

# International Comparative Studies of Curriculum Framework with Regard to ESD in Schools<sup>1)</sup>

## 学校におけるESDのカリキュラム枠組に関する国際比較研究

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### 要旨

学校におけるESDの取組は、UNESCOのDESD中間レビュー報告書(UNESCO, 2009)において指摘されているように、多くの国々においてその進捗が見られていると指摘されつつも、その国々の歴史的な文脈やESDの国家的枠組と優先課題、主要な取組を踏まえたうえで、比較・考察されている調査研究は少ない。本調査研究は、海外に見られる持続可能な社会づくりの構成概念の比較とともに、国別ESDプログラム5事例(ニュージーランド、オーストラリア、ドイツ、スウェーデン、中国)と、国際ESDプログラム4事例(FEE Eco-Schoolsの地域別3事例, ENSI Eco-Schools)を調査研究の対象とし、その取組の比較を行った。収集された事例データは、開発された比較マトリクス表へ挿入した。不足情報に関しては継続的に入手して加筆する方針を採用した。事例データの解釈と考察の深化においては、国立教育政策研究所の実施した研究プロジェクト(学校における持続可能な発展のための教育(ESD)に関する研究、研究代表:角屋重樹)における実践者・専門家との議論を経て、調査研究の質的向上を図ったものである。本報告は、海外に見られる持続可能な社会づくりの構成概念の比較についてその詳細を述べるとともに、国別ESDプログラム5事例と国際ESDプログラム4事例の比較研究に基づく、日本の学校教育におけるESDの推進にむけた配慮事項を整理した。

### Abstract

The National Institute of Educational Policy Research (NIER) responded to the needs of ESD related curriculum development under the educational policy setting, and decided to launch a Research Project to disseminate ESD and show teachers how to implement ESD at schools under the national curriculum standard in Japan. The Research Project is based on the trends and issues for ESD, and aims to develop the basic principles for integrating and implementing ESD in a school setting. For the identification of the trends and issues for ESD, international comparative studies of: the concepts of sustainable development; and ESD school programmes; were conducted as a part of the Research Project. Sample concepts of sustainable development at national and regional level were collected and compared (NIER, 2012). Most frequent concepts of sustainable development in the study were “interdependence”, “**participation**”, “**cooperation and collaboration**” and “responsibility”. On the other hand, some original con-

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cepts to be noted were, “democracy” in Sweden, “scientific perspectives” in China and “uncertainty and precaution in action” in UK. These concepts were reflected to the development of NIER’s conceptual components of sustainable society-building and of ESD, which were categorized into six concepts include: (1) diversity; (2) interdependence; (3) limitation; (4) fairness; (5) cooperation; (6) responsibility. Curriculum framework discussion in Japanese schools has conducted by experts of the Research Project as well as the discussion of: setting educational conditions for school management; and cooperation and collaboration with families and local communities. Further, some points to be considered were listed based on the comparative studies and experts discussion of the Research Project, which include: promotion of whole school approaches, application of PDCA cycle and action oriented learning cycle, linking with the existing curriculum, guideline development, consideration of learning achievement linking with OECD key competencies, coherence with national curriculum, employment of different teaching and learning approaches, doorways for cross curriculum, respecting cultural perspectives, moral education, use of hidden curriculum, and consideration of various impacts by the curriculum development.

## 1. INTRODUCTION

In December 2002, the United Nations General Assembly (UNGA) adopted resolution 57/254 to put in place a “**United Nations Decade of Education for Sustainable Development (DESD, 2005-2014)**”. UNESCO was requested as a lead agency for the implementation of the Decade, and developed an International Implementation Scheme (DESD-IIS) for the Decade (UNESCO, 2005)<sup>2)</sup>. According to the DESD-IIS, the goal of the Decade is to integrate the principles, values, and practices of sustainable development into all aspects of education and learning. Further, it is stated that the educational effort will encourage changes in behaviour that will create a more sustainable future in terms of environmental integrity, economic viability, and a just society for present and future generations. ESD is regarded as more value oriented, respecting change of lifestyles, and collective action for positive social transformation.

