

# New Approaches to New Futures:

Collected Papers from the 2010 ESD Colloquium Series

## ESD Colloquium Series (2010)

ESD & Green and Creative Human Resources (4 May)

ESD & Innovation of Curriculum and Teaching-Learning Process (30 June)

ESD & Local Development (24 August)

ESD & Educational Competitiveness (29 October)

ESD: Potential and Application (16 December)



유네스코한국위원회

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# FOREWORD

Entering into the 21<sup>st</sup> century, we are facing a number of global issues – regional conflicts, global warming, social and economic divide, gender inequality, etc. – intimidating the quality of our life. To get through this tough reality, sustainable development is a must to resolve these problems.

Sustainable development is our strong will for the life of both generations in the present and future, by reconciling economic growth, social development and environmental preservation. Improving the quality of life takes on a different aspect from one continent to another, from one region to another, and from one country to the next. However, no single continent, government, institution or individual can attain this alone because the nature of the challenges to overcome requires a global, collective, and individual commitment.

Improving the quality of our life implies a change in our learning. As UNESCO's Director-General Irina Bokova stresses: "Education for Sustainable Development (ESD) based on the interdependence of environment, economy, society and cultural diversity, is the key to a better and more just world of the 21<sup>st</sup> century." In recognition of the importance of ESD, the United Nations General Assembly declared 2005-2014 the UN Decade of Education for Sustainable Development (DESD), and designated UNESCO as a lead agency for promoting DESD.

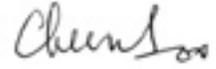
ESD is to inculcate capacity and responsibility in the society for the future, and it is getting widely utilized around advanced countries due to its enormous potential to integrate with domestic strategies in the various fields. With regard to ESD, in the difficult circumstances of Korea with many national issues on sustainable development such as growth without development and ecological inequality, the Korean government has put in a great deal of effort for raising awareness and invigorating related activities. As a part of this national endeavor, the Korean National Commission for UNESCO (KNCU) embarked on the ESD Colloquium Series in 2010.

ESD can provide specific pedagogy and learning process, coinciding with the social, economic and educational strategies of the present Korean government such as 'green growth' and 'creative and character-oriented education,' and firm humanistic and ethical basis for the 21<sup>st</sup> century also. The ESD Colloquium Series, continued until 2014, aims at domestic specialized agencies, policy makers and experts, and boost their endeavors to adopt, graft, and apply ESD in their own fields.

Until the end of the series, KNCU will be bringing out total five collections of ESD Colloquium papers, compiling high-quality papers from the annual series. *New Approaches to New Futures: Collected Papers from the 2010 ESD Colloquium Series* – a first volume of this series with 10 papers – gives the readers compendious details of five thematic sessions in 2010, based on green and creative human resources, curriculum and teaching, local development, educational competitiveness, etc.

Celebrating the publication of *New Approaches to New Futures: Collected Papers from the 2010 ESD Colloquium Series*, I would like to deeply thank for every effort of paper writers, internal and external partners and stakeholders for the ESD Colloquium Series, and members

of education team in KNCU. Also, I hope this series will accelerate in-depth debates among stakeholders in the next five years for effective vitalization of ESD in the Korean society, and also will be a facilitator for contributing to the global sustainable development.



**Taek-soo CHUN, Ph.D.**  
Secretary-General,  
Korean National Commission for UNESCO (KNCU)

# INTRODUCTION

## Education for Sustainable Development (ESD)



Amid more than one billion poverty-stricken people globally, our world is intensely suffering from climate change, economic crises, mass consumption, human security threat, etc. In this situation, sustainable development is our fateful task to resolve on the basis of a global effort for whole generations in the past and the future.

Sustainable development is a vision of development that encompasses populations, animal and plant species, ecosystems, natural resources and integrates concerns such as the fight against poverty, gender equality, human rights, education for all, health, human security, intercultural dialogue, etc.

For the holistic realization of economic development, environmental preservation and social peace, sustainable development demands a paradigm shift throughout production, consumption, education and our daily lives. Above all, reconstruction of consciousness through education is the top priority for sustainable development with the precondition of renovating people's attitudes and values.

In recognition of the importance of Education for Sustainable Development (ESD), the United Nations General Assembly declared 2005-2014 the UN Decade of Education for Sustainable Development (DESD) and designated UNESCO as a lead agency for promoting DESD; UNESCO has sought to integrate the principles, values, and practices of sustainable development into all aspects of education and learning in order to address the social, economic, cultural and environmental problems we face in the 21<sup>st</sup> century.

## Milestones of ESD

1987	<ul style="list-style-type: none"> <li>● <i>Report of the World Commission on Environment and Development: Our Common Future</i> published by World Committee on Environment and Development (WCED)</li> </ul>
1992	<ul style="list-style-type: none"> <li>● Agenda 21, the international plan of action to sustainable development, adopted by the United Nations Conference on Environment and Development (UNCED)</li> </ul>
2002	<ul style="list-style-type: none"> <li>● The UN Decade of Education for Sustainable Development (DESD, 2005-2014) declared by the United Nations General Assembly</li> </ul>
2003	<ul style="list-style-type: none"> <li>● UN RCE (Regional Centre of Expertise) for ESD introduced</li> </ul>
2005	<ul style="list-style-type: none"> <li>● UN DESD official launch proclaimed</li> <li>● International Implementation Scheme (IIS) for ESD adopted</li> </ul>
2007	<ul style="list-style-type: none"> <li>● Reinforcement of ESD resolved at the 34<sup>th</sup> UNESCO General Conference</li> <li>● Global Monitoring and Evaluation Framework (GMEF) for DESD announced</li> </ul>
2008	<ul style="list-style-type: none"> <li>● National Committees for ESD founded in 79 countries worldwide</li> </ul>
2009	<ul style="list-style-type: none"> <li>● Bonn Declaration adopted at the UNESCO World Conference on ESD</li> <li>● Reinforcement of ESD urged at the G8 Summit</li> <li>● The 1<sup>st</sup> <i>DESD Global Report</i> published by UNESCO</li> </ul>
2010	<ul style="list-style-type: none"> <li>● The Roadmap for Second Half of DESD reported at the 65<sup>th</sup> UN General Conference</li> </ul>

## Major Fruits of ESD in Korea

2001	<ul style="list-style-type: none"><li>● <i>Seven Necessary Complexes for future education</i> released</li></ul>
2005	<ul style="list-style-type: none"><li>● Presidential Commission on Sustainable Development (PCSD) launched the research of developing national strategies for DESD</li><li>● UN RCE for ESD founded in Tongyeong</li></ul>
2006	<ul style="list-style-type: none"><li>● Planning strategies for ESD announced by the Presidential Commission on Sustainable Development (PCSD)</li></ul>
2007	<ul style="list-style-type: none"><li>● Handong University designated as the UNITWIN Network on Capacity Building of Sustainable Development in Developing Countries in the Asian Region</li><li>● UN RCE for ESD founded in Incheon</li></ul>
2009	<ul style="list-style-type: none"><li>● The Korean National Committee for ESD founded as an expert committee affiliated with the Korean National Commission for UNESCO (KNCU)</li></ul>

## ESD Colloquium Series (2010-2014)

ESD is to inculcate capacity and responsibility in society for the future, and it is becoming widely utilized among advanced countries due to its infinite potential to integrate with domestic strategies in various fields. In light of the difficult circumstances of Korea, with many national issues that hinder sustainable development such as growth without development and ecological inequality, the Korean National Commission for UNESCO (KNCU) has embarked on the ESD Colloquium Series since 2010.

The ESD Colloquium Series, which will continue until 2014, is aimed at domestic specialized agencies, policy makers and experts, and attempts to boost their endeavors to adopt, graft, and apply ESD in their own fields. Until the end of the series, KNCU will be bringing out a total of five collections of ESD Colloquium papers,

compiling high-quality papers from the annual series. *New Approaches to New Futures: Collected Papers from the 2010 ESD Colloquium Series* – the first volume of this series – gives the readers compendious details of five thematic sessions in 2010, based on green and creative human resources, curriculum and teaching, local development, educational competitiveness, etc.

Out of the 18 ESD research papers presented at the 2010 sessions, the 10 written by 10 Korean ESD experts were put in this volume. These papers are expected to give answers to the crucial question: “How can Korean society properly and effectively utilize ESD?”

Related to the discussion at the 2<sup>nd</sup> World Conference on Arts Education (2010, Seoul), Yeon-hee Jung stresses that arts education contributes to extend sustainable thinking and has basic values and principles of ESD. Sun-kyung Lee illuminates the capacity of ESD - understanding and resolving intricate problems in modern society through systematic thinking, also spotlighting characteristics of social transformation of ESD. Mi-sug Jin and Gyu-hee Hwang analyze “green growth,” a brand-new national development strategy of Korea, as a basic framework for sustainable development and clarify several requirements for nurturing “green talents” in the world of work. Joo-hoon Kim, likewise, emphasizes inclusive change of educational process by introducing green growth in Korean society.

Dong-wook Lee suggests the specific plan to spread the concept of ESD through the application of state-of-the-art Information and Communication Technology (ICT) such as smartphones, and mentions the appropriateness of the link between ESD and Corporate Social Responsibility (CSR) in that ESD provides fundamental solutions to different global issues. Eun-jin Park and Jung-ki Cho focus on the reality of the national division of North and South Korea; Park underlines that ESD functions as a mechanism to mediate various decision-makers in the entire process of utilization and development of the Demilitarized Zone (DMZ), and Cho attempts to talk about existing unification education from the viewpoint of ESD framework – Koreans’ joint prosperity. Youl-kwan Sung and Mi-hye Chang pinpoint the demographic change in Korean society and grasp ESD functions in terms of Global Citizenship Education (GCE) and multicultural education.

In the next five years, this series will accelerate in-depth debates among stakeholders for effective vitalization of ESD in Korean society and will also be a facilitator for contributing to global sustainable development.

**ESD Colloquium Series (2010)**

<b>Theme</b>	<b>Co-sponsored Agencies</b>	<b>Date</b>
ESD & Green and Creative Human Resources	Korea Research Institute for Vocational Education & Training (KRIVET), Korea Foundation for the Advancement of Science and Creativity (KOFAC)	4 May
ESD & Innovation of Curriculum and Teaching-Learning Process	Korea Institute for Curriculum and Evaluation (KICE), Korea Foundation for the Advancement of Science and Creativity (KOFAC)	30 June
ESD & Local Development	Gyeonggi Research Institute (GRI)	24 August
ESD & Educational Competitiveness	Korean Educational Development Institute (KEDI)	29 October
ESD: Potential and Application	Korea Development Institute (KDI)	16 December

**EXPANDING SUSTAINABLE THINKING  
THROUGH ARTS EDUCATION**

Yeon-hee JUNG

Manager of Educational R&D Department/Ph.D. in Arts Education,  
Korea Arts & Culture Education Service (KACES)



Dr. Yeon-hee Jung had worked as an arts teacher for 17 years, and waged a movement on arts education advocacy. Since she obtained her Ph.D. at Korea National University of Education, she has worked as a manager of the R&D department of the Korea Arts & Culture Education Service (KACES). As a program manager, she has planned the 2<sup>nd</sup> World Conference on Arts Education and coordinated the academic programs. Specifically, she played an important role in preparing the “Seoul Agenda: Goals for the Development of Arts Education.” Her research interests include practical issues of arts education, arts & cultural education and cultural policies. She has published in *Art Education Research Review*, *Korean Society for Education through Art*, and other arts-related journals. Currently, she is writing a book on “Program Planning for Arts and Cultural Education.”

## I. Introduction

Despite efforts to overcome the flaws of modern society based on endless material growth and to open up a new future, the world today confronts an all-out crisis marred with social, economic and environmental risks. This convoluted global situation has forced us to recognize and sustain the critical values of "improving the quality of life," "preserving and restoring the ecosystem," "realizing social justice" and "achieving economic equity." The concept of 'sustainability' comprehensively integrates these essential values, which secure global sustainable development, and such a focus on the value of sustainability necessarily leads to emphasizing the role of education as an effective means to produce the conditions and foundations for sharing the value throughout the global community.

Along this line, the 57<sup>th</sup> session of the UN General Assembly in December 2002 adopted the resolution proclaiming the UN Decade of Education for Sustainable Development (DESD), calling for governments to strengthen their efforts in achieving 'sustainability' through education. Accordingly, UNESCO developed the *DESD International Implementation Scheme* at the international level, which was subsequently followed by various national level efforts in Germany, Australia and other developed countries to develop a national strategy and educational framework for ESD. Compared to these efforts, the ESD approach in Korea has been piecemeal due to the political situation and other priorities of Korean society.

On the other hand, with the success of the UNESCO's 2<sup>nd</sup> World Conference on Arts Education in 2010, there have been increasing social and political emphasis on promoting arts education, especially the "Seoul Agenda: Goals for the Development of Arts Education" which was adopted during the conference. The Seoul Agenda calls upon governments to ensure the accessibility to and quality of arts education, and contribute to resolving our common global challenges through arts education. The Korean government, as the host of the 2<sup>nd</sup> World Conference, has shown strong resolve in support of the Agenda. In this context, it seems necessary to review the implementation of ESD, which has become UNESCO's primary agenda in the education sector, and seek how developments of arts education can be related to ESD. Furthermore, it would be meaningful to explore how arts education could incorporate 'sustainable development' into the curriculum.

Therefore, this study will first review Korea's response to UNESCO's ESD agenda. In particular, it will examine how arts education is approaching ESD in the process of its evolution, mainly by analyzing the Seoul Agenda. In addition, this study will seek ways in which arts education can contribute to the expansion of sustainable thinking and make a practice of its inherent principles and external values.

## **II. The Concept and Importance of ESD**

### **1. The Concept of ESD**

As a means to overcome the pending global crisis and open a new future, UNESCO has promoted 'education for a sustainable future.' In addition, UNESCO underlines the importance of ESD as a future education that contributes to capacity-building to negotiate, decide and act for a sustainable future.

Initially, the concept of 'sustainability' originated from an ecological perspective to contribute to the long-term quality of life of humanity by maintaining ecosystem diversity and productivity. This term was subsequently expanded to refer to almost all aspects of human life. Sustainability has evolved to incorporate economic dimensions such as poverty reduction and economic growth, social dimensions such as social integration and justice, and political dimensions of human rights and democracy, which are strongly inter-related issues/areas. Following the World Summit on Sustainable Development in 2002 (or Earth Summit 2002)<sup>1</sup> held in Johannesburg, South Africa, a new paradigm for sustainability that integrated economic growth, social development and environmental conservation was generally accepted.

Because ESD, a method to educate this new paradigm to future generations, is a life-long process, formal, non-formal and informal educational sectors should work together to accomplish national and local sustainability goals (McKeown, 2002). In addition, ESD is to do more than merely deliver the knowledge related to environmental, economic and social issues. It is supposed to deal with skills, perspectives and values for people to seek sustainable living and participation in a democratic society. In this context, the goal of ESD, as stated by the Australian Department of the Environment and Heritage (2002), is to "equip individuals, organizations and communities to deal effectively with the complex and inter-related social, economic and environmental challenges they encounter in their personal and working lives, in a way that protects the interest of future generations."

To achieve this aim, the focus of education must shift to nurture imagination and critical thinking that enables learners to understand the pending challenges and cooperate with others in resolving the problems and participate in the decision-making processes (Tilbury, D. and Wortman, D., 2004). In addition, the purpose of ESD can only be achieved when the learner 'practices' the specific values of 'sustainability' in his/her local community and/or home. Furthermore, the blueprint

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<sup>1</sup> The Earth Summit 2002 in Johannesburg gathered together leaders and experts throughout the world to discuss issues including the preservation of natural resources and improvement of the quality of life.

for sustainable development, named *Agenda 21*, adopted at the UN Rio Summit in 1992, emphasizes the mainstreaming of ESD values into the overall education system by 1) improving basic education, 2) reorienting existing education, 3) developing public understanding and awareness, and 4) training.

First of all, basic education must be reoriented to address sustainability and expanded to include critical thinking skills, skills to organize and interpret data and information, skills to formulate questions, and the ability to analyze issues that confront communities (McKeown, 2002). Through this process of capacity-building, the students will be able to process the skills, values and viewpoints to facilitate and contribute to the decision-making process of the community.

Moreover, the successful implementation of ESD requires not only educating future generations through formal education, but also promoting informal education targeting the general public through the media and press to underline the importance of sustainability as a social value and facilitate it in achieving its goals. In addition, promoting ESD in training, especially for teachers and vocational trainings, can further enhance the long term effect of ESD's application and practice.

## **2. Elements of ESD**

As there can be various types of ESD curriculums depending on the purpose of education,<sup>2</sup> this section will identify the elements of ESD focused on incorporating the value and principle of sustainability in formal education curriculums.

ESD should consider the three dimensions of sustainable development – ecological (environmental), economic and social – in decision-making and responsibility.<sup>3</sup> It should also involve learning about the separate and interconnected dimensions and how these dimensions interact to create a whole larger than the parts (Nolet, 2010).

In this sense, we must review the environmental, economic and social components of ESD to incorporate a sustainable development principle into education. [Table 1] represents the components of ESD, based on values, issues,

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<sup>2</sup> Rowland (2010) categorized the various types of sustainability curriculums as follows:

- (1) Education for becoming a citizen advocate and practitioner of sustainability (general education and co-curricular)
- (2) Education for becoming a sustainability professional (sustainability degree program)
- (3) Education for using sustainability knowledge in one's profession (sustainability courses in various disciplinary majors)
- (4) Education for sustainable job (workforce/green job).

<sup>3</sup> Some experts argue that the political dimension should be added to thinking about sustainable development (Appelt, D & Siege, H, 2007).

key competencies and pedagogy.

**[Table 1] Components and Content of ESD**

	<b>Environment</b>	<b>Economy</b>	<b>Society</b>
<b>Value</b>	Sustainable development		
<b>Issue</b>	<ul style="list-style-type: none"> <li>• Environmental protection &amp; resource management</li> <li>• Preservation of biodiversity</li> <li>• Recycling, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Poverty reduction</li> <li>• Sustainable trade and finance</li> <li>• Economic cooperation, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Social balance</li> <li>• Cultural awareness</li> <li>• Protection of minorities, etc.</li> </ul>
<b>Key Competencies</b>	<ul style="list-style-type: none"> <li>• Ecological literacy</li> <li>• Futuristic imagination</li> <li>• Information collection and analysis skills</li> <li>• Critical thinking</li> <li>• Communication</li> <li>• Participation and partnership</li> <li>• Decision-making, etc.</li> </ul>		
<b>Pedagogy</b>	<ul style="list-style-type: none"> <li>• Collaborative learning</li> <li>• Project-based learning</li> <li>• Service learning</li> </ul>		

*Source: McKeown (2002: 24), Appelt, D & Siege, H (2007: 26) & Capra (2010)*

First, sustainable development, as a common key value, is to be approached through different issues highlighting the environmental, economic and social dimensions. With a focus on the environmental dimension, the main issues of sustainable development can be environmental protection, management of natural resources, preservation of biodiversity, recycling, etc. The key principle of the environmental dimension is the understanding that all individual units of the ecosystem cannot exist separate from the overall system. ESD emphasizes this interdependency of the ecosystem.

The economic dimension deals with sustainable development by focusing on issues such as poverty reduction and economic cooperation. Efforts of a single country or economic actor can no longer ensure sustainable economic development in the era of globalization; only through cooperation and coordination can an

economic system properly operate.

The social dimension of sustainable development deals with social issues including social balance and cultural awareness. With the complex demographic composition in today's societies, social integration can only be achieved by the unity and coexistence of the members of the society.

Combining the diverse dimensions of the environment, economics and society, ESD deals with different issue areas as can be seen in [Table 1] but has an identical aim of nurturing key competencies required for sustainable living. Through ESD, students can acquire and further develop key capacities including ecological literacy,<sup>4</sup> creative imagination, information collection and analysis skills, critical thinking, communication ability, participation and partnership, and decision-making skills. For this type of capacity-building, ESD can utilize pedagogies including collaborative learning, project-based learning and service learning.<sup>5</sup>

### **III. Korea's Actions for ESD**

#### **1. Korea's Policy Trends towards Sustainable Development**

The Korean government established the Presidential Commission on Sustainable Development (PCSD)<sup>6</sup> in 2000 to formulate a national sustainable development strategy integrating the environmental, economic and social dimensions. Following the foundation of PCSD, the government adopted the *Implementation Plan for the National Strategy for Sustainable Development* as an inter-ministerial effort to implement actions for Agenda 21 and Local Agenda 21, put into practice the Action Plan adopted at the World Summit for Sustainable Development, promote environmental education, and establish and operate local sustainable development commissions (Heok-gil Kwon, 2006).

With the inauguration of the Lee Myong-bak government, the government presented "low carbon green growth" as the new national development paradigm. Subsequently, the Lee administration started to establish and implement the

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<sup>4</sup> The ability to understand the basic principles of the ecosystem and act based on this understanding.

<sup>5</sup> Service learning is an education method combining the school curriculum with relevant local services (mostly services for teenagers). Service learning is based on the philosophy of experiential education, which aims to enrich the education experience. It also teaches the responsibilities of being a community member, facilitates life-long participation as a citizen, and reinforces the solidarity of the local community (Perez, 2000).

<sup>6</sup> The PCSD's major functions were to (1) issue major policy directions and prepare plans for sustainable development, (2) formulate and implement major policies for water, energy and other resources, (3) resolve social confliction, (4) prepare and implement action plans for Agenda 21, and (5) develop strategies responding to major international environmental agreements.

National Strategy for Green Growth and the Five Year Plan for Green Growth, shifting from sustainable development to green growth. While sustainable development equally pursues economic growth, social development and environmental conservation, green growth puts emphasis on actively applying environmental values to economic growth, giving more attention to the environmental and economic dimensions compared to a balanced sustainable development strategy (Hyeon-ho Kim & Sun-gi Kim, 2009).

The Lee administration's sustainable development policy, Green Growth policy, can be depicted, first, as a very practical approach promoting green industries as a new growth and job creation engine while continuing to promote environmental sustainability. The *National Action Plan to Climate Change*, which provides frameworks for action responding to the global climate change and energy crisis, also reflects the practical approach of the government's policies. The transition to this practical approach can result in limited outputs through incentives but has limits to the fundamental change that people perceive and internalize as a national vision of achieving a sustainable future.

Second, while the former government was based on an integrated approach, the new administration seems to have a separate approach of dealing with the environmental, economic and social dimensions respectively. This conflicts with the ESD's emphasis on the interdependence of the three dimensions.

Third, the Lee administration's Green Growth policy is a top-down one led by the government, which shows limitations in attracting voluntary efforts from the individual, group and local community levels. Hence, it seems that governmental efforts are needed to induce active participation from the grassroots level through public relations and education.

## **2. Korea's ESD Implementation and Challenges**

As reviewed above, the changes in the sustainable development policy of the Korean government has been influenced by social and political conditions and has had a direct impact on ESD. In 2002, the UN General Assembly adopted a resolution proclaiming the "Decade of Education for Sustainable Development (DESD)," which was followed by the development of the *DESD Implementation Plan* by UNESCO. In turn, the Korean government also began discussions over ESD, which led to increased concern about promoting environmental education. As a result, the former administration passed the "Environmental Education Promotion Act" (March 2003) to strengthen environmental education in and out of schools and build a foundation for training experts systemically.

However, the focus of the "Environmental Education Promotion Act" is rather limited to environmental education and a couple of other policy measures without fairly tackling the vision, principles and implementation strategies of ESD as presented by the UN. ESD is not just adding environmental education to curriculums in and out of schools but it is also a total restructuring of the curriculums by imbedding the principles and vision of ESD into education systems in schools and communities.

The shift from environmental education to ESD has been seen in the US and other developed countries (Nolet, 2010). There also needs to be a shift to ESD in Korea. This is because environmental education is a conservative approach which emphasizes conserving natural resources, while ESD is a more progressive approach that includes maintaining environmental quality and healthy human development (Jacobs, 1995). In this sense, it is said that the former and new governments have not established a vision and action plan for ESD, even though they have for sustainable development. In particular, with Korea's education system, which focuses on college entrance exams centered on a handful of instrumental subject areas, it seems limited to positively accept ESD emphasizing interdependence and integration. Hence, a strong government-level intervention is needed for ESD to be properly implemented. Furthermore, since ESD calls for a new approach to the school curriculum (Nolet, 2010), the government should also provide teacher training courses enabling teachers to show excellent leadership to facilitate new learning opportunities for students.

In summary, Korea is faced with the following challenges to implement ESD. First, the government must adopt a National Strategy for ESD. As seen in the Australian government's ESD strategy (Australian Government, 2007), the Korean government should also prepare a mid- to long-term strategic plan including a vision, objectives and strategies for ESD to strengthen its role in promoting ESD. In addition, the government has to develop a cross-curricular framework to provide standards for all scopes and levels of education subjects. The "Global Development Education: A Cross-Curricular Framework in the Context of Education for Sustainable Development" (Appelt, D & Siege, H, 2007), developed by Germany, can act as a good benchmark.

However, for such government-level strategies to work efficiently, there also needs to be effective measures to facilitate active networks and partnerships among actors. In addition, a public consensus for ESD, sustainable financing, and participation from local communities are all required for the introduction of ESD. Sustaining ESD will require role sharing between the central and local governments as well as between the private and public sectors. Moreover, we have to try to transform the educational environment into a more creative and innovative one in

order to facilitate the mainstreaming of ESD in and out of schools.

#### **IV. Goals for the Development of Arts Education and ESD**

##### **1. Changes in the Arts Education Environment**

Arts Education in Korea has met a turning point with the organization of the UNESCO World Conference on Arts Education in Korea in May 2010. Following the Conference in June, the Korean government announced its "Basic Plan to Promote Arts Education for Creativity and Personality Development in Primary and Secondary Schools." The main idea of the Basic Plan is to realize the importance of arts education for creativity and personality development and promote relevant school projects to this end. The policy emphasis on arts education by the Ministry of Education, Science and Technology, which has traditionally underestimated the value of arts education in a highly competitive school environment, can be considered a milestone in Korea's arts education development.

There has been a gradual recognition that content-based cramming education is not the desirable model of education that can ensure the future for the next generation.<sup>7</sup> However, Korean society has hesitated abandoning the traditional schooling and college entrance systems. Therefore, arts education has been in danger of exclusion from basic subjects of formal school curriculums. In this context, the government's announcement to promote arts education is likely to provide a turning point of future education that.

Korean society, which has led the development of information technology, recognizes that the transition to a knowledge-based and globalized society will ask for the efforts to overcome the limitations of the traditional education system and respond to the multi-cultural society. Arts education, which has been experiencing an existential threat compared to other subject areas, has strived to seek measures to advocate its value along the following two lines. First, arts education has attempted to go beyond the boundaries of the school education system to a more life-long education approach and transform the contents of arts education from the past 'education in or of arts' to an 'education through arts' and/or 'education for life.'<sup>8</sup>

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<sup>7</sup> However, we cannot but acknowledge that content-based cramming education and intensive competition has been the engine that led Korea's economic development during the past decades of industrialization.

<sup>8</sup> 'Education in arts' refers to arts education focused on understanding and acquiring knowledge of the arts. In contrast, 'education through arts' refers to arts education that aims for cross-curriculum objectives such as developing creative personal expression and personalities as well as increasing the effectiveness of other subjects through arts education. In addition, 'education for life' is an integrated restructuring of arts education from a focus on the educator to a focus on the quality of learners' life (Jung, Yeon-hee, 2007: 69).

Furthermore, with the advent of the age of globalization, arts education should contribute to building global citizenship,<sup>9</sup> which is required not only to confront global challenges but also to adapt well to internal pressures of rapid multiculturalism.<sup>10</sup> Global citizenship requires individuals and groups to understand the local and global context and means an ethical and moral inclination to define one's responsibility in a diverse community. Hence, global citizenship is the basis of human character meeting the demand of the contemporary period and is an ultimate value for realizing a sustainable future.

But what is the rationale that promotion of arts education can lead to a shift in the education system? The value of arts education as human education is attributed to the fact that art is a repository of futuristic imagination and also carries intense emotional appeal. In addition to this, all human beings can discover, express and communicate themselves through artistic activity and have the potential to create and appreciate art as the project of their lives. This shift in arts education became possible with the realization that arts is not an output of creation as recognized during the modern era but a process of finding and expressing themselves. It has been found that arts education is fit for building key competencies like communication skills, cultural sensitivity, etc. Lucia Brawley (2009) claims that there is no better means than arts education to build the competencies of creativity, spontaneity, effective communication and understanding of differences that are required to live and lead society in the future. And, if sustainability thinking is central to living in society in the future, arts education is the most effective means to nurture such capacity.

## **2. Goals for the Development of Arts Education and ESD**

UNESCO's World Conference on Arts Education, which was held in Seoul, has been instrumental in systematically and comprehensively dealing with the challenges arts education faces today. The *Seoul Agenda: Goals for the Development of Arts Education* is the major outcome of the four day conference. The *Seoul Agenda* emphasizes that by increasing the accessibility and quality of arts education, it can play an important role in resolving global challenges. In other words, the *Seoul Agenda* calls for continued efforts by the public and private sectors to promote arts education, which can contribute to reinforcing the creative and innovative capacities of society as well as enhancing its social and cultural well-being. In this sense, the

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<sup>9</sup> The need for global citizenship education are as follows: 1) Our lives are affected more and more by events in other parts of the world, 2) More active participation is needed by the learners, and 3) Education is acknowledged as an effective means to change the world (Oxfam, 2006).

<sup>10</sup> Jung, Yeon-hee, 'Exploring practical competences to promote social values of visual arts education,' *Debates in Arts Education (Mi Sul Gyo Yook Non Chong)*, Korea Art Education Association, Vol. 24, No. 1, pp. 1-24.

*Seoul Agenda* embraces the vision and principles of ESD and has announced its implementation of such goals for development.

The *Seoul Agenda* comprises of three Goals, which contain three or four Strategies, each with 39 Action Items. Goal 1, "Ensure that arts education is accessible as a fundamental and sustainable component of a high quality renewal of education," calls for generational inclusiveness of children and youth for arts education, transformation of educational systems, and building capacities for arts education leadership and teaching. The second goal is "Assur[ing] that arts education activities and programs are of a high quality in conception and delivery." This work includes facilitating collaboration between artists and educators in and out-of-school programs, initiating partnerships among stakeholders and sectors, and ensuring sustained training and research. Goal 3 is to "Apply arts education principles and practices to contribute to resolving the social and cultural challenges facing today's world." To this end, Goal 3 calls for applying arts education to reinforce creative and innovative capacity, enhance social and cultural well-being, promote social skills and foster the capacity to respond to major global challenges.

[Table 2] summarizes Goal 3's Strategies and Action Items of the *Seoul Agenda* that are most relevant to ESD. As mentioned above, Goal 3 of the *Seoul Agenda* calls for capacity building of arts education as a means to reinforce creative and innovative capacity of society, enhance social and cultural well-being, foster the capacity to respond to major global challenges, promote social responsibility, social cohesion, cultural diversity, and intercultural dialogue. These strategies go beyond the traditional belief that arts education is concentrated on the emotional development of individuals and emphasizes the role of arts education as a practice ensuring quality living of the individual and community.

**[Table 2] Goal 3 of the Seoul Agenda:  
Goals for the Development of Arts Education**

Goal	Strategies	Action Items
Goal 3: Apply arts education principles and practices to contribute to resolving the social	3.a. Apply arts education to enhance the creative and innovative capacity of society	Foster the creative and innovation capacity of individuals and to cultivate a new generation of creative citizens
		Promote creative and innovative practices in favor of the holistic development of societies
		Employ innovations in communication technology

and cultural challenges facing today's world	3.b. Recognize and develop the social and cultural well-being dimensions of arts education	Encourage recognition of the social and cultural well-being dimensions of arts education
		Introduce knowledge about social and cultural well-being in training programs for arts education professionals
		Apply arts education as a motivating process to enhance learner engagement and reduce education dropout levels
	3.c. Support and enhance the role of arts education in the promotion of social responsibility, social cohesion, cultural diversity and intercultural dialogue	Prioritize the learner-specific context
		Foster and enhance knowledge and understanding of diverse cultural and artistic expressions
		Introduce intercultural dialogue skills, pedagogy, equipment and teaching materials in support of training programs in arts education
	3.d. Foster the capacity to respond to major global challenges, from peace to sustainability through arts education	Expand multi-cultural dimensions in the practice of arts education and increase intercultural mobility of students and teachers
		Focus arts education activities on a wide range of contemporary societal and cultural issues
		Apply arts education to foster democracy and peace in communities and to support reconstruction in post-conflict societies

Arts education will be able to further promote the critical value of sustainable thinking by embracing the Goals as the standards of arts education policies and practices.

## **V. Arts Education Practice for Expansion of Sustainable Thinking**

### **1. Restoring the Inherent Principles of Arts Education**

By announcing the goal of "Apply[ing] arts education principles and practices to

contribute to resolving the social and cultural challenges facing our world today” in the *Seoul Agenda*, arts education internalized the principles of ESD within its framework. In the past, arts education was concerned with arts isolated from tradition and learners’ life by dealing with arts itself and emphasizing the western values of beauty. This resulted in the loss of public support for arts education. Therefore, the expansion of ESD through arts education must begin with a reflection of arts education as a whole. At first, arts education must confront the new challenges by restoring its inherent principles – those are 1) the relationship between life, nature and tradition, 2) process-orientedness of life, 3) cultural diversity, and 4) the totality of the meaning of structure.<sup>11</sup>

As the quoted paragraph below shows, arts fundamentally reflect nature. But modern arts education has lost its relationship with nature and emphasized the academic side of conveying artistic knowledge and critique.

*Located in the horizon of nature and spirit, art is a sphere that maintains and expresses the basic experience of living with nature. Efforts to wake nature through arts are to unveil the sacred foundation of nature. Art does not 'use' nature as a subject, but expresses and reproduces the originality of the experiences (Sin, SH, 2009: 46).*

In addition, arts education cannot be separated from the life of the learner and teach art itself (Efland, 2002). It must find out meaning within the relationship of life and nature. Also, going beyond the western values and restoring its relationship with tradition, arts education is able to internalize the thinking and practice of sustainability based on the context of society and culture.

Furthermore, arts education must reinforce cultural diversity as an inherent principle. And it should provide a way to understand and experience the diversity and commonness of other cultures through art works which manifests the perception modes and processes of various lives. Also, arts education should reflect the fact that art itself is not an expression of beauty but is recognized as formed only within the total context of today’s social, environmental and economic conditions. This will help arts education try to take a comprehensive and humanistic approach dealing with the social issues of the day. And then, sustainability could be dealt as a critical theme within the framework of arts education.

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<sup>11</sup> These principles have been proposed as a new method to adapt arts education to the changing environment, and are also applicable to internalizing the concept of sustainability into arts education. Details of the principles and their roles are provided in “Study on the cultural competencies of the arts teacher in enhancing cultural practice of arts education,” Ph.D. dissertation, Korea National University of Education, 2007, pp. 42-59.

## 2. Expanding the External Values of Arts Education

On the other hand, it is needed for arts education to expand its external values. In the past, arts education has focused on capacity building of individuals required for social development. Even though arts education is concerned with social aspects, it has put more emphasis on its value of economic means. However, with the advent of the knowledge-based age of globalization, arts education must expand its scope to face the environmental, social and economic challenges of today's world. The ESD of creating a sustainable future can be achieved not solely by pursuing economic development but by factoring environmental, cultural and social values into the equation.

The society for arts education, through the *Seoul Agenda*, broke away from its limited scope of focusing on the individual and economic level and expressed its engagement with social and cultural aspects of arts education. This means that the society for arts education began to confirm the potential for arts education to be a central subject in building the competencies of creating a sustainable future. The external values of arts education could be achieved by restoring the inherent principles of arts education, in other words, by promoting 1) an arts education for communication and cohesion, and 2) an arts education for participation and practice.

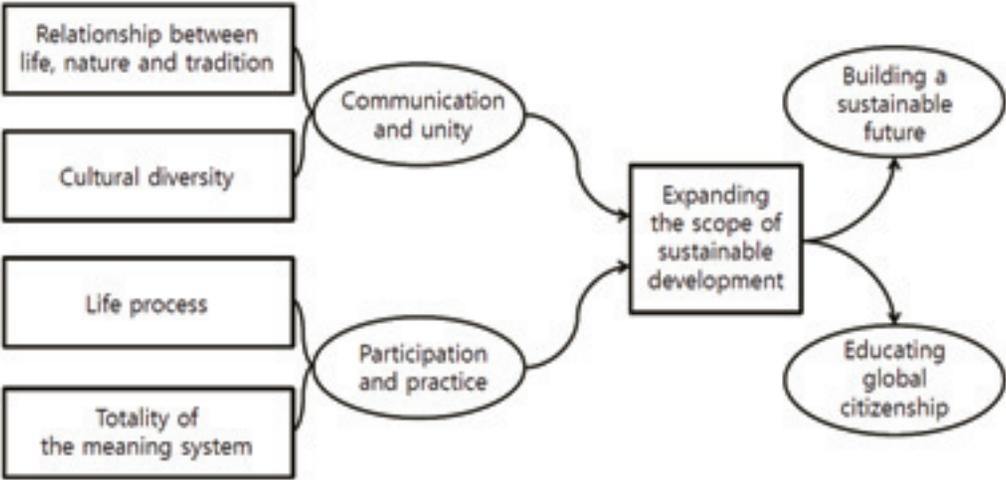
First of all, arts education can contribute to the social and cultural values of "communication and cohesion" through its inherent principles of restoring relationship and emphasizing cultural diversity. As stated in the *Seoul Agenda*, arts education has therapeutic and socio-cultural functions, which ought to be reinforced, of overcoming disputes and restoring hope in disasters. Also, by providing an understanding and knowledge of various cultural and artistic expressions, arts education could also contribute in nurturing cultural sensitivity and competencies to understand and communicate with other people and cultures. To summarize, arts education could contribute to the promotion of socio-cultural values by facilitating inter-cultural dialogue, promoting cultural diversity, and reinforcing social responsibility and integration.

Arts education should not be satisfied with confirming the development of learners' artistic capacity via tests in school environments. Arts education should deal with the learners' participation and engagement with community problems as a learning process. This is because arts education starts with its inherent principles highly regarding the process-orientedness of life and the totality of the meaning of structure. The *Seoul Agenda* emphasizes these values of arts education in promoting creative and innovative practices in the local community and building its related capacities. Based on their socio-cultural conditions, arts education encourages learners to acquire knowledge through practical activities. Also, by participating in

the community, the learners will also form their identity within the community (Wenger, 1998).

To respond with the changing educational environment, this article has claimed that arts education should restore its inherent principles and expand its external values by starting with a reflection on the existing educational practices. And, as you can see in the *Seoul Agenda*, this view is supported by the society for arts education. The figure below depicts how the inherent principles of arts education can lead to the expansion of sustainability and contribute to achieving the ESD vision.

**[Figure 1] Expanding Sustainable Thinking through Arts Education**



### **3. Improving Arts Education Curriculum to Expand Sustainable Thinking**

In the section above, we looked at how arts education could expand sustainability thinking by restoring its inherent principles and expanding its external values. By internalizing these efforts into the curriculum, arts education can contribute to delivering the ESD’s fundamental value that is to create a sustainable future. Hence, in this section we will review how the goals, focus, criteria and pedagogy of arts education can be improved and adjusted in line with sustainability thinking.

