<td>- To foster future leaders in disaster prevention and promote the development of the local community to become more resilient to natural disasters.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Abilities to be fostered</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Necessary knowledge and understanding about mechanisms of disaster occurrence as well as how to respond when and after a natural disaster strikes.</td>
</tr>
<tr>
<td></td>
<td>- Necessary judgment ability in case of natural disasters and skills to overcome the disasters.</td>
</tr>
<tr>
<td></td>
<td>- A sense of mutual assistance, which is important in the case of disasters.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Evaluation</th>
<th>Viewpoints:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- To deepen the knowledge and understanding of mechanisms of disasters as well as activities necessary to be taken in case of disasters.</td>
</tr>
<tr>
<td></td>
<td>- To attain appropriate judgment skills required when a disaster happens and gain the necessary skills to protect themselves and their families afterward.</td>
</tr>
<tr>
<td></td>
<td>- A sense of “mutual assistance”, which is important when and after a disaster happens.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Methods:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Observation of students’ activities: evaluate the contents of</td>
</tr>
</tbody>
</table>
submitted reports.

| Challenges | 
| --- | --- |
| • To improve the evacuation drills with people in the local community. | 
| • To develop DRR education learning about public-help activities. | 
| • To maintain the collaboration with the people in the local community. | 
| • To keep the memory of the Great East Japan Earthquake alive by continuing DRR education programs. | 

| Characteristics | 
| --- | --- |
| • DRR education is necessary for the school and the local community. | 
| • The program is designed as a three-year cycle so that students learn about the topic step-by-step. | 
| • The learning outcomes have been recognized through real experiences of evacuations. | 

Table 9: School D's ESD program

Source: Kesennuma City Board of Education, 2013

School E (junior high school): Understanding local community

Students learn about iron-making, which was once a thriving industry in the local district. The establishment of the ESD program was supported by great cooperation from local residents. Students experience the processes from the very beginning and learn about the knowledge of their predecessors and recognize the good qualities of their hometown. In addition to the activity, students deepen their awareness of working and living through four days “work experience”, where the students experience specific occupations, “company visit” and “volunteer experiences” at welfare facilities. Through the three years of ESD studies based on these activities, all students think about their own way of living.

<table>
<thead>
<tr>
<th>Program</th>
<th>Understanding local community: Learning how to live</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aims</strong></td>
<td>• To foster the students’ willingness to examine themselves and ambitiously advance their future paths independently.</td>
</tr>
<tr>
<td></td>
<td>• To nurture the students’ abilities and attitudes necessary to become leaders who contribute to a more sustainable society.</td>
</tr>
<tr>
<td><strong>Abilities to be fostered</strong></td>
<td>• Ability to examine issues/learn/think/make decisions independently and solve problems creatively.</td>
</tr>
<tr>
<td></td>
<td>• Ability to cooperate with others and communicate with a variety of people.</td>
</tr>
<tr>
<td></td>
<td>• Ability to strengthen their sense of self-affirmation and think ambitiously about their life.</td>
</tr>
<tr>
<td><strong>Evaluation</strong></td>
<td>Viewpoints:</td>
</tr>
<tr>
<td></td>
<td>• Ability to set topics and problem-solving skills.</td>
</tr>
<tr>
<td></td>
<td>• Independent and creative attitude to study.</td>
</tr>
<tr>
<td></td>
<td>Methods:</td>
</tr>
<tr>
<td></td>
<td>• Self-evaluation in each session (evaluation card, report about impressions).</td>
</tr>
<tr>
<td></td>
<td>• Portfolio evaluations.</td>
</tr>
<tr>
<td></td>
<td>• Presentation of efforts and processes at debriefing meetings and the coming-of-age-ceremony.</td>
</tr>
<tr>
<td><strong>Challenges</strong></td>
<td>• To further improve guidelines in order to reach the program’s</td>
</tr>
</tbody>
</table>
aims, seeking connections with other subjects to make the learning more integrated.
- To maintain the cooperation with the local community
- To proactively give information about the results of the studies to the students’ families and the local community, deepening their understanding of ESD.

### Characteristics
- Applying the traditional industry as a learning material and connect the study to career education which leads the students to think about the link between the locality and their future.
- The local human resources provide knowledge, skills and experiences for the program and they actively take part in the activities.