Pursuit to this resolution, each government has developed related documents, such as National Implementation Strategy, National Action Plan, Evaluation & Monitoring Scheme, for the implementation of ESD at national level. However, still few countries have developed the framework & guidelines for curriculum development in formal education for ESD, in spite of the fact that formal education is recognized as one of leading areas for the promotion of ESD. According to the mid-term report of DESD, it is stated the role of curriculum develop institute in terms of the reorientation of curricula, teaching and learning that;

*ESD requires an emphasis on new learning processes and educational methodologies as opposed to merely addressing SD topics and focusing on the transfer of knowledge about these topics. Schools, curriculum development institutes and educational research organizations should be at the forefront of the search for and development of these new forms of learning and the kinds of curricula, learning environments and school community relationships that are*

*needed to enable such learning to flourish.* (UNESCO, 2009)<sup>3)</sup>

In case of Japan, “*National Action Plan for the DESD*” was developed in 2005, and was linked to the development of “*Basic Plan for the Promotion of Education (2008)*” and the revised *Courses of Study* (National Curriculum Standards) (2008-2009) in formal education. The National Institute of Educational Policy Research (NIER) responded to the needs of ESD related curriculum development under the educational policy setting, and decided to launch a Research Project to disseminate ESD and show teachers how to implement ESD at schools under the national curriculum standard in Japan.

## 2. STUDY OBJECTIVES

The Research Project is based on the trends and issues for ESD, and aims to develop the basic principles for integrating and implementing ESD in a school setting. For the identification of the trends and issues for ESD, international comparative studies of: the concepts of sustainable development; and ESD school programmes; were conducted as a part of the Research Project. This study is, therefore, designed with the following aims: (1) to conduct a qualitative comparative analysis on concepts of sustainable development at National and Regional level (study I)<sup>4)</sup>; (2) to conduct a qualitative comparative analysis on ESD school programmes (study II), both are based on the Sustainable School analytical framework (Henderson & Tilbury, 2005)<sup>5)</sup>; and (3) to list some points to be considered for the promotion of ESD in Japanese schools (study III).

## 3. STUDY METHODS AND APPROACHES

The literature review has been conducted continuously since April 2010 (until March 2012). It supports the arrangement of information and understanding of the trends and issues for ESD. Based on the literature review, two working reports have prepared by the authors. The first working report (study I) was a review of the concepts of Sustainable Development. In this report, cases of 6 Nations and 1 Region were selected for the comparison. The following statements were mainly refereed by the authors: (1) New Zealand (Ministry of Education, 1999)<sup>6)</sup>; (2) Australia (Commonwealth of Australia, 2007)<sup>7)</sup>; (3) Germany (Transfer-21, 2007<sup>8)</sup> and RSU, 1994<sup>9)</sup>); (4) Sweden (Sasaki, 2012<sup>10)</sup> and Wickenberg and Leo, 2010<sup>11)</sup>); (5) China (Chan & Ko, 2009<sup>12)</sup>, Uemura, 2011<sup>13)</sup>); (6) UK (Defra, 1998)<sup>14)</sup> and (7) Baltic Sea Region (Baltic21, 2006)<sup>15)</sup>. The second working report (study II) was a review of the ESD school programmes. In this report, cases of 5 National ESD programmes and 4 International ESD programmes were selected for the comparison, which include: (1) EnviroSchools (New Zealand), (2) Australia Sustainable Schools Initiative, AuSSI (Australia), (3) Transfer-21 (Germany), (4) Green School Award (Sweden) and (5) Green School Project (China), and (1) FEE Eco School Programme (three areas, South Africa, Europe and UK) and (2) ENSI Eco-Schools. Study II in particular, triangulation was employed for the purpose of matrix making for descriptive analysis. This technique could help raise the degree of reliability of the data for the analysis. It could also help enrich the content of each framework based on Time-ordered matrix, Role-ordered matrix, and Case dynamics matrix (Robson, 1993)<sup>16)</sup>. With regard

to the detail list of the references, please see Sato (2012) as a part of NIER final report (Sato, 2012)<sup>17)</sup>. The working reports prepared by the authors were distributed to the participants of the Research Project, and some points to be considered for the promotion of ESD in Japanese schools were listed under a series of discussion (Study III).