First, the goals of arts education need to be reformulated in order to expand sustainability thinking. The *Seoul Agenda: Goals for the Development of Arts Education* will help modify and adjust the present goals of arts education for a

changed educational environment.

Arts education curriculum should focus more on the 'why' problems involving values and objectives to respond flexibly to the rapidly changing social environment and its demands. And, in turn, this requires arts education curriculum to provide a more philosophical and fundamental direction, which will help in mainstreaming the value judgment criteria of sustainable development into educational contents and methods.

The society of arts education has strived to overcome the perception of being a subject for emotional development and to reinforce its legitimacy by incorporating Discipline-Based Art Education (DBAE) and other methods that emphasize arts education as an academic discipline. However, in order to mainstream interdisciplinary core values such as sustainable development into the education curriculum, it is necessary for the curriculum to foster a practice-focused environment as seen in the "education for life."

Along this line, the contents of arts education should focus on the following: 1) artistic creation based on understanding the relationship between tradition, nature and life, 2) artistic experience based on the practices of cultural diversity and social cohesion, and 3) artistic knowledge based on the totality of life and its meaning structure. In addition, the pedagogy of arts education should emphasize 1) participatory education, directly engaging with the real world, 2) practical education, seeking to contribute to resolving global challenges, and 3) process-oriented learning, realizing a cultural living; all these are in line with the principles of ESD (Nolet, 2010). The application of such content and pedagogy in arts education will lead to arts education contributing to the expansion of sustainability thinking.

Furthermore, this new focus of arts education can be tackled as part of an integrated education program for expanding sustainability thinking in line with the values and criteria of ESD. [Table 3] below provides an example of a curriculum model for integrating sustainability into school education based partly on the Environmental and Sustainability Education Learning Standards set by Washington State, USA. This and other models can be referred to in creating a new arts education curriculum in Korea, which does not yet have arts education standards incorporating ESD.

**[Table 3] An Improved Design  
to Integrate Sustainable Thinking in Arts Education**

	<b>Improved Design</b>
<b>Goal</b>	Nurture and develop a set of behaviors that can contribute to fulfilling one’s individual values in communities and to creating and sustaining a desirable community.
<b>Content Focus</b>	<ol style="list-style-type: none"> <li>1. Artistic creation based on understanding the relationship between tradition, nature and life</li> <li>2. Artistic experience based on the practices of cultural diversity and social cohesion</li> <li>3. Artistic knowledge based on the totality of life and its meaning structure</li> </ol>
<b>Pedagogy</b>	<ol style="list-style-type: none"> <li>1. Participatory education, directly engaging with the real world</li> <li>2. Practical education, seeking to contribute to resolving global challenges</li> <li>3. Process-oriented Learning, realizing a cultural living.</li> </ol>
<b>Standards*</b>	<ol style="list-style-type: none"> <li>1. To develop knowledge of interconnections and interdependency</li> <li>2. To engage in systems thinking and use information gained through learning experiences</li> <li>3. To develop and apply the knowledge, vision and skills to make personal and collective decisions</li> </ol>
<b>Types</b>	<ol style="list-style-type: none"> <li>1. Smart by nature</li> <li>2. Artists in school</li> <li>3. Service learning</li> </ol>

\* *Based on the Environmental and Sustainability Learning Standards set by Washington State.*

For arts education to incorporate the values of “education for life,” the arts education curriculum ought to consider participation and practice as important components. To do this, the critical interdisciplinary value of ‘sustainability’ must be imbedded into the education curriculum. The education system should not restrict and limit the vision and passion of the future generation in aimless knowledge

acquisition.<sup>12</sup>

Based on these understandings, a new curricula design of arts education for sustainable thinking should incorporate the above-mentioned principles and standards. Those kinds of curricula can be suggested as follows: 1) Smart by nature programs that use nature as a context in arts education, 2) Artists in school programs that bring artists to teach in schools and 3) service learning programs that utilize local community resources in the learning process.

## VI. Epilogue

The principles of 'sustainability,' which originated from an ecological point of view, have expanded its influence to all dimensions of society. As a result, 'sustainability' has elevated into a core value that should be incorporated into all lines of education including arts education.

Confronted with internal and external demands, arts education has continuously evolved from an "education in arts" into an "education through arts" and "education for life." As a result, arts education, by restoring its inherent principles and expanding its external values, has become encountered today with ESD.

The *Seoul Agenda: Goals for the Development of Arts Education*, which was adopted at the Second World Conference on Arts Education, held in Seoul in 2010, provided a new way forward and a detailed action plan for arts education. This new agenda is also in line with mainstreaming the principles and values of ESD in arts education.

The goals of ESD will be achieved not by developing a new curriculum for ESD but by internalizing ESD as a "hidden curriculum" within all subject areas. Hence, all subject areas must seek to incorporate and mainstream the principles of 'sustainability' within its content. Arts education, which has tried to accommodate knowledge acquisition in schools until now, can contribute to expanding sustainability thinking in the individual and community level and building a sustainable future by restoring its inherent principles.

The discussions and arguments presented in this article will be meaningful only when they are implemented and practiced by the society of arts education including

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<sup>12</sup> Learning by knowledge acquisition can cause serious problems including 1) lack of motivation and responsibility of the learner, 2) emphasis on learning techniques rather than understanding the meaning and purpose of the subject, 3) production of dead knowledge, which is useless for the learner, and 4) error of trusting blindly a standardized knowledge (Jung, Yeon-hee, 2007: 63).

government officials. Above all, the government must first prepare a roadmap for ESD and a high-level view for education policy, such as the Creativity Education and Global Citizenship Education (GCE), and execute it consistently.

Implementing ESD is primarily to share the values and cooperate together to realize values and principles of ESD. It also covers an effort to share the knowledge, skills and attitudes relevant to sustainable development and to provide a new set of behavioral standards that arises in practicing such sustainability principles and values. Creating a sustainable future will be possible only when everybody develops a global identity as an active member of a sustainable development community.

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**INTEGRATION OF ESD  
WITHIN THE SCHOOL CURRICULUM:  
FOCUSING ON  
ESD TEACHING-LEARNING STRATEGIES**

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## I. Prologue

Sustainable development (SD) is one of the main challenges the world is facing today. Poverty and inequality are prevailing in the world, climate changes worsening every day, and the recent socio-economic crisis seems to hint to us that the world, in the 21<sup>st</sup> century, is in need of a turning point – which adds value to the importance of sustainable development (UNESCO, 2009a; Lee & Kang, 2009).

Sustainable Development is commonly defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs,” quoted from the The Brundtland Report (WCED, 1987). However, this definition has evolved overtime through numerous conferences and discussions. This discussion can largely be categorized into two axes; emphasis on Sustainable Development based on the Earth’s limitation, and the other emphasizing equity between various subjects, such as those between generations, nations, cultures and living creatures. Moreover, Sustainable Development can also be defined as “the will and at the same time, the process in which to improve the quality of life of those from both the present and the future generation – within the harmonic balance of economy, society and environment” (UNESCO, 2005).

Sustainable development can only be achieved through a change in the minds and behaviors of people worldwide, and the importance of education to attain such change has been emphasized in numerous International Conferences. This lead to the designation of the UN Decade of Education for Sustainable Development (DESD, 2005-2014), appointing UNESCO as the lead agency calling for UNESCO's cooperation as the role of a coordinator (UNESCO, 2004; Lee *et al.*, 2005).

Education for Sustainable Development (ESD) aims to combine the theory, values and the practices of sustainable development with education and every aspect of learning. It also aims to provide an opportunity to learn the value, the ability, the knowledge and skills for them to contribute to a future which is humane, socially just, economically holds potential for growth, and ecologically sustainable development (UNESCO, 2005). A national strategy suggested by the Presidential Commission of Sustainable Development (PCSD) in 2005 defines ESD as “education which benefits all with quality education, and from this, aims to teach the values, behaviors and the lifestyle which is needed for social revolution and a sustainable future” (Lee *et al.*, 2005). The point here is that ESD is education aiming for sustainable development, and that every form and level of education is not only a goal on its own but a process and a strong instrument in bringing the change possible for sustainable development (UNESCO, 2009c).

Thus, this paper aims to emphasize the connection between the current global issues and ESD and to study the transformative qualities of ESD, and from this, to explore strategies to combine ESD with the school curricula, which will be done mainly by case-studies and teaching-learning methods.

## **II. Global Issues and ESD**

Education for Sustainable Development (ESD) is often referred to and discussed as "Education for Change" or a way to resolve issues that derive from unsustainable economic development models and practices such as the unsustainable global economic crisis that the world is facing today. The "UNESCO World Conference on Education for Sustainable Development," which was held in Bonn in March 2009, emphasized that ESD will greatly contribute to resolving global issues (UNESCO, 2009a). Moreover, a document on policy dialogue regarding "Climate Change and Education for Sustainable Development" (UNESCO, 2009b), once again emphasized that ESD can strongly contribute to solving the global issues we are currently facing such as climate change.

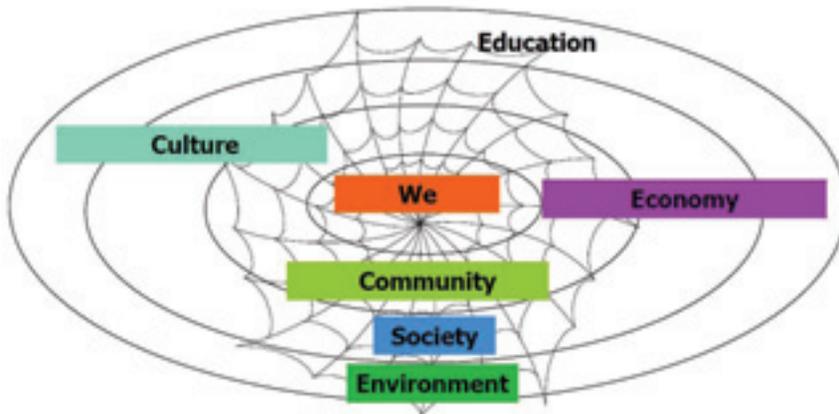
Discussions on climate change have been going on for quite some time. However, the debate on whether climate change is a naturally occurring "variation" or a "change" as a result of human activities has caused controversy between scientists. Through a comprehensive report on climate change published in 2007, IPCC released the fact that the temperature of the Earth has risen by 0.74 degrees over the past century, and the surface of the sea has risen 1.8mm annually, proving this is clearly the result of human activities (IPCC, 2007). The report also warned that if this situation continues to proceed at this pace, resulting in persistent rise in temperature, humans and other living creatures on Earth may be in great jeopardy.

The UNESCO policy dialogue document (UNESCO, 2009b) emphasizes that a "transformative" approach is necessary for education on issues such as the causes of climate change (in relation to its mitigation) and the results of climate change (in connection with adaptation). And it also states that education for climate change should include not only scientific processes related to climate change but also an understanding of the certainty and uncertainty, and the dangers of climate change. Moreover, it states that education on climate change needs to include understandings of the history and related causes of climate change (from a technical, scientific, ecological, social, economical, political aspect); an understanding of the processes and results of "mitigation" and "adaptation"; and also a need to relate these to sustainability. Also emphasized were a time dimension and consideration for the future generation, awareness on various interests that shape climate change, and a critical media literacy.

From this, we can learn that in order to slow down and adapt to climate change, a revolutionary approach that can affect society overall is crucial. This will need to go beyond the current understandings on scientific explanations related to the processes of climate change, which can affect society as a whole. And from this, we can learn about the close connection between education on climate change and ESD, for it is impossible to understand the process and solutions of climate change without a systematic understanding of the overall system of the Earth and its complexity and inter-relationship (UNESCO, 2009b).

Mayer, an Italian educator, stresses the above-mentioned importance of education in this context (2007). She states that education connects us with the community, nation and the world; it's much like a spider web in the context of society, economy, environment and culture and that the current unsustainable society must change by means of ESD (see [Figure 1]). In order to carry out such a role, ESD must essentially be transformative, must break away from traditional thoughts and reach out to connect everything. Thus, not only simple behaviors but a vision for the world and the future must be dealt with.

**[Figure 1] Education that Connects Us with the World (Mayer, 2007)**



However, ESD does not need "catastrophism" as is often thought. Moreover, it should not put the burden of the current global situation on the shoulders of the learners. It is, as Sleur & Affolter (2009) have assessed, an understanding of the complexity related to the issue, a critical system thinking approach, and a vision for the future needs to be provided to those students. System thinking is the key in ESD because whether its subject or category is society, a school or the Earth, it is each a single system. In order to understand the various social, economic, environmental and cultural aspects of the issues, a consideration from an overall systematic view is

inevitable. Essentials of system thinking are the patterns from the parts to the whole, from objects to relationships, from structures to processes, from objective knowledge to contextual knowledge (Capra, 1996); and this coincide with ESD.

Such system thinking has been highlighted in a number of ESD Documents. UNESCO, in 2009, published a mid-term review on the context and structure of DESD in order to examine the progressive outcomes of DESD (UNESCO, 2009c). The UNESCO Monitoring and Evaluation Expert Group (MEEG), which took part in preparing this review, points out the enhancements mirrored worldwide as a result of ESD. Below are the points.

- Future thinking, Critical reflective thinking,
- Understanding complexity and system thinking,
- Participation in democratic decision-making
- Planning and managing changes,
- Decision-making under uncertain circumstances,
- Understanding of relationships between the fields,
- Application of learning in various contexts,
- Responsible action regionally/globally,
- Understanding stakeholders and their interests
- Construction of consensus,
- Negotiation to cope with crisis/danger,
- Respect for others, Ability to understand/elucidate values

- Competencies emphasized in the *Review of Contexts and Structures for Education for Sustainable Development Learning for a sustainable world* (UNESCO, 2009c)

Among these, future thinking, critical reflective thinking, system thinking and participation are often emphasized as the key competencies of ESD.

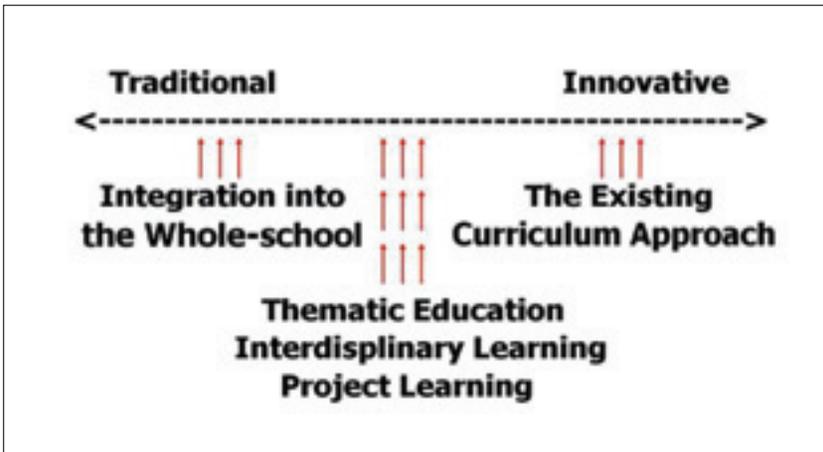
The DESD review also examines themes that are emphasized within the boundaries of ESD. As a result, traditional environmental issues such as health, water, maintainment of natural resources (water, soil, mineral, fossil fuel), decrease of biodiversity has been greatly highlighted, while issues such as the Millennium Development Goals (MDGs), natural disasters, corporate social responsibilities still remain weak. Moreover, socio-cultural themes such as peace, citizenship, ethics, equality, poverty, cultural diversity are more emphasized in poverty stricken communities/countries.

### III. Strategies and Cases of Integrating ESD within the School Curriculum

ESD implementations can largely be categorized by its approach: a contextual-based approach versus a competence-based approach. The former focuses on the causes and effects the main economic, environmental, social, cultural issues, and the understanding of their relationships. The latter focuses on the development of competency to cope with such issues on a community or personal level. In many cases, ESD is understood as simply the harmony between economic, environmental and social domains, which is quite inappropriate as this is a result of a shallow contextual approach. In this sense, grasping the transformative characteristics of ESD, an approach to understand the complexity of the issue and to develop the competencies to understand and resolve such complexity is essential.

ESD within the school curriculum can be performed through various pedagogies, and it is presented in [Figure 2].

**[Figure 2] Ways to Integrate ESD with the School Curriculum**



As indicated above, [Figure 2] places the traditional and the innovative approaches at the opposite ends. The traditional method combines ESD related contents and approaches on top of the school curriculum, which is already set up with conventional courses. Many schools even in Korea have a high possibility of introducing the above-mentioned method. On the contrary, an innovative method is a "whole-school approach" where the entire school makes an effort for ESD (Henderson & Tilbury, 2004). This can be considered as an approach that can change not only the school's teachings and learning but also its administration, policies and its culture. Also, regular courses as well as extra-curricular courses can

be used for thematic or interdisciplinary project learning. Schreiber (2009) actually shows how ESD can be combined through various courses and extra-curricular activities within the schools.

Cases of ESD in schools are easy to find. The integration is possible even without much effort, especially with ecology and environment related courses within the secondary school curriculum. For example, it is not a difficult attempt to carry on a study project investigating issues of the community or having them experience the economic and social aspects related to ecological sensitivity within the curriculum. A class dealing with the issues of the community and an environmental class dealing with various perspectives have actually been held in Jincheon Middle School and Sungshin High School (Lee, 2008). To have a closer look, the environmental course at the Jincheon Middle School included a study project that looked into community issues and ways to solve them (Lee, 2008). Through this course, students had time to mind-write thoughts about the local market, the golf course, the green-school, plastic bags and fast-slow food etc. within the Jincheon and Chungbuk area. They then had the opportunity to actually head out to the community and explore the area. Through this project, students were given a chance to rethink about the local market from a social, environmental and economical perspective and then gave several suggestions such as re-organizing the parking lot in order to vitalize the traditional market; new tourism strategies; utilizing a wrestling hall as a study area as part of green-schooling; and strategies to reduce flyers. The idea to reduce flyers was posted on the district office homepage, receiving much attention from the residence and also feedback from the relative local government officer. From these cases, we can learn how ESD can be implemented easily without changing the existing curriculum greatly and connecting the issues and themes with the community or promoting social, environmental and economic sustainability.

Combining ESD with other subjects such as Korean/Linguistics/English or Geology is feasible as well. Down (2010) from West Indies University reported a case dealing with the combination of ESD with Language Arts. This course started out with a personal narrative; then it went onto the exploration and discussion of the definition and content of ESD suggested in a text related to language; then it moved onto connecting personal experience with a certain theme such as peace or violence; thus, utilizing a strategy that could induce ESD related practices. Through this course, students studied the concept of ESD and understood the objectives of ESD and performed activities such as comparing the objectives of language art studies and understanding the aims of ESD which had been omitted from the syllabus. It is fair to say that it is possible to reach the goals of both ESD and language art through texts related to sustainable development within those related subjects.

In addition, Tormey (2010) from Limerich University of the UK presented an example case which combined ESD with Geography. He pointed out that Geography can easily be integrated with ESD as it is "a study of people and places." And eventually, by extending the perspectives dealt in that study, it can be closely related to ESD. Students of this course actually attempted to make an emotional connection with the world through study projects on a particular country. The aspect related to emotions within the concept of ESD is quite important as it is regarded as something to especially consider when planning a course. The students then went through first-hand experience activities through field-trips. Through these series of processes, this course has restructured Geology, an aggregation of facts, into something that can be closely related to the individual student via emotional connection. Strategies to successfully perform those programs are suggested below. By linking an objective way of studying a certain country with an emotional aspect reinforces the understanding of a particular country; enlarges awareness of the world through regional-global studies; and shows how the compositions of Geology are a result of selection through re-examining the constitutes of Geology. These approaches gained positive feedback from the students.

The next case is a multidisciplinary approach where various courses and the community come together. The science teacher at Sungseo Middle School suggests that several subjects come together for a course related to Eco-village (Lee, 2008). As a result, an integrated education was carried out on the environment and the community through Science, Social-studies, Ethics, Korean and Art courses, etc. Investigating and researching the environment of an area was conducted in Science; exploring possibilities of ecological community through understanding and distributing the local currency was implemented in Social Studies; and a presentation on eco-village was performed in the Ethics class. Korean class was composed of reading and writings on ecological environment, composing poems and reading it to the classmates; and Art class was composed of taking photos of a series of related activities. These activities can be seen as a multidisciplinary approach where several subjects came together under the theme "Creating a Vision on Eco-environmental Village" for a sustainable future. This activity, which grew to become a community festival, bears greater significance with the fact that it not only lead to the participation of students and the faculty and but also created partnerships between parents, Hansalim, NGOs such as the Korean Ecoclub, the media, and community organizations such as the district office.

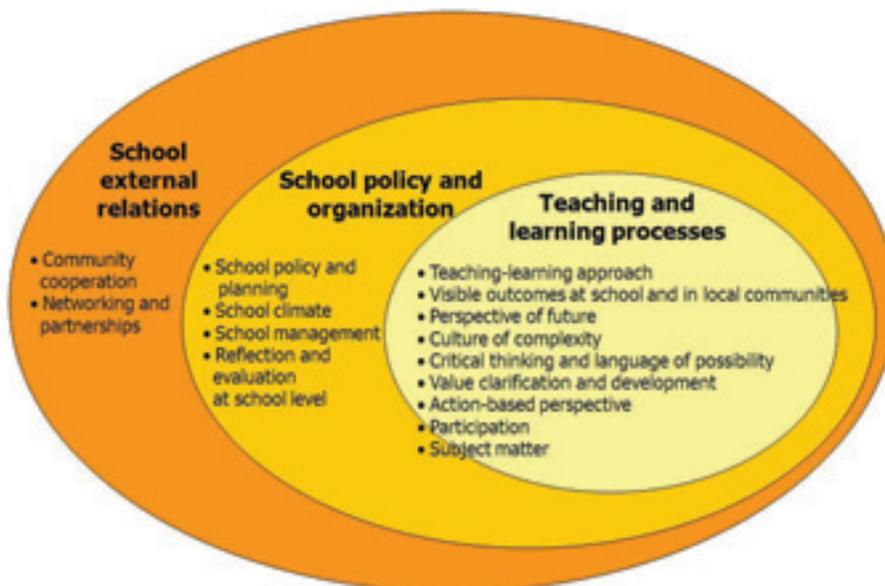
A more active move on the Regional Center of Expertise on ESD (RCE), which requires a more innovative and general endeavor, can be seen in the case of Tongyeong (Lee, 2008). Inpyeong Elementary School has played a leading role regarding ESD in Tongyeong with a whole-school approach. It has applied to be designated as the model-school for ESD and has continued its efforts to integrate

ESD into various aspects of education such as in the curriculum, school activities, study projects etc. We shall draw attention to the learning process of the teachers as well as the diverse attempts and active participation of the members of the school. The teachers of this school, in the beginning, were ignorant of how to apply ESD, how it is connected and integrated into the regular courses and at other schools. However, they gradually transformed into a "learning community" that studied and brought changes to the school by listening to lectures, participating in workshops, applying them to actual classes and discussing with other teachers (Lee, 2008).

As described in the above cases, ESD within the school curriculum can be performed and integrated in various ways. Integrating diverse perspectives and complexities such as the issues of the community, the environmental, economic and social perspectives into the existing curriculum is also a possible method. A multidisciplinary approach via integration of several subjects which aims for sustainable development; partnership with community organizations and institutions; club activities that examine the sustainable use of resources and energy available within the school; and an whole-school approach in connection with the community can also be a method in integrating ESD into the school curricula.

However, Environment and School Initiative (ENSI), an international network on environmental education and ESD, suggests quality criteria for schools that wish to perform ESD (Breiting, Mayer & Mogensen, 2005). This data, which is also available on the ENSI website, has elicited implications from case studies derived from eco-schools and ESD schools of 13 different countries (Mogensen & Mayer, 2005) and have suggested outstanding standards which schools aiming for ESD shall take into consideration (see [Figure 3]). This standard, which is currently translated into 16 different languages, is seen to have played a big role in the early stages of setting up guidelines for ESD.

**[Figure 3] Quality Criteria for ESD Schools  
(Breiting, Mayer & Mogensen, 2005; Steiner & Rauch, 2009)**



As seen in [Figure 3], education in schools that aim for ESD can be categorized into three areas: teaching-learning processes, school policy and organization, and school external relations; there are suggestions for sub-categories within these areas. The area of teaching and learning processes includes the use of a variety of innovative teaching-learning methods; inducing a visible, physical, social change within and outside the school; providing a future-oriented perspective; taking into consideration the complexity of ESD; making use of critical thinking and language of possibility; aiming for values clarification; providing action and participation; and connecting ESD with the curriculum. School policies and planning, school climate, school management and the evaluation of ESD on a school level is included within the school policy and organization area. Since a school is a model of what students may experience in society, it is important for them to experience sustainable development in real school practices. And in terms of the relationship between schools and the rest of society, cooperation, networking and partnership are suggested. These criteria can be used not only as a check-list in performing ESD in schools to re-direct existing school curriculum and practices but also in evaluating the educational activities that are being performed.

#### **IV. Teaching-Learning Strategies for ESD**

As proven above, ESD in schools can be performed by various means. It can be included in the already existing curricula or extra-curricular activities which traditionally play an important part in school education. Or a more innovative method would be through a multidisciplinary approach or a whole-school approach. Therefore, it is not necessary to insist on creating a new course for ESD. Simply, a new vision for teaching and learning should be provided through ESD; a new systematic approach to the problems we face daily and improvement of new competencies are inevitable. Thus, traditional teaching-learning methods based upon lectures or experiments on ESD have limitations, and this calls for a more innovative teaching-learning method.

In regard to a teaching-learning approach which corresponds to the significance of ESD, Cotton & Winter (2010) stated that the transformative qualities of ESD derives from "Education for Environment," which stresses that this is closely related to the individual's values and ethics in regard to the environment. From this, an alternative teaching-learning approach may apply, and it calls for the necessity to emphasize a comprehensive communication based upon action and experience (Scott & Gough, 2003). Moreover, because of the argumentative characteristics that come with issues related to sustainability or sustainable development, education providing a balanced perspective and maintaining neutrality is necessary (Oulton *et al.*, 2004). Therefore, some suggestions for teaching-learning approaches for ESD would be role-playing, simulation, group discussion, debates, critical incidents, case studies, reflective explanation, critical reading/writing, problem-based learning, field studies. In the meanwhile, Nolet (2010) suggests inquiry-based learning, problem-based learning, place-based learning and social service learning for ESD teaching-learning. Since these can be applied to various stages of teaching-learning approaches previously suggested by Cotton & Winter (2010), which is similar to the learning-teaching approach that can be linked to project learning based on practice, it is considered to provide meaningful learning.

Inquiry-Based Learning refers to studies based on inquiries, which can be understood as the process of attaining information and pursuing understanding. Therefore, the focus of this learning is the process and the result of resolving questions with the emphasis on a particular question or situation for inquiry (Nolet, 2010). In order for the Inquiry-Based Learning to be performed meaningfully, an inquiry-based strategy, properly lead by a teacher, is necessary, but in many cases this does not particularly exist at a general stage. Inquiry-Based Learning is performed best with a small group of two to six people, and the results of the inquiries may be shared with other students in many ways. Setting-up an inquiry question in a certain context, or an appropriate guideline suggested by the teacher

at the stage in which the inquiry method is being decided can be of big help. Inquiry-Based Learning can be linked with Science and Social-studies courses. This is especially so with the self-inquiry program encouraged upon the amendment of the National Science Curriculum in 2007 (Ministry of Education, Science and Technology, 2007). Inquiry-Based Learning can also be utilized in inquiring the issues of the community. It can be used to inquire the ecology of a specific organism or its population at a region or location that experienced conflict between sustainability and development. To give an example, Wonheungi Eco-park in the Cheongju area is famous for being natural spawning grounds for a group of toads, and the area experienced great conflict with the development of a large-scale apartment complex nearby. By simply studying the ecology of toads or by inquiring about issues related to the movement of these populations can provide an understanding of the complexity and conflicting elements of a social issue.

Problem-Based Learning includes the process of inquiries, investigation and problem-solving to make an effort to actually resolve a particular problem or issue of the real world (Nolet, 2010). Problem-Based Learning, similar to Inquiry-Based Learning, can be performed in the form of the student being the main-player and the teacher giving guidance, but it can be distinctive from Inquiry-Based Learning from the fact that it puts more emphasis on problem solving rather than simply inquiring about a particular problem. This learning method is also appropriate for a small group of two to six people, and can share the process of problem solving and its results within the group. Suggestive themes may include inquiring ways for the co-existence of humans and toads in the Wonheungi Eco-park, mentioned earlier, or ways to resolve conflict between development and preservation of biodiversity, all approaches to solve a practical problem.

Place-Based Learning places importance on learning at a specific place. In ESD, efforts to involve a specific place, especially a community, is quite important, and this Place-Based Learning is meaningful in the sense that it focuses on the community to build a sense of place. Therefore, it can be portrayed as a form of bioregionalism, community-based learning (Kwon, 2005), and this may emphasize experiences on everyday life context. Moreover, it includes activities which can be performed at a specific place and activities that inquire about the issues and characteristics of a community may also be performed. This can contribute to fostering citizenship and responsibility, and is appropriate to create an attachment by personalization of a particular place or community. It is also possible to acquire action skills through these processes. Suggestive themes may be activities investigating issues of a city or a region, exploring the sustainability of one's school or investigating the migration route of animals such as toads or birds.

Service Learning may focus on students providing service for others and the community, and the actual social service may be the basis. It needs to be students-centered with the guidance of teachers, which is based on detailed planning and preparation. Suggestive themes may be monitoring volunteer work at the community, delivering lunch for senior citizens who live alone and volunteer work for a school forest, etc.

Project Learning performs concentrated inquiry on a theme worthwhile for students to learn. This may be considered as an approach rather than a method or a model (Katz & Chard, 1992). In Project Learning, the learner chooses his or her own theme, collects information and makes decisions; making it important to perform a self-guided study. Students are quite free to select their theme as its boundaries are quite wide and open, but such themes may not be so easy to carry out. Project Learning may be linked to the Creative Experiential Activities of the National Curriculum in 2009. Suggestive themes may be creating brochures on the preservation of biodiversity, exploring and resolving issues that are a threat to the sustainability within the school, reducing electricity usage caused by magpies, writing a narrative on multi-cultural society, etc.

## **V. Epilogue**

As studied above, ESD may be integrated into the school curriculum via a traditional or an innovative approach. It can strengthen students' competencies through various teaching-learning approaches with different themes and subject matters. However, as emphasized, taking into consideration the revolutionary and argumentative characteristics of ESD, it is necessary to select a teaching-learning approach that realizes such aspects.

In order to integrate ESD into the school curriculum, it is important to understand the necessary elements of ESD – those being knowledge, issues, skills, perspectives and values. Along with this, it is necessary to evaluate student understanding of SD and ESD. In addition, integration may be made possible by finding and highlighting the existing curriculum or objectives and contents of educational activities, which can be linked with the objectives, themes and issues of ESD. Integrating ESD case studies, additional knowledge, issues onto the existing curriculum may also be possible. Efforts to expand the existing curriculum and activities and reflecting the locality may also be meaningful.

The role of teachers is important in such integration. For this, teachers need to understand the importance of effective ESD programs and its multidisciplinary, across curriculum, revolutionary qualities. In addition, teachers must have the ability to apply different teaching-learning strategies into their education. They also need

to learn the importance of partnership with the stakeholders and strengthen their will and capability to work with them.

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# **GREEN GROWTH AND GREEN TALENT**

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## **Section 1. The Pipeline of Green Growth: Green Talent**

While the codes for the Kim Dae-jung and Rho Moo-hyun government were People and Participatory government, the code for the present government is "green" as it emphasizes "green growth." Ever since the President explicitly mentioned "green growth" in the presidential address on the anniversary of Liberation Day, August 15 in 2008, a green growth model has been suggested by the government, and relevant proposals were quickly made. "Green growth" has not only been emphasized in Korea, but it has also been a global code that explains the 21<sup>st</sup> century. It was selected as a development model of the 21<sup>st</sup> century in the Asia-Pacific region according to the UNESCAP (United Nations Economic and Social Council for Asia-Pacific) Declaration. There is also a high interest toward green jobs and technology in international organizations such as ILO and OECD. The establishment of the Green Jobs Act in the U.S. shows this. There are some cynical perspectives of green growth; it is not a new idea and there has been efforts of the intellectuals and international organizations that claimed the importance of environment-friendly sustainable development since the 1970s (Lee, 2009). However, recent efforts to include green growth into national policies in Korea and other OECD countries prove that environmental problems have entered a critical stage where a more comprehensive consideration of the environment and economics is necessary, and it has become something that is beyond the rhetoric of the liberals. The Global warming and melting glaciers, Hurricane Katrina and the 2004 Tsunami showed us the tragic result of global warming, depletion of petroleum and natural gas and the intensifying political and economic conflicts due to the depletion of resources. These all indicate that green growth model is an inevitable choice for human beings to survive. Therefore, despite the fact that it is late, we still need to actively support the Green Growth model so that it can be properly implemented.

The definition of Green Growth and the specific range and contents of the Green Growth policy model is still controversial and not yet organized. Some interpret Green Growth as another economic development model with a new growth source based on low carbon and environment-friendly technology, while others interpret it as a new paradigm of social development and life that prioritize the environment despite the inconvenience due to less consumption and slow pace.

Whether green growth is interpreted in a narrow or broad sense, the issue of educating human resources that leads green growth is the core task of green growth. This is not only because the "human" element is an important element in every growth model but also because the core power of implementing green growth depends on the creation and utilization of high quality human resources that is appropriate for "Green Growth." Also, it is because change in consciousness, attitude and people's life styles toward society and the environment is necessary to

form a green growth society. However, the most important reason that humans are important for green growth could be in the fact that green growth is future oriented. Green growth is about how to actively handle our future and our future generation. It is through "human," who we are educating, that we could prepare for the future we want.

In this paper, I will discuss "talent, human resources" and "human resources developing" within the paradigm of green growth. What kind of talent is really a talent within this green growth paradigm? And how can this talent be nurtured? Is there any problem in our current human resources development system? What is the specific policy agenda to develop human resources who will lead green growth?

## **Section 2. Green Growth and Green Talent**

### **1. The New Paradigm of Social Development as Green Growth**

The meaning of "Green Growth" is complex. Ever since green growth was first mentioned by President Lee Myung-bak during the congratulatory address on August 2008, the government has established a Presidential Committee on Green Growth, confirmed a government planned Low-Carbon Green Act and suggested a five year plan for green growth. The Presidential Committee on Green Growth defines green growth as "pursuing economic growth but the pattern is transited to an environment friendly one, therefore, it means an economic growth that is environmentally sustainable" ([www.greengrowth.go.kr](http://www.greengrowth.go.kr)). That is, green growth takes the environment into consideration and pursues an economic growth that does not harm the environment, which could also have a synergetic effect on both environment and economic growth by creating a new growth power by conserving the environment. The Presidential Committee on Green Growth explains that the green growth paradigm inherits the idea of sustainable development. In addition, green growth seeks for possible ways to implement policies on sustainable development, which could be abstract and too comprehensive because it integrates economic development, social equality and environment conservation. The government proposes the following 10 policies for green growth: 1) efficient reduction of greenhouse gas, 2) strengthening the independence of post-petroleum energy, 3) strengthening capacity for adapting to climate change, 4) developing green technology and growth power, 5) making the industry go green and nurturing the green industry, 6) the advancement of industry structure, 7) establishing the foundation for a green economy, 8) forming a green country and green transportation, 9) green revolution of everyday life, and 10) realizing a green growth exemplary nation. As these policies show, the green growth policy of the current government puts emphasis mainly on the change of technology and industry such as creation of the growth sources based on green technology, adaption to the climate

change and independence of energy. The government also partially includes the idea of making a foundation for a quality life in their policy.

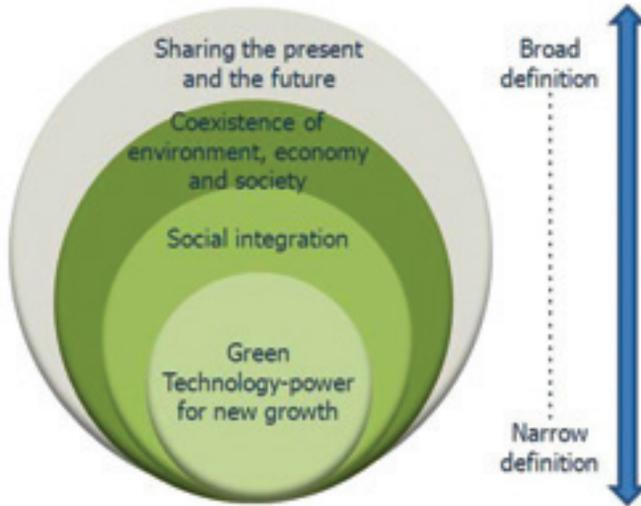
On the other hand, the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), which officially adopted green growth as a new development model of the countries in the Asia-Pacific region, adds more meaning to the concept of green growth. It includes a complementary relationship between the environment and economic growth while it also takes quality of life into account. Therefore, green growth includes social integration and ecological aspects. Green growth is an ecologically sustainable economic progress to foster low carbon, socially inclusive development, and it puts emphasis on sustainable development for all ([www.greengrowth.org](http://www.greengrowth.org)). The concept of low carbon includes a symbiosis with the environment among different generations. The concept of green growth as a social and integral development includes a symbiosis and sharing among different social classes in the present generation.

The root of the concept of green growth comes from sustainable development. The word "sustainable development" was first used in the World Commission on Environment and Development (known as Bruntland Commission) in 1987. Sustainable development is defined as a development that meets the needs of the present without compromising the ability of future generation to meet their own needs. That is, sustainable development is a development that considers both the lives of present and our future generations, and it does not aim for a surplus society that consumes the past nor a "credit society" that spends the wealth and development of our descendents. Furthermore, sustainable development, from a social development aspect, considers the environment, economy and society and the relationship among them at the same time. Thus, it emphasizes an integral and balanced perspective towards development. This concept of an integral and balanced development corresponds exactly to the concept of green growth which contains the idea of harmonious and integrated relationships between the environment and economy.

Despite the criticism of sustainable development being too vague and abstract for a social policy, the concept of sustainable development can be categorized into three dimensions as it has been developing continuously for the past 20 years. The three dimensions are: conceptual framework, decision-making process, and means of problem solving (Strange and Bayley, 2008). The conceptual framework of a sustainable development is a change toward a more integral and balanced world view. In terms of the decision-making process, the principle of integrating space and time to all decision-making processes is being applied. Sustainable development is also a goal-oriented and problem-solving oriented concept, which finds and solves

specific problems such as depletion of resources, health, social exclusion, poverty and unemployment.