**Table 10:** School E’s ESD program

Source: Kesennuma City Board of Education, 2013

**School F (junior high school): Food Education**

The school engages in food education as ESD. Throughout the three years, the school provides guidance related to food (ex. Good eating manners, hygiene and cultivating desirable interpersonal relationships through having meals) during the school’s lunchtime. With it as a core, the students also learn about the importance of food and their own health through related studies in various subjects as well as vegetable growing activities led by the student council. Utilizing local human resources, various activities such as learning through lectures, cooking classes and vegetable cultivation, the students deepen their knowledge of their local region and local products and raise their consciousness as a member of the local community. The program also nurtures in students an attitude of desire to use local products and pass on food culture. In addition to the locally oriented activities, the students also learn about the characteristics and current state of Japan’s agricultural and fishing industries compared with other countries.

<table>
<thead>
<tr>
<th>Program</th>
<th>Food education through production, processing &amp; consumption</th>
</tr>
</thead>
</table>
| **Aims** | • To foster qualities and capacities that allows students to understand the importance of food and make efforts actively to keep their own health.  
• To nurture the students’ willingness of learning about local products, raise their consciousness as a member of the local community as well as understand the local food culture. |
| **Abilities to be fostered** | • Understanding of nutrition and eating habits which are necessary to maintain and improve both physical and mental health and growth, as well as essential abilities to manage their own health.  
• Attitude to willingly learn about the nature of food.  
• Good eating manners and hygiene management.  
• To foster desirable social relationships in an environment where students can enjoy meals together.  
• Attitude to value food through deepening the student’s understanding and appreciation of various activities of the people involved in food production and preparation as well as the blessing of nature. |
### Evaluation

**Viewpoints:**
- To what extent students realize the importance of food and think about nutritional balance in eating.
- Attitude to eat enjoyably keeping in mind good eating manners and hygiene.
- Understanding of the meaningfulness of local production for local consumption and awareness of utilizing local food.
- Attitude to respect nature and appreciation for those involved in food-related activities.
- To what extent students raise their interests in and desire to think about various food-related issues.

**Method:** n.d.

### Challenges

- Need to further develop the food education program by improving the quality of the soil in the school garden through the use of fertilizers made from kitchen leftovers etc., while directing the student’s eyes to natural cycles.

### Characteristics

- The schools lunch time serves as one of the time periods for ESD learning.
- While focusing on raising awareness of the importance of local food culture, the studies on food at both the national and international levels are also designed.

**Table 11:** School F’s ESD program

Source: Kesennuma City Board of Education, 2013

From the tables above one can see that none of the schools work with ESD in the same way. Even so some similarities between them can be found which will be presented in detail in the coming chapter.
Chapter 5 Findings

In this chapter, the findings of the study will be presented. The findings were derived from the field research (interviews and questionnaires) and the supplemental comparative study with six schools (the two schools from the field research as well as the additional four schools). The supplemental comparative study was based on document analysis utilizing the report, “Kesennuma ESD Joint Research Report” (Kesennuma City Board of Education, 2013) which was described in the previous part (4.5). The six schools were compared as individual schools regardless of the level of each school (elementary or junior high school).

The findings will answer the research questions of this study, namely: What kind of content (themes or topics) do selected schools deal with as ESD?; How do the schools implement ESD? When and where do the schools implement ESD and what kinds of methods they use?; How do the schools evaluate ESD? What kinds of values are aimed at attaining through ESD?; How do teachers understand ESD?; What are the challenges in implementing ESD in schools?

5.1 Contents

In Kesennuma City, environmental education has been the core theme and ESD was understood as environmental education before. The trend could be seen in the previous curriculum guides, which were named ESD in Kesennuma City as “ESD (Environmental education)” in the documents (for example in “Kesennuma City Environmental education and ESD Curriculum guide” (2007) and “Development and Implementation of ESD curriculum centering on Environmental education” (2010)). According to the curriculum guide (2010), it was explained that Kesennuma City especially focused on environmental education as ESD, taking into consideration the history of the city’s efforts on environmental education in the schools and in the local community while recognizing that the concept of ESD incorporates not only environmental education but also various themes such as the protection of human rights, peace, international understanding, poverty reduction etc. (Kesennuma City Board of Education, 2010).

However, from the document analysis based on the schools’ implementations in 2012, the researcher found that the schools in Kesennuma City attempted to implement ESD through various other themes than environmental education in the ESD programs. For example, understanding of local community was the main topic at School C and E. As illustrated in 4.3.1, the city is characterized by the fact that local sustainability has been a great concern due to the acceleration of demographic aging.
and decreasing population. Furthermore, the absence of higher educational institutions such as universities and colleges in the city encourages young people to move out from their hometown after high school. Under such circumstances, it is crucial for the city to foster in students a real sense of the positive aspects of their hometown. Through learning about local traditional culture (School C) or industry (School E), the ESD programs let the students acquire deep knowledge about the local area’s history and the peoples’ way of living harmonized by each region’s characteristic.