#### 4. DEVELOPMENT OF COMPARATIVE MATRIX

Based on the Sustainable School analytical framework (Henderson & Tilbury, 2005), the following comparative matrix were developed by the authors, which include: (1) programme name; (2) nation/ region; (3) national policy, strategy, historical context, priority areas; (4) concepts of sustainable development; (5) year established; (6) education focus; (7) funding and management; (8) framework of operation; (9) partnership and stakeholders; (10) institutional capacity – whole school approach; (11) institutional capacity – key focus and principles; (12) curriculum – stages and content; (13) methods for monitoring and reporting; (14) accreditation / certification; (15) programme implementation and support; (16) programme evaluation; (17) achievements; (18) teacher training; and (19) others. Qualitative comparative analysis on concepts of sustainable development at National and Regional level (study I) and, on ESD school programmes (study II), were reviewed with the comparative matrix developed by the authors. In this paper, qualitative comparative analysis on concepts of sustainable development at national and regional level (study I), and some points to be considered (curriculum framework in particular) for the promotion of ESD in Japanese schools (study III) are mainly selected for the discussion due to the page limitation<sup>18)</sup>. Study methods and approaches of the study (I – III) are shown in the Figure 1.

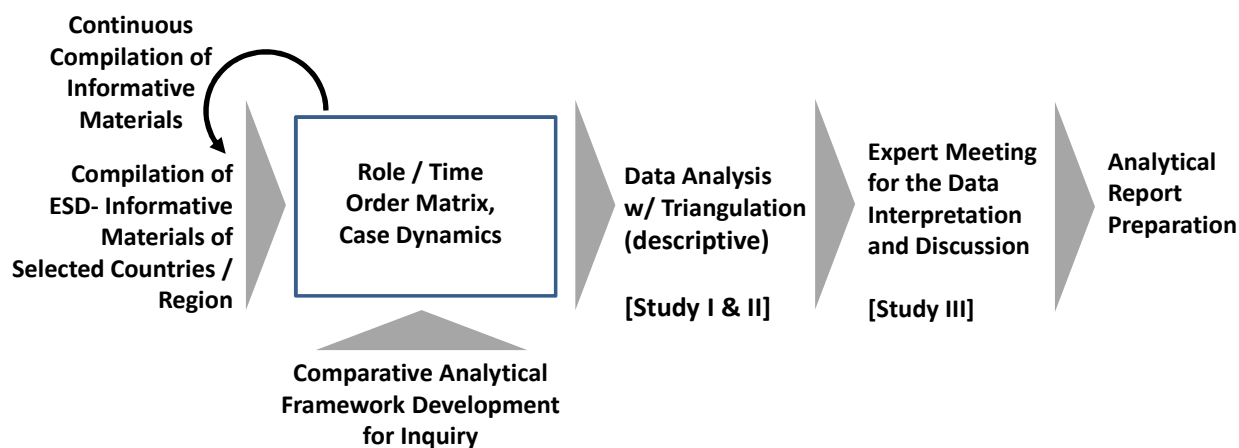


Figure 1. Study Methods and Approaches

#### 5. THEORETICAL FRAMEWORK

##### 5-1. Education for Sustainable Development

There are many documents on the definition and concept of Education for Sustainable Development, however, Bonn Declaration defines ESD in “**Education for Sustainable Development in the 21st century**” (UNESCO, 2009)<sup>19)</sup>, produced at the UNESCO DESD Midterms Conference, i.e. UNESCO World Conference on Education for Sustainable Development (Table 1).