**[Figure 1] The Concept of Green Growth**



So far we have briefly examined the concept of green growth and sustainable development. Both of these concepts are still being discussed, yet we can see that green growth is generally a concept that is derived from the concept of sustainable development. Hence, it shares the basic philosophy of sustainable development but its center is relatively on the functional and economic aspect of growth, which is expressed as creation of growth sources. The functional and economic growth aspects of green growth is particularly emphasized in the green growth concept that is proposed by the Presidential Committee on Green Growth in South Korea. As the Presidential Committee on Green Growth points out, the green growth development paradigm overcomes the vagueness and abstractness of the concept of sustainable development and its strength is that it emphasizes policy implementation. However, green growth could place itself as a future-oriented social development paradigm only if it considers the integral and balanced aspect that underlies sustainable development. It should consider the economic development that can reconcile with the environment, take social integration into account that cares for the quality of people's lives of all classes and consider the equality of the quality of lives between present and future generations. If these aspects are not considered in the concept of green growth, it will only be another strategy for economic growth that tries to boost the economy by promoting growth in the area of modern technology such as IT or BT technology.

Accordingly, this paper defines green growth as a concept that is based on the conceptual grounds of sustainable development, but adds and emphasizes the practical growth strategy which generates growth power through green technology.

## **2. What is Green Talents?**

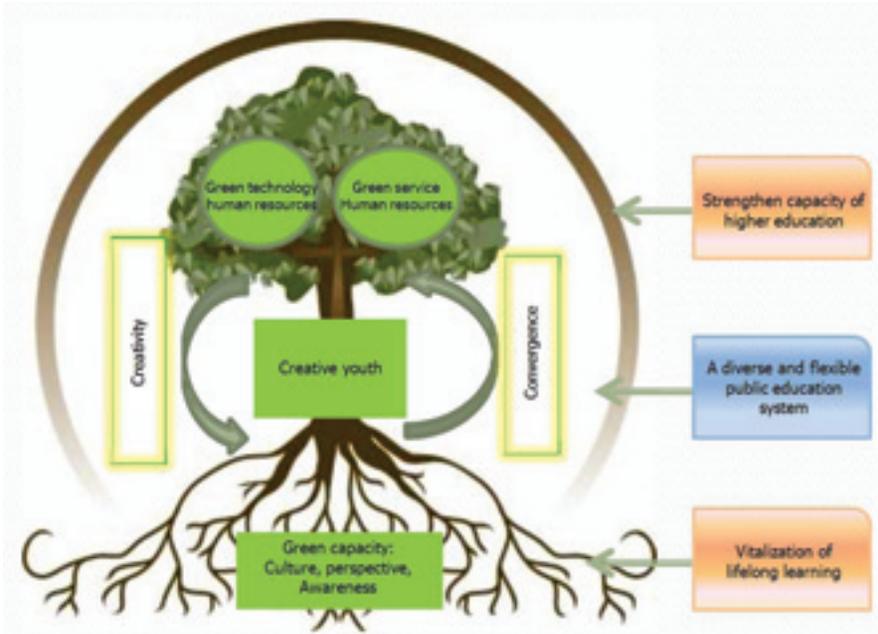
Green growth is not just economic growth based on green technology such as low-carbon, renewable energy and alternative energy technology, but it is also an alternative development model that promotes the co-existence of humans and the environment that continually develops. Considering this, a change in human resources is needed more than any other element to promote a green growth society. Thus, in the Chapter 36 of The UN Agenda 21 which proposes comprehensive tasks to implement social policies for sustainable development, emphasizes that all forms of education, including public awareness and training, is a key means for sustainable development. It reiterates education as not an end in itself, but as an important means that could change knowledge, values, behavior and types of lives for sustainability.

Who are the talents that lead a sustainable society? What are the characteristics of human resources that can tow a green growth society? We usually perceive a talent as one of the few people who are geniuses or extremely smart. However, as a green growth society requires an ecological change across all sectors in society, it needs green capacities of all ages among all members of society or all members of society who possess the attitude and awareness for green growth rather than just a few talents who are outstanding at science and technology. A perspective on human resources for a green growth society require a more comprehensive approach than any other kind of human resource. In this regard, we need to re-consider the concept of human resources that is defined by the OECD. The OECD defines human resources as knowledge, skills and attributes that promote the creation of individual, social and economic welfare that is embodied and integrated in an individual. Thus, this idea of human resources can be accumulated and developed not only in individuals but also in organizations that is composed of the individuals. Therefore, human resources can be perceived not only from the knowledge and technological aspects but also from the aspect that considers a multi-dimensional level of talents, attitudes and characters. The idea of human resources can be a particular individual or individual organizations and also aggregate properties of an organization or a society.

If we consider that a green growth development model is an economic growth that co-exist with the environment and is based on principles of society, history and integration, we can deal with talents and human resources focusing at least on these three aspects. Despite the limitations due to simplification and arbitrary blocks

of the concept of green talents, I propose a green growth tree metaphor to effectively indicate the various aspects and complexity of green talents.

**[Figure 2] Green Talent Tree Metaphor**



The concept of green talents can be expressed in a green talent tree that is composed of root-stem-branches and fruits, each corresponding to the green capacities of all members of society-creative youth-green human resources in science and technology and green collar workers, and lifelong learning-education-human resources system in higher education. First, the root part of the green talent is about the green competences of all members of society. For this, an environment-friendly attitude and awareness of the members of society, respect and concern for society, the environment and future is needed. Second, the stem part is green talents who are in their adolescence. Adolescents are the talents who can lead the future of a society. Youth who possess creative and open mind with talents in various fields can lead green growth and a sustainably developing society. Third, the fruit part is green technology human resources who can create new growth power based on green technology. This green technology human resources is needed in order to develop green technology such as energy-efficient technology and alternative energy, which can also lead a new economic growth that is based on this green technology.

In addition, as all trees, roots and stems do, branches and fruit will interact with each other and strengthen each part that will sustain the trees and the ecosystem surrounding the trees. The driving force that sustains the development of green talent tree is a convergent ability that utilizes diverse professional knowledge based on creativity that finds new ways of problem solving and integrate perspectives on society.

I will now examine the creative talents for a green growth society by looking at the minds, culture and stems that composes creative talents and the green technology human resources as fruits of the trees.

### **Section 3: How Can We Nurture Green Talents?**

#### **1. New Human Resources Development System for Green Talents**

Green talent is related to the competencies of the members of society that covers all levels and all ages, from green science and technology human resources that are centered around high quality science and technology human resources to creative youth and society members who possess green competencies. It is also related to the knowledge and technologies in diverse areas and consists of a comprehensive system that requires different levels of expertise and skills. In order to raise green talents, a system-wide reform of human resources is needed. A green talents system should change throughout the entire area of learning system-contents and methodology based on a change of paradigm from segmented, competitive and quantitative growth to integrated, coexistent and qualitative growth.

First, the learning curve of our social learning system should move from school-centered learning to lifelong learning. In the current education system of our society, the peak of the learning curve is the national entrance exam for college and university, and because of that, learning continues to be intense until entering universities, then the rapid is a decline after university. In order to nurture green technology talents who are creative and have expertise and skills, the learning curve should change. In a new learning curve, we should give more time during one's youth to build their creativity, provide high quality education at the higher education level and give learning opportunities in adulthood.

The learning contents should change from segmented knowledge to convergent knowledge. The way of learning should change from segmented and repetitive learning to blended and creative learning. The choice of learning should change from supplier centered to learner centered, and the function of educational organization should change from selecting students to educating and training students. Learning services should change from a segmented system that is supplier

centered to an integrated system that is consumer centered. The paradigm should also transfer from a Korean context to a global context.

**[Table 1] Paradigm of Training Human Resources for Green Growth**

	<b>Old Paradigm</b>	<b>Green Talent Education Paradigm</b>
<b>Philosophy of Social Development</b>	Priority on economic growth	Integrated approach that considers the environment, society and economic growth
<b>Tense of Social Development</b>	Present centered	A balanced view of present and future
<b>Learning System</b>	Learning is concentrated during youth	Lifelong learning system
<b>Learning Contents</b>	Segmented knowledge and technology	Convergent, integrated knowledge
<b>Learning Methods</b>	Repetitive, standardized, rote learning	Creative, problem-solving, blended learning
<b>School/Program</b>	Standardization (few types and large quantity)	Diversification (multiple types and small quantity)
<b>Learning Services System</b>	Supplier centered, Segmented type	Supplier centered, integrated type
<b>Local Context</b>	Local, national context	Global context
<b>Environmental Education</b>	Knowledge and technology on environment	Environment-friendly mind and awareness

Meanwhile, the reform of human resources system is not only a matter of education systems nor educational organizations. The Korean education system, like a sweet potato that is linked with many stems, is a result of Korean political and economic structures. Therefore, in order to change the education system, a change in social and economic structure, such as change of practices in the job market, improvement in wage system, and strengthening of social welfare policy, should be accompanied. In this regard, a green growth society urges a fundamental development paradigm in Korean society.

Now, I will examine more specifically each of the elements in the talent tree.

## **2. Green Competences and Lifelong Learning**

### **a. Green Competences: Perspectives, Knowledge and Behaviors**

Competency is the perspectives or values that underlie one's knowledge, skills and behaviors to work or play a role. Green competencies, which is required of all community members for a green growth society, consist of environment friendly perspectives and awareness for sustainable development, environment friendly attitudes, knowledge, skills and behaviors for actions.

Forming green competencies starts from "respect" toward human, environment and future. The UN Committee on Sustainable Development (CSD) suggests that the core value of ESD is new practices and behaviors that ensure our future and respect (UN, 2002; UN decades 2005-2014).

*"The core of education for sustainable development is respect for others, respect for current and future generations and respect for earth and all the resources provided by earth."*

Respect for the relationships among the environment, economic growth and societies can turn into a change in attitudes and actions. Based on green perspective, people will understand scientific knowledge in a natural and social environment, particularly knowledge on global warming, change in environment, energy resources, issues on biodiversity, population and technological changes. Based on this knowledge, one should connect it to actions in everyday life through experiences and learning.

### **b. Humanities and Green Competencies**

Since green education is not about teaching specific skills or knowledge but about changing perspectives and consciousness, the learning contents and methods

of green education programs should also be complicated and sophisticated. In the case of Korea, where people had negative experiences with standardized awareness education such as the government-led New Community Movement known as "Saemaedul Movement," people may be cynical about programs on perspectives and awareness unless it is based on authenticity and run on holistic perspectives and techniques that can bring a transition in awareness.

In this regard, recent experiences in opening lifelong learning courses on humanities can have an important meaning in green education. A good example is the Clement course, which is known as the hope of humanities courses. The Clement course is an experimental program to make socially vulnerable people independent. It is created by professor Earl Shorris, who made this program to strengthen self-reflection and self-esteem of socially vulnerable people. Therefore, this program is evaluated as a "miracle" that brought about true independence (Shorris, 2000). In Korea, many of these programs are implemented since Songkonghoe University adopted them. The Clement course can be seen as true vocational training and education for socially vulnerable people such as homeless, poor and prisoners because it helps them reflect their lives and build strength to be independent. The Clement course teaches this by focusing on discussions and presentations based on humanities including history, philosophy and literature. Even though the Clement course targets socially vulnerable people, their method of participatory learning and humanities based contents can be very useful when people learn awareness and acquire perspective for quality of life and the co-existence of the environment and humans.

### **c. Kind Science and Green Competencies**

In order to conduct environment-friendly activities in everyday life, it is necessary to learn the knowledge and skills related to the environment. The knowledge and skills related to the environment may be a part of science. Science should be more popularized to the general public and people should realize that science is not hard and irrelevant to our everyday life; instead, scientific principles are closely related to our everyday lives. In addition, an environmental friendly education offers opportunities to have experiences in the field, thus, learners can physically learn necessary knowledge and techniques. Therefore, field-based learning and experiential learning methods should be utilized.

### **d. Non-formal Education and Green Education**

Agenda 21 emphasizes that non-formal education can respond more quickly and effectively for sustainable development compared to formal schools that are bureaucratic and slow to changes. Lifelong learning organizations that target people

of all ages should be actively utilized in order to develop basic capacities for green talents. Green education is needed across all sectors and across all ages and generations. Citizen education is needed for the public and parents. For this, lifelong learning educational facilities should be actively utilized. Currently, there are 4,500 lifelong learning organizations in Korea excluding the vocational training organizations, and about 10,000 programs are operated in the organizations. The programs in these lifelong learning organizations are mostly limited to hobbies and self development, and similar programs overlap. Therefore, if green competency programs are combined with these lifelong learning programs, it may create a synergy effect, which is beneficial for both green growth and lifelong learning. Also, an indirect education system that can have a large effect in people's modern everyday lives and thoughts is the media such as TV, radio, newspaper and the internet. For awareness education that targets unspecific groups, media can be a very effective means as it can penetrate people's awareness unconsciously. A variety of methods such as campaigns, dramas, documentaries and be utilized in order to cultivate environmental friendly awareness and attitudes

#### **e. Green Education for Adult Employees**

Most adults spend two thirds of their day at work. Therefore, the workplace has more potential for learning than other places. Many activities for developing human resources, from basic awareness and attitudes toward green growth to environment-friendly knowledge, skills and green growth technology, can take place in companies and other workplaces. The leaders of companies should recognize the inevitability of green growth and implement a variety of green education ranging from general job training to technology development. They should also support employees to cultivate green awareness and attitudes. The green minds of the employees can be one of the ways to raise efficiency in the workplace since it is related with efficient use of energy and resources of the companies. Green awareness of employees not only has general and public value but also has realistic value for the benefit of companies since the carbon trade act and act related to energy reduction is to be implemented.

Regarding green education for workers, we should consider green vocational skills development projects for green-collar jobs. Together with the rise of green growth, green jobs will arise as new opportunities for creating jobs, and therefore, green-collar workers who have green jobs is expected to become a new class in the society. These jobs can be vanished or the job characteristics can vary as economic activity progresses toward green activities; therefore, a green job policy should be prepared. Considering that this green-collar class connects the center for blue-collar workers in the field of environment, strengthening green job skills development is very important from the perspective of social equity.

### **3. Creativity, Education and Green Talent**

#### **a. Why Creativity?**

The future oriented green growth model urges for the reform of talent and the human resources paradigm. If the core competency of a talent in the past industrial society was how to efficiently solve a given problem, the core competency of a talent in this new green growth paradigm is creativity, which is to create new things, doubt and question the existing paradigm and turn the premise upside down. Such capability was also required in post-industrial and knowledge based society, however, it has become a much more critical quality to become a talent that leads the new paradigm of green growth. Particularly, the creativity that is developed during youth is a basic qualification for nurturing talents as green technology and science technology human resources. In addition, since creativity can be revealed in diverse areas, creative talents can be nurtured in diverse areas as well, thereby utilizing talents efficiently.

Creativity is needed in all stages of life, and it can also be partly learned, particularly during early childhood and youth. Despite a consensus that creative talent is necessary, issues on what is creativity, who is creative talent and how they are raised is still being discussed in diverse ways without any agreed answers. Generally, the dictionary defines creativity as "capability of creating or discovering new things" and as the ability to think differently and solve problems in different ways. Something that is "new" and "different" are important elements of creativity, however, utility and appropriacy, which are related to problem solving ability is also important. An idea should be new and to utilize this idea, a problem solving ability is needed as well.

#### **b. Creative Education System**

The definition of creativity is still open and there are many arguments on how to nurture creativity. However, creativity based on self thinking and a culture that allows the failure of diverse experiments and problem solving skills should all be emphasized in order to develop creative talents. Statistical numbers indicate that the current formal and potential curriculum in Korea does not promote creativity. Results from international academic achievement tests from PISA and TIMSS show that Korean students (age 15) are beyond the average of other OECD countries, but the learning efficiency index shows that Korea is far below that of Japan or Finland who have high academic achievement just as Korea does. For example, Finland has a similar level of academic achievement as Korea, but they spend only two thirds of the study time of Korean students. Also, Japan, even though they score slightly lower than Korea, spends 30% less studying time than Korean students. Therefore,

students in Japan and Finland have time to do various other activities and have more free time.

Since Korean students spend a lot of their time studying and their motivations come from external factors, the indicators of academic achievement of Korean students, when it is internationally compared, shows that Korean students' interest and attitudes toward "self learning" is very low. The results of PISA 2000 suggest that Korean students' confidence, interest, fun and awareness of values is very low when compared to international standards. The interest level of reading and learning mathematics was 19<sup>th</sup> out of 20 OECD countries, ability to control and review the process of learning was 18<sup>th</sup> and the index of cooperative learning was 20<sup>th</sup>, scoring the lowest among OECD countries. Also, Korean students' self-efficacy, self-concept and interest towards science, which is closely related to green technology development, is very low ([www.nhrd.net](http://www.nhrd.net)).

If we look at "what Korean students study and how they study," the problem of Korean education gets worse. Korean students show that they heavily depend on problem solving when study types are compared to other OECD countries such as the U.S. and England. By solving similar problems hundreds of times and by continuously trying to find the right answer, Korean students accumulate knowledge and techniques to "not get the wrong answer." They are building converging thinking, which is finding an answer that does not change, rather than diverging thinking, which is finding new things. By building ability and techniques to not make mistakes, the Korean curriculum creates an environment that harms creativity because it continuously creates and sustains a culture that penalize mistakes.

The elements that hamper nurturing students' creativity are student evaluation and selection system, and a more fundamental element is the practices of university and labor markets that select their students and employees. In order to raise creative human resources, the evaluation system needs to change from evaluating basic analytic ability that is based on diligence and sincerity to evaluating creative ability. The new evaluation system should not be a closed system that is based on getting high scores for solving similar problems, but it should be an open system that looks at and solves problems in new ways. The system needs to be improved overall to one that values diverse experiments and creative efforts such as portfolios and essays that is based on thinking skills and writing skills. Creativity can be developed in diverse fields and complex areas. Therefore, instead of schools that provide a standardized curriculum, a variety of schools that consider students' knowledge level, aptitude and creativity should be established. Green creative schools can be a good example, which considers green competency and creativity.

### **c. Green Schools**

Regarding green talent human resources in the elementary and secondary school system, we should pay attention to making school environments go green. Recently, the Ministry of Education, Science and Technology is selecting green schools in order to change old schools to environment friendly schools, however, the projects have been limited to the ones that aim for environmental improvement. In this aspect, we need to observe the "Green School" accredit system run by the Green School Initiative, a U.S. NGO ([www.greenschool.net](http://www.greenschool.net)). In order to be certified as a Green School, a school needs to meet four standards: use toxic free materials, use resources sustainably, make a green schoolyard and teach stewardship related to environment.

We also need to support and facilitate newly built schools or schools that are in the process of remodeling to use environment friendly materials and build green schools. Watching their schools turning into a green school may be very effective for students as it provides an opportunity for experiential learning and thereby improves green competencies. Considering that waste disposal and saving resources in schools can be necessary for building green competencies, schools need to strengthen green education.

### **4. Green Jobs and Educating Green Technology Human Resources**

In order to generate new growth power through green technology, green technology human resources that develop and use green technology is necessary. Traditionally green technology meant technology that uses environment friendly resources such as renewable energy and clean energy, however, recently the concept has extended to convergent green technology that is oriented toward convergence between technologies such as IT, BT and NT. That is, the recent green technology analyzes the features of convergent technology ranging in traditional green technology centered on purpose, function, use and extending the areas of green technology (Hwang Kyu-hee et al., 2009). The National Science and Technology Council and Presidential Council for Future & Vision proposes 27 core green technology in four areas: climate prediction technology, energy resources technology, technology for high efficiency, waste disposal technology and nonpolluting industry technology. Various core green technologies also include a mixture of technologies based on high technology. Nurturing green technology human resources is not much different from nurturing high convergent technology human resources, except that the fields are different. Therefore, the issue of nurturing green technology human resources is concluded as "how to develop talents in convergent knowledge and technology."

The question of what program to run in order to nurture convergent science technology human resources is still at a very primary level that is almost experimental, even in the U.S. where the R&D is at the world's highest level. Until now, most of the convergent technology human resources has been far from blended learning, but rather students have accumulated knowledge in their specialized field such as biology, physics and computer science, and then participate in a blended project that allows them to deepen knowledge in the field. At the same time, experts indicate that individual-led learning ability, creativity and passion are critical elements for blended learning. As the internal characteristics of convergent technology are not standardized, students need to learn new areas that are not familiar to them (Lee Soo-young et al., 2008).

The curriculum to foster human resources in convergent knowledge and technology needs to be excellent in each field at the undergraduate level. At the graduate level, the curriculum should be flexible in choosing concentrated study and individual teaching by supporting individually planned curriculums and recommend courses which students needs depending on their background knowledge. Moreover, blended curriculums that utilizes spatial proximity should be considered as students share each other's expertise by sharing physical spaces between different studies and internalize knowledge while proceeding a project.

#### **Section 4. Conclusion**

So far I have discussed talents who will lead green growth based on the concept of green growth, green talent and green growth human resources development. The transformation of a social development paradigm into a green growth society needs the consent of not only the group of nation's significant decision makers but also all the members of a society. If a green growth society is not politicue rhetoric but is based on authenticity that concerns better lives of our descendents, then everyone needs to share this consciousness to solve this problem. Therefore, a change in society's consciousness to an environmentally sensitive and future oriented one is needed by operating diverse channels for peoples of all classes. Based on shared perspectives of the members of society, we should look long term and creatively reform the education system for future generations to foster green talents.

For an education that nurtures creative talents, not only a change in the education system is needed, but also an overall change in the social system such as a social welfare system that does not punish failures and an expansion of opportunities for employment through job creation is needed. Elementary and secondary schools should be a place of providing the soil for living a long future, not a period for preparing students to enter universities. For Korea's future, all people,

including the government, teachers, students, parent organizations, politicians, economists, education professionals should seriously discuss Korea's educational issues and consent on a new education system. The Finnish education system, which is considered a benchmark for other countries, also experienced serious conflict and confusion, but then in 1990, through great compromise on education, education and labor were linked and a lifelong learning system was established which has resulted in success.

"Code Green" should not be a metaphor and rhetoric if its purpose is to guarantee quality life for both present and future generations. The Green growth model can give us a very important opportunity, that is, the end of the era of industrialization when we need to find a new development paradigm. By realizing green growth with the green talents as growing power, we should prepare Korea to be a respected and competitive country in the world.

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**ESD AND ITS IMPLICATIONS FOR  
CORPORATE SOCIAL RESPONSIBILITY  
IMPLEMENTATION:**

**INFORMATION & COMMUNICATION  
TECHNOLOGY APPLICATION AND  
ITS POSSIBILITIES**

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## **I. Introduction**

Amidst rapid changes and interactive complexities of continuing global issues in today's world, sustainability has become a heightened theme for all in an unprecedented manner. As socio-economic and environmental domains demand a more conscious response towards elements linked with humanity's development and prosperity, Sustainable Development (SD) has emerged as a task for everyone, including the private sector. Acknowledging the need for joint collaboration, public sector entities have begun to engage and partner with businesses in addressing SD.<sup>13</sup> While there is much room for debate in this developing relationship, it is a fact that the socio-environmental role of businesses has expanded and pro-active frameworks are being attempted. Furthermore, the development of technology has contributed greatly to the rising sentiment that the private sector should be obvious stakeholders in seeking a sustainable society along with the public sector. Private sector entities, in response to such atmosphere, have begun to actively seek social innovation through Corporate Social Responsibility (CSR) to better adapt and position themselves in society, therefore giving way to their growth, and sustainability. Many in civil society have also begun to argue that such corporate efforts will allow for society to benefit more than it would have originally by just having goods and services generated by the public sector. Such could be the case regarding the field of Education for Sustainable Development (ESD).

This paper will attempt to identify what meaningful implications ESD could have on CSR and how they may possibly align. In order to seek options for maximizing the impact on SD, business case studies will be explored in order to observe how Information and Communication Technology (ICT) can be better applied and leveraged with ESD.

## **II. ESD and CSR Alignment**

In generating value, many businesses in the past have contributed to the economy and its growth by seeking private value vis-à-vis public value, which in many cases, accompany a financially measurable component. However, many large corporations today have begun to actively contribute to society and the environment by creating outcomes further impacting the common good of the public. This change in corporate behavior is derived from an evolving self-consciousness and influence from external/internal criticism, thus, leading to an expansion of a definitive scope of stakeholders. Today, customers of corporations are no longer limited to average consumers of products and services. External stakeholders such as civil society

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<sup>13</sup> Nelson, Jane. *The Private Sector and Aid Effectiveness: Toward new models of engagement*, Catalyzing Development: A New Vision for Aid. KOICA, JICA, Global Economy and Development at Brookings, 2010. pp. 103-104.

organizations and governments as well as the internal stakeholders consisting of shareholders and employees of the respective businesses need to be considered all together. It has been observed recently that many businesses have shifted their CSR posture from a defensive one, engaging in limited philanthropic activities and compliance affairs, to a pro-active and aggressive one, aligning customers and society with business<sup>14</sup> through strategic initiatives such as cause marketing and environment-friendly practices. This change in direction can also be confirmed through corporations partnering with government agencies or civil society in pursuing business initiatives. Furthermore, social enterprises are also emerging in which business models are based on generating economic profits while simultaneously creating public value.<sup>15</sup> Such global trends are affecting businesses on how they utilize their resources quantitatively as well as qualitatively to impact society and the environment.

Corporations are also slowly beginning to explore and realize business items that could possibly align with not only society and environment but also highly impact their bottom line. Businesses, through such change in perception, no longer see CSR as a simple means to convey corporate PR or brand marketing and are gradually showing confidence in the argument that “doing well by doing good” is possible and a company’s sustainable growth can be achieved through connecting business with society.

Then how can all of this align with ESD? The answer may lie in identifying the common denominators of the methodology that businesses are leveraging to effectively address issues in their CSR initiatives with what ESD is targeting to offer and achieve through its contents.

ESD, in terms of common perceptions about its definition regardless of geographical dispersion, is seen as not only an educational system on raising awareness and values on SD but also a reflective process of synthesizing it to one’s personal and professional daily life.<sup>16</sup> By seeking such conscious and behavioral change, ESD takes on a long-term approach to fundamentally solving the global issues addressed in the UN Millennium Development Goals. Such an approach shows much contrast to many of the one-time or short-termed CSR programs that have been criticized by a large number of relevant external stakeholders for the lack of a long-termed continuous and comprehensive commitment. In that sense, ESD can

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<sup>14</sup> Personal notes taken from *Customers, Commerce, and Society*, Harvard Business School (Fall 2007, Leonard and Rangan), Cambridge, MA. 2007.

<sup>15</sup> Cho, Y. L., *The Development of Social Enterprises and the Role of Corporations*, 2009 SK Corporate Social Contribution White Paper, SK Group, Seoul 2010. pp. 66.

<sup>16</sup> Korean National Commission for UNESCO (KNCU). *Evaluating the Contents and System of ESD*, Decade of Education for Sustainable Development (2005-2014), Seoul 2009.

act as a “balancer” that offers a solution to such criticism by aligning them with a continuous and balanced framework.

### **III. CSR Models and ICT Application**

It can be said that the weight of importance for effective contents delivery is parallel to that of aligning ESD and to CSR. If so, it can also be said that establishing a comprehensive education system is directly linked to the success of ESD’s linkage to CSR. ICT-advanced countries such as South Korea, Japan, EU, and the United States, in their efforts to further establish an effective public education system, could consider leveraging ESD contents with that of state-of-the-art devices such as smartphones, tablet PCs, 3D-TVs to supply the demand for higher quality educational contents.<sup>17</sup> In particular, if ICT companies were to apply or utilize their respective technology onto CSR initiatives or even business items affecting formal or non-formal education, a synergy effect could be exhibited within the public-private value intersection,<sup>18</sup> thus, providing an impactful method for easier access to SD while also giving businesses incentives to partake in initiatives of a long and sustainable nature vis-à-vis a short, one-time project.

A survey in 2006 showed that 40% of the U.S. public identified education as a key issue for business to address in their CSR activities. Another U.S. survey in 2005 reported that companies are putting 28% of their corporate social efforts and investments into K-12 education.<sup>19</sup> With such demand from society, it can be expected that more businesses will correspond by complementing and contributing to education with innovative solutions that the public sector has not been able to develop and apply in their ongoing efforts to prepare for the future.

Under such anticipation, we can go on to question if there are feasible, effective, and sustainable methods or models to align ICT-applied CSR that could link with ESD. As mentioned previously, business case studies will be explored to identify opportunities for alignment with ESD. The following introduces a CSR case of SK Telecom, one of South Korea’s leading mobile network operators, and its approach to applying ICT into its CSR activities.

SK Telecom, serving more than 23 million customers with a market share of 50.5% in Korea, is headquartered in Seoul and has seven global offices in 6

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<sup>17</sup> Lee, S. J. *Education Innovation Proposal for Promoting Creativity*, 2010 ESD Colloquium Series-ESD and Innovation in Teaching & Learning, Seoul. 2010.

<sup>18</sup> Trager, Alan. ‘Public-Private Partnerships,’ *2007 Harvard Asia Business Conference*, Harvard Business School/Harvard Kennedy School/Harvard Law School. Boston, MA, February 2007.

<sup>19</sup> Boston College Center for Corporate Citizenship. *What do Surveys Say About Corporate Citizenship?* Chestnut Hill, MA. 2007. p. 9.

countries. It has been known for a series of technological innovations such as being the world's first business to commercialize CDMA200 1x EV-DO<sup>20</sup> services in 1996, allowing multiple users to share a bandwidth of frequencies. It was also first to launch WCDMA<sup>21</sup>, opening the door to customers to access next-generation streaming video compression technology.<sup>22</sup>

With such innovative milestones, SK Telecom has made several notable uses of its ICT resources. As an example, SK Telecom's Mobile Social Safety Net initiative made unique and compelling use of the company's core communication technology (see [Figure 1]). Through their mobile devices, stakeholders are given access to websites to help find missing children (*Mobile Search for Missing Children*), provide mobile mentoring (*Mobile Teenage Counseling*), education for its current and potential consumers (*Mobile Phone Usage Education Program for North Korean Refugees, Senior Citizens, and Youth*), and make donations (*Mobile Emergency Network for Blood Donation*) to worthy causes.<sup>23</sup>

### **CASE 1: Mobile Teenage Counseling<sup>24</sup>**

Since 2007, SK Telecom has managed the "Mobile Teenage Counseling" program. This initiative was launched in cooperation with the Commission on Teenagers Protection and the North-South-East-West Mobile Community as a means to help teenagers experiencing school violence, poor academic achievement, problematic relationships, etc. The program provides free text messaging services or mobile chatting for teenagers 24/7. By sending a text message to a designated mobile phone number – 1388 – teenagers can receive anonymous, one-on-one consultation on personal issues followed by advisory comments. Certified youth counselors of the Commission on Teenagers Protection and the North-South-East-West Mobile Community provide the system development and have the lead in operating the project. In case there is a request or need for an in-depth consultation, an off-line counseling service is provided. This program is connected to 142 support centers of the Commission on Teenagers Protection.

<sup>20</sup> Code Division Multiple Access (commercially known as 3G).

<sup>21</sup> Wideband Code Division Multiple Access (an interface found in 3G mobile devices that achieves particularly high speeds with multiple users).

<sup>22</sup> Marquis, Christopher et al. *SK Telecom: Pursuing Happiness through Corporate Social Responsibility*, Harvard Business School Case Study (#N9-410-042), Boston. 2009. P. 3.

<sup>23</sup> Ibid, p. 10.

<sup>24</sup> 2008 SK Telecom Social Contribution Report, Seoul. 2009, p. 31.

## **CASE 2: Mobile Phone Education for Senior Citizens<sup>25</sup>**

SK Telecom provides a "Mobile phone education" for senior citizens. This program, launched in 2007, in cooperation with the Korean Association of Senior Welfare Center, is aimed at improving the communication between different generation family members. Initially, the program was offered once a week for a period of five weeks in several senior welfare centers in the Seoul metropolitan area. Since then, the education program has been expanded throughout South Korea. SK Telecom is expected to continue operation of this project and aims to develop this program more systematically.

## **CASE 3: Campaign for the Teenage Groups on Sound Telecommunication Culture<sup>26</sup>**

SK Telecom, having observed increased teenage usage of mobile devices as mediums of entertainment, cultural promotion and interactive communication, took an initiative in 2007 to address telecommunication etiquette issues amongst Korean youth. SK Telecom operates programs to promote the culture of sound mobile phone usage in cooperation with the Korean Association of School Social Workers and the Movement for Creating Beautiful Schools. Various initiatives including the "Public Subscription to Create Entertaining Mobile Phone Culture," "Distribution of Public Posters on Mobile Phone Etiquette" and "Sponsorship of Classroom Mobile Phone Storage Units" are promoted in consultation and cooperation with experts in the field of education. The objective here is for the participants to learn while having fun.

SK Telecom has also made efforts to utilize their technology for internal education initiatives. In cooperation with SK Energy, a sister company of SK Telecom, online environmental education programs are offered to all employees as a mandatory requirement to fulfill on a regular basis. As of 2009, 2,559 employees out of 3,331 (78%) have taken this program.<sup>27</sup>

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<sup>25</sup> Ibid. p. 33.

<sup>26</sup> Ibid, p. 33.

<sup>27</sup> 2010 SK Group Environmental Report, Seoul 2010, pp. 21.

#### **IV. ICT Utilization in Business and Possibilities for Further ESD Application**

Along with CSR, another area that must be explored for opportunities to integrate ESD is the actual mainstream business of ICT companies such as SK Telecom. Many ICT corporations including wireless carriers today are coming out of their legacy domain to identify how they can leverage their technology and resources in the field of mobility and connectivity to generate B2B business with other vertical industries, including the public sector, and seek out new growth engines. Examples of such cases could be IBM's Smarter Communication<sup>28</sup>, Accenture's AMOS<sup>29</sup>, and SK Telecom's IPE business.<sup>30</sup> All of these initiatives are fundamentally trying to address the issue of connectivity and the integration of daily work and life with cutting-edge information technology items such as smart phone applications, telematics, augmented reality, cloud technology, e-books, mobile service platforms, etc. If such recent corporate endeavors could align into the generation of a business model, it would not only provide better avenues for ESD implementation through effective contents delivery but also give way to forming a new intersection of public-private values that could possibly generate powerful win-win models for both sectors.

#### **V. Conclusion: Corporate Application of ICT for Effective ESD Contents Delivery**

ESD can be a key to unlocking the doors that lead to fundamentally solving the socio-economic and environmental issues that today's humanity faces around the globe. However, in a diverse and complex world as today, it can no longer be a task to be solved single-handedly by public sector entities. It is also a social task for businesses, which in many cases have more influence across borders and a larger impact to the daily livelihood of many. Governments, third sector entities, and corporations need to come together in further identifying, addressing, and solving these common global issues. Furthermore, with the expanded social and environmental role of businesses today, corporations need to consider shifting more quickly from a limited CSR stance to that of a more fundamental, long-termed, and comprehensive approach to society. One means to this approach that could bring about significant impact would be to contribute to ESD. The implications for CSR and also mainstream business could be enormous, given how ESD, by nature, seeks to fundamentally solve diverse global problems.

In particular, the impact of applying ICT resources of leading businesses could be more powerful in that the delivery of ESD contents would allow for speedy,

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<sup>28</sup> See [Figure 2].

<sup>29</sup> Accenture Mobility Operated Services (See [Figure 3]).

<sup>30</sup> Industry Productivity Enhancement (See [Figure 4]).

precise, and effective learning. In short, the possible positive outcome of ICT application to ESD could be limitless with a “win-win” for all stakeholders.

Some of these possibilities have been proven to be realizable. SK Telecom’s CSR case study exhibited in this paper is among the many experiments that businesses are exploring in their social contribution efforts. Furthermore, the opportunities that lie within mainstream business remains to be further tapped into. If a profitable public-private partnership business model can be aligned with ESD, such a case could be expected to give significant influence in the business-society-environment landscape, let alone future ESD implementations.

It is high time for both public and private sectors to identify and extract value intersections by actively engaging in dialogue exchanges that explore ESD-applicable information & communication technology.

**[Figure 1] SK Telecom's Social Contribution through Mobile Services (Milestones)**



Source: 2008 SK Community Involvement White Paper, 2008 Social Contribution Report

## ■ Mobile Counseling Service Usage

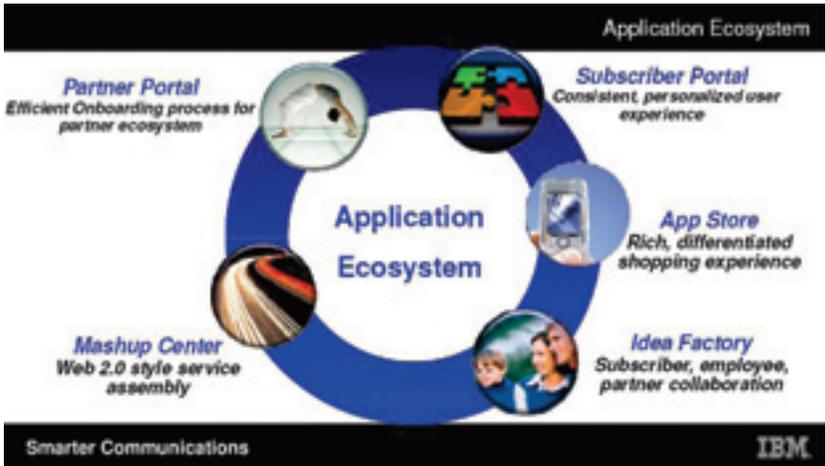


Source: Company Document

[Figure 2] IBM's Smarter Connections

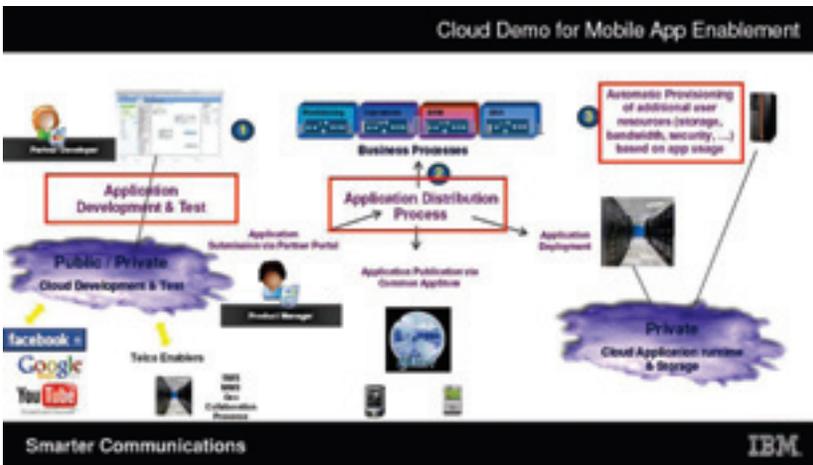
■ **Collaboration with Partners on New Service Innovation**

Distribution of Subscriber Portals, App Stores, Idea Factory, Partner Portals through IBM's Application Ecosystem



■ **Cloud Computing**

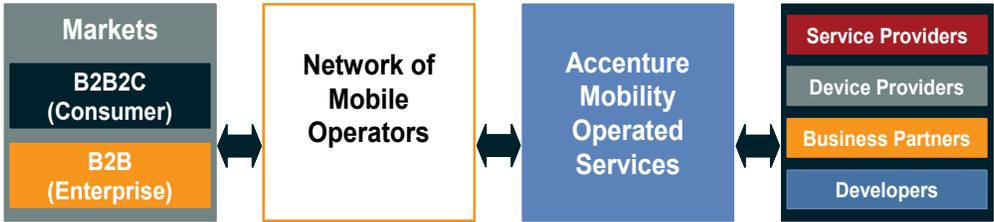
Using IBM's cloud services to provide applications and services



Source: Company Presentation Document

[Figure 3] Accenture's AMOS

■ AMOS Business Model



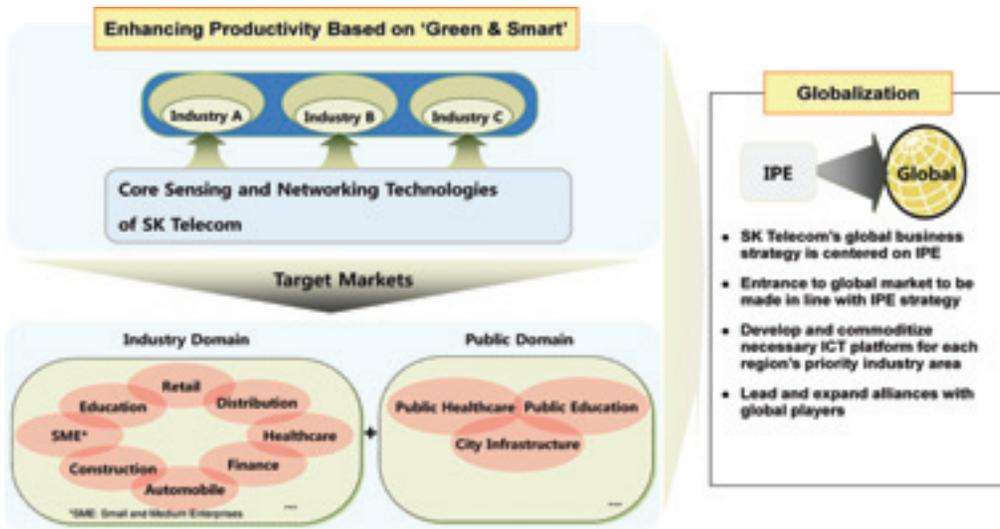
■ Scope of Services



Source: Company Presentation Document

### [Figure 4] SK Telecom's IPE Business

Industry Productivity Enhancement targets corporate customers from both industry and public sectors and seeks to generate business models that can contribute to enhancing the productivity of respective vertical industries. (i.e. Finance, Healthcare, Education, SMEs, Automotive, Retail, Distribution, Construction, etc.)