Approaches which seek to develop the students’ feelings toward their hometown are also taken by the other schools but through dealing with different topics. For example, School A’s environmental education takes advantage of oyster farming which is the main specialty of the area. The activity started with the local fishermen’s wish to pass down their local industry to future generations. In the region, approximately 80% of the working population engages in the fishing industry and its related occupations, where oysters have been one of the most important products (Miyagi Fisheries Cooperatives, n.d.). This case is an example of how a local community makes use of an initiative and how people’s willingness leads to educational activities with the schools in contrast to the cases where schools try to involve the local community. School B’s environmental studies are also designed to utilize the local rich nature, such as a river and the ocean as the learning materials. In School F’s food education, one of aims of the program is to develop the students’ attitude towards desiring to learn about local products. These examples show that the ESD programs in Kesennuma City are designed to take advantage of the rich local assets, including the nature, culture and human resources, thinking a great deal of passing them down to future generations.

In addition, Disaster risk reduction (DRR) education is positioned as another important theme for ESD, especially after the Great East Japan Earthquake and tsunami in 2011. As seen in the example of School B, some schools started DRR education as an ESD program. According to Sekiguchi (2013), who conducted a comparative analysis on the learning areas of ESD before and after the disaster, the number of schools practicing DRR education increased nearly fivefold. Moreover, there were more schools engaging in DRR education if taking into consideration the schools that did not report DRR education as their main ESD area. Concerning the increase of DRR education, Kesennuma City Board of Education explains that it is being carried out by many schools and some of them are not conscious of these activities as ESD (ibid).

5.2 Methods

In general, the time periods for the Integrated Study (IS) serve the main stage for ESD implementation. IS is introduced from 3rd to 6th grades at elementary schools and in all grades at junior high schools. For 1st and 2nd graders, the time for life environmental studies is allocated for ESD activities instead. While regarding these specific times as the main time framework, the schools are trying to seek the essences of ESD in the subjects as well. On the way of developing the curriculum
for ESD, it has been recognized that ESD should be implemented with a systematic, interdisciplinary and holistic approach in Kesennuma City (Kesennuma City Board of Education, 2010). Based on this awareness, the schools in Kesennuma City have attempted not to make an additional subject for ESD, but rather to implement ESD throughout all of the educational activities, including the teachings in each subject and extra-curricular activities\(^2\). For example, School F utilizes the daily school lunch time for ESD learning from a food education perspective. Furthermore, the school seeks connections with the topic in other subjects; for example, “Cooking classes using local products” in technology and home economics, “Japan’s natural environment from a global perspective” in Social studies (geography), “Dietary habits and health”, “Preventing lifestyle diseases” in Health and physical education, and “Nature and Humans” in Science.

On the other hand, since the introduction of IS in the national curriculum, it has become the main framework for ESD implementation at most of the schools. In the interview at School D, Informant 3 explained that the school implements the ESD program mainly during IS, however he pointed out that:

…if we think about ESD itself, it is not limited to the specific area, rather, I think it can be said that ESD should be included in the whole educational activities. But, considering the daily implementation with all the school staff, it is easy for everyone to have a specific time framework for ESD, I think. (Informant 3)

This implies that Informant 3 understands that ESD is not some thematic program which is conducted during a specific time framework similar to subjects like mathematics and science but that it should be more than that.

In terms of location, ESD programs take place not only in the classroom but also outside of school: in rivers, the ocean, forests, school gardens and farms, community centers, private companies; in other words, ESD takes place all over the local community. The example of School C’s traditional dance performance also shows that schools go beyond Kesennuma City to other parts of Japan and even abroad.

As methods for implementing ESD, multi-methods are employed as it is one of the prominent features of ESD. For example, lecture in classrooms by teachers or professionals including local residents, professors from universities, specialist from NGOs etc., hands-on learning, fieldwork, group work and individual activities are taken and multiple methods are often combined through the ESD program. Concerning the decision on which method to apply, teachers do not have a tight guideline to follow, rather they flexibly see which method suits them the best depending on the learning contents.

\(^2\) Extra-curricular activities are regulated both in elementary and junior high schools and it includes student council, club activities and school events etc. The activities aim at the harmonious development of mind body through desirable group activities and at the development of personality and practical attitudes for improving life as well as the ability to deepen students’ own ways of living and develop oneself (MEXT, n.d.e, n.d.).
and choose the appropriate one. In the interview, Informant 1 from School A, engaging in oyster farming, expressed that:

We use many methods…of course field work, and sometimes we invite guests to have lectures at school. And we have discussions both as a whole and in small groups, as well as presentations. We don’t need to decide to use any specific method, we can just change the method depending on the learning process and the students’ condition for example. (Informant 1)

Informant 1 also mentioned the importance of hands-on activities that enable students to take information and make it into more solid knowledge.