Table 1: Education for Sustainable Development in the 21st century (UNESCO, 2009)

1. Education for sustainable development is setting a new direction for education and learning for all. It promotes quality education, and is inclusive of all people. It is based on values, principles and practices necessary to respond effectively to current and future challenges.
2. ESD helps societies to address different priorities and issues on water, energy, climate change, disaster and risk reduction, loss of biodiversity, food crises, health risks, social vulnerability and insecurity. It is critical for the development of new economic thinking. ESD contributes to creating resilient, healthy and sustainable societies through a systemic and integrated approach. It brings new relevance, quality, meaning and purpose to education and training systems. It involves formal, non-formal and informal education contexts, and all sectors of society in a lifelong learning process.
3. ESD is based on values of justice, equity, tolerance, sufficiency and responsibility. It promotes gender equality, social cohesion and poverty reduction and emphasises care, integrity and honesty, as articulated in the Earth Charter. ESD is underpinned by principles that support sustainable living, democracy and human well-being. Environmental protection and restoration, natural resource conservation and sustainable use, addressing unsustainable production and consumption patterns, and the creation of just and peaceful societies are also important principles underpinning ESD.
4. ESD emphasises creative and critical approaches, long term thinking, innovation and empowerment for dealing with uncertainty, and for solving complex problems. ESD highlights the interdependence of environment, economy, society, and cultural diversity from local to global levels, and takes account of past, present and future.
5. Linked to different needs and the concrete living conditions of people, ESD provides the skills to find solutions and draws on practices and knowledge embedded in local cultures as well as in new ideas and technologies.

## 5-2. Whole School Approach

According to the report (Henderson and Tilbury, 2004), **whole school approaches** are defined as “to sustainability incorporate all elements of school life such as school governance, pedagogical approaches, curriculum, resource management, school operations and grounds, whole school approaches can imply links and / or partnerships with the local community”. The approaches are used in some cases, (1) “Sustainable School” in UK with 8 doorways, three functions of school, i.e. curriculum, campus and community (DfES, 2006)<sup>20)</sup>; (2) “ENSI sustainable schools” with some quality criteria, i.e. quality of teaching and learning processes, school policy and organization, and school’s external relations (Mogensen and Mayer, 2005)<sup>21)</sup>; (3) “Transfer-21” in Germany with some elements of quality development of ESD schools, i.e. learning culture, learning group, abilities and competencies, school culture, opened

school for society, school programmes, resources, capacity development of staff and teachers (Transfer-21, 2006)<sup>22</sup>). Sato *et.al* (2010) pointed that the whole school approaches like “Sustainable Schools in UK” can be applied in case of Japan with the existing framework of Japanese formal education, i.e. curriculum development and policies, setting educational conditions for school management, and cooperation and collaboration with families and local communities (Sato, Okamoto and Goto, 2010)<sup>23</sup>).

## 6. LIMITATION AND VALIDITY

This review is not an exhaustive study of all programmes that exist throughout the world, but instead captures a range of programmes which reflect variations in focus and methodology. The review is not based on empirical research, but programme documentation sourced through a variety means. The aim of the study is to provide a review of international programmes related to ESD in schools according to the “comparative analytical framework for inquiry”, hence it has not evaluated the impact of the selected programmes. This study has been undertaken through a systematic review of literature, which includes data on official and related programme websites, journals, theses, evaluation, promotional materials, national policies, implementation frameworks, guidelines and curriculum materials. However, the study is based on the report by Henderson and Tilbury (2004), information after 2004 of the selected programmes are updated, and information of newly selected countries i.e. Germany and Australia, are accordingly added. In particular, English information on ESD in schools can be easily collected after the mid-term of DESD, i.e. 2009, because of activation of national initiatives and formal education activities related to ESD, these include national policy development, model project implementation, materials development, of the selected countries. On the other hand, the study has been limited by the degree to which programmes have documented their experiences in print and what is available for public access. Further studies on the comparative analysis with correspondence to the implementers and coordinators, and with programme details on the progress and achievement, are expected.