Source: Company Presentation Document

**CONSERVATION AND  
LOCAL DEVELOPMENT OF THE DMZ  
THROUGH THE APPLICATION OF ESD:**

**APPLYING ESD  
FOR THE CONSERVATION AND  
SUSTAINABLE DEVELOPMENT OF THE DMZ**

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## **1. Background**

Since the adoption of Agenda 21 and acknowledgement of the importance of Education for Sustainable Development (ESD) at the UN Conference on Environment and Development in 1992, there has been increased emphasis on education in building a sustainable future. This has also led to animated debates on ESD within South Korea, especially after the proclamation of the Decade of Education for Sustainable Development (DESD). However, past debates have been mostly dedicated to clarifying the ambiguous concept of ESD and, hence, failed to establish details on how to actually implement ESD as a means for sustainable development.

It is time to move beyond debating the concept to building applicable practices of ESD as a means to implementing sustainable development. In this regard, this paper proposes to apply ESD practices to the DMZ (Demilitarized Zone), which has gained interest of the international community for its potential for conservation and usage. This case would both contribute to achieving conservation and local development of the DMZ as well as presenting a detailed case for ESD.

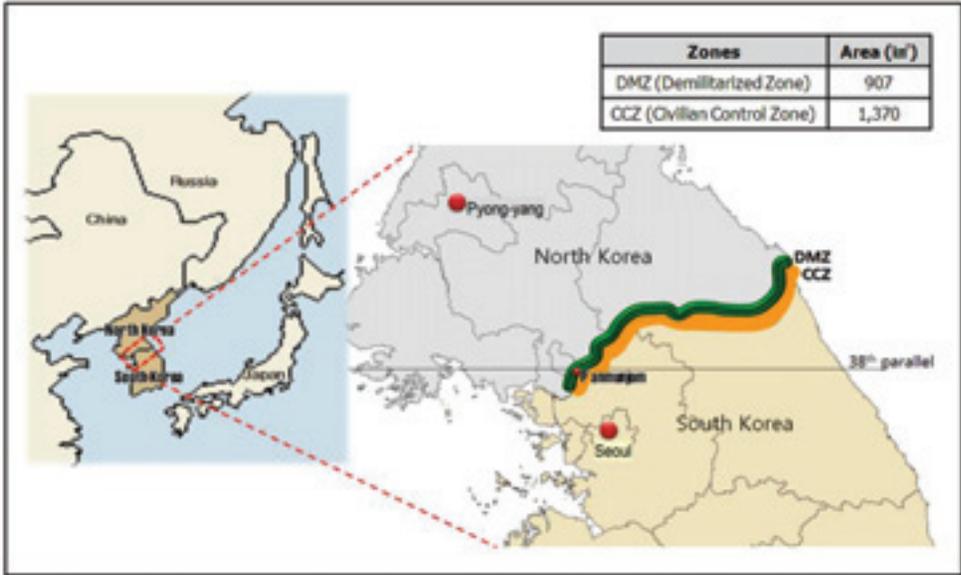
## **2. Current Conditions and Prospects of the Korean DMZ**

### **2.1. Current Conditions of the DMZ**

The DMZ on the Korean peninsula was established at the end of the Korean War in 1953 based on the Armistice Agreement as a buffer zone to prevent direct military confrontation. Divided at the military demarcation line, the North and South retreated 2km, where they set up a 248km long iron fence from the Imjin River estuary in the west to Myeongho-ri, Gosung-gun in the east, strictly restricting entrance. In addition to the DMZ, South Korea has also set up a Civilian Control Line (CCL), where they restrict the entrance of civilians. The Greater DMZ area refers to both this Civilian Control Zone (1,370km<sup>2</sup>) and its adjacent area (6,216km<sup>2</sup>) to the south.

There are 10 villages with some 1,050 families of around 2,600 people within the Civilian Control Zone (CCZ) north of the CCL, including the Peace Village at Daesung-dong within the DMZ. The government has passed the Adjacent Area Support Act to support the area South to the CCL that is restricted by the Military Facility Protection Act. There are 15 cities and districts and 98 townships and villages within this area.

**[Figure 1] The Geography of the Greater DMZ Area**



Since the DMZ's establishment 57 years ago, there have been no human activities in the area except for the periodic artificial fires set to remove the forest that disturbs military observation of the other side. The 907km<sup>2</sup> large DMZ, which has been free from human access and isolated from the outside by its iron fence, has transformed the area into a habitat of rich biodiversity 57 years after the devastations of war. Based on surveys conducted by the Ministry of Environment, the Korea Forest Service and the Culture Heritage Administration of Korea, the Greater DMZ is home to some 2,900 flora and fauna, including 82 endangered species, being an important area for Korea's biodiversity and resources (Choi and Park, 2010).

## **2.2. Status and Impact of the DMZ**

### **1) A Space of Military Confrontation**

The DMZ established in 1953 based on the Armistice Agreement along the Military Demarcation Line is currently a military buffer zone and area of confrontation. The zone is heavily armed with a security priority to maintain the armistice and prevent a North-South military clash. Without political change, it is impossible to use the DMZ for other reasons. The DMZ, CCZ and Adjacent Area are restricted by the Military Facility Protection Act, based on military and security priority.

## **2) A Space Dividing the Socio-Cultural Relations between the North and South**

The DMZ severs the socio-cultural connection and communication between the North and South. Despite its centrality on the Korean peninsula, the DMZ and its adjacent area, which were residential areas for many people in the past, now only house a minimum number of civilian residents and has lost most of its local culture, language and markets. Also, the severance of trade between North and South Korea at the DMZ has led to widening gap and disparity. The Korean peninsula, which has communicated and interacted based on a common culture and language for some five thousand years, has been divided by the DMZ. This will prove to be a large obstacle for social integration in the process and after reunification of the peninsula.

## **3) A Space with Rich Biodiversity**

The DMZ and CCZ, where human activity and civilian entrance are restricted, serve as a habitat for a diversity of life including endangered species. The periodic forest fires have produced a diverse environment which includes forests, farm land, rivers and wetlands that has led to a positive effect of increasing the area's biodiversity. The zone is a habitat of endangered species including red-crested white crane, spoonbill and mountain goat and houses a large population of the Korean peninsula's biodiversity, making it central to Korea's ecology.

## **4) The Last Existing Cold War Scene**

The DMZ is the last existing scene of the Cold War. TIME magazine introduced the DMZ among its top 25 places to see list for Asia in 2005 referring to it as an experience "Stepping into the living Cold War." The DMZ, as a historic site that shows the flow of world history and a remaining byproduct of the Cold War, has attracted much interest. The DMZ will remain a remnant of the 20<sup>th</sup> century Cold War such as the Berlin Wall of Berlin even after considerable alleviation of tension or reunification of the Korean peninsula.

### **2.3. Prospects and Conservation Value of the DMZ**

The military, socio-cultural, ecological and historic status of the DMZ will change as the relationship and political conditions change between the two Koreas. The DMZ's role as a military buffer zone and a living tense Cold War scene will continue until the reunification of the North and South. The Zone's role as a habitat for wild life free from human activity and interventions will also be valid only when inter-Korean tensions remain, blocking off the area from human activities.

The status of the DMZ will change overall with the alleviation of tension and reunification on the Korean peninsula. Once military tensions recede and restrictions lift, civilians will be free to exercise property rights over the area. The sites including Panmunjom, underground tunnels and past war sites will transform from living Cold War scenes to remnants of the past and a tourist attraction. While the physical wall will fall, socio-cultural divide will continue, resulting in new problems of bridging the economic divide and achieving social integration. In addition, the DMZ will face the challenge of how to conserve the area as a haven for wild life and ensure its sustainable usage.

Based on a rosy outlook, the DMZ could remain a site emphasizing the importance of world peace as a remnant of the Cold War and an important ecological habitat for wild life. However, this will only be possible if we maintain the DMZ fence even after alleviation of tensions to preserve the area's historic and ecological value. The government will also face challenges including calls for local development and accommodating divergent interests among the various groups.

The government will have to persuade and reach an agreement with the local residents that conserving the DMZ as memory of the Cold War and as a habitat for wild life will be beneficial for all including the future generation. Therefore, it is important to start building a detailed prospect for the physical space of the DMZ and emphasizing its values in preparation for possible future social disputes and divergent interests surrounding the area.

### **3. Challenges for the Conservation and Sustainable Development of the DMZ**

To conserve the resources of the DMZ and achieve local sustainable development, first we must share this vision and develop a detailed action plan and a step-by-step approach toward this end. Furthermore, this process should not be a top-down plan and implementation by the government, but a process based on local participation and governance, with the building up of institution for local capacities, communication and cooperation.

The basic policy direction and major tasks for the conservation and sustainable development of the DMZ can be categorized as in the following table. The basic directions are for the overall conservation of the DMZ's ecological resources, establishment of eco-tourism base, local participation and capacity building, and public outreach and participation. As means to achieve such policy goals, the DMZ can be listed as an UNESCO biosphere reserve and transformed into a DMZ Peace and Ecological Park.

**[Table 1] Policy Directions and Major Tasks for the Conservation and Sustainable Development of the DMZ**

Policy Directions	Major Tasks
Conservation of DMZ's ecological resources	<ul style="list-style-type: none"> <li>• Conduct ecological surveys and monitoring (South of CCL, joint South and North Korea)</li> <li>• Set up legislative protection of valuable ecological resources</li> </ul>
Establishment of Eco-tourism base	<ul style="list-style-type: none"> <li>• Set up attractions such as DMZ eco-museum, eco-theme park, eco-natural trails</li> <li>• Train DMZ eco-tourism travel guides</li> <li>• Develop eco-tourism programs</li> </ul>
Local participation and capacity building	<ul style="list-style-type: none"> <li>• Set up a DMZ Consultative Group</li> <li>• Establish and support eco-villages</li> <li>• Educate local residents and establish a support system</li> <li>• Conduct cooperative projects with the local military base</li> </ul>
Public outreach and participation	<ul style="list-style-type: none"> <li>• Start a National Trust</li> <li>• Promote DMZ eco-tourism via internet and establish a channel for participation</li> </ul>

#### **4. Developing the DMZ as a Model of ESD Application**

##### **4.1. Elements of ESD Application and a Framework for the DMZ**

Sustainable development requires the balance between various values of environmental, economic and social dimensions as well as understanding of cultural context. It is a process of establishing partnership among the various interest groups based on respect for human rights, future generation, biodiversity and cultural diversity. ESD is a learning process (or approach to teaching) based on the ideals and principles that underlie sustainability and is about acquiring techniques to envision a better future, critical, reflective and systematic thinking, partnership building and participation in decision making processes (<http://www.unescobkk.org/education/esd/>).

It is important to achieve sustainable development of the DMZ and successfully apply ESD due to the complexity and various values implied in the area. The DMZ is the last grand legacy of the Cold War history that divided the world into the east and west and, thus, emphasizes the importance of peace and can act as a medium of reunification between North and South Korea. In addition, the area has developed into a unique ecosystem and habitat for diverse and endangered wild life due to

over 60 years of isolation. The DMZ is also a residence for local civilians who hope for development and change after an unexpected reunification that could happen any moment.

The DMZ presents many issues including war and peace, human rights, reunification, biodiversity, ecosystem, conservation and development for now and the future, which are all linked to the dimensions of ESD. With the various values and meanings of the DMZ for different people, the application of ESD's views will be important and essential to balance the divergent values and promote participation of the many interest groups and eventually achieve sustainable development. Moreover, the recognition and resolution of the DMZ's socio-cultural, economic, political and environmental problems before and after reunification through the application of ESD will contribute to recognize the values of and provide a best practice for ESD to be applied in other regions of the world.

The application of ESD in the DMZ can be divided into two phases and target groups. First, during the program implementation phase, ESD can be used to promote the participation of stakeholders to achieve conservation and sustainable development. Furthermore, ESD can also be applied for the general public to induce their participation and awareness for the conservation and sustainable development of the DMZ.

The stakeholder group can be defined as the local residents, government, experts and environmental groups that have direct interest in the area and those that would directly participate and be affected by a detailed policy in the DMZ. The general public consists of the rest of civil society and the people at large that can indirectly influence the policymaking and public opinion toward the DMZ through their awareness of the situation, donation and other activities.

As a major issue in the local area with a large impact to the local society, the level and content of participation will vary among the policies and programs. However, in spite of such ambiguities, it is beneficial to divide the phases and levels to develop a strategy for the conservation and utilization of the DMZ.

#### **4.2. ESD to Ensure Stakeholder Participation during Program Execution**

The development of an ESD program or application of an ESD vision for the conservation and local development of the DMZ means understanding the conflicting groups and problems in the area and detailing a participation plan for all stakeholders.

The application of an ESD program for the conservation and local development of the DMZ must begin with a selection of a detailed practical program based on pending local issues. This will require an in-depth review of the target group that will participate in the program, and adoption of appropriate education methods to induce their active participation and decision-making skills. In other words, the ESD program should be developed and applied as a detail practice to resolve the local issues and problems as well as promote sustainable development in the local area.

This development and application process of ESD can be depicted as [Figure 2] and will not only apply to the DMZ, but can be generally applied to resolving local issues and achieving sustainable development goals though applying ESD and building up local governance. The process of developing ESD methods and its application can be described as developing a practical program for local sustainable development and providing targeted information, education and participation opportunities for the stakeholder groups.

**[Figure 2] Development and Application of an ESD Framework for Conservation and Local Development in the DMZ**



## **5. ESD for Nation-wide Awareness Raising and Participation**

Public awareness building and promoting participation regarding the conservation and sustainable development of the DMZ is important. The general public must understand the important values of biodiversity, local citizenship, peace, reunification and social integration in the DMZ. The public's communication and participation in the conservation process is essential to not only the DMZ but ESD in general.

The Gyeonggi Provincial Government has currently initiated the phase one program to construct a DMZ Peace and Eco-Park in the CCZ as a way to experience the ecosystem, history, society and culture of the DMZ with its education programs and facilities. This plan is based on a vision for the post-unification era.

The DMZ educational experience program will be successful only if its content is inclusive and interdisciplinary. Hence, ESD with its multiple focuses on world peace, biodiversity, local society development and social integration is duly needed. In addition, registering the DMZ and its adjacent area as a UNESCO biosphere reserve and implementing its conservation, local development and education programs will be important in making it into an example of ESD. The DMZ biosphere reserve program will be a key link in implementing eco-tourism education for the local residents, conserving the local resources and simultaneously achieving local development. Furthermore, this example of a successful sustainable development in the DMZ will also contribute to the promotion of ESD by providing it with a detailed and local case.

## <Case Study: Conservation of Red-Crested Cranes and Local Development of the DMZ through ESD>

This case study, which provides a detailed way of introducing ESD for the conservation and local development of DMZ, will contribute to clearing any remaining ambiguities and conceptual discussions on applying ESD.

### 1) Area of Study

The CCZ is an ecologically sensitive area, as well as an economically underdeveloped and at risk of military conflict area. It is an area that symbolizes war and peace and is in need of a sustainable development approach. The area adjacent to the Taepoong Observatory in Joong-myeon, Yeoncheon-gun, which is north of the CCL, is also a habitat for the world endangered red-crested cranes, which is a symbol of the DMZ. The Janggung rapids and Bingae rapids, which are part of the Imjin River, are the sleeping nest for the cranes, while they feed on the rice and adlay fields surrounding the area. Recently, North Korea has been constructing the Hwanggang Dam on the Imjin River, which will place a total of five dams upstream in the north. To counter any impact and control inundation, the Korea Water Resources Cooperation is currently constructing Gunnam Dam in the area. The flooding of the area will begin in 2010, which will wipe out the sleeping nest of the cranes in Bingae and Janggung rapids.



### 2) Local Conditions and Particularities

#### (1) Population and Use of Land

Upstream from the site of Gunnam Dam to the Southern Limit Line, there are three administrative districts of Yeon-cheongun: Joong-myeon, Wangjingmyeon, and Gunnam-myeon. Within this area, some 1,000 civilians of 424 families reside in Samgoat-ri and Hwangsang-ri of Joong-myeon and Okgae-ri

of Gunnam-myeon along the Imjin River. Hwangsan-ri is within the CCZ and part of the village is foreseen to be flooded by the dam construction. Residents within this area are planning to be moved to other areas. The classification of land use of Joong-myeong, Wangjing-myeong and Gunnam-myeong can be categorized as follows: forest 47%, farmland 19%, other usage 13%. The major products of area are agriculture including adlay, rice, and ginseng.

## **(2) Natural Environment and Inhabiting Wildlife**

The Imjin River flows from the North through the DMZ to the South. The river meanders through mountainous terrain forming natural rapids and marshes. In winter, some 150 red-crested cranes and white-napped cranes (based on a 2008 report) nest in the Bingae, Janggun and other rapids within the DMZ and feed on the surrounding rice paddies and adlay fields. In addition, otters, eagles, elks and other wife animals are also know to inhabit the area near Imjin River.

## **(3) Military Activities and Tourism**

The area near Taepoong Observatory is controlled by the 28<sup>th</sup> division. There is a military firing range near Gangnae-ri, where there are regular military exercises and activities. Also, a large portion of the area is unsurveyed mine fields. The forests in the DMZ and CCZ areas are not tall due to periodic forest fires. The fields are inhabited by herbaceous plants or bean and adlay fields. The Taepoong Observatory looks out at a plain from the DMZ toward the north along the Imjin River. The Observatory is visited by some 60,000 tourists a year.

## **(4) Variables and Major Issues**

### **- Construction of Gunnam Dam and Removal of Residents:**

The Ministry of Land, Transportation and Maritime Affairs and the Korea Water Resources Cooperation is currently constructing the Gunnam Flood Control Dam, which will be 26m and 656m in length able to hold 7,160 tons of water, on the mainstream of Imjin River near Gunnam-myeon, Yeoncheon-gun. The flooding of some 31m will begin in winter of 2010 during the low water season (October-May). This inundation will submerge the upstream rapids (Janggun and Bingae rapids), which are the main habitats of red-crested cranes as well as residences in Samgok-ri and Hwangsan-ri where residents will be moved out of.

### **- Plans to Construct an Alternative Habitat for Red-crested Cranes by the Korea Water Resources Corporation:**

With concerns increasing over the damage to the crane habitat, the Korea

Water Resources Cooperation is conducting a number of environmentally friendly projects including the special program for cranes, building a red-crested crane theme park and alternative habitat. The most important project will be to successfully set up an alternative habitat for the red-crested cranes providing them with feed in the winter and making them return to the area in the future. Only when the conservation activities such as setting up alternative habitats and providing feeds are successful and subsequently winter migration of birds continue will special projects for cranes have meaning.

**- Plans to Construct a DMZ Peace and Eco Park in Gyeonggi Province:**

Gyeonggi Province is currently building a DMZ Peace and Eco Park, which includes a red-crested crane education center and wild life protection center. However, such plans will only have meaning when the winter migration of cranes and inhabitation continues and conservation efforts are successful.

**3) Goal Setting and Stakeholder Analysis**

The conservation of red-crested cranes and the utilization of resources to build a project contributing to local development will support the overall conservation and local sustainable development of the DMZ. Hence, goal setting based on the local strengths and weaknesses and carrying out goal-oriented practical programs and action plans will be important to resolve the local problems and achieve sustainable development. As for the case area, the details tasks for the program can be set as follows: 1) conservation of red-crested cranes' habitat and maintenance of the crane population, and 2) strengthening the local image based on its crane conservation efforts and development of an eco-tourism theme.

Based on such goal setting, the stakeholders can be categorized as the local residents, Yeoncheon-gun government, military base (28<sup>th</sup> division) and Ministry of National Defense, environmental groups, ecological experts, Gyeonggi Province and Ministry of Environment. The various demand and interests of the above stakeholder groups and their role and function related to the conservation of cranes and local development can be summarized as the Table below.

**[Table 2] Stakeholders Analysis  
Related to the Conservation of Cranes and Local Development**

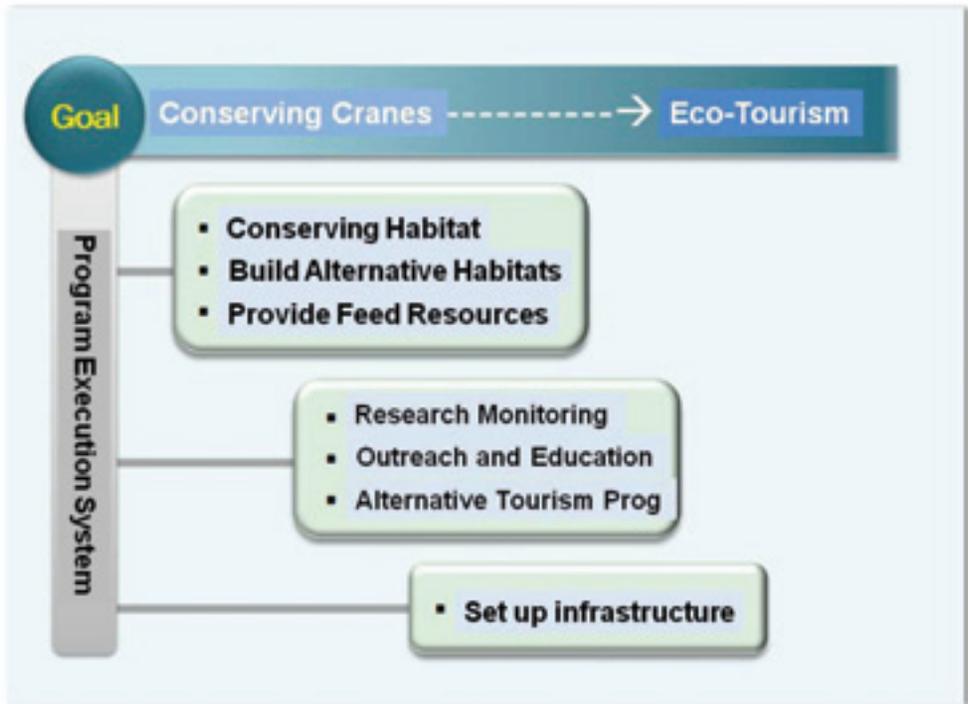
<b>Stakeholders</b>		<b>Demand and Interests</b>	<b>Expected Role</b>
Local residents		Local development and economic profit	Provide crane feed (adlay and grain); conclude the Biodiversity Management Contract
Military base (28 <sup>th</sup> Division) and ministry of national defense		National security	Monitoring of the crane population within the DMZ
Environmental groups	Yeoncheon Agenda 21. bird soceity, etc.	Increase environmental conservation activities and understanding in the area	Monitoring of the crane population within the CCZ and conservation efforts
	National trust	Promote natural trust initiative through the utilization of donated land	Seek methods to utilize the trust land (for feeding grounds, observatory and eco forest) and other related activities
Ecological and environmental experts		Maintain, restore and research the crane habitat	Consult, direct and monitor the setting up of an alternative habitat for cranes
Korea water resource cooperation		Prevent the dam construction from becoming an issue and the spreading of a negative image	Construct a proper alternative habitat for cranes

Yeoncheon-gun government	Promote the local economy utilizing the DMZ and increasing the local brand value	Establish and manage local consultative group; initiate the Biodiversity Management Contract and collect local opinion
Gyeonggi province	Promote the role of Gyeonggi Province in relations to DMZ policy	Establish and manage a local consultative group; establish and support a province-based eco-tourism base
Ministry of Environment	Promote the role of the Ministry in relations to DMZ policy	Establish and manage a local consultative group; establish and support a national-based eco-tourism base

#### **4) Initiating ESD**

Rather than carrying out ESD as a separate standardized education program, ESD should be applied to the local area as part of carrying out a practical program to promote participation and setting up local governance with the local residents and stakeholders. Public outreach and awareness building are important parts of the overall program and must be conducting using various formal and informal awareness building and participation enhancing processes. Eventually, ESD will be achieved by the detailed process and method of conducting the practical program in consideration of the local uniqueness and conditions for the conservation and local development of the DMZ at the local level.

**[Figure 4] Introducing ESD for the Conservation of Cranes and the Sustainable Local Development**



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**SET A NEW DIRECTION FOR  
PEACE & UNIFICATION EDUCATION  
IN ACCORDANCE WITH  
CHANGING CIRCUMSTANCES  
ON THE KOREAN PENINSULA:**

**WITH RELATION TO ESD**

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## **I. ESD and Peace & Unification Education**

### **1. Relating Peace & Unification Education to ESD**

Unification education has remained in a state of discourse so far. However, it needs to change in accordance with the political and social change on the Korean Peninsula. Therefore, this study aims to redirect and reestablish unification education reflecting changes on the Peninsula. Also, this study deals with the long-term and practical goals of directing peaceful unification education in terms of Education for Sustainable Development (ESD).

The term "ESD" was first used at the World Commission on Environment and Development in 1983. ESD seeks new and constructive ways of developing and aims to meet the needs of the present without compromising those of future generations. While previous development models only sought economic development, ESD concerns environmental and social development. In this regard, the United Nations presented a new guideline for development under the theme, "Environmental Conservation and Social Cohesion" and proclaimed the UN Decade of Education for Sustainable Development (2005-2014). Furthermore, the UN has prompted every nation to show an educational response to ensure sustainable development of human beings.

ESD is an education that enables cohesive society, balanced development and ethical consumption by reflecting principles and practices of sustainability in all forms of education and one that draws participation from people and empowers people to bring changes in unsustainable social structures and attitudes based on principles and practices of sustainability including inter-generational equity, gender equality, culture of tolerance, cultural diversity, poverty reduction, environmental protection and sustainable urbanization of a fair and peaceful society. ESD enables all individuals to improve the ability and responsibility needed for the future and has potential to be integrated into various sectors and strategies of a nation. Thus, it is meaningful to integrate ESD into unification education.

According to a *Draft International Implementation Scheme*, published by UNESCO in 2005, the major concern of ESD is to change and improve values, and it puts special focus on promoting perspectives that include respect for the dignity and rights of all people, commitment to social and economic justice for all, respect for the rights of future generations, respect for communities and cultural diversity and respect for a culture of tolerance and nonviolence (See UNESCO's website: [www.unesco.org](http://www.unesco.org)).

The DESD at a glance explains peace as follows:

*War is a state of extreme human rights violations, namely the right to life, and of deep country-wide disorganization, that destroys all social and economic progress. Without peace, no model of development will be possible. Fostering peace is thus also working towards sustainable development. (The DESD at a glance, UN Decade of Education for Sustainable Development, 2005-2014)*

In light of ESD, this study is to try to integrate the concept of ESD into unification education of Korea.

Since ESD has implications of an education of giving “power of living in the future” as well as potential to be integrated into various sectors and national strategies, this study attempts to combine ESD with education for peaceful unification in the context of Korea. Because the state of division on the Korean Peninsula has direct and indirect impacts, Korean peace education has mostly dealt with unification issues and has been taught in line with unification education. In other words, the key agenda of Korean peace & unification education is to resolve the confrontation of the two Koreas and to promote exchanges in social and political structures in a long-term unification policy. [Korea Institute for National Unification (KINU), 2007]

Therefore, this study will reveal what peace & unification education means and why it is needed. Then, it will suggest a new direction of peace & unification education as a new paradigm reflecting the unique circumstances of the Korean Peninsula based on ESD values. Lastly, this study will suggest the goal of Korea’s realization of peaceful unification based on the studies done in the first and second chapters.

## **2. Definition of Peace & Unification Education**

The definition suggested in this study is not a widely used notion in the academic field, but a personal opinion. Peace & unification education can be defined as a unification education towards peace, education towards unification or education towards peace and unification. This is highly related to the academic definition of unification education or peace education, but it does not mean peace education and unification education per se, nor does it mean a compromised notion between peace education and unification education.

While redirecting education to prepare for the peaceful reunification of the Korean peninsula in the future, this study would like to see and analyze peace & unification education as a super ordinate concept including peace education and

unification education. In other words, this study wants to explain peace & unification education in terms of ESD and suggest a paradigm shift in education towards peace and unification along with changes in a state of affairs on the Korean peninsula.

### **3. Necessity of Peace & Unification Education**

It has been 60 years since Korea was divided into two countries, and as of 2010, the post war generation consists of 60% of the whole population. How long should the old and passive unification education, which waits for North Korea's voluntary change, last? How long should the one-way unification education, which does not consider North Korea's opinion, be maintained? Now the concrete and improved outcomes of unification are coming to the fore. However, it is hard to deny that the current situation on unification is worse than that of the last 10 years in the peace-oriented and unification-oriented perspectives. A recent survey conducted by youngsters who will lead the future, shows a sad reality that the number of youngsters who have a negative and cynical outlook on unification is on the rise.

According to the survey, over last 10 years, from 1997 to 2008, interest in unification has decreased from 71% in 1997 to 57% in 2008<sup>31</sup>, and recognition of the necessity of unification has gone down to 68% in 2008 from 85% in 1997.<sup>32</sup>

Fortunately, however, there is a sign that the state of affairs of the Korean peninsula can change from tension to dialogue after the succession system in North Korea. At this critical moment, it is necessary to set a new direction of peace & unification education in terms of ESD as a new paradigm with a mid and long-term view considering the change in the state of affairs on the Korean peninsula.

## **II. Surroundings for Peace & Unification Education**

### **1. Change in the Korean Peninsula after the Succession of North Korea's Leadership**

North Korea used to take political and economic benefits by calling for dialogue after maximizing tensions. The two Koreas have had strained relations since the current Lee Myung-bak administration took office, and the tension has peaked with the Cheonan incident. However, in the midst of designating a new successor to the

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<sup>31</sup> Result of analyzing statistics of survey on consciousness conducted by the Central Government Agency, National Research Center from 2007 to 2008.

<sup>32</sup> Outsourced by the Council for Unification Education, R&R conducted a survey of 1,083 middle and high school students nationwide from Nov. 13 to Dec. 4, 2009. According to the survey, 52.6% of respondents said they were interested in unification and North Korean issues, while 47.4% said they are not interested. Regarding the necessity of unification, 70.3% responded positively, while 29.7% responded negatively.

North's regime, the strained relations are expected to be improved with the North Korean tactic of suggesting dialogue.

This conversation is likely to be maintained since North Korea needs to assure security in and out of the country for proceeding succession and solving food problems. Thus, North Korea is actively trying to thaw the frozen relations of the two Koreas by suggesting dialogue. For instance, North Korea released crew members of the South Korean fishing boat Daeseung and made public requests for humanitarian aid to recover damage caused by flood. The South Korean government also needs to soften its stance and pursue dialogue in order to successfully host the G20 Summit and assure stable policy towards North Korea. Also, Inter-Korean exchanges and cooperation is necessary to pursue a peaceful, unified Korea. If the Lee Myung-bak administration finishes its service failing to solve conflicts and tensions with North Korean regime, its policy on North Korea is likely to be considered a failure. Therefore, using this thawing relationship may be a good opportunity for the current government to have better relations with the North.

How to offer peace & unification education is directly related to the unification of the Korean peninsula. Therefore, education policy should consider and analyze various conditions around Korea including key policies and policy changes towards North Korea, and changes in North Korean and international circumstances. Considerations in South Korea are the possibility of changes in policies towards the North Korean regime and unification, the increasing influx of North Korean defectors into South Korean society, and South Korean's transition into a multicultural society. Considerations in North Korea include succession and power shift. North Korea recently made it public that Kim Jung-un will succeed Kim Jung-il by appointing him general of the North Korean People's Army. Accordingly, Kim Jung-un will control military and party. Therefore, changes on the Korean Peninsula will be inevitable (KINU, 2010, p. 1).

There is a high possibility of struggle among influential figures in the Worker's Party and the North Korean People's Army in the succession process. However, if Kim Jung-un takes the authority through the succession process, the power transition is going to happen in a way that the party and the army support him and share power under his authority.

International conditions such as globalization, localization, collapse of socialism and conversion to capitalism, and transition to a multicultural society also should be taken into consideration.

When considering relations with countries around Korea, Seoul and Washington agreed on a two-track approach of sanction and dialogue, expecting Pyongyang

would show meaningful changes in their attitudes. In other words, sanctions on North Korea are not for its isolation, but for its changes. Since the Obama administration has taken a firm stance on nonproliferation of nuclear weapons, it is expected that the U.S. will use various policies through bilateral and/or multilateral talks to achieve denuclearization of the North.

Since China is the chair country of the six-party talks, North Korea had a summit talk with China promising to return to the six-party talks. The two countries also discussed an open economy. Through this summit talk, the North achieved meaningful outcomes such as the recognition of the recent succession system. Thus, China seems to maintain a dual North Korean policy of pursuing denuclearization of North Korea and securing stability of the Korean peninsula (KINU, 2009, pp. 32-33).

## **2. Changes in the Korean Peninsula Based on Mid and Long-term Prospects on North Korea's System**

Based on mid and long-term forecasts, North Korea is likely to maintain its current system for three reasons.

First, because of the stakeholders' own interests, there is little possibility of a sudden collapse of the North Korean regime. Revolution from the bottom up or a military coup is less likely to happen. In addition, since a rapid breakdown of the North can result in massive refugees, riots, and make nuclear weapons uncontrollable, no country wants a sudden collapse of North Korea to happen.

Second, because of North Korea's unique social system, North Korea is less likely to face a sudden break down. The North Korean regime controls its people using various means such as a group surveillance system, which has five families in a neighborhood grouped together to keep close watch on one another to prevent possible riots. Also, the leaders are idolized as gods and classes are strictly divided into core, agitating, and reactionary groups in the North. These systems are common and have been maintained for a long time; sudden social change is not likely to happen.

Third, because of China's active role and influence, sudden collapse of North Korea is not likely to happen. Beijing has close relations with Pyongyang, and does not want to border Korea after South Korea achieves unification by absorbing the North. Thus, the Chinese government plays an active role to prevent North Korea from collapse.

Therefore, it does not seem likely that the North Korean regime will collapse dramatically due to internal conflict or wars on the Korean Peninsula. Rather, it is

reasonable to think that the North is going to adopt a market system or maintain state quo of keeping current hostile relations and co-existing on the peninsula (Lee, 2008).

The latter scenario is expected to have a long-term impact on changes in the state of affairs on the Korean peninsula. Thus, a new direction in peace & unification education is required based on the second scenario.

Of course, many experts on North Korean issues leave the door open for the possible breakdown of the North and suggest that North Korea can use either a strict policy or moderate policy against the South to cement the succession process. No one can guarantee whether the power transition process through the third generation succession will be completed successfully. In North Korea, the power is excessively concentrated on a few high-ranking officials, so all discussions on changes in the North are underway based on the success or failure of succession.<sup>33</sup>

Taking all the possible scenarios into consideration, experts should find a way to balance unification education and security education. Also, they should make sure cohesive peace & unification education be offered under any circumstance when setting a new educational direction. At the same time, new peace & unification education should be able to suggest how to properly respond to changes in regions surrounding South Korea.

### **III. Setting a New Way for Peace & Unification Education**

As previously mentioned, this study focuses on how to suggest a new direction for peace & unification education, reflecting Korean circumstances and values of ESD. And the new direction ultimately aims at realizing a peaceful Korea, leading a paradigm shift in unification. For this, this study suggests five ways for a new paradigm in peace & unification education.

These contain key elements for education pursuing peace and unity that have been discussed among scholars and experts ever since the division of the country, and they also reflect the Korean situation and ESD values. These are also in line with unification policies of the former and current Korean governments in a broad sense.<sup>34</sup>

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<sup>33</sup> Paul B. Stutes & Joel S. Wit. (2009), "Preparing for Sudden Change in North Korea," CRS Report, No. 42.

<sup>34</sup> The Current administration suggests Grand Bargain, Vision-3000: Denuclearization and Openness, win-win strategy, and common prosperity as North Korean Policy. It is a comprehensive strategy seeing North Korean issues with various perspectives ranging from security to socio-economic perspectives. However, further discussion is needed if these strategies can be a new paradigm.

## **1. Unification Education that Enables Ethnic Unity to be Recovered, Aiming at Raising Community Spirit as a Nation**

Unified Society does not simply mean going back to the past before the Korean War but making a new ethnic community by inter-Korean agreement. After the division, South Korean society has adopted individualistic characteristics, while North Korea has become a totalitarian state. Thus, ethnicity has been weakened. However, ethnicity can play an important role in establishing strong will for unification. Therefore, the two Koreas need to underline promoting ethnicity.

To promote the spirit of ethnic community, education that stresses homogeneous elements of the two countries such as culture, history, language, can arouse ethnic identity. Unification education so far has focused on the differences between the two countries and highlighted the superiority of the South Korean governmental system. However, the new unification education as a new paradigm should focus more on finding things in common between the two nations. In short, the new unification education should be able to establish norms for ethnicity fit in the age of globalization, and should help overcome the differences caused by long division.

In addition, unification cannot be achieved by one nation's effort, but needs cooperation and agreement from both countries. Therefore, the previous unification education, which stresses superiority of the South Korean system and ideology, is effective in highlighting differences but is not a good strategy to recover ethnicity.