Everyone (students) knows nutrients come from the forest and then becomes food for planktons and then the oysters eat the plankton. But, they’ve never seen that. (…) Information that we get and take for granted…we question again. Unless we experience it, such information just becomes shallow knowledge. We make it solid knowledge through experiencing it. (Informant 1)

As described above, ESD implementation takes place in the form of multi-methods and multi-spaces involving various people outside of school. In order for schools to make it happen, it is important that the schools go beyond their schools and establish linkages with the local community and professional organizations (Oikawa, 2014b). ESD programs are able to develop and become more unique by adding techniques and knowledge from experts. In Kesennuma City, almost all schools have their own school support committee, consisting of teachers, parents/guardians and local residents. At School A, the school support committee enables the implementation of the ESD program for the teachers. The members include fishermen, people from fishery industry-related organization and agriculture, members of the parent-teacher association and so on. When the school needs to human resources, the local retired fishermen sometimes come to support the ESD activities. The committee runs the meeting twice a year and it allows the school to conduct a variety of activities by providing their knowledge and networks.

5.3 Values and evaluation

As described in the previous part (see 4.2.2), NIER’s research on ESD provides the framework for ESD implementation. In their research, seven abilities and attitudes that should be aimed to be fostered in ESD were suggested (see Table 4). According to the Kesennuma ESD Joint Research Report (2013), the schools took these into consideration and thereby improved their ESD programs. From the analysis of the selected six schools, the researcher found that most of the abilities and attitude to be fostered can be summarized in NIER’s seven abilities/attitudes, which are:

- Ability to think critically
- Ability to forecast the future plan
- Ability to think in multifaceted and comprehensive ways
- Ability to communicate
- Attitude to cooperate with other people
- Attitude to respect for connections
- Attitude to participate willingly (NIER, 2012, p.4)

Other than these seven criteria, “ability to use their own words to express their own perspectives” (School C), “ability to examine issues, learn, think, and make decisions and solve problems independently” and “ability to enhance self-affirmation” (School E) were seen. Furthermore, there were some in which the city’s characteristics were reflected: “attitude to be grateful for people who enable students to learn” (School A), “attitude of desiring to pass on the local culture” (School F).

In terms of evaluation methods, first of all, teachers do not grade students based on a scale (such as “A, B, C…”), instead, teachers give written feedback in grade transcripts. From the six schools’ examples, three ways to evaluate how and to what extent the students have attained the aimed abilities and attitudes were derived. First, teachers conduct observations throughout the ESD programs focusing not only on how much students have gained knowledge and skills, but also on changes in the students’ awareness and behavior. Another way is self- or peer evaluation by the students through surveys and reports. Those written reports are kept as portfolios and teachers use them to evaluate how students have grown throughout the ESD activities. The schools also took into consideration the feedback given by parents/guardians and local residents. Some schools had opportunities to hold presentations inviting both parents/guardians and local residents and thereby received comments.

As seen above, evaluation for ESD is not conducted by examinations or grading, instead it is focused on the students’ learning process. It is also worth noticing that schools not only design ESD programs together with local residents but also share the outcomes with them and take their opinions into consideration to improve the implementation of ESD.

### 5.4 Challenges

One of the major challenges that the schools in Kesennuma City face when it comes to the implementation of ESD is that the teachers’ understanding of ESD remains ambiguous. In many schools, ESD is implemented by utilizing the time of the Integrated Studies (IS) and it leads to teachers’ misunderstanding that ESD and IS is the same thing. IS seems to be the perfect time frame since it has great commonalities with ESD, which are as follows:

**Integrated Studies:**

- Aims to enable students to think in their own way about life through cross-synthetic studies and inquiry studies, while fostering the qualities and abilities needed to find
their own tasks, to learn and think on their own, to make proactive decisions, and to solve problems better.

- Should be designed taking into account the circumstances of the local community, schools and students. Each school should conduct educational activities that abound in ingenuity such as cross-synthetic studies that cross over the boundary of subjects and periods, inquiry studies and studies based on the students’ interest and concern (MEXT, n.d.c).

IS is not a subject, however, the time for IS is regulated by the government in the course of studies for elementary to high school which means that it is a compulsory program. Because of this background, IS seems to be an additional subject. Likewise, by utilizing the time frame of IS for ESD implementation, ESD may look like a separated “subject” as well. As illustrated in the previous part (see 5.2), Informant 3 mentioned that it was convenient for teachers to have a specific time frame for ESD, which is during the time for IS for them.