## 7. RESULTS AND DISCUSSION

### 7-1. Qualitative Comparative Analysis on Concepts of Sustainable Development at National and Regional Level

Sample concepts of sustainable development at national and regional level were collected and compared (NIER, 2012) (Table.2). Most frequent concept of sustainable development in the study was “**interdependence**”, “**participation**”, “**cooperation and collaboration**” and “**responsibility**”. The concept of “interdependence” was listed by New Zealand, Australia, Germany and UK. Australia uses the word “relationship” with some implications, it is between issues such as poverty, health, education, security, human rights, economic development, and environmental concerns such as climate change, natural resource management and water and energy consumption (Commonwealth of Australia, 2007). With regard to the concept of “participation and collaboration”, New Zealand, Sweden, UK, and Baltic Sea Region are pointed the importance. The concept of “responsibility” is put the importance in New Zealand,

Germany, Sweden, UK and Baltic Sea Region. In Baltic Sea Region, “the participation in decision making and partnership for change” is used for the connection between the needs of the present and those of the future generations. Some original concepts to be noted were, “**democracy**” in Sweden, “**scientific perspectives**” or “**moderately prosperous society**” in China and “**uncertainty and precaution in action**” in UK. In details, see Comparative Matrix of Sustainable Development at National and Regional level (NIER, 2012, p.241).

Table 2. Comparison of Sample Concepts of Sustainable Development at National and Regional Level

Japan	New Zealand	Australia	Germany	Sweden	China	UK	Baltic Sea
(NIER, 2012) <sup>1</sup> I: Diversity II: Interdependence III: Limitation IV: Fairness (Equity) V: Cooperation	(Min. of Edu., 1999) <sup>2</sup> I: Biodiversity II: Interdependence V: Participation (PCE, 2004) VI: Personal and Social Responsibility for Action VII: Sustainability	(Commonwealth of Australia, 2007) <sup>3</sup> II: Relationship (between issues such as poverty, health, education, security, human rights, economic development, and environmental concerns such as climate change, natural resource management and water and energy consumption)	(Transfer-21, 2007) <sup>4</sup> , (RSU, 1994) <sup>5</sup> II: Interdependence II: Reticulation VI: global responsibility (German Commission for UNESCO, 2005)	(Sasaki, 2012) <sup>6</sup> (Wickensberg & Leo, 2010) <sup>7</sup> IV: Democracy V: Participation VI: Sustainable Leadership	(張・廉, 2009) <sup>8</sup> IV: Harmonious society (和諧社會) VII: Scientific Perspectives VII: moderately prosperous society (小康社會)	(Defra, 1998-2003) <sup>9</sup> I: Diversity II: Interdependence III: Carrying capacity III: Uncertainty and precaution in action IV: Quality of life, equity and justice V: Citizenship and stewardship VI: Citizenship and stewardship VI: Needs and rights of future generations	(Baltic21, 1998) <sup>10</sup> III: The Connection between human needs and nature's capacity IV: The Connection between the needs of the poor and the rich V: Participation in Decision Making; Networks and Partnerships for Change (Rohweder, L., et al. (Eds) 2008) V: Partnership, Cooperation & Communication, Participation (Rohweder, L., et al. (Eds) 2008) VI: The Connection between the needs of the present and those of the future generations

<sup>1</sup> NIER, 2012. ESD in Schools. Final Report, National Institute of Educational Policy Research, NIER, Tokyo, JAPAN.

<sup>2</sup> Ministry of Education, 1999. Guideline for Environmental Education in New Zealand Schools, Ministry of Education

<sup>3</sup> Commonwealth of Australia, 2007. Caring for Our Future. The Australian Government Strategy for the United Nations Decade of Education for Sustainable Development, 2005-2014., Australian Government, Department of the Environment and Heritage.

<sup>4</sup> Transfer-21 Programme's 'Quality and Competences' working group, 2007. Guide. Education for Sustainable Development Secondary Level. Justifications, Competences, Learning Opportunities, Bonn

<sup>5</sup> RSU, 1994. Umweltgedachten 1994. Füreine dauerhaft – umweltgerechten Entwicklung. 380S, Drucksache 12/6995 des Deutschen Bundestages, Bonn

<sup>6</sup> Sasaki, K. 2012. ESD in Sweden (in Japanese). 佐々木孝子, 2012. 「スウェーデンにおけるESDの取組と展開」. 佐藤真久・阿部治博, 『ESD入門: 持続可能な開発のための教育』. 筑波書房, pp.109-126.