To foster a desirable attitude and value for the ethnic community of the future and recover homogeneity of the South and the North, it is necessary to find similarities. Particularly, unification education can be effectively offered if the positive aspects of traditional values and Confucianism (cooperation, loyalty, integrity, faithfulness, friendship, etc), which the two countries share, are highlighted. (Cho, Chun, 2006, Summary of pp. 212-217)

Integrating nationalism into unification education to recover homogeneity for promoting a spirit of ethnic community is also suggested. However, nationalism does not go along with ESD values of pursuing cultural and ethnic diversity. To make up for the weakness of the existing concept of nationalism, "open nationalism" is now suggested.

This study does not deal with nationalism because putting importance on nationalism can make discussions on ethnic homogeneity unrealistic or abstract. When searching similarities and shared values between South Korea and North Korea, special attention needs to be paid because traditional values have problems

such as worsening and entrenching gender inequality or strict authoritarianism. By dealing with traditional values carefully, the negative aspects of traditional values should be overcome and positive ones should be able to be used properly.

Therefore, it is required to analyze strengths and weaknesses of similarities and differences, and to show a desirable way to promote ethnicity. Furthermore, practices should be made, considering the unique characteristics of Korean society in line with ESD.

## **2. Future-oriented Unification Education for Reunified Korea**

There will be some negative aspects and problems when unification is achieved. For example, people may take on economic burdens such as unification tax. It is good for unification education to make people recognize such problems prior to unification. However, it is more important to provide future-oriented unification education by stressing incalculable values of unification such as a raised national status of a unified Korea.

ESD is a future-oriented education that enhances community members' ability and responsibility to live in the future. It helps people to change unsustainable social structure and behavior based on principles of sustainability such as a fair and peaceful society.

In line with ESD values, a reunified Korea will aim to be a world leading nation which can contribute to world peace and prosperity. Unification will pave a way for Korea to reach out to the Asian and European continent easily. Therefore, a unified Korea can play an important role in contributing to peace and prosperity and will become a key country for the Northeast Asian Cooperation Initiative (Guidelines for unification education, 2010, p. 32). Also, members of a unified Korea will enjoy for free an abundant life with an expanded field of activity and will enjoy a wide range of opportunities. Furthermore, if unification is attained, military expenses will decrease because the threat of potential war disappears, and Korea can make full use of its natural and human resources. Korea, with a population of 80 million, can have more potential for economic development, which will raise Korea's status on the world stage.

## **3. Unification Education toward Peace Education**

Generally, peace education means education on peace, education for peace and education toward peace. Peace education has three elements: first, education conveying knowledge on peace; second, education-developing ability and belief to make peace; third, education raising people who can actually participate in peace

movements. (Oh, 1988, p. 10)

In other words, peace education can be define as "education for peace" for an educational purpose, 'education by peace' as for educational method, and "education fostering Peacemakers" for an educational ideology.

Peace is not something that is given but something that can be formed by social behavior. Therefore, peace education means education empowering people to create a state of peace and maintain it. Therefore, the task for peace education is to develop people's ability to get rid of violence through social activity and to encourage participation in activities that people can develop themselves.

Peace education makes people recognize the cause and nature of war and helps them to prevent war and to pursue peace by informing the inhumane nature of war and forming a value system of respecting life. Given the things that hamper peace on the Korean peninsula such as potential danger of war, arms race or nuclear weapons which all stem from national division, Korean peace education should put priority on peaceful unification. (Jung, 2010, p. 102)

Peace education after unification is necessary for ethnic cohesion. It is important to resolve conflict after unification through various legal and systemic means. What is more important, however, is to have the will to solve problems and overcome gaps and differences between the North and the South through dialogue and compromise.

Before and after unification, it is important to reduce mutual conflict between the North and the South and to cultivate peace lovers. Love for peace can only be trained through peace education. Peace education will help Korea deter war and achieve peaceful unification and will be a driving force of social cohesion and resolving conflicts after unification. (Jo, 1983, p. 15)

Education itself cannot solve all the conflicts that will exist after unification; however, it can teach how to solve problems peacefully, which is peace education. With peace education, it is important to foster peace lovers who know how to solve conflict through dialogue, compromise, or tolerance instead of seeing unification and post-unification strife as crises or conflicts. Read describes the nature of peace education as making more and more people love and pursue peace. (Read, 1956, p. 30)

Generally, peace education targets various levels including individual, social, natural, and international levels. Also, it has a macroscopic and independent nature that includes a various matters such as war, security, conflict and violence. This

paper only deals with passive forms of peace education focusing mostly on inter-Korean issues such as unification and national security. Recently, there is an effort to adopt active educational form reflecting international issues and expand Korean peace education to the level of peace education dealing with governance matters including environment, multicultural education, and human rights (KINU, 2007, p. 148).

#### **4. Unification Education along with Liberal Democracy**

A Unified Korea should be a free and democratic society that guarantees freedom, welfare, and dignity of its people and respects the creativity and autonomy of its citizens. Also it should be a society based on an advance economic system, which can share benefits with its members and make efforts to promote the welfare of the people.

When people discuss the social and political ideology of a unified Korea, the common mistake is that South Korea presents limited interpretation – South Korea pursues liberal democracy as North Korea does socialism. Also, many people think that a unified Korea should consider both South and North Korean ideology, and then find a middle ground as a new social ideology. However, socialism has turned out to be a failed ideology and few countries adopt it as a social system.

The new social ideology of a unified Korea should be universal and future-oriented. So far, liberal democracy is evaluated as a universal system and is regarded as an ideology that has been developed based on creativity and human dignity, and no other ideology has been found that can substitute it. In this regard, it is desirable for North Korea to adopt liberal democracy based on market system, which will help it to avoid trials and errors in the process of social cohesion.

However, adopting a free and democratic system and achieving market economy peace<sup>35</sup> with North Korea opening its market cannot be decided unitarily. Because this means North Korean ideology or system is rejected up, the agreement of North Korean citizens is needed (KINU, 2009, p. 22). Thus, adopting ideology for reunified Korea should be done with a long-term perspective. In other words, government should continuously persuade and induce the North Korean people to reform and open their market, through which they can recognize and accept the new system naturally. Regarding this, education on democratic citizenship can be taken into consideration. It aims at improving quality of citizenship and helping

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<sup>35</sup> Market economy peace is a plan that promotes the development of capitalism by opening and reforming North Korea as well as developing cooperation, which will promote peace and deter war. Market economy peace aims to achieve sustainable peace on the Korean Peninsula with the confidence of the international community (KINU, 2009, p. 56).

people to protect their identity for a democratic social or political life. Its ultimate goal is to empower people to decide important socio-political issues rationally and critically and to act according to their decision (Jung, 2010, p. 104).

However, since education on democratic citizenship is only a small part of unification education, it does not need to be classified as a different chapter.

## **5. Unification Education for Mutual Understanding in Preparation for Post-unification**

With the number of migrant workers, international marriage and North Korean defectors increasing drastically, Korean society is transforming into a multi-cultural society. The number of foreigners living in Korea has exceeded 1.1 million, and the number of elementary, middle and high school students from multicultural families reached 25 thousand.

The total number of North Korean defectors exceeds 18 thousand as of 2009, and it is expected to exceed 20 thousand in 2010. Among them, youth under the age of 21 consists of 20%. As of April 2010, there are 1,711 North Korean defectors among the youth population and 1,417 youngsters are in formal elementary, middle and high school.

Education for mutual understanding teaches how to overcome self-centered understanding by understanding different politics, economy, society, and culture. It also teaches how to solve conflicts and problems that can happen when two different cultures meet. Therefore, education for mutual understanding gives learners an opportunity to reflect on their own culture by objectifying oneself and helping them to escape from egocentrism, thus, effectively solving problems of a unified society (Jung, 2010, p. 100).

In preparation for Korean society before and after unification, education for mutual understanding should be emphasized and concrete educational direction, method and strategies need to be designed. Also, the increasing population of multicultural families and North Korean defectors should be included and stressed in the education for mutual understanding agenda in terms of preparation for social cohesion of a unified Korea.

Since little exchange and cooperation have been made between the two Koreas since their division, differences in values and the way of thinking have been growing. If unification is achieved rapidly in this situation, it is obvious that serious problems are going to happen.

Therefore, education for understanding on politics, economy, society, and culture cannot be emphasized enough.

The most important thing in Korean education for mutual understanding is to have an open pluralistic attitude. The core value of such education is to put oneself in another's shoes. By doing so, every individual understands and reflects on one's own culture and respects those of others rather than insisting on one's own opinion. If people in the unified society have this kind of attitude, people will understand one another better and will be able to solve conflicts and problems well. Ultimately, social cohesion will be promoted and achieved.

This study suggests that education for mutual understanding needs to be stressed in unification education, because it helps people to overcome self-centered understanding and to have an open pluralistic attitude towards others. To prepare social changes and sustainable unification education, an active response needs to be made based on this suggestion.

For this, a specific goal and assignment should be provided. For example, education for understanding multicultural families and North Korean defector youth, and inter-Korean society is important in that it is an education that helps members of society effectively adapt to a changing society and prepares them for a unified society. In the light of ESD, unification education for mutual understanding develops the ability and responsibility required to live the future, and it can be applied to various fields and national strategies. Therefore, further study is required to find which direction or assignment of unification education for mutual understanding can be applied to school education progressively from the current situation and in the process of unification to after unification.

#### **IV. Three-step-strategy for a Peacefully Unified Korea**

It has been 20 years since Germany achieved unification. Even though West and East Germany prepared for unification for 40 years prior to its unification, and after a couple of decades since unification, Germans still experience the conflicts and aftermath of unification.

The biggest problem found in the German's unification is that unity of sentiment between the West and the East has not been fully achieved so far. This shows that achieving unity on differences in values, way of thinking, culture, etc takes longer and is more important than achieving unity in political, social and economic systems. Thus, it is required to prepare unity of sentiment thoroughly.

Unity in sentiments between the South and the North can start from education towards peace and unification. Specifically, it is important to recover homogeneity through the spirit of ethnicity and to narrow gaps coming from different value systems, ways of thinking or behavioral patterns with the help of education for mutual understanding.

The previous chapters suggest five specific directions of peace & unification education as a new paradigm because a peacefully unified Korea can be successfully achieved through peace & unification education.

It can be displayed in a diagram as in [Figure 1], and it will be the conclusion of this study.

To explain the process of realizing a peacefully unified Korea, systemic stages and educational stages are presented on the left and the right respectively. It has already been proved in Germany's case that making unity in a system does not lead to a successful unification. Therefore, systematic cohesion should be made in concert with educational unity to successfully achieve internal as well as external unity.

In [Figure 1], the left chart shows the three stages of a process in which two different nations or systems are integrated, and the right chart shows the relevant internal integration process for each stage.

To become a peacefully unified Korea, it is essential to make unity not only in the system but also in internal consciousness through education.

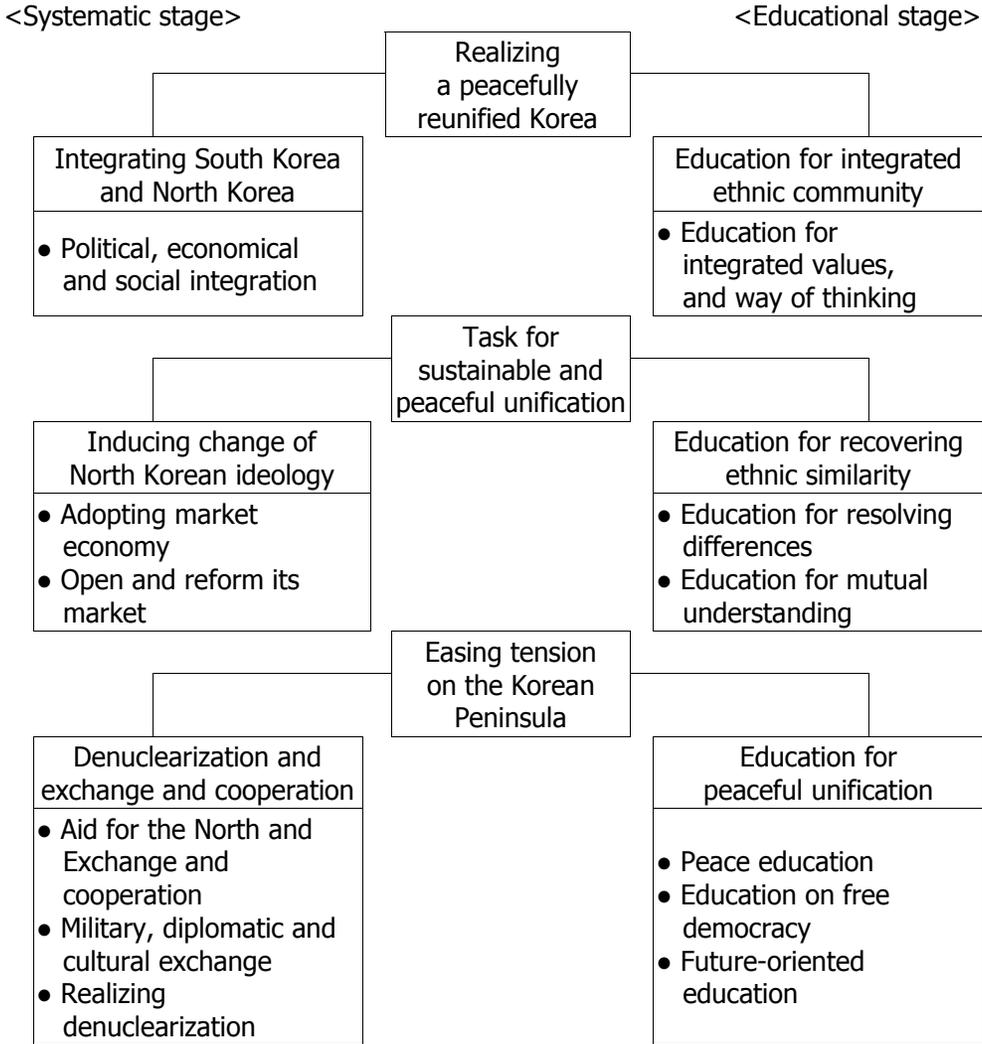
For external integration through systematic unity, it is required to draw a big picture for a unified Korea then to suggest comprehensive and detailed scenarios and to go through experts' review. Specifically, the first stage is denuclearization of the Korean Peninsula and inter-Korean exchange and cooperation. Specific action plans are as: sending aid for North Korea, strengthening educational cooperation through diplomacy or culture, and realizing denuclearization of North Korea. The second stage is to induce North Korea to change its ideology. South Korea needs to induce North Korea to adopt a market system and to open and renovate its market. The third stage is to make political, economical and social unity.

The internal integration through education also has three stages. The first stage is an education towards peaceful unification. To be specific, it is needed to pursue peace education, education in accordance with values of a free democracy, and future-oriented education. The second stage is an education to recover ethnical homogeneity. For this, education should be designed in a way to resolve differences

between the two countries and to find similarities and to improve understanding with each other. The third stage is an education that aims at a unified ethnic community where values, the way of thinking, behavioral patterns are fully unified.

As a long-term plan, this internal and external integration can create synergy when they are preceded at the same time and can reduce the aftermath of unification. The [Figure 1] shows the overall picture.

**[Figure 1] Three Stages for Realizing a Peacefully Reunified Korea**



The first basic step is to ease tension on the Korean Peninsula. Denuclearization as well as exchange and cooperation should be prioritized to support this, and also education aims at peaceful reunification can support this step.

To achieve the second step, carrying out tasks for a sustainable and peaceful unification, South Korea should induce change in North Korean ideology and support it, backed by education for recovering ethnic homogeneity.

The last step for realizing a peacefully reunified Korea is to attain not only systematic integration but also internal integration through education achieving unity in values and way of thinking. When it is fully achieved, unification of Korea can experience far less trial and error than that of Germany.

Because all the suggestions and tasks presented in this study are ideal, it is impossible to achieve all in the real process of unification. Therefore, further study should be done to make specific and achievable plans for unification, and appropriate policies for unification based on these plans are expected to set.

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**DEVELOPING AN  
EDUCATION STRATEGY  
BASED ON COMMON CORE ELEMENTS  
AND KOREA'S DISTINCTIVENESS IN  
GLOBAL CITIZENSHIP EDUCATION  
(GCE) AND ESD<sup>36</sup>**

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<sup>36</sup> This article is based on Sung (2010). A Theoretical Discussion on Common Core Elements and Korean Distinctiveness in Global Citizenship Education, *The Journal of Korean Education*, 37(2), pp. 109-130.

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## **I. Relationship between Global Citizenship Education (GCE) and ESD**

The United Nations proclaimed 2005-2014 as the Decade of Education for Sustainable Development (DESD) and called for member states to explore new ways of education to achieve sustainable development. Education for Sustainable Development (ESD) has many commonalities with Education for International Understanding (EIU) and Global Citizenship Education (GCE), which have been major frameworks established in the field of international education.

However, the definition of ESD can vary significantly based on the situation of the nation state. For instance, with environmental education being an established field in Korea, the Korean ESD model will be closely associated with environmental education. This relationship becomes rather obvious if you consider that most of the scholars currently researching ESD in Korea are from environmental education backgrounds.

But if ESD is limited to environmental education, the meaning of ESD becomes simply reduced to "education for environmental conservation." Sustainable development is the fulfilling of today's needs without impairing the needs of the future generation. While the needs of the future generation indeed include conservation of the environment, it goes beyond this concept to include deliberation of social, cultural and political issues as well as sustainable capabilities, practices and attitudes of the current generation. In addition to environmental conservation, the current generation must be able to deal with a myriad of tasks and issues including poverty, gender equality, human rights and peace to achieve sustainable development for the future generation.

In this regard, a reductionist definition of ESD will lead to an education program that raises awareness of preventing excessive development and waste for the sustainable use of the world's resources and environment by our future generation. On the other hand, a comprehensive approach toward ESD will bring it closely to and could overlap with many elements of GCE. I will adopt a comprehensive approach toward the definition of ESD and discuss the common core elements and Korean distinctiveness of ESD along the lines of its relations with GCE.

## **II. Common Core Elements of GCE and ESD**

GCE has been increasingly used in the area of global education. However, the concept of GCE is actually based on the theoretical foundation of global education and EIU. EIU was first explicitly proposed to be included in the school curriculums in the 1960s. The statement following the 31<sup>st</sup> International Conference on Public Education held by UNESCO in 1968 officially requested the education ministries of

the member states to include EIU within their curriculums (Jung, Shin & Jung, 2003). The title of this seminal document was "Recommendation concerning education for international understanding as an integrated part of the curriculum and life of school." The document proposed detailed guidelines introducing EIU into the curriculum, pedagogy and special activities of primary and secondary school education. It stated that EIU can be dealt with within all subject areas of primary and secondary school teaching. In other words, EIU was seen as a cross-curricular subject, and this tradition continues to this day. However, EIU in the 1960s was limited to describing the geographical, historic, literary (literature and social) and artistic (art, music and dance) characteristics of different countries in a cross-curricular subject.

In the 1970s, the resolution adopted at the 18<sup>th</sup> General Conference of UNESCO in 1974 on EIU carried significant historic meaning to the field (Jung, Shin & Jung, 2003). This document established the comprehensive conceptual basis of EIU and provided a detailed education plan for its implementation. The title of this document was "Recommendation on education for international understanding, cooperation and peace and education relating human rights and fundamental freedoms." The document emphasized the importance of human rights, peace and freedom within its text. Moreover, the document describes EIU based on the detailed attitudes that must be taught to students including respect toward other countries and ethnicities, capacity to communicate with others, acknowledgement of the rights of others, understanding the need for international cooperation, and understanding of global inter-dependency. While UNESCO's definition of EIU in the 1960s had been abstract, UNESCO outlined the detailed education experience of EIU in its 1970s documents. However, the 1970s documents were still short of providing concrete education objectives, contents and methods of EIU, and were nothing more than a public act of declaration.

In contrast to UNESCO's use of the term 'Education for International Understanding,' or EIU, the scholars in North America and Britain has used the concept of Global Education. According to Hicks (2003), the recent concept of Global Education is based on the *World Studies Project* set up in Britain in the 1970s. This Project was further developed in the 1980s and was introduced into the public curriculum for secondary schools under the title "World Studies." This subject included the education of 1) us and others, 2) rich and poor, 3) peace and conflict, 4) environment, and 5) the future of the world.

In the United States, research on global education has been centered mainly at New York University since the 1970s. In 1988, Pike and Selby published the seminal *Global Teachers, Global Leaders*, which outlined the common core elements of global education and greatly contributed to the development of the field. This

research categorized the universal elements of global education into geographical, historical, issue-related and human dimensions. In the mid-1990s, Pike and Selby established the International Institute for Global Education at the University of Toronto, which led the national and international initiative for global education. Influenced by such programs, many new organizations and associations in the US also started to work on or increased their support for global education. Among these was the American Forum, which outlined the core elements of global education as 1) global issues, problems and challenges, 2) culture and regions, and 3) America and the World. It also developed detailed educational objectives for knowledge, capacity and awareness building.

Pike and Selby (1995) revised their 1988 research in 1995 and proposed four core elements of GCE. The first element is education that raises awareness of five main world issues – inequality/equality, injustice/justice, conflict/peace, environmental contamination/conservation, and alienation/participation – and participation to resolve such challenges. The second element is geographical exploring of how the five main world issues are related to the local-global divide, interdependence, and regional dependency. The third deals with time, asking students to explore how the world issues (or other future scenarios) are related to the world's past, present and future. And the fourth and last is process-oriented education that encourages participation and experience of the various values and viewpoints, and the political awareness that students are both members of the local community as well as global citizens (Pike & Selby, 1995). In this regard, global education in the mid-1990s explicitly adopted concepts from the "closed area" including injustice, dependence, participation, inequality and political awareness into its framework. These developments were especially emphasized in Britain and Canada compared to other regions.<sup>37</sup>

Currently, the non-profit organization Oxfam (2006) is praised for having the most systematic and detailed model for GCE. Oxfam's education model focuses as much on the education method as well as the content of global education. In particular, Oxfam encourages an active and participation-oriented education to build the capacities and attitudes as a global citizen. The capacities and attitudes emphasized include confidence, self-respect, analytical thinking, communication capabilities, team work, and dispute resolution. Oxfam's GCE is unique for focusing

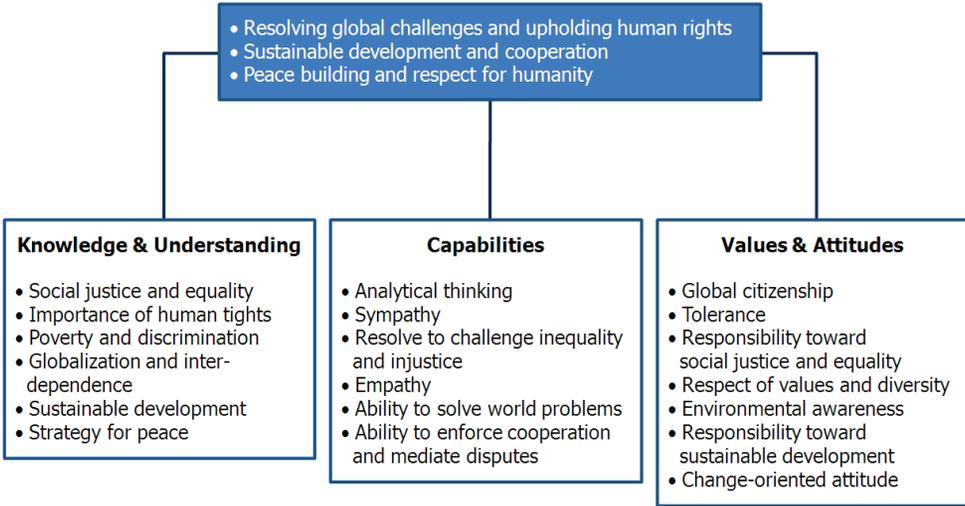
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<sup>37</sup> Global education in Britain and Canada focused more on teaching global common interests based on the viewpoint of the whole world and humanity in general, while at the same time seeking individual development in terms of global citizenship. On the other hand, the US focused more on comparing the US with other countries and emphasizing the role of the US in the world order. Furthermore, in Britain and Canada, global education emphasized the inequalities and differences between countries and ethnicities in regards to wealth, power and rights, and called for the building of capacities and responsibility as global citizens to resolve such challenges. Britain and Canada also developed more detailed strategies for pedagogy and learning of the subjects compared to the US (Pike, 2000; Noh, 2008).

primarily on building the capacity and awareness to contribute to resolving the unequal global distribution of resources and their unsustainable use. They believe that it is GCE’s major function to make the classroom an area of open debate and analytical thinking on complex world issues. Because there is no one right answer in GCE, the students must explore and develop their own values and communicate their opinions. Through this process, the students will learn how to exercise their rights as well as feel responsible for the rights of others.

An interesting point is that there are many commonalities between UNESCO’s 1993 *Guidelines for Curriculum and Textbooks Development for International Education* and the Oxfam’s *Education for Global Citizenship: a Guide for Schools*. While both documents were separately developed by UNESCO and Oxfam, they overlap in their arrangement, content and focus. The core elements that arise from these documents on GCE as well as an understanding of ESD can be summarized as the figure below.

**[Figure 1] Core Elements of GCE and ESD**



The core elements of GCE and ESD have trans-national characteristics, but the national application of GCE can be different among nations. In particular, the cultural, social, political and historical particularities of a country must be considered for GCE to be effective. Hence, the next section will analyze the distinctiveness of South Korea in regards to GCE and ESD.

### **III. Korea's Distinctiveness in GCE and ESD**

#### **1. Common Elements vs. National Distinctiveness**

Although we have deduced the universal core elements of GCE and ESD, they cannot be directly implemented in a specific country context. Because each country has its own historic, cultural and social context, the forms of GCE will differ based on the ties between the universal elements and a country's distinctiveness (Pike, 2000). Education of an individual with strong global citizenship values (able to confront the common global challenges as well as those of other people, culture and countries) can conflict with the special interests of a nation state.

As such, there are no easy answers on how to educate people as global citizens and on how much global responsibility is enough when people simultaneously are members of a nation state that compete with one another (Noddings, 2005). Hence, a comprehensive consideration of a country's culture, history and society is a prerequisite for effective GCE. There is not much active debate on GCE in Korea. And there have not been active efforts to integrate GCE into formal education as a cross-curricular subject (Jung, Shin & Jung, 2003). Therefore, there is more need to consider the importance of GCE within the context of Korea's distinctiveness.

In Britain and Europe, where GCE is relatively well established, there has been more interest in the concept of citizenship with the integration of the European Union. This has also led to more comparative research and measurements on European citizenship (Davies, 2006). The atmosphere of regional integration in Europe seems to have led to a trans-national concept of citizenship, which has produced a stronger social foundation for GCE. However, Korea's history and culture as well as northeast Asia's geopolitical conditions are very different from those of Europe, which require consideration of Korea's distinctiveness in carrying out GCE. Therefore, the next section will review the Korean distinctiveness to effectively educate the universal elements of GCE in the Korean context.

#### **2. Consideration of Korea's Distinctiveness**

As mentioned above, I claim that while following the universal elements of GCE, Korean distinctiveness must be considered in deciding the direction and practice of GCE.

First, Korea has been had little contact with other cultures due to its geographical situation. The Korean society traditionally has valued homogeneity in bloodlines and its geography has been isolated with the North-South political division. This geographical isolation has limited Korea's contact with other cultures,

when compared especially with Europe. The Korean model of GCE will be effective only when considering this uniqueness. With the increase of foreign immigrants that compose some 2% (one million people) of the population today (Heo, 2008), there are increased social debate on multiculturalism and more realization of ethnical and cultural diversity within the society. However, the remaining 98% of the population, a dominant majority, can be considered a homogenous race. Korea's geographical isolation reinforces its social homogenous race ideology, and there are still limitations in contact with other cultures.

Second, due to a competitive nationalism, there is a relatively strong exclusivism toward other cultures within Korean society. There is an instrumental social perspective of thinking that strengthening national competitiveness is equivalent to globalization. This has led to emotional difficulties in accepting immigrants with different ethnicities, languages, cultures, traditions and customs as members of the community. Park (2009) claims that this phenomenon is influenced by what he calls the "copied Orientalism" within the Korean psyche. Koreans, according to Park, hold prejudice against Asian immigrants to be inferior, while upholding the western Anglo-Saxon cultures. In other words, western orientalism toward the east based on an imperial perspective (Said, 1979; Hall, 1997) can now be found in the way that Koreans look at immigrants.

Third, there is a low awareness of human rights compared to Korea's national standing. It is only recently that human rights have become a major issue. Human rights became an active issue of social interest only since the 1990s (Kang, 2000). Considering the rapid rise of Korea's international status, Korea's human rights have not followed through. The main reason for this is that human rights had been sidelined for political reasons as well economic in maintaining the military dictatorship and emphasizing a growth-based economic model (Heo, 2008).

Fourth, the division of the Korean peninsula must also be considered. In particular, understanding of North Korea, North Korean defectors problem, and peace-based unification education should also be integrated within the Korean GCE model. Above all, education must acknowledge the 'differences' of the North Korean population that has lived under a different socialist system of values and lifestyle since the division (Lee, 2010). GCE must include understanding of the uniqueness of the Korean peninsula's division and must also teach tolerance to peacefully coexist with the North.

Fifth, in addition to social and cultural uniqueness, there must be consideration of school culture. School culture in Korea has been strongly influenced by the Japanese imperial pedagogy and uniform evaluation. This type of school culture does not fit GCE or ESD.

### 3. Pending Issues for Implementing GCE in Korea

Based on Korea's distinctiveness outlined above, there are various considerations and limitations in implementing GCE in Korea. Therefore, while eventually aspiring towards the GCE model proposed by UNESCO (2006) and Oxfam (2006), Korean society must take into consideration the following points in implementing GCE within the Korean context.

**[Table 1] Korean Distinctiveness and Pending Issues for GCE Implementation**

Korean Distinctiveness	Pending Issues
Geographical isolation and strong homogeneity	Education strategy focused on experience and empathy building
Instrumentalist view of globalization	Adopt a critical view of globalization
Relatively weak human rights awareness	Actively connect human rights education with global education
North-South division and increase of North Korean defectors	Include the North Korean issues within the global Issues
Uniformed curriculum and teaching	Praxis-oriented education and prioritizing urgent global problems

First, in connection with Korea's geographical isolation and strong ethnic homogeneity, a Korean GCE must emphasize an education strategy focused on experience and empathy building. Isolationism and homogenous racism cannot easily be changed by an education model mainly focused on knowledge delivery (Lee, 2003; Yang, 2007). Experience and empathy building is a prerequisite considering the fact that it is difficult for Korean students to identify themselves as global citizens and experience other cultures as well as problems such as poverty. There needs to be an emphasis on empathy-based education to encourage interests on poverty, violent conflict, human rights violation and other global issues.

Second, Korea should reject a competition-based global education and adopt a reform-oriented global outlook. As mentioned in the sections above, Korea should consider criticism from a post-colonial viewpoint (Kang, 2000; Noh, 2008) and recognize the "white mask" (Fanon, 1967) that they are currently wearing. GCE will not be possible if there is no criticism over the current thinking identifying

globalization with strengthening national competitiveness. Also, there must be acknowledgement of the double standards today's society has in perceiving foreign immigrants (Sleeter & Grant, 2003), and there should be active teaching of the contributions foreign workers make to our society. While there are differences between the concepts of multicultural education and GCE, there must be a realization that GCE cannot be effectively implemented without multicultural education (Banks, 2008; Chang, 2006).

Third, although human rights education is at the center of GCE, the awareness of human rights in Korea is still weak compared to the general standing of the country (Kang, 2000). Cross-curricular human rights education must be included in GCE to significantly enhance our awareness of human rights at the national and international level. The issues of social minorities were first introduced in Korean public school teaching with the Seventh National Curriculum, and human rights assumed a separate chapter with the amendments made to the Curriculum in 2007 (Heo, 2008). With a weak emphasis on domestic human rights education, there is needless to say lesser emphasis on global human rights issues. Therefore, there is a need for an integration education of domestic and global human rights issues along with the development and distribution of appropriate pedagogy and texts. Human rights education should be an education to practice human rights rather than simply teaching knowledge of human rights issues (Kang, 2000).

Fourth, issues with North Korea must be actively dealt with within a detailed multicultural education strategy. We need to educate students to understand the reason behind the increase of North Korean defectors<sup>38</sup> and be aware of the violence, isolation and exploitation they experience while adapting to our society (Park, 2009). Kim (2009) claimed that rather than perceiving the defectors as people to be protected and assimilated, society should respect their "differences" and look at them as "immigrant." This shift of attitude is important in the context of GCE. Without understanding of the "differences" with North Korea and consideration of the welfare of North Korean defectors, Korean students will have little interest in respecting the diversity of other cultures and seek a peaceful coexistence at the global level.

Fifth, implementing a holistic and systematic GCE and ESD seems like a daunting task when considering the college-entrance-exam-focused curriculum and uniform teaching culture in Korea. Therefore, taking a gradual and selective approach prioritizing pending issues such as poverty and human rights in education

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<sup>38</sup> There are some 17,000 North Korean defectors living in South Korea in 2009, making them a 0.035% minority in our society. They are in general a vulnerable group, with low economic standings, psychological problems from the experience of human rights violations from the defecting and adapting processes, and low physical health from years of suffering from starvation in North Korea (Kim, 2009).

seems like the most effective approach. The Korean education culture is unaccustomed to the GCE methods of practicing, debating and actively participating in "controversial public issues." While the current National Curriculum acknowledges GCE as a cross-curricular area, each subject does not sufficiently cover the issues of GCE (Noh, 2004). There must be recognition of the limits of Korean education culture, that Korea's education is not at the level of actively implementing GCE and an alternative selective and prioritizing approach for teaching urgent issues first as well as efforts to transform education environment.

#### **IV. Summary and Conclusion**

This article has sought to identify the universal core elements of GCE and ESD and factor in Korea's distinctiveness within this context. The importance of GCE and ESD's universal elements do not decrease even if we consider Korea's distinctiveness. But, as the concept of GCE has initially evolved based on the global education developed in North America and Europe as well as the EIU proposed by UNESCO, Korea's distinctiveness must be considered in to effectively establish GCE in Korean society.

In this paper, I proposed that the universal core elements of GCE and ESD are: (1) problem-solving capabilities and respect for human rights in dealing with global issues, (2) environmental awareness and a cooperative approach to development, and (3) capability to mediate disputes and a strong peace orientation. Education should focus on teaching the knowledge, capabilities and attitudes associated with these universal elements.

Korean distinctiveness that must be considered in implementing GCE and ESD in the Korean context is as follows: (1) geographical isolation and a strong homogenous race ideology, (2) an instrumental attitude towards globalization within the society, (3) weak human rights culture within the political system by experiencing military dictatorships, anti-communist movements and growth-oriented ideology since Korea's independence, (4) consideration of Korea's North-South division and understanding of the North Korean problem and defector issue, and (5) a college entrance exam focused a uniform education culture that hinders the adoption of GCE pedagogies.

In consideration of these conditions, the Korean education model should focus on the following to be most effective: (1) adopt an experience and empathy building education strategy, (2) reject an instrumental global view and adopt a critical and reflective perspective, (3) integrate domestic and global human rights education and focus on enhancing student awareness of human rights, (4) integrate North Korean issues within global issues, and (5) adopt a selective and prioritizing strategy,

selecting the essential elements of GCE and prioritizing urgent issues such as poverty and human rights.

Prioritizing pending areas seems to be the optimal method of implementing GCE considering the limitations of Korea's education environment and little exposure of such subjects by the students. With a focus on basic human rights, the problem of poverty and human rights violation should be prioritized among education issues. The students should be motivated to participate in resolving problems of poverty based on a love of humankind. This is especially important from the viewpoint that education of human dignity is not an education of "knowledge" but an education of "practice."

Lastly, GCE and ESD are not education systems each with single answer but the teaching of the capability to explore complex problems. The necessity of GCE is easily supported by universal brotherly love and love of humankind, but there needs to be a realization that globalization does not always lead to justice and can also cause side-effects such as increasing inequality, violating human rights and encouraging child labor. GCE cannot be simply approached based on love for humankind, but must consider these positive and negative effects of globalization and teach now to build a critical view toward these negative impacts. In other words, GCE must start from teaching a balanced view of globalization.

In this regard, GCE must reject the instrumental view of globalization as a means to enhancing national competitiveness and encourage a reform-oriented approach emphasizing participation in global issues including poverty, inequality, human rights and environmental protection. The recent Oxfam educational program (2006), upheld as a best practice of GCE, also is based on such a reform-oriented approach. Citizens with strong global identity will easily identify with global issues as their own and contribute to its resolution (Oxfam, 2006). The adoption of such viewpoint will be fundamental in establishing the methods and content of GCE.

This paper was written to examine the universal elements and Korean distinctiveness of GCE and ESD for their implementation in Korea where the environment has not been favorable to the education for responsible global citizens. Therefore, the paper has limits in providing a detailed plan or strategy. However, it hopes to contribute to establishing a foundation for implementing GCE in Korea and hopes that follow-up studies of outlining a detailed strategy are carried out. In addition, this paper also encourages more comprehensive work exploring the theoretic and practical relations between GCE and ESD.

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**ADVENT OF  
A MULTICULTURAL SOCIETY AND  
EMPOWERMENT FOR ESD**

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## 1. Introduction

As mobility of information, technology, resources, and labor force across nations is rapidly increasing thanks to transnational globalization, ethnic and cultural diversity in Korean society is increasing. Data from the Immigration Bureau at the Ministry of Justice and Korea Immigration Service says the number of foreigners living in Korea has dramatically increased from 49,507 in 1990 to 269,641 in 1995, 491,324 in 2000, 747,467 in 2005, 910,149 in 2006, and 1,208,544 in June 2010. The main causes for Korean society's more rapid change to a multicultural society are as follows: first, an increase in labor migration at the global level to fill the widespread gap that occurred in unskilled labor and care labor; second, tremendous growth in the inflow of marriage migrant women as a resource to maintain or continue the traditional patriarchal nuclear family system, which is a confronting crisis for dissolution due to low fertility rates. It is now time to take the culture of the Korean people, which was considered a homogeneous ethnicity in relation to different cultures, and self-examine.

Just as the ethnic riot in France in 2005 shows, in the era of pervasive transnational migration, if conflicts due to racial and cultural differences, social discrimination and the exclusion of minorities are not adequately dealt with, then this can result in serious social conflict and unrest. Western societies, which have already turned into multicultural societies long ago, are still experiencing diverse social problems from the transition to a multicultural society in the form of racial riots, unemployment problems of relatively less-educated foreigners, the transformation of foreigner residential areas to slums, native people's hatred and exclusive attitude toward foreigners, conflicts with job opportunities, social adaptation problems of the home country born second-generation, and social responsibility for the newly poor. Korean society can see everyday discrimination and conflict in schools and regional society on a large scale as marriage migrant women hit their stride in their long-term residence and children from multicultural families grow up. Therefore, it is a crucial moment in transitioning into a multicultural society on a large scale since this is the time people with multiracial backgrounds become Korean people.

Thanks to the increasing scale and quickening pace of globalization and transnational migration, open-minded understanding, respect, and self-examination on cultural differences and diversity will emerge as important values in a multicultural society where more people with diverse ethnic backgrounds will meet and live together in everyday life. Multicultural sensitivity means having a tolerant attitude toward others with differences and acknowledging the differences not as a point of discrimination but as diversity, taking the differences as an opportunity to reflect their own cultures or values. The fact that our society may have a

multicultural sensitivity, recognizing and respecting racial and cultural differences, will be the first step toward a multicultural society. This is because multiculturalism can genuinely be realized not only from a legal and institutional framework but also, very importantly, from everyday practice.