In the interviews, teachers expressed concerns about teachers’ understanding of ESD:

I think there are many teachers who haven’t been able to grasp the meaning of ESD questioning themselves “What on earth is ESD?” (…) My impression as a practitioner is that it has a cool name, “ESD”, and that’s why it makes us think of it as something special and that we need to do something special or different compared to the ordinal subjects. (Informant 3)

We’ve been trying to have a shared understanding of ESD, but it’s still difficult. Teachers tend to try to distinguish ESD, IS and different subjects from each other. It’s difficult to make them understand that it is not like that. (…) I think it is not that teachers don’t understand it but the understanding is not enough. That’s why they seem to be passive. This is a difficult point. (Informant 1)

These answers imply that teachers are struggling with understanding ESD holistically and having difficulties in integrating it into their education.

In addition, the researcher also found that schools often indicate their ESD activities by calling them “environmental education” or “DRR education” rather than “ESD”.

In our school (School D), DRR education is our school’s characteristic. “DRR education” is like a keyword in our school and it makes it easy for the students to understand what we do. We (teachers) don’t use the word “ESD” to our students. (Informant 3)

I think people in the local community understand (the ESD activities) it as “environmental education”. The word “ESD” has not been shared in the community. (Informant 1)
As seen in these answers, ESD activities are shared by teachers, students and the local community as specific adjectival education, for example as environmental education. This could also lead to risking that ESD remains an additional subject or adjectival education.

Making connections between ESD and different subjects is another challenge for the teachers. In Kesennuma City, this point has been emphasized in their curriculum guide for ESD, however, this research shows that it still remains difficulty for many teachers to make these connections.

ESD should be implemented with links in each subject. (...) Abilities fostered in ESD could be applied within subjects, while basic knowledge attained in subjects is of course utilized in ESD. So (the point is) how can we better create this link… so here, we use the “ESD Calendar”. I think many schools make their own one. But it’s difficult for teachers to check everything…(Informant 1)

The ESD Calendar is a cross-curricular study chart that many UNESCO Associated Schools in Japan utilize (see Figure 8 below).

Figure 8: An example of ESD Calendar for fourth grade at elementary school


Figure 8 shows an example of the ESD Calendar for fourth grade at an elementary school. In this school there are four themes chosen as ESD, indicated in the bottom: “Environmental Education” (green), “Understanding Different Cultures” (yellow), “Human Rights and Life Education” (pink) and
“International Cooperation” (blue). Teachers write down some specific learning units in each subject and extra-curricular activities which are related to ESD themes. By using this calendar, teachers are able to see links between their ESD themes and subjects and other educational activities.

According to the answer by Informant 1, the ESD Calendar is widely used in Kesennuma City as well. However, as he mentioned, the teachers still have difficulties in making connections with ESD and other learning and activities. He also pointed out the importance of reviewing the ESD Calendar with the teachers in order to better implement ESD next year.

In our school, each teacher checks what relates to ESD within the subjects they teach. The ESD Calendar is not a completed thing, but something we need to continue to improve every year. The more we try, the more we can come up with different approaches, I think. In other words, we do not have a perfect finished plan or ESD Calendar but we have to keep improving our methods…(Informant 1)

Another challenge raised was to strengthen the cooperation with people who support ESD programs. In order for the schools to conduct unique, locally relevant and multi-method educational activities, support from the local community and professional organizations is necessary. According to Informant 4, all schools in Kesennuma City collaborate with various people outside of the school. For the city, where ESD has been actively implemented for more than 10 years, to maintain and further develop this cooperation is a challenge.

Informant 4 mentioned that to maintain the relationships with outside supporters is necessary for schools to keep ESD itself sustainable as well. He pointed out that school is a fluctuating environment, where principals and teachers transfer to another school after several years. In such a situation, if the schools have a “system” where the collaboration partners, such as the local communities and professional organizations, support the schools, they are able to continue ESD practices by utilizing the already established connections with outside supporters. Furthermore, well-developed curriculum and governance are the keys to continue ESD according to Informant 4. In terms of curriculum, if schools already have a curriculum, they can start with it. It makes it easier for the schools to begin ESD in the year even if some of the teachers do not have knowledge or experience of ESD. Concerning governance, Informant 4 emphasized that sharing the importance of ESD with school principals is needed in order to make ESD practices continuous. In Kesennuma City, the City Board of Education takes the role to offer teacher trainings and multi-stake holders’ meetings. In such occasions, the importance of continuing and inheriting ESD is shared with both the principals and the teachers. In addition, Informant 4 also underlined that highly motivated and passionate teachers and stakeholders are necessary to succeed with continuous ESD practice. With those four keys; collaboration system, curriculum, governance and passion, schools are able to maintain ESD practices on a long-term basis.
5.5 Meanings of ESD