<sup>7</sup> Wickensberg and Leo, 2010. Implementation of ESD in Sweden seen in a Norm Perspective. a Paper to be presented at ESD Conference in Ulaanbaatar, Mongolia, Aug 30-Sept 3, 2010.

<sup>8</sup> Chan and Ko, 2009. Education for Sustainable Development in China (in Chinese). 張力・廉寧, 2009. 『中國可持續發展教育創新英語』. 北京出版社, pp.7-15.

<sup>9</sup> Defra, 1998-2003. Key Sustainable Development Concepts, Sustainable Development Education Panel, Defra, UK.

<sup>10</sup> Baltic 21, 2000. [http://www.baltic21.org/?a\\_216](http://www.baltic21.org/?a_216)

By referring to the comparative analysis on the concepts of sustainable development at National and Regional level, NIER listed conceptual components of sustainable society-building and of ESD, which are the part of “framework necessary to design and develop the learning instruction process of ESD”. They are categorized into six concepts include: (1) diversity; (2) interdependence; (3) limitation; (4) fairness; (5) cooperation; (6) responsibility (Table 3) (NIER, 2012)<sup>24)</sup>. Similar discussion can be seen in UNESCO, the following points have been suggested by UNESCO as sample concepts of sustainable development (UNESCO, 2002)<sup>25)</sup>. These are important concepts to include in education systems that are oriented towards sustainable development. It can be seen some commonality between the concepts of sustainable development stated by the national level and the suggestion by UNESCO (Table 4). The originality of NIER (2012) can be said that: (1) categorization with six concepts; and (2) classification of the conceptual categorization with two aspects, i.e. concepts related to the environment (nature, culture, society and economy, etc.) surrounding humans, and concepts related to will and actions of humans (groups, regions, society and country, etc.).

Table 3: Concepts of “Sustainable Society-building” (NIER, 2012)

<p><b>[1] Concepts related to the environment (nature, culture, society and economy, etc.) surrounding humans</b></p> <ul style="list-style-type: none"> <li>• <b>Diversity:</b> in process of their formulation, nature, culture, society and economy reveal various dimensions, and within which exist a wide variety of things and phenomena. It is important to have a multi-faceted view of the various aspects and phenomena of nature, culture, society and economy and to respect this ecological, cultural and economic diversity.</li> <li>• <b>Interdependence:</b> Nature, culture, society and economy working together in a system, within which energy and materials cycle themselves, move and are consumed. It is important that humans are connected with this system and are aware of how they interact.</li> <li>• <b>Limitation:</b> the resources and environmental factors (materials, energy) that provide for nature, culture, society and economy are finite. We must use these limited materials wisely for future generations. It is also important to recognize that there are limitations to the development of any society that relies on limited resources.</li> </ul> <p><b>[2] Concepts related to will and actions of humans (groups, regions, society and country, etc.)</b></p> <ul style="list-style-type: none"> <li>• <b>Fairness:</b> the foundation of a sustainable society is the security, maintenance and enhancement of individual health and quality of life. In order to achieve this, human rights and life must be respected, our happiness must not come as a sacrifice to others, and rights and amenities must be granted equally. This should transcend community, country and generation.</li> <li>• <b>Cooperation:</b> a sustainable society cannot be created and maintained without the collaboration and cooperation of diverse agents. Even in situations where there are differing opinions or conflicting interests, you need to adjust to the situation, have a generous attitude and cooperate to find a solution among yourselves.</li> <li>• <b>Responsibility:</b> creating a sustainable society requires that individuals act upon their own will without relying solely on others to solve things; each individual must aware of their responsibility and obligations. In order to achieve this, it is important for individuals to make decisions based on a logical and objective understanding of a situation, and have a responsible vision for desirable future.</li> </ul>
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Table 4: Sample concepts of Sustainable Development (UNESCO, 2002)