## **2. Outlook on Social Problems Caused by the Stages of Transition into a Multicultural Society**

### **(1) Risk Factors by the Stages of Transition into a Multicultural Society**

Every country that turns into a multicultural society experiences the transition gradually by taking several steps rather than turning into a multicultural society in an instance. Dividing this into stages, the first stage is an entering stage, making the transition into a multicultural society. This is the stage where migrants increasingly represent a visible share of the whole population. The biggest social change at this stage is the confusion that arises over the commonly used concept of "members of a nation state" when different races enter a homogeneous society where a single race used to live together (except for cases where several ethnicities experience nation-forming stages together). Simultaneously, considerable numbers of citizens from mainstream society, difficult to genuinely have a tolerant mind due to social pressures or political purposes, show a psychological resistance and have a discriminatory attitude towards living together with unfamiliar immigrants by alienating them. Korean society showed a contradictory attitude of hospitality towards marriage migrant women and a discriminatory and exclusive attitude towards foreign workers in the first stage of entering into a multicultural society. The reason why the initial stage of transition is crucial is that racial minority groups can only have unstable identities, lacking self-respect and pride, and instead, suffer from an inferiority complex in a society that lacks tolerance to other cultures and different races. Mass media and the internet take on an important role in changing the recognition and evaluation of minorities. The dangers of spreading the public's stereotyping of foreigners remain if foreigners are seen in an unequal or distorted image through mass media. An effective plan coping with social risks in the initial stage of migration is vital in that long-term risks, which can be derived from the transition to a multicultural society, can be minimized.

When migrants migrate unmarried in the early stage of migration, they gradually develop families in the migrated country due to the extension of their stay, form a migrant community of their home countries, and finally form an exclusive collective residential area. This is when a society experiences a transition into a multicultural society, which is the second stage of turning into a multicultural society. Korean society has not experienced the typical migrant transition stage when

migrants assert the right to reunite with their families from their home country or begin to form a family through marriage naturally due to the extension of their stay. This is because marriage migrant women are included as a member of an already-developed family at the moment of their marrying Korean men. Generally, at the second stage of migration, the use of different languages among multicultural family members can raise a problem of limited communication in the long term and can end up with indifference among family members and weaken emotional bonds. If this situation continues, then the divorce rate of multicultural families can increase and can cause family break-ups. If a residential area of a certain racial minority group is formed, particular danger lurks in that this area can become a ghetto of a society or can become an isolated residential area for the poor. In that case, a new level of inequality, which arises from a racial income disparity, can become a key problem as a hindrance to social integration.

When the second generation of multicultural families goes into the world and begins to reproduce migrant communities, the society is entering the third stage where a multicultural society begins to become established. If the social risks that arise in the first and second stage are not successfully handled, this can act as a factor of social unrest in multicultural societies at this stage. Second generation migrants can experience racial identity crisis between the one acquired from socialization within their family and the one from the culture of mainstream society. In addition, the burden of social welfare can be increased in taxes, medical expenses, educational expenses, and social services on migrants with low education and incomes. In Western countries, discussions on the reverse correlations between the transition into welfare states and the progress of multicultural societies have already begun (Banting & Kymlicka, 2006). The most extreme form of social risks, which can occur in the third stage of migration, are as follows: crime and unemployment problems of ethnic minority groups isolated from a mainstream group are realized, racial friction in a society is increased, which can dissolve the social sense of unity, and resistance to mainstream culture can be disclosed in the form of collective racial riots.

A solution on the future of multicultural society that is drawing the biggest attention among several alternatives is multicultural empowerment of citizens. The reason for highlighting multicultural empowerment is that it is a key factor in successfully transitioning into a multicultural society by helping each individual citizen have an open sensitivity and flexible attitude to accept identity and cultural differences and to have a tolerant attitude toward different cultures. This kind of multicultural empowerment can be formed through reinforcement of civil and ethical responsibility in different neighboring countries beyond the national boundaries, which is highlighted in ESD.

**[Table 1] Process of Transitioning into a Multicultural Society and Anticipated Social Problems**

<b>Transitional Stages to a Multicultural Society</b>	<b>Phenomenon</b>	<b>Anticipated Risks</b>
<p align="center">1<sup>st</sup> stage: entry stage to a multicultural society</p>	<p>Migrants increasingly representing a visible share of the whole population</p>	<ul style="list-style-type: none"> <li>• Confusion that arises over the commonly used concept of “members of a nation state” in mainstream society</li> <li>• Psychological resistance and discriminatory attitude of mainstream society towards migrants</li> <li>• Degradation of consciousness on norms by diversity in behavior and difference in values</li> </ul>
<p align="center">2<sup>nd</sup> stage: transformation stage into a multicultural society</p>	<p>Developing multicultural families; due to the extension of their stay, unmarried migrants gradually developing families and forming a migrant community of their home countries (advent of collective residential area)</p>	<ul style="list-style-type: none"> <li>• Indifference among family members from multicultural families and weakening of the emotional bonds</li> <li>• A problem of limited communication due to communication barrier</li> <li>• An increase in divorce rate of multicultural families and family break-up</li> <li>• Social isolation of minority racial communities or transformation to the social poor</li> <li>• Deepening of a new level of inequality, which arises from racial income disparity by races</li> <li>• Dissolution of a social sense of unity</li> </ul>

<p>3<sup>rd</sup> stage: settlement stage to a multicultural society</p>	<p>Reproduction of migrant communities: entry of the second-generation of multicultural families into a society</p>	<ul style="list-style-type: none"> <li>• Racial identity crisis of second-generation of migrants</li> <li>• Increase in the burden of social welfare (taxes, medical expenses, educational expenses, and social services on migrants) with low education and income</li> <li>• Racial identity crisis of second-generation migrants between the one acquired from within their family and the one from the culture of mainstream society and realization of crime and unemployment problems</li> <li>• Increase in racial friction - dissolution of social sense of unity</li> <li>• Deepening of social unrest resulting from the realization of resistance against mainstream society (including collective riots)</li> </ul>
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Source: CHANG, Mi-hye, 2008.

## **(2) Future Outlook by the Development Directives of a Multicultural Society**

As mentioned earlier, the transition into a multicultural society takes three stages. If the social problems that can arise at each stage are not successfully managed, they can lead to a national crisis by causing social integration crisis and an explosion of social conflict. The social risk, which can occur when the transition into a multicultural society is not made successfully, can be divided into three categories: personal, familial, and social. First, at the personal level, members of mainstream groups will alienate people with different racial identities. They will have an exclusive and discriminatory attitude towards them, which can lead to the deepening sense of alienation felt by racial minority groups. At the family level, domestic violence meted out to foreign spouses will be increased, communication among multicultural family members will be ruptured, and social adaptation of children from multicultural families can be impeded. If children from multicultural families are raised in a violent domestic atmosphere and grow up as a member of a

group experiencing discrimination in society, they may cause a collective problem by degrading into the social poor when they become adults. Identity crisis and alienation at the personal level and dissolution of multicultural families at the family level will subsequently lead to the explosion of social risk factors. If foreign migrants to Korea are not assimilated into the Korean identity, do not possess Korean values and norms, and are degraded into a minority group, while at the same time, citizens of mainstream society continue to have discriminatory and exclusive attitudes towards the culture of minority groups, this will lead to the exacerbation of social conflicts and, as a social consequence, will definitely result in the weakening of social cohesiveness of Korean society as a whole.

However, as we previously examined, if we recognize the risk factors that can arise at each stage of the transition into a multicultural society beforehand and actively produce an effective plan for coping with them, Korean society may witness a successful transition into a multicultural society at all levels (personal, familial, and social). In an ideal multicultural society, minority groups would maintain psychological stability without racial identity crisis, and the majority group would embrace other cultures and races with an open attitude. At the family level, a new culture, which could replace Korean patriarchal domestic culture, could be created in multicultural families formed with diverse races, and the transnational communication capacity would be reinforced through the natural use of languages in bilingual families. At the societal level as a whole, multicultural differences and understanding will increase, and a society that respects the cultural rights of different groups and guarantees equal social, cultural, political rights irrelevant of racial differences will be realized.

**[Table 2] Phenomenon Anticipated in the Success or Failure of Transitioning into a Multicultural Society**

Cases of Successful Transition into a Multicultural Society	Analysis Level	Cases of Failed Transition into a Multicultural Society
<ul style="list-style-type: none"> <li>• Increase in multicultural difference</li> <li>• Realization of society's guarantee of equality in social, cultural and political rights, irrelevant of racial difference</li> <li>• Respect for cultural rights of different groups and mutual respect for cultures</li> <li>• Promoting trust within people with different cultures and races</li> </ul>	Social level	<ul style="list-style-type: none"> <li>• Weakening of social cohesion</li> <li>• Migrants' degradation into minority groups. Not being assimilated to Korean identity, values and norms of Koreans</li> <li>• Deepening of social conflicts by exclusive attitudes towards other cultures</li> </ul>
<ul style="list-style-type: none"> <li>• Settlement of new cultures replacing patriarchal family culture of Korea</li> <li>• Reinforcement of transnational communication competency through the natural use of multiple languages in the family</li> </ul>	Familial level	<ul style="list-style-type: none"> <li>• Increase in domestic violence on foreign spouses</li> <li>• Rupture of communication within members of multicultural families</li> <li>• Failure in social adaptation of children from multicultural families</li> <li>• Engenderment of collective problems by children from multicultural families degrading into the social poor</li> </ul>
<ul style="list-style-type: none"> <li>• Individual's emotional stabilization without identity crisis</li> <li>• Open attitude towards different cultures and embracement of them</li> </ul>	Individual level	<ul style="list-style-type: none"> <li>• Alienation of people with different racial identities</li> <li>• Deepening of isolation of minority groups caused by exclusion and discriminatory attitudes from the mainstream group</li> </ul>

Source: CHANG, Mi-hye, 2008.

### **3. Strategies for a Successful Transition into a Multicultural Society**

Korean society permits short-term stay only to individual foreign workers, not yet to the family unit. If a shift in policy orientation does not occur, the main migrants who can settle down long term in Korean society as a family unit are North Korean defectors, some overseas Korean with foreign nationality, and marriage migrant women married to Korean men. Unlike foreign countries that experience transition into the second stage of migration by developing migrant communities of home countries, regions, and ethnicities, Korean society is rapidly making a transition directly from the first stage to the third stage without experiencing the second stage at the present. To successfully cope with expected socio-cultural conflict and dissolution, it is crucial to continuously monitor the risk factors a multicultural society can face at each stage and to prepare for a mid-long term strategy on this. Currently, assuming Korean society is at the first stage of migration, which is the entry stage to a multicultural society, if we call the first stage of migration policy a short-term multicultural policy, then policies of the second stage of migration transitioning into a multicultural society and the third stage of migration settling down as a multicultural society are more mid-long term policy plans of a multicultural society. If we take a look at the risk management plans at each stage for minimizing the social risk factor, which can arise in the first stage of migration, what's needed is multicultural education that can help migrants understand culture, language, values and conventions of mainstream society. However, the obstacle at the first stage is that migrants at the initial stage cannot easily adapt to social assimilation programs provided by the country or NGO's due to language limitations. Currently, Korean society sees that each government department provides various services and programs in parallel for marriage migrant women for their adaptation to Korean society, but their work should be unified and managed more systematically.

Presently, one of the causes for break-up of domestic cohesion of multicultural families, including the increase in divorce in international marriages between Korean males and foreign females, is not only derived from scarcity of personal information of spouses and information on married life in the process of short term marriage through marriage brokerage companies but also from a lack of understanding of each other's cultures. Consequently, current policy should be changed to provide post-support programs to solve domestic conflicts occurring in multicultural families after the tremendous growth of international marriage through marriage brokerages. A good start would be to consider the introduction of preliminary interviews for visas as part of protecting the rights of the contracting parties in an international marriage, which would confirm that each party is aware of each other's background, and issue visa limits to female and male spouses participating in these preliminary interviews. Furthermore, the emphasis on education on marriage migrant women are presently

on the Korean language and Korean culture, but what's needed for them to adapt smoothly to Korean life is Korean adaptation programs in a wider context, providing practical information on everyday life in Korea. For instance, this can include providing information required from everyday life in the area of residence, transportation, society, health services, and advice on banking services, shopping, household finance management, and other daily tasks.

Also, the current education on the Korean language provided by diverse institutions are limited to short-term elementary course and should be adjusted to allow for an education that can provide opportunities to learn the Korean language long-term by dividing the courses by level of difficulty, from an elementary course to an advanced course. Second, the target groups for education on Korean culture are mostly limited to foreign women married to Korean men, but the contents of the education should be extended to the husbands of those women to help them understand the culture of their foreign spouses. This would promote understanding the rights of each other's culture, which would aggrandize mutual understanding and build a bond of sympathy of their cultural differences beyond the unilateral short-term cultural education for spouses that currently exists. Other than these, an area where the currently implemented short-term policies at the beginning of entering a multicultural society can be improved is the confusing process of acquiring citizenship and the guidance of administrative services translated into the languages of migrants before they learn the Korean language. Currently, before and after childbirth services, dispatch of post-birth helpers, preventive vaccinations, and childcare information for marriage migrant women in their pregnancy and maternity are provided. Another necessity is sufficient public relations and notices to facilitate active use of such services, which are provided relatively diversely as a part of a low fertility policy. What's particularly important is providing guidebooks and interpreting services in the language of their home countries, which would be more effective considering that most migrant women are unfamiliar with the Korean language and would have a hard time understanding terms related to health and medical care.

To deal with diverse social risk factors that can arise at the second stage of migration, which is the stage that commences the coexistence of new migrants and the already settled migrants, providing a service bridging system which arranges medical and educational plans and plans to prevent domestic violence through connecting services would be efficient for new migrant needs and the use of existing migrants as service providers. Furthermore, at the second stage, where social settlement of multicultural families begins on a full-scale, another necessity is supporting social and occupational adaptation of migrants and providing them with diverse social services including housing support programs for multicultural families. In the case of Singapore, which has a high population and serious housing problems, there are instances of amplified conflicts between the general public with the

increase of multicultural families surrounding residential space. Stakes are high for this to occur in Korea, which has had similar situations. However, a more fundamental measure at the second stage of migration transitioning into a multicultural society is to prepare children from multicultural families to be included in labor markets in mainstream society without difficulty by providing them with an equal education. Most children from multicultural families have a mother unfamiliar with the language and culture of mainstream society, which can lead to relatively low educational achievement. This problem may be exacerbated when the children from multicultural families reach school age on a large scale. To cope with this, consultation services supporting children from multicultural families are needed to help children adapt without issues to school, provide educational information for parents from multicultural families, more advanced Korean language education opportunities for parents to help them guide their children's studies, and after-school or vacation programs for children from multicultural families. At the same time, this is also a time for foreign women from multicultural families to have free time, free from the burden of rearing young children. Considering that most of them want to earn an income through work opportunities, they should be supported with job training and child-care when they are employed. A key to policies implemented at the beginning stages of turning into a multicultural society is that even if unilateral assimilation policies are implemented for foreigners and social minorities, those policies will not be effective under conditions where they are segregated and excluded by society.

At the third stage of migration, where reproduction of multicultural families are made when children raised from multicultural families enter the labor market on a large scale and marry members of mainstream society, the key to managing risk is in supporting them to show their talents in society and promoting them to become economically self-sufficient by earning incomes without discrimination. However, because skills and licenses of migrants are generally underestimated in mainstream society, migrant workers are not paid adequately compared to their ability when they enter the labor market. This is the impeding factor of risk management in the third stage of migration. If risk management is not successfully made in the beginning of the transition into a multicultural society, migrants will only degenerate into the new breed of the poor despite all the support from the nation, and the burden of welfare will come back to the nation.

To prevent this extreme situation, there must be implementation of education for strengthening the job capacity of children from multicultural families, citizenship education for ensuring equality of socioeconomic rights and cultural education for the general public's smooth adaptation in mainstream society. The core of cultural education is in promoting cultural diversity, and on top of cultural diversity, realizing fundamental orientation of multiculturalism, which aims for every human to freely

reveal and reproduce their unique culture. To realize this objective, the target group for multicultural education should be the general public as a whole, rather than the migrants with whom they live with. Korean language education mainly consists of short term courses at the present. This should be divided into levels, and quality professional lecturers who can lead these levels should be recruited. Korean language education is a key in improving migrant adaptation to Korean society and eventually strengthening social integration empowerment as a whole.

In addition, migrant policies should be established with a long term perspective instead of dealing with quick-fix short-term solutions to the problems Korean society currently faces, such as low fertility problems of certain areas including farming villages. These policies should also be established in a systematic direction that can cope with predicted social problems at each stage. For this, unification of production and management of statistics related to migration is necessary for preventing separate production of migrant related statistics on migrant workers and marriage migrant women, which is divided by government sectors at the present.

Lastly, and most importantly, in order to predict manpower requirements depending on short term economic conditions and long term change in industry structure and to correspondingly meet those domestic manpower requirements, there is a necessity for the systematic management of the right number of migrants and the quality of manpower.

**[Table 3] Social Problems Caused by Each Transition Stage and Policy Strategies to Cope with Them**

Stages for transitioning into a multicultural society	First stage of transition into a multicultural society: entry stage	Second stage of transition into a multicultural society: transformation stage	Third stage of transition into a multicultural society: settlement stage
Impediment factors of risk management by stages	Constraints: language → limitation on accessibility of social adaptation programs	Constraints: social underestimation of skills and licenses that migrants possess → constraints on migrants' smooth inclusion into the labor market	Constraints: dominance in majority culture with an inclination toward universalism excluding the uniqueness of minority culture → social isolation of minority race groups
Risk management plan	<ul style="list-style-type: none"> <li>• Allow employment for migrants from the industry sector with manpower requirements</li> <li>• Provide social adaptation training programs for new migrants</li> </ul>	<ul style="list-style-type: none"> <li>• Provide service bridging systems linking services required by new migrants and service providers (medical, educational and preventive plans on domestic violence)</li> <li>• Support social and occupational adaptation of migrants</li> <li>• Support housing for multicultural families</li> </ul>	<ul style="list-style-type: none"> <li>• Provide education for occupational empowerment</li> <li>• Provide citizenship education for guaranteeing equal socio-economic rights</li> <li>• Provide a language learning interpretation system and multicultural broadcasting for smooth adaptation to mainstream society</li> <li>• Provide a subsidy system for maintaining cultures of migrants and minority groups, and education on social minorities</li> </ul>

Source: CHANG, Mi-hye, 2008.

## **4. Schemes for Constructing Governance for Multicultural Policies**

### **(1) Problems of Current Governance of Multicultural Policies**

The inflow of foreigners into Korea will be continual due to demographic, economic, social and political factors. Therefore, the influx is not a temporary phenomenon but a structural problem which will continue as a long-term trend. Since multicultural policies are related to diverse central government departments, local governments, and the private sector more than any other policy area, the nature of policy itself has the characteristic of governance. Generally, governance is necessary for various partners including governments (local, regional, transnational), civic groups, and the private sector to be cooperative on policy and to use various resources that are necessary for dynamically solving problems in the main policy decision processes, responding to a gradual change in policy surroundings, which becomes more confusing, uncertain and multidimensional (Han, 2007). The legal basis for multicultural policies in Korea at the moment is in the "Act on the Treatment of Foreigners in Korea" and "The Support for Multicultural Families Act," and central government departments have competitively established units to take charge of multiculturalism and have tried to develop diverse projects since 2006. For organizations in charge of deliberation and mediation within central government departments on essentials of policies for foreigners, there is the "Foreigner Policy Committee" where the Prime Minister takes the role of Chairman. However, the committee is not carrying out its function of deliberation and mediation practically. Therefore, currently, multicultural policies at the central government level are carried out in separate ways instead of a coordinated mutual cooperation and interdepartmental effort. Multicultural policies at the local government level have not begun to be carried out on a large scale yet, so multicultural policies for migrant foreigners are under the responsibility of diverse institutions such as local autonomous governments, women's centers, health family support centers, community social welfare centers, local cultural centers, NGOs, etc. Nevertheless, as projects are processed by each department under the condition of a regional administrative system not yet being established, problems of overlapping and scarcity of service occur simultaneously in the field, and interdepartmental role sharing is obscure, and functions that are responsible for mediation is insufficient.

Governance on multicultural policies in Korea has certain limits as follows: the competition within central government departments is growing fiercer, a regional administrative system is not established, and a linkage between multicultural services is lacking. Nevertheless, considering the fact that Korean society's transition to a multicultural society is at the entry stage, competitive development for new tasks within central government departments should be admitted in the respect that this could facilitate securing diverse resources necessary for solving problems

including knowledge, experience, finance, manpower, organization, etc. In other words, at the entry stage into a multicultural society, the size of resources necessary for multicultural policies needs to be aggrandized through a non-governance strategy, and the gradual construction of a governance system within central government departments is needed. At the settlement stage of a multicultural society, a comprehensive governance system must be built by reinforcing the role of local governments and the private sector.

Since multicultural policies naturally deal with a manifold of participating agents, the crucial task is constructing governance on allocation and links related to effective policies at the central government level, effective projects at the local government level, and projects at the private sector level. Governance for multicultural policies has interdependent relationships, but not in a way that any organization should officially become a subordinate branch of another organization. Rather, the relationships should be through providing public services and solutions through networks consisting of the central government, local governments, and organizations in the private sector. At this time, these governments and organizations consisting governance should solve and coordinate problems at a horizontal level without interdependent and vertical power relations.

## **(2) Action Plan for Realizing a Multicultural Society: Multicultural Empowerment**

The general public's discrimination and prejudice against migrants begin to be visualized with the increase of daily contact with migrants that come with the process of transitioning to a multicultural society. It is because racism, a systematic bias, is not out of ignorance of the culture of different races or ethnicities. Instead, racism is a product that is created by meeting and being in contact with migrants in daily life (Um, 2007: 51).

With the recently deepening economic slump and unstable employment, Korean people's tolerant attitudes towards migrant workers, in some measure, have vanished, and instead, there are signs of deepening emotional repulsion, barriers, and racial bias, so concerns of the resurgence of nationalism have been raised (Um, 2008). Statistical outcomes that compare migrant related statistics by nations say that xenophobia is more serious and is more likely to result in political conflicts in a country that traditionally had few experiences of migration, like Korea (Park, 2006: 108). Taking into account these factors, an increase in discrimination against foreigners can become a serious factor for conflict, impeding social integration in the future. In reality, as marriage migrant women's long term residence is now beginning to be on a large scale, and children from multicultural families are starting to grow up, these concerns gradually begin to become a reality. To solve social

problems that can occur in the process of transitioning to a multicultural society, multicultural sensitivity in general should be promoted and multicultural empowerment that shows tolerant attitudes towards other cultures is required.

Multicultural competence is referred to as the capacity to emotionally understand and sympathize with those who have cultural differences. Multicultural sensitivity and competency include open sensitivity embracing identity and cultural differences with flexible attitudes and tolerant attitudes toward other cultures where a society rapidly turns into a multicultural society. These are qualifications of citizens and an important capacity of organizational professionals, which could be highlighted in new multicultural surroundings.

Although the definition of multicultural competency differs in fields of study and by scholars, it was first used by Cross and his colleagues as they began to research cultural competency in the field of social welfare. Here, culture means overall behavioral patterns of humans including language, thinking, communication skills, behaviors, habits, beliefs, values, race, ethnicity, religion, and institutions like social organizations. If we define competence as "a capacity which professionals or organizations can help cultural belief, behavior, and desire effectively function in the way individual users or regional society have," cultural competency means "a series of coherent behavior, attitude, policy and structure facilitating providing services or effectively carrying out tasks through cooperation among social organizations or system, professionals." At this time, the agents carrying out behavior, attitudes and policies can be professional individuals themselves or can be the whole organization (Cross, Bazron, Dennis & Issacs, 1989).

When we use the term cultural competence generally, it refers to various meanings mixed with cultural sensitivity, cultural awareness, or cross-cultural skills, etc. However, there are differences among those terms. For instance, when we talk about cultural sensitivity, we mean cultural diversity and a similarity existing between groups but one that doesn't include giving preference to or putting values of right and wrong on diversity. On the other hand, cultural awareness is not constricted to recognizing cultural differences and diversity existing in society. It means recognizing individuals' values and their experiences in reality belonging to each cultural area and reflecting on the values and beliefs of their own in relation to different cultures as well. Taking it a step forward, cultural competency means, in the perspective of cultural strength, recognizing advantages, resources, and assets inherent in each culture and fundamentally turning away from negative concepts against minority cultural groups and seeing the deficits of them (deficit model) (Lum, 2005).

In the perspective of cultural competency, when we consider minority groups of migrants, they no longer are the subjects of policy for those who are passive and powerless in need of help. Instead, they become cultural mediators equipped with cultural competency built by their migration experience. Cultural competency is a step forward in that it is moving from putting values on communicative competence with minority cultures to actively evaluating cultural assets of minority groups and bringing a change in perspective toward looking at migrants as "anticipated participants," "neglected creative capital," and "cultural bridge builders" (Sassen, 1996).

McPhatter, who theorized a cultural competency model in the social welfare field, classified cultural competency into three elements: "enlightened consciousness," "grounded knowledge base," "cumulative skill proficiency" (McPhatter, 1997). Manoleas divided cultural competency into three constituents: "knowledge base," "skill base," and "value base" (Manoleas, 1994). If the definitions of other theorists are combined, cultural competency consists of three levels: first, self-awareness of the activist's own cultural background and awareness of cultural diversity of different groups; second, knowledge on diverse cultures and cultural groups; third, intervention skills suitable for culture. Such a cultural competency is not an objective which would be attained at a certain point of time, but a process with steps through accumulating adequate intervention techniques and strategies based on recognizing problems related to multi-culture (Manoleas, 1994; McPhatter, 1997; Sue & Sue, 2003; Lum, 2005; Kim, 2007). By accumulating cultural intervention techniques, self-examination of existing principles and knowledge can be ethnocentric and can help oneself adapt to newly changing multicultural surroundings. In this way, the adaptation of one's own culture by adequate acculturation is possible. In this process, the experiences and skills of cultural mediators who can connect other cultures should be actively used.

**[Table 4] Components of Multicultural Competency**

<p><b>Cultural Awareness</b></p>	<ul style="list-style-type: none"> <li>• Awareness of cultural differences and diversity existing in society</li> <li>• Awareness of an individual's values and reality experienced by individuals that belong to each cultural area</li> <li>• Self-examination of values and beliefs in relation to different cultures</li> </ul>
<p><b>Multicultural Knowledge</b></p>	<ul style="list-style-type: none"> <li>• Accumulation of in-depth knowledge of history, tradition, world views, family systems, and artistic expression possessed by agents of minority cultures</li> <li>• Cultivation of linguistic ability</li> <li>• Accurate statistics on migration and population</li> </ul>
<p><b>Accumulation of Cultural Intervention Techniques</b></p>	<ul style="list-style-type: none"> <li>• Focus on context of cultural intervention</li> <li>• Embrace suitable cultural acculturation in multicultural surroundings</li> <li>• Active use of experiences and skills of cultural mediators</li> </ul>

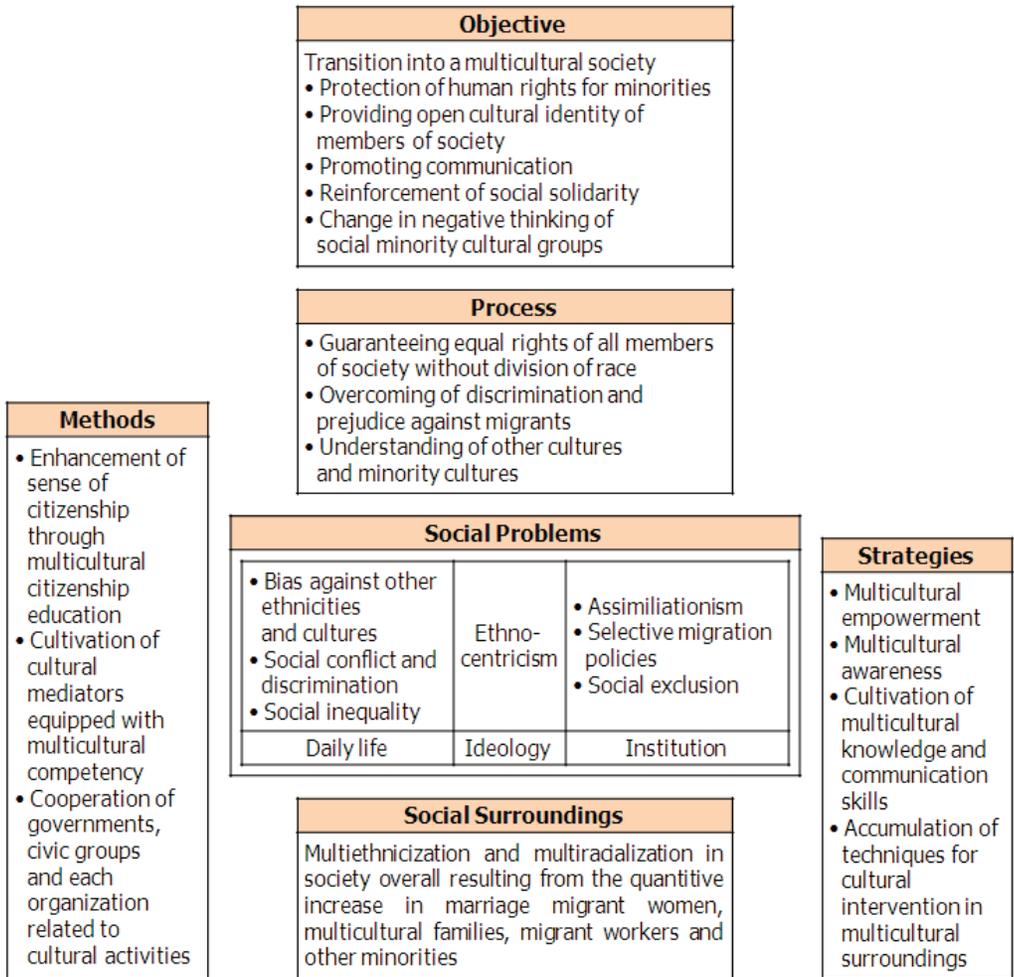
*Source: Kim, Yeun-hee; 123-124. Reconstruction of Contents of "Main Components of Multicultural Competency" (2007).*

What a multicultural society eventually should aim for is the realization of productive synergy through citizens' communication with agents of diverse ethnic and cultural backgrounds in their daily life (Kim, Hwang, Lee, 2007: 183). To fulfill this, efforts should be made to establish bilateral social integration policies based not only on integration policy of migrants but also the promotion of intercultural mutual understanding for the general public. Social integration policy is a policy for finding a means to guarantee basic human rights of migrants, provide institutional frameworks for resolving problems of discrimination and inequality based on religious, political, cultural and racial differences and make smooth the coexistence of diverse races and cultures in a multiracial and multicultural society. Targeting multicultural education on the general public is as urgently necessary as targeting citizenship education on the minorities to deepen understanding of how to coexist with diverse cultures and develop unbiased attitudes towards differences in cultures and values. This is because the task we are confronted with right now (adapting to a newly-made multicultural surrounding, living together with people with differences) is an imminent reality to the citizens of mainstream society as well, not only for migrants.

The more daily contact with diverse ethnic backgrounds caused by the rise in globalization and transnational migration increases, the more awareness and respect of cultural differences, diversity and self-respect are significantly valued. Accordingly, more significance is placed on multicultural awareness, development of multicultural knowledge, communication skills, and an accumulation of techniques for cultural intervention. From this, we can not only empower field experts but enlarge cultural competency in the government overall and societal organizations preparing to transition to a multicultural society. And, as a step forward, we can reinforce the ethics of mature citizens in this era of globalization. Considering the overall situation, significant social and policy concerns for the 21<sup>st</sup> century is to seek for multicultural competency that aims to embrace the guaranteeing of equal rights as members of society toward migrants at the institutional level, abolishing discrimination against them, understanding other cultures and minority cultures, and promoting cultural practices for overcoming discrimination and prejudice in daily life.

Migration experience becomes part of a daily experience of Korean society not only through the experience of migrants but through overseas trips, studying abroad for children, and immigration of relatives and neighbors for mainstream Koreans. Multicultural competence, in a society where transnational migration becomes part of everyday life, is not only a vital competency that professionals in the social service sector need to develop but is also being raised as a qualification for citizens as well as a cultural knowledge that all members of social and governmental organizations and individual citizens must have in multicultural circumstances. At the current stage, what is required for Korean society for multicultural empowerment is as follows: first, promoting a mature sense of citizenship through multicultural citizenship education; second, cultivating cultural mediators equipped with multicultural competency; and third, promoting cooperation among government and civic groups. Through these, efforts for institutional and structural multicultural empowerment must be made comprehensively.

**[Figure 1] Objectives and Strategies for Educational Processes for Multicultural Empowerment**



More specifically, first of all, programs for multicultural empowerment must be introduced in institutionalized school education. To put it concretely, we can introduce this in education by developing a pan-subject course, which can raise multicultural awareness and sensitivity by carrying out multicultural education in public education. In addition, diverse citizenship education should be reinforced in daily life where local governments actively support and private educational institutions and civil groups participate together. Self-improvement programs that support the development of cultural identity of migrants and is not only focused on

adaptation to Korean society should be introduced. Furthermore, spousal education for understanding the cultural differences of migrants and communicating with them and education for multicultural family members can be made into programs at the same time. Through these educations, we can consider a measure to facilitate migrants to become cultural mediators and to be trained to be multicultural education lecturers equipped with multicultural competency. Next, a means must be developed to empower multicultural competency of professionals from institutions implementing national policies to smoothly promote policies responding to multicultural settings. In addition, and above all, concrete policy plans must be sought for providing social services that grasp the life cycle of marriage migrant women and regional demands considering a multicultural reality suitable for progressing into a multicultural society. In the extended study, we take a look at public education and the development of contents of programs, which will be used in multicultural education in daily life, direction for policy development in the future, and social services suitable for multicultural surroundings.

## **5. Conclusion**

This is a prime time to prepare for transitioning into a multicultural society on a large scale. At this time, we should guarantee human rights of migrants and find a way to make and practice diverse institutional and practical measures to resolve problems of discrimination and inequality due to racial and cultural differences, including guaranteeing the right to live. Additionally, multicultural policies should be systematically established with long-term vision as well, which is related to a change in perception of the general public who will be in contact with migrants with racial and cultural differences in the real world at the everyday level, and it should also be related to promoting cultural openness.

Success or failure in transitioning to a successful multicultural society depends on diverse factors. The very first step forward in transitioning to a successful multicultural society that recognizes and respects racial and cultural differences is having tolerant attitudes towards others with differences, taking the differences not as discrimination but as diversity, reflecting on one's own cultures or values. It is because practices carried out in daily life, which is just as important as those in legal and institutional frameworks, is significant in genuine multiculturalism, which aims for all members of society to not experience discrimination and inequality because of racial and cultural differences. Taking this into account, multicultural policies in the future should go a step forward not by mere "consideration" of minorities but by the encouragement of awareness that differences in minorities can become a new asset and social tolerance can become an impetus for generating creative cultures. All these processes are part of the new multicultural empowerment process as well. ESD basically shares the same goal with multicultural empowerment of multicultural

education in the sense that they both pursue universal sympathy and a sense of responsibility as world citizens sympathize with others and respect other cultures well beyond nationalistic educational tendency.

# **APPLICATION OF ESD CONCEPT IN SCHOOL CURRICULUM:**

## **WITH FOCUS ON 'ENVIRONMENT AND GREEN GROWTH' CURRICULUM<sup>39</sup>**

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<sup>39</sup> This research was sponsored by the Korean Foundation for Advancement of Science and Creativity (KOFAC).

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<sup>40</sup> This research was prepared by seven collaborators: Joo-hoon Kim (Senior Researcher Fellow, Korea Institute for Curriculum and Evaluation), Jae-ho Shim (Researcher Fellow, Korea Institute for Curriculum and Evaluation), Geun-ho Lee (Research Associate, Korea Institute for Curriculum and Evaluation), Min-cheol Seo (Research Associate, Korea Institute for Curriculum and Evaluation), Duk-geun Kim (Research Associate, Korea Institute for Curriculum and Evaluation), Jae-young Lee (Professor, Kongju National University) and Seok-soon Park (Professor, Ewha Women's University). As Dr. Joo-hoon Kim delivered this paper at the 2<sup>nd</sup> session of the 2010 ESD Colloquium Series, his name was mentioned in this book as a representative of the collaborators.

## **I. Introduction**

A Copernicus' Revolution in our way of thinking is called for by the recent global crisis concerning environment, resources and energy if we are to find a way to sustain the current speed of development. We need to invent a new concept for growth, which promises social justice, economic development and environmental sustainability simultaneously. In this light, "green growth" is an elaborated version of the concept of sustainable development, aiming for sustainable economy, social development and environmental sustainability. To put it in other words, the "green growth" concept was conceived in order to battle environmental pollution while searching for a way to achieve sustainable development at the same time to maintain and nurture the quality of life for all people. Therefore, this concept can be applied to our living conditions in general, encompassing areas other than the environment, such as resources, industry and economy.

Accordingly, the green growth concept needs to be understood in its entirety. Since it covers various subjects other than the environment, a synthetic understanding of the relationship between ecology and socio-economic development is required.

Consequently, concrete efforts need to be made in various fields if green growth is to be materialized as a national policy goal, as the current administration proclaims. But more importantly, the Korean people need to understand and sympathize with the rightful necessity of achieving green growth. They need to learn by experience the environment-friendly lifestyle of reducing the use of resources and energy. Also, these lessons need to be put in action.

What makes this possible is education. Compared with other methods, education brings about more voluntary and continuous results. Moreover, the complexity and multidimensional character of the green growth concept itself justifies education as the most effective and vital method for long-term and fundamental changes in human lifestyle beyond mere behavioral changes.

The current administration has been endeavoring to integrate the concept of green growth into future school curriculums in various ways. Eventually, these efforts led to the establishment of the "environment and green growth" curriculum for environmental studies courses in Korean high schools, developed from the "2009 Revised School Curriculum Plans" announced by the Ministry of Education on 23 December, 2009. The backdrop for such a change is the new viewpoint on global environmental issues, the materialized definition of sustainable development, the emergence of the green growth concept, and supporting materials on the "environment and green growth" curriculum. In this paper, the characteristics of the

newly adopted "environment and green growth" educational curriculum will be clarified, together with its course objectives, contents, teaching and learning methods, evaluation and etc.

The specific aims of this paper are as follows: First, this paper aims to examine the background for the emergence of the green growth concept. Thus, its relationship with sustainable development will be cleared as well as the need for education and justification. Second, after exploring the above-mentioned tasks, this paper will deduce the specific contents for an "environment and green growth" curriculum according to priority and confirm their justifiability. Third, this paper will try to conceptualize the systematic method for delivering the curriculum most effectively, and thus, coordinate among relevant school courses concerning environment and green growth. Fourth, this paper's purpose is to formulate and suggest the appropriate methods of teaching, learning and evaluating for effective "environment and green growth" education curriculum.