Informant 4 is a key person for Kesennuma City’s ESD since he is one of the important contributors who planted the seed of ESD. Informant 4 was an elementary school teacher for about 20 years and through his career, he became aware of the changes in the students. What he noticed was the lack of imagination, patience to overcome challenges, and strong will to live proactively in today’s children. He noticed these students’ changes in the social changes that brought lives where children are surrounded by electronics such as television, video games and cellphones and have less interpersonal relationships with the people in the local community. Additionally, he is concerned about the Japanese cramming system of education which put great value on academic results rather than personal and social abilities. Based on this awareness, he realized the importance of different ways of which allows the children to foster the ability to think and take actions independently, problem-solving skills, and ability to cooperate with others and put much value on learning processes. With this as the start, the initial model of ESD in Kesennuma City was born.

Informant 4 explained that ESD has two important characteristics. One is “experience” that allows the students to develop their knowledge to solid knowledge and leads them to take actions. The other is “relationship” with others, nature, the community, and the society. He emphasized that ESD is a driver, which connects all the four important sectors for education: (1) School, (2) Family, (3) Community, and (4) Society.
Chapter 6 Discussion

6.1 Sustainable Development and ESD in Kesennuma City

The concept of sustainable development embraces the three pillars: environment, economy and society. These three elements are all necessary to achieve sustainable development. In Kesennuma City, there are several important aspects when it comes to the local sustainability. First, surrounded by its rich nature with the ocean, rivers and forests, the life of the inhabitants is closely tied to the natural environment. Preserving nature is crucial, not only from an environmental perspective, but also from an economical perspective since the local industries take advantage of the natural resources. At the same time, the city has been at risk when it comes to social sustainability due to the change in demography: the aging population combined with the diminishing number of children. To make matters worse, the Great East Japan Earthquake, brought about serious damages to the city, threatening the environmental, economic and social sustainability. Under such circumstances, ESD in Kesennuma City seemed to shift from an environmental education focus to putting more emphasis on education which allows students to acquire a deeper understand of their hometown as well as DRR education after the disaster. In terms of choosing focus area for ESD program, schools take advantage of the characteristics of each local community, for example traditional culture and industry. Local residents are important contributors to ESD activities and various organizations from the fishing industry, community center to higher education institutions provide their professional knowledge and opportunities for hands-on learning activities. Through these activities, students learn about their hometown while making connections with the local people and raise their self-affirmation as a member of the local society.

6.2 Whole-school approach for ESD

Through the analysis of ESD, taking the recent educational reform in Japan into consideration, the researcher found that the Integrated Studies (IS) shares a common ground with ESD. Therefore, the period for IS often serves as the main time frame for ESD implementation at the schools. It is positive that Japanese schools already had a foundation of ESD in their curriculum, however, it could lead to ESD remaining as just an activity of IS. UNESCO (2006, p.17) state that ESD is “interdisciplinary and holistic”, more specifically; “learning for sustainable development is embedded in the whole
The whole-school approach aims to reorient existing education conceptually and organizationally. The approach emphasizes that ESD should be integrated, not only in formal curriculum but also in various aspects in education including non-formal curricula, school policies and management including interaction between school and the community (UNESCO, 2012). It offers “a platform to evaluate the practice for the individual school and to formulate challenges, possible collaborations, combining various fields of activities and help the development of new fields of practice and activities towards a more sustainable practice at school” (Mathar, 2015, p.24). In order for schools to implement the approach, as some informants for this study mentioned, promoting understanding of ESD is necessary.

6.3 ESD as critical pedagogy

This study illustrates that the schools aim to foster students’ abilities to make what they know into more solid knowledge by questioning and putting their knowledge into action through ESD. Behind the need of such abilities, the researcher found various social changes at local, national and global levels which demand another quality in individuals. ESD encourages individuals not to follow the existing knowledge and ways of thinking without questioning it, but rather to examine it critically. In this way, ESD can be seen as critical pedagogy.