- **Interdependence:** People are an inseparable part of the environment. We are part of a system that connects individuals, their culture, their social and economic activities and their natural surroundings.
- **Diversity:** The Earth and all its inhabitants are characterized by great variety - biologically, culturally, linguistically, socially and economically. We need to understand the importance and value of each of these forms of diversity to the quality of human life and the health of ecosystems.
- **Human rights:** Everyone has an inalienable human right to freedom of beliefs, speech, assembly and protection under the law, as well as to the conditions that enable them to act on these rights such as access to basic education, food, shelter, health and equal opportunity.
- **Global equity and justice:** This principle is called “intra-generational equity” and emphasizes that the rights and needs of others are met so that a fair and abundant quality of life is provided for everyone around the world.
- **Rights of future generations:** This principle is called “inter-generational equity”. It emphasizes that the lifestyle choices we make today always affect the capacity of future generations to have the same range of choices we have.
- **Conservation:** The natural world contains a range of renewable and finite resources that humans can develop to satisfy their needs. The lifestyle choices we make need to respect the long-term sustainability of these resources, and the need for conservation of nature for its intrinsic worth, not only its utilitarian value.
- **Economic vitality:** Economic growth depends upon a dynamic state of economic vitality in which everyone has the opportunity and skills to access the resources required for a satisfying quality of life, within a framework of sustainable development.
- **Values and lifestyle choices:** Values that reflect concern for human well-being, economic vitality and the quality of the environment are required to ensure that we make lifestyle choices that contribute to a sustainable future for everyone.
- **Democracy and civic participation:** People are more inclined to care for others and the environment when they have the right, the motivation and the skills to participate in the decisions that affect their lives.
- **Precautionary principle:** Sustainable development issues are complex, and scientific advice on an issue is often incomplete or divided. In situations of such uncertainty, there is a need to act judiciously and with an awareness of potential unintended consequences.

Sato (2011)<sup>26)</sup> and, Suzuki & Sato(2012)<sup>27)</sup> pointed that the age of globalization could be considered an era of “internalizing” corporate activities and human living and so on, that have been “externalized” and disposed of as has been the case with natural resources and wastes from industry and daily living. In this age without “externalities,” “global environmental problems” and “poverty and social exclusion problems” are no longer separate issues; rather they have an intricate and reciprocal relationship. Further, the authors address “global environmental problems” and “poverty and social exclusion problems” created as the outcome of “economic globalization” which has exacerbated the mutually prescribed opposition of excesses in wealth and the accumulation of poverty. It can be said that two problems, i.e.

“global environmental problems” and, “poverty and social exclusion problems”, pointed by the Sato (2011) and, Suzuki & Sato (2012) are linked with the conceptual categorization with two aspects pointed by NIER (2012).

## 7-2. Points to be Considered for the Promotion of ESD in Japanese Schools

The working reports prepared by the authors were distributed to the participants of the Research Project, and some points to be considered for the promotion of ESD in Japanese schools were listed under a series of discussion (Study III). Due to the page limitation of this paper, some points on curriculum framework were listed in particular. Curriculum framework development needs to be discussed in links with the concept of “**whole school approach**”, as the whole school sustainability approaches can assist in the implementation of new curriculum. This is a critical factor in that by aligning programmes to national curriculum, schools and teachers can see the relevance of their work to core commitments and professional priorities. These concepts can be seen in case of UK Sustainable Schools, ENSI-Eco Schools, Transfer-21 in Germany, etc.