## **II. The Definition of Green Growth and the Necessity of "Environment and Green Growth" Curriculum**

### **1. Backdrop for the Emergence of Green Growth<sup>41</sup>**

#### **A. Industrialization and Environmental Issue**

##### **(1) The Advancement of Scientific Technology and Human Civilization**

In the course of the history of human civilization, scientific technology has played a big role in bringing about cultural changes and different ways of thinking. An exemplary case is the process of switching from the Ptolemaic to Copernican system. The heliocentric theory of Copernicus was an important scientific discovery, which changed people's view of the world.

It was only natural for people at the time to think that the Earth, in which God's own creation (that is, humans) dwells, is at the center of the universe. This is not too surprising considering that people were imbued with a theocentric view of the world in medieval times. Standing face to face with this fixed idea, Copernicus' heliocentric theory of the universe, which came as a shock to most people, was not well received nor understood. It took some time until the general public could finally

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<sup>41</sup> This is the revised version of excerpts from the "Response Methods Against the Challenges of Climate Change and Research and Development for Education Curriculum for Green Growth," Research Report RRC 2009-12 of the Korean Institute for Curriculum and Evaluation by Joo-hoon Kim, Jae-ho Shim, Geun-ho Lee, Min-chul Seo, Duk-geun Kim and Ji-yeon Kim (2009), which was conducted as the basis of research for this paper.

grasp Copernicus' idea. Even in the modern times, some people disavow this revolutionary idea because they give more credit to what they can actually see. Nevertheless, Copernicus' suggestion served as a momentum for breaking away from the theocentric world view, enabling people to look at themselves objectively. As this was the starting point of the Renaissance, many scholars of human civilization record this event as one of the most important turning points in world history. It can be said that the new discovery or invention of scientific and technological theories have spearheaded changes in people's view of the world and even all of human civilization itself.

The current global environmental challenges will not be resolved based on the technology, or way of thinking and culture of today. The present time calls for a Copernican revolution in our way of thinking in order to come up with a revolutionary solution for imminent environmental issues which threaten our earth.

## **(2) The Development of the Internal Combustion Engine and the Rapid Increase in Fossil Fuel Consumption**

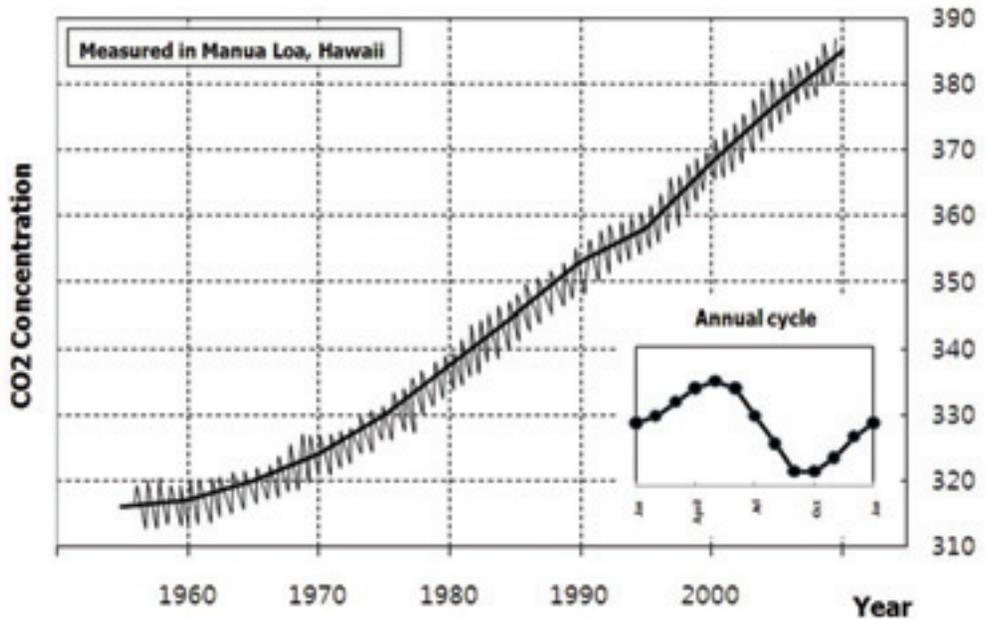
Before the Industrial Revolution, people used the strength of humans and animals to harvest food, and used the energy from the sun, wind and water existing in nature. However, after the Industrial Revolution, the development of the internal combustion engine and scientific technology enabled people to use fossil fuels accumulated inside the earth, such as coal and petroleum. Also, the rise in food productivity, water use and logistical capacity rapidly expanded the range of activities and capabilities of mankind. The invention of the steam engine, which enabled us to use the power of machines instead of that of humans and animals, was a major change in the history of mankind. Following the invention of the steam engine, the invention of the internal combustion engine during the Industrial Revolution rapidly expanded the range of activities of humans. As a result, the living conditions of humans improved rapidly.

## **(3) Counter Effects of Scientific and Technological Development of Civilization**

The civilization of science and technology, developed for the convenience of humans, is nevertheless emerging as the biggest threat to the existence of human beings. In the modern age, an enormous amount of fossil fuels is being consumed as fuels for various industries such as for transportation and for heating. As a consequence, the density of greenhouse gases, such as carbon dioxide, is increasing rapidly and in turn, causing a greenhouse effect, changing the earth's environment.

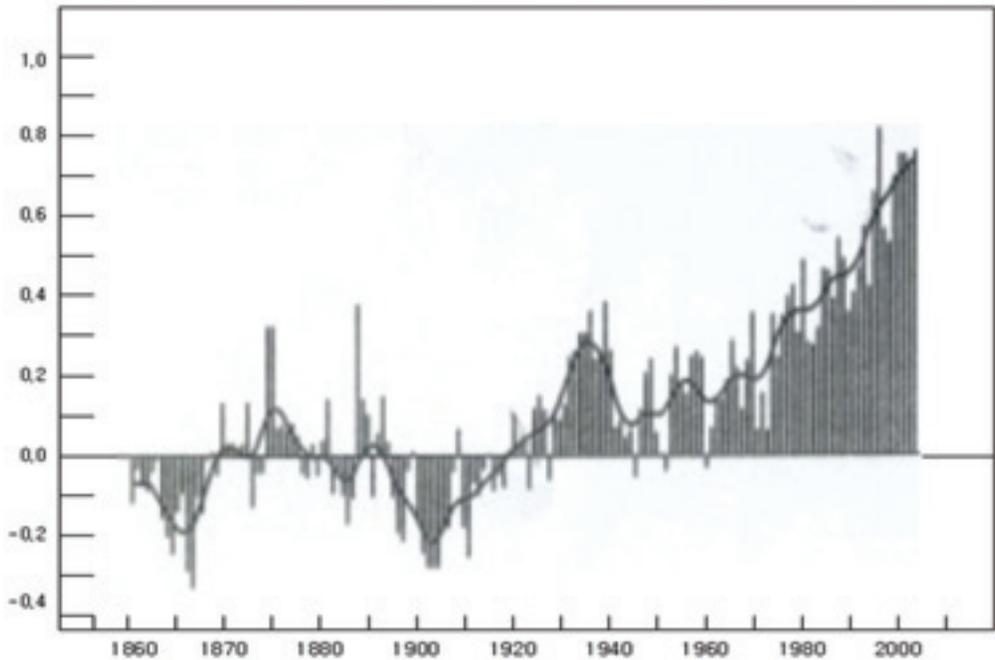
The density of carbon dioxide, which has the largest effect among other greenhouse gases, was 280ppm in the early 1800's, 315ppm in the 1960's, and is as much as 380ppm recently, showing rapid increase (see [Figure 1]).

**[Figure 1] Change of Carbon Dioxide Density in the Atmosphere**



Change in global temperature is closely related to the density of greenhouse gases such as carbon dioxide, which is known to cause the rise in global temperature. Especially since the 1900's, the rate of temperature increase has been rapidly accelerating (Jeffery D. S., 2008; Lester R. B., 2001) (see [Figure 2]).

**[Figure 2] Average Surface Temperature of the Earth (1850-2005)**



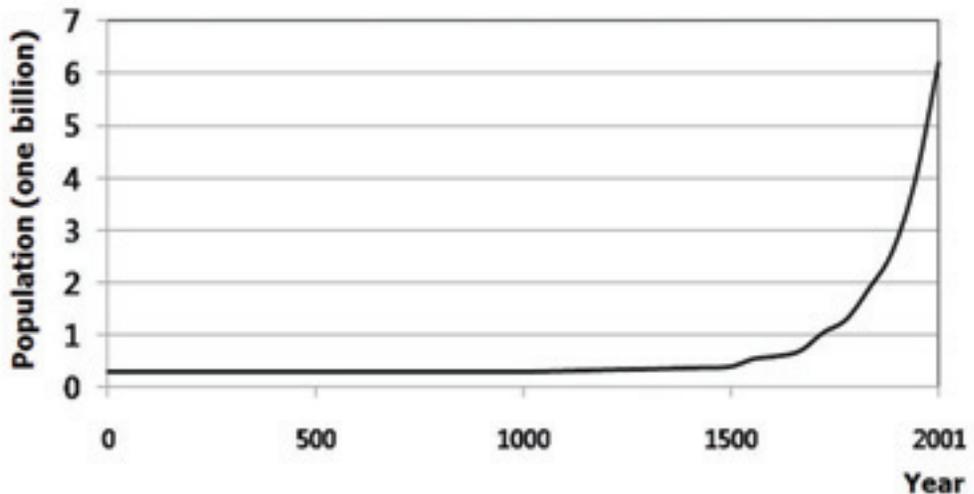
For this reason, the global community made efforts to curb the increase of carbon dioxide density by preparing the Climate Change Convention within the Kyoto Protocol, and it still continues its efforts to implement the agreements on decreasing the amount of greenhouse gas emissions signed by countries around the world.

## **B. Population Growth and the Environment**

### **(1) Environmental Issues Concerning Population Growth**

The world population has been gradually increasing until the 1800's but has been rapidly increasing since 1900. The rapid increase in population was caused by many factors. The industrial revolution solved the food shortage problem. Living conditions improved since the development of science and technology. Also, the average life span of people increased due to medical advancement (see [Figure 3]).

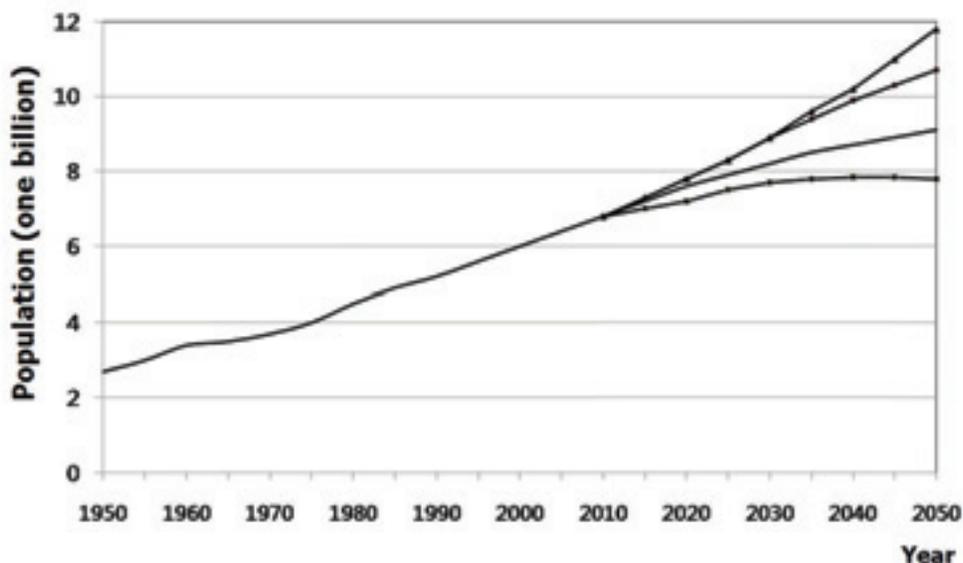
**[Figure 3] World Population**



In 2000, the world population was 6,120,000,000. By 2010, the population will have reached 6.91 billion (National Statistical Office, 2006). This shows that the world population has increased by 0.8 billion during the past 10 years. This figure par with the amount of entire population growth since the birth of humanity until 1800, which proves that the population growth rate is accelerating phenomenally.

The expected population growth figure by 2050, presuming that the current birth rate will be steadily maintained, is 11.7 billion. However, since the birth rate will decrease in reality, we can expect a lower figure. Even in the case of a lower birth rate than the current rate, we assume that the population will vary. A relatively high estimate is 10.6 billion, a middle range estimate is 9.1 billion, and a low range estimate is 7.8 billion, according to varying birth rate predictions. Among these figures, 9.1 billion is the most likely estimate for world population in 2050 (Jeffery D. S., 2008) (see [Figure 4]).

**[Figure 4] Population Growth until 2050**



What would happen if human influence on nature increases with the development of science and technology, and if the quality of life improves consistently? As of 2009, out of the 6.82 billion people on Earth, 1.2 billion of them enjoy the standard of living of developed countries.<sup>42</sup> If we suppose that about 3.4 billion people in the world, about half of the total population, maintains the current standard of living owing to sustainable economic growth, how much green house gas will be emitted and will there be enough natural resources to support this level of economic growth? Unless there are alternate resources, energy development, and revolutionary change in our way of thinking, human existence will be seriously threatened.

## **(2) Environmental Issues Concerning Urbanization**

Since the birth of humanity, humans have led a nomadic life for a long time. The development of irrigation facilities, production of fertilizers, mechanization of agriculture, and improvement of livestock breeds have enabled better agricultural production after the 18<sup>th</sup> Century. Thus, rapid increase in food production has led to a population spike, which enabled urbanization. Around the year 1800, about 10%

<sup>42</sup> Statistical data provided by Korean Statistical Information Service (KOSIS).

of the population lived in urban areas, but this ratio increased to 13% in 1900, 29% in 1950, 47% in 2000, and reached 50% in 2007 (Jeffery D. S., 2008). Urban areas cover only 2% of the earth's surface, but half of the world's population lives in cities, emitting 78% of carbon dioxide, 60% of domestic water, and 76% of lumber (Lester R. B., 2001). So many people living in such cramped areas, while using so many resources and discharging by-products, causes great damage to earth's ecology. Herewith, urban problems arise. Consequently, when dealing with environmental or green growth issues, the problems of urbanization must be considered important, and it must also become the priority concern for achieving green growth.

### **C. Economic Development and Improvement of Living Standards**

#### **(1) Living Standards Improved by Sustainable Economic Development**

People's living standards have been improving continuously due to the development of agricultural technology and industrialization since the Industrial Revolution. Before 1800, the global average for per capita income was less than \$1,000, but only 200 years later, in 2000, this figure rose to \$6,000 (Jeffery D. S., 2008). Improved living standards are indeed desirable, but its effects on the environment are increasing. As the rate of economic development is accelerating in developing countries and less-developed countries with large populations, such as China and India, human influence on the environment is expected to increase even more.

#### **(2) Environmental Influence of Economic Growth in Largely Populated Nations and the Depletion of Resources**

It is desirable and commendable that the living standards in less-developed and developing countries are improving due to economic development, and countries in the world should make efforts in this direction. However, countries need to seek to fight the counter-effects as well. In particular, China, with a population of more than 1.3 billion demonstrated an average economic growth rate of 9.83% from 2001 to 2006, and India with 1.2 billion populations showed a high growth rate of 7.43% during in the same period.<sup>43</sup> National per capita income of China in 2006 was \$2,656, while India's figure was not as high, only \$908. China's per capita income in 2001 was \$1,305, but five years later in 2006, the economic growth rate kept at 9.83% per annum, and the income doubled to \$2,656.<sup>44</sup> If China maintains this

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<sup>43</sup> KOSIS Statistical Data.

<sup>44</sup> KOSIS Statistical Data.

speed of growth, in theory, the per capita will reach \$5,000 in five years (2011), and reach \$10,000 in 10 years (2016).<sup>45</sup>

In these nations, hundreds of millions of people still suffer from hunger, and many of them live with less than the minimum cost of living. Therefore, enabling these nations to sustain economic growth is a very important and necessary task as a way of ensuring basic human rights. However, considering how the 1.2 billion people in developed countries have caused today's environmental and resource problems to achieve today's economic growth, what would it take for three times more people to reach the per capita income of developed countries?<sup>46</sup>

#### **D. Green Growth as the Way for Sustainable Development**

In the end, we can conclude that with the current state of population, energy and resources and the environment, sustainable development is impossible. But it is also undesirable that the current generation will be unable to tackle environmental problems and pass on the remaining questions to future generations. Moreover, considering that there are many of those who still suffer from hunger and diseases in less-developed countries living at less than the minimum level of living conditions, we must realize sustainable development at any cost.

At current conditions of the earth's environment, green growth is suggested as a solution for continuing sustainable development. That is, if the current population, economic development rate, state of energy and resources, and environment is maintained, sustainable development cannot be realized via existing environmental conservation methods without systematic restructuring. Therefore, the way to overcome the current situation and enable sustainable development is the realization of green growth based on the development of green growth technology, creation of green life environment, reinvention of green culture, and establishment of environmental ethics.

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<sup>45</sup> The rate of increase of average income is kept low in nations with high per capita income, and the rate of increase of income in countries with low income is kept high. As a result, as time goes by, the difference of income decreases (economic convergence). That is, the growth rate of developing or less-developed countries is high; the income difference between developed and less-developed countries decreases with time. Therefore, when the national per capita income of China and India is low, those countries can achieve a high economic growth rate, but as the income increases, the growth rate tends to decrease. In fact, such rate of growth is considered unrealistic.

<sup>46</sup> The effect of population and per capita income level on the environment is proportionate to the multiplication of population and per capita income. Thus, the more the population and income, the bigger the influence on environment. (Jeffery D. S., 2008)

## **2. Definition of Sustainable Development<sup>47</sup>**

### **A. Understanding Sustainable Development**

During discussions on sustainable development, emphasis is commonly made on the need for de-emphasizing economic and instrumental rationality based on materialism. Also, the need for de-emphasis on the technology-centered way of life and the need to offer a new way of life is often mentioned. Special emphasis is given to ecological principles and environmentalist views, which have been overlooked during prior discussions, in order to come up with fundamental solutions to the many problems that threaten our global society. Indeed, sustainable development is a concrete image of an ideal society, offering the vision for a future global society, which overcame the existing problems of today's life and prevented today's potential problems, enabling us to envision a fundamental path for a better future.

The concept of sustainable development is made up of three systems that are inter-related with each other: environmental sustainability, economic sustainability and social sustainability. This is a result of the compromise among numerous conflicting arguments, that of environmentalist groups, experts, developed nations and developing nations. The key content of sustainable development, which is to achieve "development that satisfies the needs of the current generation without compromising the needs of future generations," calls for the need to achieve development and growth without crossing the capacity limits that our natural environment can accommodate. In order not to damage the quantity and quality of the forest, soil, fresh water, ground water, sea water and atmosphere, we need to limit our level of consumption to allow for their circulation. Only in this way can the natural environment be conserved.

Economized consumption is thus called for, and consumption of recycled and eco-friendly products is suggested as a practical solution (environmental sustainability). Also, we need to ensure that environmental conservation goes together with economic growth. Therefore, clean energy and energy-efficient production technology should be introduced. Furthermore, our industry needs to be restructured into an energy-efficient one. This way, consumption and productivity can be kept at the same level, while saving job opportunities at the same time (economic sustainability). Such reciprocal sustainability between the environment and the economy can be achieved only through community sustenance. Community sustenance is made possible when it is defined within a generation. That is, a

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<sup>47</sup> This part is a revised excerpt from Geun-ho Lee, Sang-joon Nam, Chan-guk Kim (2009), "Studies on How to Integrate Green Growth Contents into Curriculum." 2008. Reply Report for Entrusted Assignment on Policy Research for the Ministry of Education, Science and Technology.

community can survive when it satisfies the basic needs of its members, when it guarantees equality and justice, and when it provides education, technology and health for its components (social sustainability).

Environmental sustainability, economic sustainability, and social sustainability are closely linked with each other rather than being individually separated from each other, and therefore calls for common efforts made by all. By all I mean global society as a whole, surpassing national borders. This is because in the end, the social problem is the problem of poverty and development on the global scale, just as much as the environmental problem is a global one and the economic problem is a North-South issue. In this light, "common but differentiated responsibility" was proposed in the Rio Declaration. According to this principle, developed nations must encourage changes in daily habits and consumption patterns and contribute to solving the global poverty issue. Similarly, developing nations must go through changes to achieve sustainable growth in both economy and society.

### **3. Sustainable Development and Green Growth<sup>48</sup>**

#### **A. Criticisms against Sustainable Development**

So far, the concept of sustainable development was based on the reflection on our way of life and development. Thus, it emphasizes the paradigm shift to a new socio-economic system and lifestyle that focuses on ecological principles and an environmental point of view. Wisely using the natural ecology, which is the basis of human activities in the economic and social sphere, we may enrich ecology and human lives, thereby reproducing more developed ecology and society, in a society rooted on healthy ecology. But until now, the definition of sustainable development, provided through various channels, has been too simple and too abstract to overcome its innate complexity and self-contradiction.

Bartemus argued that we must interpret sustainable development as a practical goal rather than as a concept (Bartemus, 1999). But sustainable development has been unable to provide a concrete basis for practical measures since the concept itself is too vague. As many scholars have argued, the description for sustainable development was too abstract and vague in fact. People were not able to reach agreement on the concept of sustainable development due to differing interpretations and a lack of understanding. Communication problems between relevant stake-holders arose when applying and practicing sustainable development because each of them emphasized interests of their own according to their positions.

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<sup>48</sup> This part is a revised excerpt from Geun-ho Lee, Sang-joon Nam, Chan-guk Kim (2009), "Studies on How to Integrate Green Growth Contents into Curriculum." 2008. Reply Report for Entrusted Assignment on Policy Research for the Ministry of Education, Science and Technology.

Under such circumstances, green growth entered a stage, with the attempt to search for socio-economic practices of sustainable development, within the framework of "environmental harmony," which had been treated as an abstract slogan before.

Modern environmental problems have been caused by population growth, industrialization, urbanization and bigger influence of humans on the environment caused by improved living conditions. With the current social, economic and environmental conditions, it is impossible to conserve the Earth's environment while achieving sustainable growth. Hence, the concept of green growth was created to solve these global issues and to make sustainable growth achievable.

Most importantly, green growth is a newly adopted version of sustainable development, suited for the situation in Korea. It emphasizes environmental sustainability and social and economic sustainability. It is a policy goal requiring specific policy measures. Korea has traditionally maintained a development model requiring high consumption of fossil fuels. Korea is now in a disadvantageous position in the international trading system after the Kyoto Protocol since it is susceptible to energy crisis and has low environmental sustainability. Furthermore, Korea is in danger of losing competitiveness in the coming green technology era because it is behind in the trends of eco-friendly technology. Green growth is needed to reform the industrial system that allows high-emission of carbon dioxide, to achieve ecologically efficient production by acquiring clean energy technology and green technology. If Korea is to become a leading country in the carbon trading market, maintaining sustainable economic growth and creating jobs at the same time, green growth is also needed.

Green growth pursued by Korea not only includes economic changes but also social and cultural changes. Green growth of Korea is a grand vision that encompasses the entire social and cultural policy, which includes the tax system, carbon tracing, production and consumption of eco-friendly products, eco-friendly management, ecological towns, ecology schools, eco-friendly way of life, and establishment of eco-friendly ethics. It not only aims for economic development, but integrates all policy measures that aim for green revolution and the betterment of quality of life (Presidential Committee on Green Growth, 2009).

## **B. What is Green Growth?**

Green growth is not a fixed concept with only one definite meaning. It is reasonable to say that it is a concept that we need to continuously seek to define, based on consensus. Therefore, in order to deduct a meaning most suitable for our

reality and situation, we need to examine the various conceptual definitions suggested for green growth.

Firstly, the "Seoul Initiative for Green Growth" defines green growth as "environmentally sustainable development, which decreases the environmental pressure caused by economic growth and maintains environmental capacity for the future generation at the same time, and which is a new challenge and paradigm for humankind to achieve economic and social growth." Accordingly, three policy objectives were proposed, which are "to promote environmental sustainability," "to improve environmental results," and "to strengthen the role of environment as the momentum for economic growth." This provides the key contents for green growth, which is currently being discussed.

In Article 2-2 of the Low Carbon Green Growth Act, green growth is defined as "growth in which economy and environment achieve harmony, such as reducing the environmental damages caused by climate change by using energy and resources effectively, at the same time securing new momentum for growth and creating new jobs by inventing clean energy and by researching and developing green growth technology." Here, the expression "reducing the environmental damages caused by climate change by using energy and resources effectively" includes the concepts of environmental efficiency and environmental effectiveness. The former means the minimization of resource use while keeping up steady growth, and the latter means the minimization of environmental pollution while using the same resources. Also, the expression "securing new momentum for growth and creating new jobs by inventing clean energy and by researching and developing green growth technology" implies a new national growth strategy which aims for sustainable development by minimizing resource use and environmental pollution and creating new jobs and new momentum for growth at the same time, based on green growth technology and clean energy. Also, the expression "growth in which economy and environment achieve harmony" is a new growth paradigm, which implies the will to transform the former growth pattern into a more environment-friendly one through a system of a virtuous cycle of environment and economy. In conclusion, green growth is a virtuous cycle, which pursues economic growth while minimizing resource use and environmental pollution and which utilizes this as the momentum for growth by repeating this cycle. The growth strategy of the Industrial Age, which seeks only economic effectiveness, is to be overcome by pursuing growth that is centered on environmental effectiveness. By considering both economy and environment, we can create a virtuous cycle between the two, thereby contributing to economic growth while protecting the environment and utilizing the environment as the new momentum.

Based on the above-mentioned arrangement, analysis and synthesis of the definitions, this paper defines the concept of green growth as follows:

Green growth means “an economic growth, which sustains and is spurred on by the environment, so that everyone’s quality of life can be improved.”<sup>49</sup> Here, “everyone” means that individuals, companies, and nations (including less-developed, developing and developed nations) can equally pursue economic development according to their needs (respecting basic human rights and equality). “Improvement of quality of life” is the final goal of green growth, and this enables us to pursue diverse sets of values for improving quality of life. Quality of life is very subjective, and depending on personal preferences, there can be situations where economic development is sacrificed for the sake of environmental quality. From education’s point of view, it is important to ensure that such various points of views of individuals are respected. “Economic growth which sustains the environment” means that economic development should not put excessive pressure on the environment or destroy it, and “economic growth spurred on by the environment” means that we should understand environmental restrictions as the impetus, instead of obstacles, to economic development.

Such a definition of green growth can be examined in several different ways. First, from the “environmental point of view,” it pursues the harmony between environmental conservation and economic growth, and the conversion of energy sources from fossil fuels to green (clean) energy. From the “economic point of view,” instead of viewing the various regulations for environmental conservation as impediments for growth, we should recognize green industry as an opportunity for job creation and a new impetus for growth. From the “science and technology point of view,” green growth demonstrates the will to actively involve in the development of scientific technology which causes little environmental pollution (the IT industry, new development of energy and resource technology, carbon line-up and storage technology, enhancing the efficiency of energy and resource). Lastly, from the “social and cultural point of view,” green growth aspires for the creation of a social culture that has a smaller impact on the environment (carbon emission rights, environment and energy tax, social institution minimizing off-line movements such as homeworking, creation of new values which sublimate competitive development, nurturing of global citizens). As a result, green growth tries to achieve better quality of life by seeking synthetic sustainable development in the fields of environment, society and economy.<sup>50</sup>

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<sup>49</sup> This basic concept of green growth is referenced from “Environmentally sustainable economic growth for the improved well being for all” defined by Rae-kwon Jung ([http://economics.yonsei.ac.kr/bk21/bbs/download1.php?code=product03&number=8&filename=How\\_to\\_green\\_our\\_Growth\\_yonseiUniv.ppt](http://economics.yonsei.ac.kr/bk21/bbs/download1.php?code=product03&number=8&filename=How_to_green_our_Growth_yonseiUniv.ppt)).

<sup>50</sup> In “Green Growth National Strategy” (July 2009) published by the Presidential Committee for Green Growth, suggested the following points as the three main strategies for green growth and the 10 policy directives.

## **C. The Interrelationship between Sustainable Development and Green Growth**

The concept of sustainable development is so comprehensive and broad that the concept of green growth is included in it. But if we can say that the green growth concept includes new contents overlooked or unthought of by the sustainable development concept, then we should apply a whole new approach to the concept. That is why we need to expand and deepen the concept of sustainable development so that it can encompass the green growth concept. In this light, we can say that the green growth concept is viable, however, its relationship with sustainable development has been established. Even if the concept is understood as one that is included in the sustainable development concept by most people nowadays, in the future, it can evolve into one that can compete with or substitute for the concept of sustainable development. There is no everlasting concept invented by human civilization. Like all other concepts that have gone through continuous changes in different eras and situations like an organism, the concept of sustainable development will go through the same processes. As mentioned before, there are currently 1.2 billion people enjoying the standard of living of developed countries and more than 3 billion who live in rapidly developing countries such as China, India and Indonesia. If the current standard of living in developed countries is maintained and if energy and resources are continuously expended at the current level, all of the energy and resources on Earth will be exhausted within 20-30 years. (If the rate of resource use is maintained, natural oil will be exhausted within 70 years, coal within 150 years, Uranium within 70 years. If the number of people enjoying the standard of living of developed countries increases by three times, the time limit for such resource use will be decreased to 1/3 of current estimation.).

Therefore, in order to guarantee sustainable development of mankind, we need to resolve the issue concerning depletion of energy and resources. But for now, there is no evidence that these issues are being tackled, and this poses serious threats to the sustainability of the human race. In order to fix this, we urgently need to develop new science technology, and in some cases, we even need to establish a new value system that gives up economic growth.

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Firstly, as strategy directives for "Adaptation to Climate Change and Energy Independence," three policy directives were offered ("1. Effective decrease of greenhouse gas," "2. Energy independence from oil," "3. Capacity-building for adaptation to climate change"), and as "Power Creation for New Growth" strategy, 4 policy directives were offered ("4. Development of green technology and harnessing growth," "5. Creation and development of green industry," "6. Advanced industry structure," "7. Building platform for green economy,"), and as strategy for "Heightening living standards and national prestige" three policy directives were offered ("8. Creation of green territory and transportation," "9. Green revolution for livelihood," "10. Realizing a model nation for global green growth").

If we are to make sustainable development possible, we need to synthetically examine the problems of population explosion and improvement of living standards through economic development. The fact that the impact of population of per capita income is proportionate to their multiplication (Jeffery D. S., 2008) poses a fundamental question: Which measures are we to take to prevent population growth? From which viewpoint should we look at economic growth? In the less-developed countries or developing countries, which suffer from poverty, economic growth is a matter of fundamental human rights. On the contrary, in developed countries with more than \$30,000-50,000 per capita income level, the question of whether continuous economic growth is to be pursued for even better living standards is to be reconsidered under the present circumstances of resource deficiency and global environmental problems.

As such, there needs to be a policy measure that allows less-developed or developing countries to benefit from the growth of developed countries. In order to prepare such a measure, we need to reexamine thoroughly whether the concept of sustainable development is appropriate, and how we should interpret the concept of sustainable development. When economic development threatens human survival, instead of contributing to the sustainable development of humankind, such economic development might not be worth pursuing. In this sense, we need to develop a new indicator which substitutes the former concept of GDP. This way, we need to develop a new value system or ethical view that refrains from excessive economic development for the sake of sustainable development. To achieve human sustainability, we need to define what the quality of life is, whether economic growth improves the quality of life, and which value should be prioritized. And thus, a new value system or ethical viewpoint needs to be established.

In addition, we need to come up with a new social system and a new technology for the convergence of information and communication in order to solve global environmental problems while improving the quality of human life. For example, from the economic point of view, telecommuting cuts down demand for transportation. It also cuts down the demand for various natural resources needed for social overhead capital such as construction and roads. This enables conservation of resources and huge energy-cuts. From the societal point of view, with less commuting time, people gain more free time. This solves child care problems and allows for more active involvement of the female workforce in the social and economic sphere. The female workforce is a source for vitality in an aging society with a falling birthrate such as Korea. The transportation system which has converged with information and communication technologies, currently operated in the metropolitan area, is also a source of pride for Korea. This new system shifted the focus of the metropolitan transportation system from automobiles to public transportation, thereby lessening environmental pollution, transportation costs and

the enormous social overhead capital needed for building roads. In addition, the new system also contributes to the improvement of living conditions, by allowing modern city dwellers to live healthier lives, wasting less time in traffic jams and gaining more time for exercise.

As I have already mentioned, the problem caused by the effects of climate change and the depletion of energy and resources needs to be addressed as soon as possible. If this problem is not dealt with in time, sustainable development of mankind will be threatened. Therefore, we need a more strategic approach to these urgent problems under the current limits of available resources and budget. For example, instead of placing the same importance on all issues, we need to give priority to issues that need urgent response and can have huge ripple effects. Therefore, we need to make policies which aim for making recycling a daily habit, developing energy technologies for reducing carbon emission, discovering alternative energy resources, changing social infrastructure, promoting international cooperation, and development of environmental ethics which provides new perspective on the environment. Then, we may be able to make sustainable development come true by alleviating or resolving the problems of climate change, depletion of energy and resources, environmental pollution and population explosion. It is important that we employ an efficient strategy which concentrates on the improvement of quality of life for all people. From this perspective, we need to be able to expand and deepen the concept of sustainable development. This kind of development strategy is green growth.

#### **4. The Need for Introducing the “Environment and Green Growth” Curriculum**

As mentioned, if the problems of climate change, global warming and depletion of resources cannot be satisfactorily resolved, then the quality of life of mankind will fall tremendously, thus posing a threat to human survival and civilization. Furthermore, the serious problem is that there is not enough time to solve these problems. Heads of states from 130 nations gathered at the World Climate Summit in December 2009 to prepare follow-up measures for the Kyoto Protocol. Here, they failed to come up with a new agreement, which substitutes the Kyoto Protocol. However, their gathering demonstrates how pandemic and urgent this global problem is, seeing that so many official leaders came together in one place to talk about a single issue, climate change.

The environmental problem of today does not stop at the environment but goes further into the realms of politics, economics, business, society, culture, and everyday life. Consequently, it has become a high priority, key issue when planning policy and making decisions. It is time that we consider the environmental problem

in our every deed in every sector if we are to make well-founded decisions. Only this way, can we ensure policy success.

The Korean administration has declared “low-carbon green growth” as the new national vision of Korea. As national development strategy, the government will be administrating policies of green growth. Specifically, the government is promoting a five-year plan for green growth after installing the Presidential Committee on Green Growth (Presidential Committee on Green Growth, 2009). The Global Green Growth Research Institution was established to actively promote global green growth.

Low-carbon green growth has become an important global issue, but it is not sufficiently reflected in school curriculum. But recently, we can say that the current state of affairs is reflected in school curriculums since the 2007 Amended National Curriculum included the “environment” curriculum as an elective course in Korean middle schools and high schools. Especially for the high school “environment” curriculum, we can say that the recent discussion on environmental problems has been included (Ministry of Education and Human Resources, 2007a; Ministry of Education and Human Resources, 2007b).

However, the “environment” curriculum, which was revised in 2007 is not enough considering the seriousness of global warming and environmental pollution caused by the growth of economy and population as well as the depletion of energy and resources. In the curriculum, contents on various subjects such as climate change, global warming, depletion of fossil fuels and natural resources, environmental ethics and values, has been included, but not sufficiently. Also, we may face difficulty when trying to approach the environment issue from a synthetic and integrative viewpoint as there is little emphasis on the need for social, cultural or technical innovation to solve environmental problems and to achieve economic and social development.

Therefore, an “environment and green growth” curriculum should be introduced in Korean high schools. Basic knowledge should be provided to students since they live in the age of low-carbon green growth. This way, we can nurture the future world leaders of green growth.

### **III. Direction for Revision of “Environment and Green Growth” Curriculum and Its Main Contents**

#### **1. Direction for Revision of School Curriculum**

The newly developed “Environment and Green Growth” curriculum for Korean high schools is based on the 2007 Revised School Curriculum for “environment.”

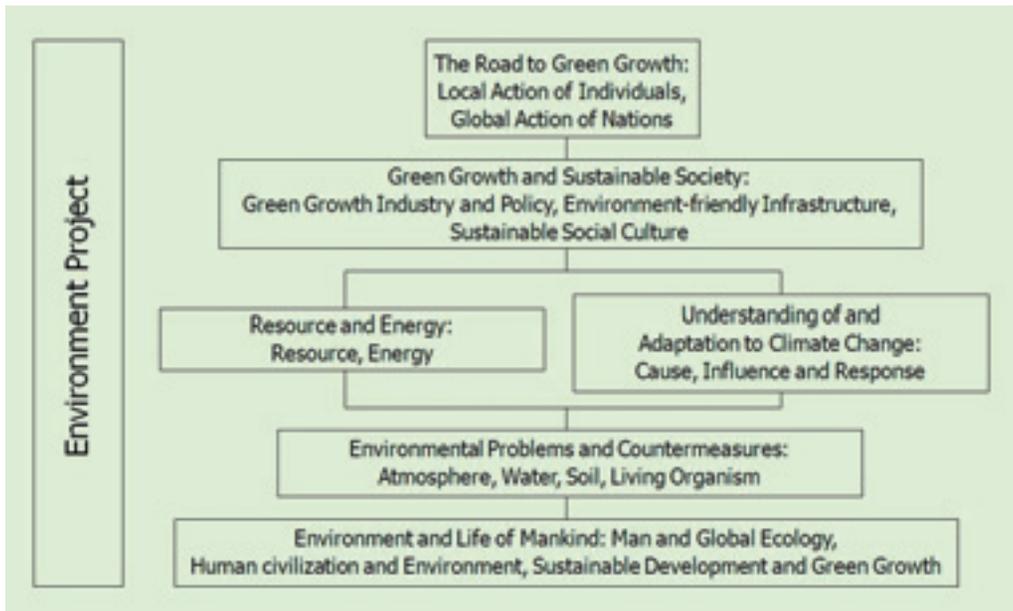
This “environment” course includes contents on response methods for climate change and the concept of sustainable development, unlike the 7<sup>th</sup> National Education Curriculum. But it failed to concretize the concept of sustainable development or to structurize the concept in the large sense. It also has not succeeded in integrating the concept of green growth. In other words, the 2007 Revised School Curriculum for “environment” has indeed included the concept of sustainable development by dealing with the problem of climate change caused by greenhouse gas emission and depletion of energy and resources but has not been able to substantialize the concept of sustainable development or the concept of green growth from a broad point of view. In order to overcome these shortcomings, the Ministry of Education, Science and Technology has developed the “Environment and Green Growth” Education Curriculum (Joo-hoon Kim, Jae-ho Shim, Geun-ho Lee, Min-cheul Seo, Duk-geun Kim, Jae-young Lee, Seok-soon Park, 2010) and announced it as the school curriculum (Ministry of Education, Science and Technology, 2009), in consideration of the following items.

### **A. Strengthening of the Contents Related to the Green Growth Concept Following Its Introduction to School Curriculum**

The biggest characteristic of this curriculum is, as shown clearly in the title of the course, the adoption of the green growth concept. As the former education curriculum was focused on the concept of environment and sustainable development, the new curriculum gives priority to environment and green growth.