Welsh and Murray (2003) raise four characteristics of critical pedagogy. First, critical pedagogy emphasizes the decentralization of power, which means that teachers and students do not have a hierarchical relationship. In ESD, which differs from the traditional teaching which is one-way knowledge transmission from teachers to students, learning takes place by a participatory approach where teachers and learners work together. Second, in critical pedagogy, disciplinary boundaries should be crossed, which is one of the major characteristics of ESD as well. Learning in various themes, such as environmental education and food education, contribute to ESD. Another point is that critical pedagogy encourages problematizing simple concepts. In other words, it promotes not accepting things easily, but rather to see and interpret them from more than one perspective. As illustrated in the findings for this study, the teachers put much value on this in ESD learning. The last point of critical pedagogy is that learning is action-oriented. It is an essential part for the concept of sustainable development. In ESD, the transformation of individual values and behavior, namely, individuals’ becoming a transformer is emphasized (Springett, 2015).
6.4 Concluding remarks

Since the United Nations Decade of Education for Sustainable Development, which was launched in 2005, all over the world education is recognized as playing a significant role to advance sustainable development and have reoriented education towards ESD (UNESCO, 2014). Among those countries, Japan has been actively engaging in promoting ESD at the government and local levels. In formal education, the Japanese government positioned ESD as one of the key philosophies in the Basic Plan for the Promotion of Education in 2008. Furthermore, the idea of building sustainable development was incorporated into the Course of Study across various subjects for elementary to high school level. The number of schools which implement ESD is increasing year by year throughout the country.

This study aimed to examine how elementary and junior high schools implement ESD and to shed light on the teachers’ understanding of ESD as well as the challenges the schools face. From the case study of Kesennuma City, Miyagi, Japan, the researcher found that the ESD implementations were based on the unique background of the city. First, for the city, local sustainability has been a crucial issue due to the rapid aging demography and the decreasing number of youths, and inevitably, the effects caused by the Great East Japan Earthquake. This situation has led to ESD in Kesennuma City playing a role to promote students’ understanding of their hometown and raise self-affirmation as a member of the local community. Each school sets learning areas based on each region’s characteristics and develop their programs taking advantage of each local community’s resources including nature, culture, industry and its people.

In terms of challenges for implementing ESD, the researcher found that the holistic understanding of the ESD concept is conceived as one of the major difficulties for the teachers. While the teachers are seeking to link ESD and regular subjects, such as mathematics and science, the lack of fully understanding of the concept makes it difficult. The findings show that this is because ESD at schools mostly indicates or is understood as the specific activities during a specific time frame. However, ESD should be addressed in the whole education, not only as a part of the curriculum. That is, ESD is not an additional subject or a program; rather, it is an overarching paradigm that enables the whole education to advance sustainability. In order for schools to integrate ESD into their education, it is important that schools do not limit ESD as a specific activity, but capture its essential meaning.

Today, the DESD, an international campaign for ESD, has come to an end. To maintain ESD at each school from here on will prove to be a challenge since the political influence may weaken. As described in this study, ESD has been spread in the Japanese schools, which can be seen in the increasing number of the UNESCO Associated Schools in the country during the Decade. In the Japanese context, the UNESCO Associated Schools have taken the position of a hub to promote ESD, however, becoming a member school should not be regarded as a goal of ESD. Rather, one needs to think that it is one strategy to take actions towards ESD. Since the implementation of ESD is not a legal obligation, the future of ESD depends on whether schools perceive its potential positively and
are willing to continue their efforts in practicing ESD. In the case of Japan, the researcher saw the needs to foster the abilities and attitudes necessary for children to adapt to the rapidly changing society, which can be seen as the drive of the recent educational reforms as well as ESD. In other words, the essences of ESD is something that is shared with the concept of “zest for life” and IS. Therefore ESD has the possibility to become an important part of Japanese education. However, it is important not to judge ESD in the short term based only on the students’ academic results. Rather, the fruits of ESD can be seen in each individual’s social and personal growth, something which is not measured by a paper test in school. This is also one of the major difficulties of ESD, the outcomes cannot clearly be seen or when and how they manifest. Finding a way to evaluate the results of ESD is something that needs to be answered by future studies. Additionally, this study only focused on the implementation of ESD in formal education, however, to examine the implementation in other forms of education as well as in other sectors of the society could be another example of future studies.
References


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Appendix 1 Regulated subjects and extra-curricular subjects’ school hours (elementary and junior high school)