- Application of “**PDCA cycle**” and “**action oriented learning cycle**”, there are many cases employed the PDCA cycle for the system management, which include: FEE Eco Schools (England, Wales, Scotland, South Africa and Europe), Green School Award (Sweden), action oriented learning cycle (Australia, New Zealand’s EnviroSchools).
- **Linking with existing curriculum** with ESD implications, Australian Sustainable School (AuSSI, Australia), Sustainable Schools (UK).
- Development of **programme guidelines**, Transfer-21 Programme Guidelines (Germany), Handbook for EnviroSchools (New Zealand), Green School Guidelines (China).
- **Linkages with OECD key competencies**, Transfer-21 – “Shaping Competence (Gestaltungskompetenz)”, (1) Subject and Methodological Competence, (2) Social Competence and (3) Personal Competence (Germany).
- **Coherence with national curriculum**<sup>28)</sup>, EnviroSchools (New Zealand), Green School Award (Sweden), Australian Sustainable School (AuSSI, Australia), Transfer-21 (Germany), Green School Project (China), FEE Eco Schools (South Africa)
- Use of **different types of teaching and learning approaches**, mentoring, facilitation, participatory inquiry, action oriented learning, action research, problem solving, collaborative process, decision making process.
- Use of **doorways for cross curriculum**, Sustainable Schools (UK).
- Respecting **cultural perspectives**, respect of Maori cultures (New Zealand), respect of Chinese culture and their spirit (China).
- **Moral education**, Green School Project (China), EnviroSchools (New Zealand).
- Use of “**hidden curriculum**”, FEE Eco Schools (England, Wales, Scotland, South Africa, Europe), EnviroSchools (New Zealand).
- Considerable **various impacts** by the ESD curriculum development, (1) environmental aspects (e.g.

resource management, promotion of bio-diversity, decision making for green purchasing, respect and environmental consideration; (2) educational aspects (e.g. knowledge, planning skills, decision making, collaborative skills, leadership, project management, materialization of school itself); (3) economic aspects (e.g. savings, promotion of environment sound businesses, entrepreneurship), (4) social and local aspects (e.g. social inclusion, inter / intra generational communication, reducing bullying, reducing anti-social activities, active participation), (New Zealand, Australia, UK).

For the effective development of curriculum, key features which characterize vision of a “sustainable school” are identified by the Henderson and Tilbury (2004): (1) school leadership which places sustainability at the heart of school planning and practice. It engenders democratic and participatory whole-school decision making processes; (2) whole-school participation in undertaking school action and improvement plans; (3) reciprocal community, family and stakeholder partnerships; (4) participatory learning approaches which engender students skills and competencies for critical thinking, intercultural perspectives, participation and citizenship; (5) integration of Environmental Education (EE) and Education for Sustainability (EfS)<sup>29)</sup> across key learning areas in the curriculum; (6) regular professional development for teachers, school management and programme partners and facilitators; (7) ‘greening’ of the school and physical surroundings; (8) classroom within and outside school boundaries; (9) reduction in a school’s ecological footprint (through resource consumption and environmental improvements; (10) regular monitoring, reflection and evaluation procedures which inform future actions. The school is not just the centre of learning but is also a ‘learning organisation’ itself; (11) practitioner research which encourages reflective practice of teachers and promotes improved performance. As well as some points by NIER (2012), key features identified by Henderson and Tilbury (2004) needs to be further discussed in the context of Japanese formal education systems.

## References

- 1) The paper is summary in the part of international comparative analysis on ESD in schools of NIER (2012). In detail, see NIER. 2012. *ESD in Schools* (in Japanese), Final Report, National Institute of Educational Policy Research, NIER, Tokyo, Japan.
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- 28) The relationship between the national curricula and whole school sustainability programmes differs as some are: (1) based on and assist in implementing the national curriculum (e.g. EnviroSchools in New Zealand, Green School Award in Sweden, Transfer-21 in Germany); (2) developed independently but compliment to the national curriculum (e.g. Green School Project in China, AuSSI in Australia); (3) value added and extend the national curriculum (e.g. FEE Eco Schools in South Africa).
- 29) Education for Sustainability (EfS) implies that: (1) focus on the future and ability to create a sustainable future; (2) building capacity for change and improved quality of life; (3) less emphasis on awareness raising and behaviour changes; (4) more emphasis on lifestyle choices; (5) developing skills and knowledge for socially critical citizens to deal with complex issues; (6) more focus on social, structural and institutional change (more than personal change); (7) more focus on changing mental models (Tilbury, 2004). EfS differs from traditional approaches to Environmental Education in that it focuses sharply on more complex issues, such as the links between environmental quality, human equality, human rights, and peace and their underpinning politics. This requires citizens to have skills in critical inquiry and systemic thinking to explore the complexity and implications of sustainability (Huckle and Sterling, 1996, Fien, 2001).