### Elementary school

<table>
<thead>
<tr>
<th>Category</th>
<th>1st Grade</th>
<th>2nd Grade</th>
<th>3rd Grade</th>
<th>4th Grade</th>
<th>5th Grade</th>
<th>6th Grade</th>
</tr>
</thead>
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<td>245</td>
<td>245</td>
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<tr>
<td>Social Studies</td>
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<td>-</td>
<td>70</td>
<td>90</td>
<td>100</td>
<td>105</td>
</tr>
<tr>
<td>Arithmetic</td>
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<td>175</td>
<td>175</td>
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<td>105</td>
<td>-</td>
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<td>-</td>
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<tr>
<td>Music</td>
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<td>70</td>
<td>60</td>
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</tr>
<tr>
<td>Arts &amp; Handicrafts</td>
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<td>60</td>
<td>60</td>
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</tr>
<tr>
<td>Home Economics</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>60</td>
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<tr>
<td>Physical Education</td>
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<tr>
<td>Moral Education</td>
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<td>Foreign Language Activities</td>
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<td>Period for Integrated Studies</td>
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<td><strong>Total School-Hours</strong></td>
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<td><strong>945</strong></td>
<td><strong>980</strong></td>
<td><strong>980</strong></td>
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</tbody>
</table>

*Table 12: School-hours per subjects and extra-curricular activities (elementary school)*

Source: MEXT, 2008b, p.iii, translated and redesigned by the researcher
## Junior high school

<table>
<thead>
<tr>
<th>Category</th>
<th>1st Grade</th>
<th>2nd Grade</th>
<th>3rd Grade</th>
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<tbody>
<tr>
<td>Japanese Language</td>
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<td>140</td>
<td>105</td>
</tr>
<tr>
<td>Social Studies</td>
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<td>105</td>
<td>140</td>
</tr>
<tr>
<td>Mathematics</td>
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<td>105</td>
<td>140</td>
</tr>
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<td>Science</td>
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<td>140</td>
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<td>Music</td>
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<tr>
<td>Fine arts</td>
<td>45</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>Health and physical education</td>
<td>105</td>
<td>105</td>
<td>105</td>
</tr>
<tr>
<td>Technology/home economics</td>
<td>70</td>
<td>70</td>
<td>35</td>
</tr>
<tr>
<td>English</td>
<td>140</td>
<td>140</td>
<td>140</td>
</tr>
<tr>
<td>Moral Education</td>
<td>35</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>Period for Integrated Studies</td>
<td>50</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>Special Activities</td>
<td>35</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td><strong>Total School-Hours</strong></td>
<td><strong>1015</strong></td>
<td><strong>1015</strong></td>
<td><strong>1015</strong></td>
</tr>
</tbody>
</table>

**Table 13:** School-hours per subjects and extra-curricular activities (junior high school)

Source: MEXT, 2008a, p.iv, translated and redesigned by the researcher
Appendix 2 Interview guide and questions for the questionnaire to teachers

Background questions

- Grade
- Subject (lower secondary school teachers)
- How long have you been a teacher?
- How long have you taught ESD as a teacher? (Including your experiences in other schools)
- How long have you taught ESD in your school?
- How long have you taught ESD in your class?

Questions about ESD implementation

1. How do you understand Education for Sustainable Development (ESD)?
2. What kind of topic/theme do you deal with as ESD in your class?
3. Why did you choose the topic/theme?
4. What does the process of your ESD class look like? (What do you start with and how is it continued?)
5. What kind of form of learning do you use?
6. Do you use any framework for teaching ESD and how do you use it?
7. How do you prepare for your ESD class? Do you cooperate with other teachers in your school, other schools or people in your community?
8. How do you evaluate your students’ achievements? What are the learning goals and what kind of values do you think is important for the students to attain?
9. How and why is the result of the evaluation used? Who does use them and for whom?
10. What do you have difficulties with concerning implementation of ESD in your class?
11. What do you think about the implementation of ESD in your class or school?
12. What do you need to further develop your ESD class in the future?
Appendix 3 Interview guide to Informant 4

About the beginning and development of ESD in Kesennuma City
1. What brought ESD to you and how did you develop it in Kesennuma City so far?
2. What were the difficulties in order to promote ESD in Kesennuma City?

About the collaborations with other organization/stakeholders outside of schools
3. How did you establish collaboration with various organizations/stakeholders outside of schools? What were the difficulties and what do you think about collaboration in the future?

About UNESCO Associated Schools
4. What were the difficulties in promoting the schools in Kesennuma City to become a member of the UNESCO Associated School?
5. The number of the UNESCO Associated School is increasing in Japan but what you think about its importance? What do you think about the significance of being a member school?

About the Great East Japan Earthquake and ESD
6. Do you think there was any effect from ESD on students when the disaster happened? If so, what effect do you think ESD had?
7. After the disaster, is there any change in the ESD implementations at the schools in Kesennuma City?

About ESD in the future
8. In the end of the Decade of Education for Sustainable Development, what do you think about the future for ESD (both at the national and the local levels)? What is needed in order to further develop ESD do you think?