More specifically, it starts the first major chapter by introducing the concept of sustainable development but concludes with green growth. The second major chapter deals with the relationship between existing environmental problems and humans, as well as understanding on and measures for it. This chapter is an abridged version of the former one. In the third major chapter, the resource and energy problem is emphasized. Also, the chapter sets up a new unit on the type of resource and energy and how they are used, thus enabling the students to participate in an in-depth study of the problems related to the use of resources. Climate change, which was part of a medium chapter before, forms a single major chapter now, allowing students to concentrate on its causes, influence, and countermeasures. The chapter on “green growth and sustainable society,” which introduces an alternative lifestyle, not only inherits the big chapter on “sustainable development and life style” but also emphasizes the medium chapter on “green industry and policy,” thus offering a thorough study on the concept of green growth. If we demonstrate the structure of these contents, it will be as [Figure 5] shown below:

**[Figure 5] Structure of Contents on “Environment and Green Growth”**



## **B. Introduction of Environment Project**

The second characteristic of this curriculum is the full-scale introduction of “environment project,” meaning that the environment course must have a practical basis. In the new curriculum, “environment project” covers the entire education curriculum. For this purpose, it proceeds all other chapters. Putting “environment project” into practice is strongly recommended in textbooks and field education.

## **C. Strengthening a Comprehensive Approach to Environmental Problems**

The environmental problem is not a problem of the environment only. We all know that when we are looking at environmental problems, we need to synthetically understand all the factors that interact with the environment. But the former “environment” curriculum was insufficient for representing this kind of synthetic approach. But the concept of green growth is a response to the climate change and depletion of energy and resources caused by the overconsumption of energy and resources for economic and social activities. Therefore, it is a concept that must be approached comprehensively because it concerns many factors other than just the environment. Hence, this new curriculum accentuates the relationship among environment, society and economy in the first major chapter. Here, human activities,

such as industry and consumption, are blamed for environmental problems. Also, in the major chapters that seek solutions, emphasis was given to environmental-friendly technology, environmental-friendly industry and environmental-friendly infrastructure. This attempt was made to guarantee a synthetic approach.

#### **D. Emphasis on Performance Assessment**

This curriculum puts emphasis on performance assessment, as the introduction of “environment project” implies. Performance assessment includes the whole process of implementing the “environment project.” Students are provided with opportunities to participate in environmental and social activities. They can perform evaluation on activities linked with schools or local communities. Since the Admissions Office System is the new educational trend, active participation in project activities can be encouraged by such emphasis on student activities. Furthermore, in the process of project implementation, various kinds of products should be created. Such results should be recorded, managed and archived in the form of a portfolio. Also, teachers or related staff are required to grade students in detail according to their level of participation and achievement. These records will help students seek a career path. They will also be useful resources for the Admissions Office System.

### **3. Revised Parts of Curriculum and Contents of Curriculum**

#### **A. Revised Parts**

The revised parts of the new “environment and green growth” curriculum, which was revised in the above-mentioned direction, includes the areas of character, goal, content, teaching method, and evaluation as indicated in the chart below.

In “character,” five factors of evaluation are indicated, including the background for course selection, purpose of course selection, linkage with other courses, main content and key point, main teaching and learning methods. In terms of character, the 2009 revised “environment and green growth” course is “a course selected for the realization of sustainable development and low-carbon green growth by overcoming the global environment and energy crisis” because “sustainability is being threatened by climate change, decreasing biological diversity and depletion of energy resources.”

Description for the “goal” includes the overall aim, cognitive realm, functional realm, definitive realm and participation through practice. Based on cognitive, functional, and definitive goals, the course “aims to nurture global citizens who

contribute to achieving high living standards and realizing a sustainable low-carbon green society.”

“Content” is composed of seven sections, which are environment project, environment and human life, environmental problems and countermeasures, resource and energy, understanding of and response to climate change, green growth and sustainable society, and the road to green society. A major characteristic is that understanding of and response to climate change has become an independent section. Also, contents related to green growth such as “green growth and sustainable society” and “the road to green society” have been strengthened. Moreover, the environment project is recommended to be introduced in the first chapter, so that teaching and learning can be conducted with project method from the second chapter to the last chapter.

In the “teaching and learning method,” there are 11 sections describing the teaching methods for “environment and green growth” more concretely and thoroughly than ever. Those sections are: securing maximum amount of time, emphasis on interdisciplinary character, introduction of teaching methods for environment project, teaching by creative experience and linkage to socio-environmental education programs, methods of reorganizing the contents, teaching by linkage with other subjects, utilizing best practices within and outside Korea, utilizing teaching and learning methods for encouraging interaction, emphasizing the production/distribution/sharing of environmental information, nurturing environmental sensibility through experimental activities, and strengthening the linkage with career education. Due to the growing importance of “environment and green growth,” the following sections have been newly included: securing maximum amount of time, introduction of teaching methods for environment project, utilizing best practices within and outside Korea, and emphasizing the production/distribution/sharing of environmental information.

In “evaluation,” the following five sections have been offered: emphasis on balanced evaluation for knowledge/function/attitude and consistent evaluation on goal/content/method, encouraging the use of various evaluation methods, emphasizing evaluation for ability to learn together and cooperate, strengthening evaluation based on progress, encouraging participation in various competitions and including the results in evaluation.

The above-mentioned contents are described in [Table 1].

**[Table 1] Main Contents and Characteristics of Environment and Green Growth Curriculum**

<b>Sections</b>	<b>Detailed Contents of 2009 the "Environment and Green Growth" Section</b>	<b>Notes</b>
Structure of Explanation	<ul style="list-style-type: none"> <li>• Described in five sections: character, goal, content, teaching and learning method, evaluation</li> </ul>	
Character	<ul style="list-style-type: none"> <li>• Background for course selection</li> <li>• Purpose of course selection</li> <li>• Linkage with other courses</li> <li>• Main content and key point</li> <li>• Main teaching and learning methods</li> </ul>	
Goal	<ul style="list-style-type: none"> <li>• Overall aim</li> <li>• Cognitive realm</li> <li>• Functional realm</li> <li>• Definitive realm</li> <li>• Participation through practice</li> </ul>	
Content	<ul style="list-style-type: none"> <li>• Environment project</li> <li>• Environment and human life</li> <li>• Environmental problems and countermeasures</li> <li>• Resource and energy</li> <li>• Understanding of and response to climate change</li> <li>• Green growth and sustainable society</li> <li>• The road to green society</li> </ul>	Sorted by content
Teaching and learning method	<ul style="list-style-type: none"> <li>• Securing maximum amount of time</li> <li>• Interdisciplinary character</li> <li>• Introduction of teaching methods for environment project</li> <li>• Teaching by creative experience and linkage to socio-environmental education programs</li> <li>• Methods of reorganizing the contents</li> <li>• Teaching by linkage with other subjects</li> <li>• Utilizing best practices within and outside Korea</li> <li>• Utilizing teaching and learning methods for encouraging interaction</li> <li>• Emphasizing the production/distribution/sharing of environmental information</li> <li>• Nurturing environmental sensibility through experimental activities</li> <li>• Strengthening the linkage with career education</li> </ul>	

Evaluation	<ul style="list-style-type: none"> <li>• Emphasis on balanced evaluation for knowledge/function/attitude and consistent evaluation on goal/content/method</li> <li>• Encouraging the use of various evaluation methods</li> <li>• Emphasizing evaluation for ability to learn together and cooperate</li> <li>• Strengthening evaluation based on progress</li> <li>• Encourage participation in various competitions and including the results in evaluation</li> </ul>	
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## **B. Content Structure of “Environment and Green Growth” Curriculum**

With focus on the above-mentioned direction for revision, the main content of the 2009 Revised “Environment and Green Growth” Curriculum is as follows:

First, emphasis was not solely given to environmental problems in the introduction part of “character.” Instead, climate change and problems of resource and energy were emphasized. As a countermeasure, the concept of green growth was introduced. Second, in the beginning part of “content,” “environment project” was positioned as a reminder to the fact that this encompasses all the chapters. Third, the major chapter on “resource and energy” was selected as the third major chapter. Another major chapter on “understanding of and response to climate change” is newly inserted as an individual chapter. Thus, under this major chapter on “understanding of and response to climate change,” there are minor chapters such as “cause and effect of climate change” and “countermeasure against climate change.” Fourth, the first major chapter on “environment and human life” includes a smaller chapter on “human civilization and environment.” This allows for study on environmental problems caused by industrial activities of humans. Fifth, under the major chapter on “environment and human life,” a subchapter on “sustainable development and green growth” was included, allowing the concept of sustainable development to be linked with the concept of green growth. Sixth, a new subchapter on “biological environment” was newly created under the major chapter on “environmental problems and countermeasures.” Seventh, under the major chapter on “green growth and sustainable society,” subchapters on “green growth and policy” and “building environment-friendly infrastructure” was included so that students can learn about green technology, green industry and green infrastructure, which are the key factors of green growth. Eighth, the major chapter on “the road to green society” was better organized. Two subchapters on “practice at individual and local society level” and “national and international efforts” are included. This demonstrates that environmental practice is expanded from the individual level to local, national and global levels. Ninth, various formats for performance assessment

were emphasized in the evaluation part. Putting all this together, the content structure of environment and green growth curriculum is as shown in [Table 2].

**[Table 2] Content Structure of Environment and Green Growth Curriculum**

Major Chapter	Subchapter	Contents
Environment project		<ul style="list-style-type: none"> <li>• Exploration and selection of topic</li> <li>• Building and executing plans</li> <li>• Announcement and evaluation of results</li> </ul>
Environment and human Life	Man and global ecology	<ul style="list-style-type: none"> <li>• Global ecology as the base of human life</li> <li>• System and character of global ecology</li> <li>• Ecological circulation and energy flow</li> </ul>
	Human civilization and environment	<ul style="list-style-type: none"> <li>• Relationship among humans, environment and economic activities</li> <li>• Problem of industrialization and environment</li> <li>• Environmental value and ethics</li> </ul>
	Sustainable development and green growth	<ul style="list-style-type: none"> <li>• Understanding sustainable development</li> <li>• Understanding green growth</li> <li>• Relationship between sustainable development and green growth</li> </ul>
Environmental problems and countermeasures	Atmosphere environment	<ul style="list-style-type: none"> <li>• Relationship between atmospheric environment and humans</li> <li>• Understanding and countermeasures of atmospheric pollution</li> </ul>
	Water environment	<ul style="list-style-type: none"> <li>• Relationship between water environment and humans</li> <li>• Understanding and countermeasures of water pollution</li> </ul>
	Soil environment	<ul style="list-style-type: none"> <li>• Relationship between soil environment and humans</li> <li>• Understanding and countermeasures of soil pollution</li> </ul>

	Biological environment	<ul style="list-style-type: none"> <li>• Relationship between biological environment and humans</li> <li>• Understanding and countermeasures of biological pollution</li> </ul>
Resource and energy	Types and use of resource and energy	<ul style="list-style-type: none"> <li>• Types of resource and energy</li> <li>• Changes in the use of resource and energy</li> </ul>
	Resource and energy problem	<ul style="list-style-type: none"> <li>• Development and depletion of resource and energy sources</li> <li>• Consumption of resource and energy and environmental problem</li> <li>• Regional and bilateral conflict and cooperation</li> </ul>
	Environment-friendly use of resource and energy	<ul style="list-style-type: none"> <li>• Saving resource and energy</li> <li>• Waste and resource circulating society</li> <li>• Future resource and renewable energy</li> </ul>
Understanding of and adaptation to climate change	Cause and effect of climate change	<ul style="list-style-type: none"> <li>• State and cause of climate change</li> <li>• Direct and indirect effects of climate change</li> </ul>
	Countermeasures against climate change	<ul style="list-style-type: none"> <li>• Response to climate change</li> <li>• Adaptation to climate change</li> <li>• Climate change and international cooperation</li> </ul>
Green growth and sustainable society	Green industry and policy	<ul style="list-style-type: none"> <li>• Possibility of green growth</li> <li>• Present and future of green technology</li> <li>• Green industry and green jobs</li> <li>• Green policy and system</li> </ul>
	Building environment-friendly infrastructure	<ul style="list-style-type: none"> <li>• Conservation and restoration of ecology</li> <li>• Environment-friendly social infrastructure</li> <li>• Environmental network</li> </ul>

	Sustainable society and culture	<ul style="list-style-type: none"> <li>• Green lifestyle and green consumption</li> <li>• Environmental justice and cultural Diversity</li> <li>• Participation and social service</li> </ul>
The road to green society	Practice by individuals and local society	<ul style="list-style-type: none"> <li>• Practice case of individuals and family</li> <li>• Practice case of schools and local society</li> </ul>
	National and international efforts	<ul style="list-style-type: none"> <li>• Efforts by world nations for green growth</li> <li>• Activities of environmental groups and organizations</li> <li>• International cooperation</li> </ul>

Textbooks are developed on the basis of this new curriculum. These new textbooks, together with the new teaching and learning materials, will ensure successful ESD and green growth. This will help us get closer to the sustainable development of mankind.

#### **IV. Support Policy for Substantializing “Environment and Green Growth” Education**

Based on the above-mentioned research results, the following support policies can be suggested as follow-up measures to substantialize ‘environment and green growth’ education.

To begin with, diversified support should be provided for various stakeholders, in order to reflect the philosophy, value, relevant contents and functions into education curriculums. In particular, considering how green growth fundamentally holds a comprehensive and integrative character, a curriculum containing green growth contents need to be developed. Also, when making the following textbooks, various experts of different subjects, administrative experts, social groups, enterprises and industries, as well as experts on the curriculum, need to work together. Also, policy support is needed to encourage this kind of cooperation.

Second, education for green growth needs to aim for overall changes in lifestyle, encompassing knowledge, function and attitude. Therefore, even while we focus on the acquisition of knowledge and information, no less attention should be given to the practical aspect of daily attitudes, habits, real-life skills. We should not isolate the “environment and green growth” course as an irrelevant activity. Instead, we

must try to link it with real life practices such as changing low-efficiency electronic products into high-efficiency products at schools to stop wasting energy. Such methods are encouraged for heightening educational effects.

Third, in order to ensure that green growth is taught faithfully, we need to ensure the reinforcement of contents and substantiality of the textbook as well as the curriculum itself. If sufficient resources and information is given to the textbook writers, we can ensure that green growth is included in various ways in the textbook. In addition, through a strict certification process, we need to see to it that the contents, value, and function of green growth is well described in the textbooks. With continuous attention, we need to check if various support materials and media are developed and distributed.

Fourth, whether green growth education will succeed or fail depends on the enthusiasm and attitude of teachers. We need to provide teacher re-education programs through job training and general training. Policy support is also needed to enable teachers to acquire expert knowledge and information through various channels.

Fifth, green growth education is not only a concern of schools but also all of society. Thus, close cooperative relations with industries and enterprises are desirable. The curriculum needs to offer diverse opportunities for experimental learning in order to fix the new conception on the environment and economy. For this purpose, we might need to offer activity programs linked with social groups or enterprises. We need to prepare numerous measures to encourage related institutions, groups or enterprises to cooperate.

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**ESD AND TECHNICAL PROFESSIONALS  
IN THE GREEN ERA:**

**FOCUSING ON GREEN CARS  
RELATED TECHNICAL PROFESSIONALS**

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## **I. Introduction: ESD and the Transition to a Low-Carbon Environment-Friendly Economy**

The constant increase in fossil energy consumption is raising the concentration of carbon dioxide and methane gas in our atmosphere, resulting in the environmental crisis that we face today. Also, rapid industrialization of China and India, following the advanced industries in the United States, Europe and Japan, along with Korea and other emerging economies, is accelerating the depletion of environmental resources including fossil fuels. Seeking ways for sustainable development is required at all levels in this global society. On the other hand, with the advent of the decline in world economy brought on by the recent global financial crisis, nations are planning ahead on Low-Carbon/Environment-Friendly Green Investments and seeking new ways for economic vitality. Korea has joined this wave in 2008, beginning to advocate "Green Growth" as a virtuous circle utilizing resource management and reduction of environmental pollution as drivers for economic growth.<sup>51</sup>

In order to transform the existing industrial structure and production mechanisms to a low-carbon/environment-friendly way, training of new manpower and reorientation and training of existing human resources must be put in place. Such education and training can be seen as a sub-realm or action example of the "Decade of Education for Sustainable Development" (2005-2014) advocated by the UN in 2002. This is because such training aims to constantly cultivate vocational skills as a means of preparing for a future in an international environment filled with rapid technological changes and developing earth in a sustainable and eco-friendly way. In this aspect, UNESCO's Bonn Declaration (2009) focuses on the importance of training new personnel and reorientation of existing manpower to stimulate sustainable development.

This research will investigate the changes in the automobile industry with the advent of Green Cars and in subsequent technological advances to find effective ways of training technical professionals to meet such changes. In the transition to a low-carbon/environment-friendly economy the development and widened use of Green Cars not only hold symbolic importance in the Green Paradigm but also can be regarded as a core driver of sustainable development, posing significant lead effects in the industry. The impact of the automobile industry is especially large in the Korean economy. Analyzing technological changes and subsequent needs in the future and seeking ways for training relevant personnel will be good references not

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<sup>51</sup> The Korean government has recently decided to set the targeted reduction for national greenhouse gas emission in 2020 to 30% of BAU (Business As Usual) This plan for reduction is the highest among developing nations with an IPCC (Intergovernmental Panel on Climate Change) recommendation of 15-30% reduction compared to BAU.

only in the automobile industry but for other technical industries, in the Korean economy as well as other economies.

In the following chapter, transitions to a low-carbon/environment-friendly economy and subsequent changes in the automobile industry will be reviewed, taking a look at Green Car related progress and prospects, situations in the world market and vocational changes that will occur following technological advancements in the Green Car industry. The third chapter will deal with ESD in the automobile industry identifying element technology for the development of Green Cars and measuring abilities that will be seen necessary in technical professionals in the upcoming decade. Suggestions for improvements on current university curricula based on analysis of how appropriate they are in response to such changes will be followed by reviews on ESD for technical professionals in the transition towards a low-carbon/environment-friendly economy. The final chapter of this research will focus on how to proliferate such changes for technical professional training in the automobile industry into other areas.

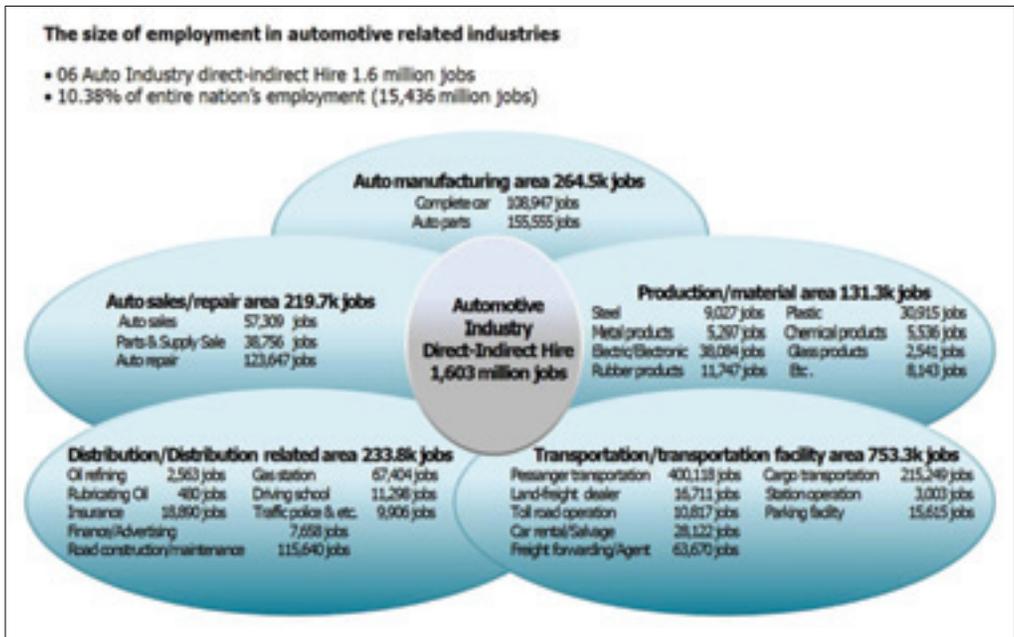
## **II. Transition to a Low-Carbon Environment-Friendly Economy and the Advent of Green Cars**

### **1. Automobile Industry as a Strategic Industry**

The automobile industry is an integration of technical advancements and is seen as the core of the manufacturing field of industry. It can be characterized as a general mechanical industry holding close relationships to steel, electronics, electric, plastic, glass, rubber, fiber and almost all material field industries and thus, entails large knock-on effects and induce production on a massive scale. The industrial serial effects can be observed both forward and backwards and thus, also impose employment (which is closely related to production effects) heavily.

In Korea, the automobile industry maintained growth through continued increase in manufacturing and exports, playing a major role in the nation's economic development. The automobile industry in Korea is estimated to hold an employment effect of approximately 131 thousand workers on forward industries and 1.182 million workers on backwards industries, including 211 thousand on sales and maintenance, 225 thousand on distribution and finance and 742 thousand on transportation. While the automotive industry is estimated to indirectly employ around 1.3 million workers, if we add up the number of employed workers induced by the automobile industry, it will total around 1.6 million including direct and indirect employment, accounting for 10.38% out of the 15.4 million employed workers in Korea (see [Figure 1]).

**[Figure 1] Number of Direct and Indirect Workers Employed by the Automobile Industry**



Source: Data Provided by KAMA (Korean Automobile Manufacturer's Association), 2004

## 2. Low-Carbon Environment-Friendly Economy and the Development of Green Cars

### 1) Prospects

Countries are accelerating the development of hybrid cars and fuel cell vehicles in response to carbon emission and other various environmental regulations.<sup>52</sup> The annual size of the global automobile market is 1.5 trillion US dollars and although it is predicted to experience a slight downturn by the end of 2010 due to the financial

<sup>52</sup> To the point that this research was being conducted, the market's attention was drawn more towards hybrid or fuel cell vehicles, yet recently, there has been a shift towards electric cars. The needs analysis and technical professional education plans introduced in this study have been suggested through analyzing element technology and thus, if element technology of a certain product (for instance electric cars) have close relations with the element technology of an analyzed product (in this case hybrid and fuel cell vehicles), the plan for educating personnel in response to that certain product can also be assumed to have been suggested. Chapter 3 discusses more about the topic.

crisis in 2008, experts forecast a 2-3% annual increase until 2018 and 1-2% steady increase every year from 2018.

In the mean time, for forecast of the future of the automobile industry market, the 2004 Global Insight provides an optimistic outlook, whereas the 2006 McKinsey report is more conservative. While it is generally perceived that hybrid cars will enter into the market on a large scale from 2020, the Global Insight forecasts the full scale arrival of fuel cell vehicles to be around 2030, with McKinsey predicting a slightly later arrival. However, it seems that the actualization of “greenhouse gas” reduction plans by each country will hasten the development of future generation cars and also the advent of a new generation of automobiles in the industry.

According to an expert survey conducted in Korea (Kim, Tae-youn, August 31 - September 7, 2009 to 45 members of the industry/academia/institutional experts), the type of cars that will lead the future automobile market was predicted to be internal combustion cars (50%) in 2020 and hybrid cars (30%) in 2030. The survey result suggests that as various Green Car technologies will compete with each other in the future market, there is also the rising need to deal with such changes.

Experts forecasted that by 2020, prospects for internal combustion cars (50%), hybrid cars (30%) and clean diesel cars (11%) will be brighter than electric cars (9%) and hydrogen fuel cars (0%) and thus pointed out that sustained efforts to improve fuel efficiency and performance should be carried out for existing internal combustion cars. However, for 2030, more experts predicted that hybrid cars (33%), electric cars (23%) and hydrogen fuel cars (17%) will play a larger role in the market than internal combustion cars (15%) and clean diesel cars (13%), lowering the portion of fossil fueled cars and opening the way towards the Green Car market.

**[Table 1] Projected Lead-vehicles for the Future Automobile Market**

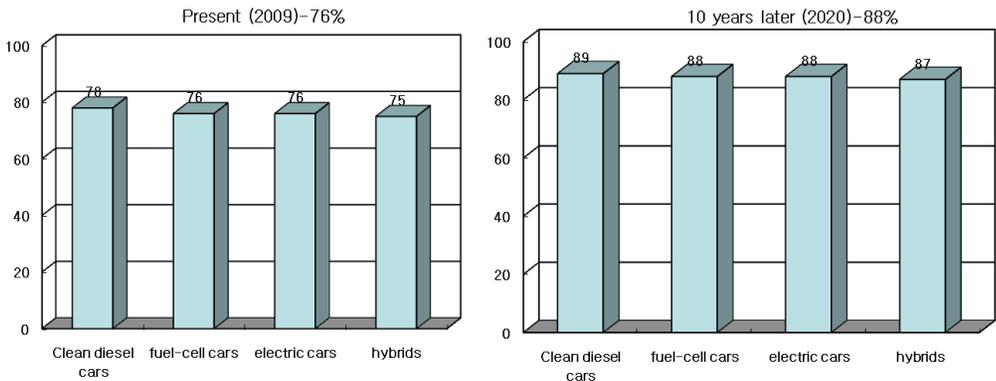
Ranking	2020 (10 years later)		2030 (20 years later)	
	Sector	M/S (%)	Sector	M/S (%)
1	Internal combustion engines	50	Hybrids	33
2	Hybrids	30	Electric cars	23
3	Clean diesel cars	11	Fuel-cell cars	17
4	Electric cars	9	Internal combustion engines	15
5	Fuel-cell cars	0	Clean diesel cars	13

Source: Kim, Tae-youn (2009), *The Future of the Automobile Industry: Status and Prospects for Green Cars*, FKI (Federation of Korean Industries)

## 2) Challenges

According to an expert survey, Korea's current Green Car related technology in comparison to developed countries can be rated at 76% (three to four years behind), but in 10 years the gap will be reduced and technology in comparison will be rated at 88% (one to two years behind). Japan is considered to maintain its competitive strength in the future Green Car market. Korea's technical skills are most advanced in the clean diesel area (78%), followed by fuel cell cars (76%), electric cars (76%) and hybrid cars (75%). Experts have also predicted that in 10 years, Korea's technical skills will be in the order of clean diesel (89%), fuel cell cars (88%), electric cars (88%), and hybrid cars (87%).

**[Figure 2] Korea's Technical Skills  
in comparison with Other Developed Countries (Now/2020)**



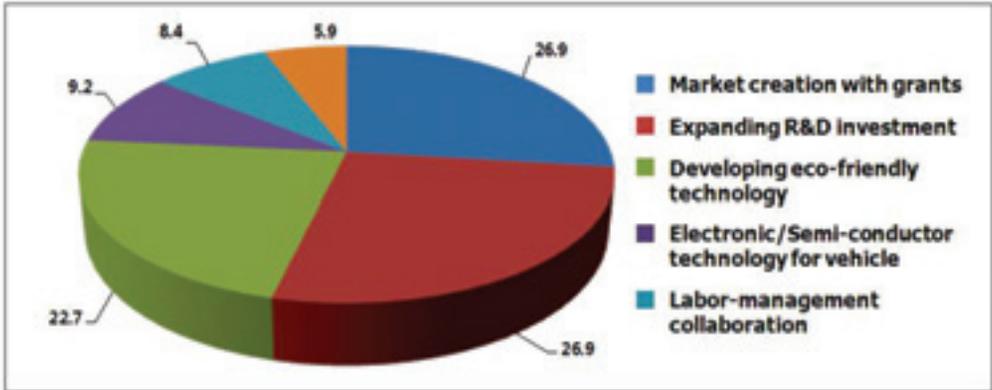
Source: Kim, Tae-youn (2009), *The Future of the Automobile Industry: Status and Prospects for Green Cars*, FKI (Federation of Korean Industries)

Japan was unanimously voted as the current and post decade leader in hybrid cars, whereas EU was seen to be leading the market for clean diesel (currently 98%, post decade, 94%) with unparalleled technical skills in this area. Experts predicted close competitions between Japan (36%) and the U.S. (27%), followed by the EU (16%) and Korea (11%) for hydrogen fuel vehicles. Japan (57%) and the U.S. (20%) were seen to lead the electric car market in the next decade to come.

When asked about the challenges facing the development of the Green Car industry, improvement tasks for Green Car industry had been "expanding R&D investment" (26.9%) and "early market creation with grant and tax benefit" (26.9%) as the most important task followed by "developing eco-friendly technology such as secondary battery" (22.7%), "developing electronic/semi-conductor technology for

vehicle" (9.2%), "labor-management/auto maker-part supplier mutual collaboration" (8.4%) (Kim, Tae-youn, 2009).

**[Figure 3] Areas for Improvement for the Development of the Green Car Industry**



Source: Kim, Tae-youn (2009), *The Future of the Automobile Industry: Status and Prospects for Green Cars*, FKI (Federation of Korean Industries)

Except for the "grant and tax benefit" item, "expanding R&D investment," "developing eco-friendly technology," "developing electronic/semi-conductor technology for vehicle" are all items related to developing technology. So for such technology development, securing research & technology man power has the priority in importance. As the result, for the growth of the Green Car industry, acquiring new technology and fostering human resources to create the technology are the most important elements.

**3. Change in Composition of Human Resources for the Automobile Industry**

With the reinforcement of regulations on green house gas emissions and consequent acceleration of hybrid cars and fuel cell vehicle technology development, it is forecasted that the global automobile industry will transition to a new oligopoly with new divisions of labor centered around a manufacturer with state-of-the-art technology development capacity.

State-of-the-art technology development alone cannot transform the personnel structure of the existing automobile industry, yet the diffusion of the new division of labor will raise voices on the need to improve global manufacturing efficiency and thus induce the movement of existing manufacturing lines. It is therefore especially

important for Korea – whose reliance on the automobile industry is quite high – to secure core technology on hybrid cars and fuel cell vehicles to occupy a better role in the global system on the division of labor.

Korea's technology level is advanced in various fragmented areas, yet intermediary technology or project planning & management skills still need to be refined. This means that the role of mediating or coordinating two or more technology fields at a mid-management or higher research and development position needs to be expanded (new posts). If Korea is able to develop core technologies for hybrid cars and fuel cell cars, R&D and advanced technology areas will continue to grow (enlargement of new posts). Furthermore, certain detailed technology areas, such as the need for fusion technology personnel in response to inter-technology fusion, will become even larger. In manufacturing and management positions, the usual work will more or less continue, but the increase or decrease in scale will depend on the international reorientation in the division of labor.

In the issue of training and utilizing low/middle level workers, the crucial point is that with the diffusion of green technology, conventional technology tends to degrade and the level of skilled proficiency among workers will be amplified. Therefore, re-education of existing labor forces, along with training new technical professionals, must be strengthened. For the youth, the problem of employment can get rather serious, and thus, to overcome problems for low/mid level workers, continuous re-education and training must be carried out in response to the spread of green technology.

The education and training for nurturing and utilizing green personnel will be more important in terms of improving quality of existing programs rather than creating new ones. The ability to create added value in the process of technology fusion with green technology will be emphasized and so will the ability to be creative, open, mindful of comprehensive situations and cooperative (including international cooperations). Furthermore, there will be greater demand for strengthened lifelong learning ability for sustainable development.

### **III. Green Cars and Plans Regarding ESD**

#### **1. Analysis on Necessary Technology**

Factors that need to be reviewed first for the training of technical professionals related to technical development and utilization are the contents of relevant technology and the content of teaching for these professionals. We will first divide core technologies of future generation cars into environmentally friendly cars (green

cars) and intelligent cars. Environmentally friendly cars aim to reduce carbon emission and ultimately be independent from fossil fuels. Based on the usage of fuel, cars can be categorized as hybrid cars, plug-in hybrid cars, fuel cell cars, clean diesel cars, and electric cars. In this research, efforts will be focused on taking a look at hybrid cars (including plug-in hybrid cars)<sup>53</sup>, and fuel cell cars. Intelligent cars, on the other hand, can be seen as independent technology of grafting IT to automobile technology and maximizing safety and convenience, yet environmentally friendly cars are also developed alongside intelligent cars. We will take a look into such intelligent car technology in this chapter.

**[Table 2] Core Technologies Related to Green Cars**

<b>HEV (Hybrid Electric Vehicle)</b>	Power system	HEV electric power system (driving motor, inverter)
		HEV engine system (engine driving, power generation)
		Battery system (battery, ultra capacitor)
		Plug-in HEV (battery recharge, energy management)
	Body/Chassis system	Transmission system
		Body & chassis system (brake, suspension, steering, HVEC)
	Electric-electronic system	HEV electric system (HCU; Hybrid Control Unit, wire harness)
Vehicle simulation (HEV architecture, fuel saving, crash)		
Common	HEV test and verification (component unit and system performance test)	
<b>FCEV (Fuel Cell Electric Vehicle)</b>	Power system	Fuel cell stack
		BOP (Balance of Power plant)
		Hydrogen storage system

<sup>53</sup> Matters related to electric cars have close connection to the drive motor and batteries of hybrid cars in terms of element technology.

		Hydrogen production (Hydrogen production, transportation, dispenser)
		Auxiliary power (supercap, battery)
		FCEV electric power system (driving motor, inverter, decelerator)
		Plug-in FCEV (recharge system, control system)
	Body/Chassis system	Body & chassis System (HVEC, chassis, body)
Electric-electronic system	FCEV control system (driving, control, ECU)	
Common	FCEV test and verification (system performance evaluation, certification, standardization, test Facilities)	
<b>IV (Intelligence Vehicle)</b>	Body/Chassis system	Advanced safety actuators
	Electric-electronic system	Intelligent vehicle sensors
		Advanced safety systems
		In-vehicle network
		Vehicle wireless communication systems
		Vehicle embedded systems
		Vehicle mobile services
		Intelligent blackbox systems
		Vehicle human factor technologies
		Advanced car navigation systems
Vehicle to grid systems		

Automobile technology is traditionally sub-categorized into power system, body control system, and electro-electric system. If we were to analyze Green Car related technology based on such classification, the power system, as an extension of engines, include engines and driving motors for hybrid cars, charging batteries, fuel cell stacks, hydrogen production and storage devices for fuel cell vehicles. The body

control system deals with driving, steering and breaking. The electro-electric system includes electro-electric sensors and control, wireless communication networks and etc.

### **A. Hybrid Electric Vehicle (HEV)**

Hybrid Electric Vehicles refer to those with combined engine and electric motors. There are various ways of driving power based on driving mechanisms, but generally it is earned by utilizing both the engine and the electric motor using only electric motors at low speeds and shifting to the engine when in need of further acceleration.

1) power system: the key point in the power system of hybrid vehicles is the energy management technology including the battery system, which works to optimize the connection between the motor and the engine. Plug-in hybrid technology is composed of more or less similar technologies with hybrid cars, yet as the word "plug-in" implies, the technology of charging the battery through an external charging system and utilizing the energy stored from within the vehicle form the energy management system.

2) body-chassis system: the most significant part that characterizes hybrid vehicles is the transmission system that deals with the connection between engine, motor and generators, etc. Also, the development of a chassis-body system on breaks, suspensions, steering and air-conditioning to improve fuel efficiency is needed.

3) electro-electric system: the HCU (Hybrid Control Unit), which acts as the brain in the hybrid car, must be considered along with the high voltage safety of the wire-harness that acts as its nervous system.

### **B. Fuel Cell Electric Vehicle (FCEV)**

Fuel Cell Vehicles are electric cars that are driven by electricity generated through the fuel cell battery, and electric vehicles are those that store electricity in the form of chemical energy in batteries and secondary batteries to change them again into electricity and utilize in driving the motor.

1) power system: the electric power system of fuel cell vehicles are almost identical to that of hybrid vehicles with the core of its technology being the overlapping of single cells – the fuel cell stack – and its charging. The fuel cell stack has incorporated in it catalyst, ceramic, polymer, thermal fluid and electro-electric technology converged inside and requires an overall acquisition of technologies. The

Balance of Plan (BOP) is a device that enables production of electricity from the fuel cell stack and includes hydrogen supplying systems that cannot be seen in conventional internal combustion engines and is very weak in terms of technical professional foundation. For fuel cell vehicles, it is also crucial to develop hydrogen storage systems and production technologies for hydrogen.

2) body-chassis system: the fuel cell system emits 100kW of heat when output is around 100kW. An air-conditioning system that can control such heat emissions is needed.

3) electro-electric system: Unlike internal combustion systems which, rely on the drive shaft, most of the fuel cell car is composed of electronic parts, and therefore, the driving system is very important; its durability depending on the output control methods.

### **C. Intelligence Vehicles (IV)**

Intelligence vehicles are cars with integrated IT skills, designed for maximum safety and convenience and are composed of ASVs (Advanced Safety Vehicle), ADAS (Advanced Driver Assistance System), HF (Human Factor) technology and telematics and ITS (Intelligent Transportation System) related technology. Intelligence vehicles' more detailed element technology can be classified into 11 areas.

1) electro-electric system: sensor technology, IVN (In-Vehicle Network), automobile wireless communication, embedded system and navigation are being included, and needs are growing at a steady pace.

2) body-chassis system: more precise control and high credibility is required for acceleration/deceleration, and steering used in pre-collision safety system

### **2. Diagnosis on Relevant Curricula**

In this research, four academic areas (mechanical engineering, chemical engineering, material engineering and electro-electric engineering) have been chosen as study areas closely related to hybrid vehicles, fuel cell vehicles and intelligence vehicles, and their curricula for four year universities reviewed. 10 Korean universities (Seoul National University, POSTECH, Yonsei University, Korea University, Hanyang University, Sungkyunkwan University, University of Ulsan, Aju University, Kukmin University, Keimyung University) have been chosen as subjects with four U.S. Universities [Michigan State University (Ann Arbor), Illinois State University (Urbana Champaign), MIT and Caltech.] and five Japanese Universities (Kyoto University, Waseda University, Tokyo University of Technology, Tohoku

University, Kyushu University) chosen as comparison samples, examined with technology related professionals.

Overall, each field of study mainly had related basic subjects set up in the curricula and lacked sufficient subjects on combined or applied subjects reflecting the recent changes or trends in technical advances. While automobile related technology was dealt with in mechanical engineering fields, electro-electric, material or chemical engineering had comparatively less subjects teaching automobile skills, especially the demand for related technology on battery systems of hybrid cars or fuel cell vehicles. Yet even in chemical engineering or material engineering, where relevance is considered to be the highest, related subjects are far from sufficient at the moment.

Apart from the fact that there were not enough subjects on hybrid cars or fuel cell vehicles, another problem observed was that most of the automobile related subjects were targeted at university junior or senior year students, not allowing sufficient time during university years for advanced learning. Therefore, it is advised that lower grade students (freshmen or sophomores) be allowed to register to related compulsory subjects, enabling sufficient time for learning of skills. Also regarding trends for digitalization of automobiles and advancements on intelligence cars, actions are being taken partially in mechatronics related subjects in mechanical engineering, yet a more active response is called for. Either adding multiple introductory subjects on digital control systems, signal processing or electro-electric circuits, or having mechanical engineering students take classes in electronic engineering subjects should be considered.

Although electro-electric engineering fields can stand in the center of a full scale response toward automobile digitalization and intelligence cars, there seems to be quite some room for improvement. Circuit theory, microprocessors and wireless communication related subjects preferentially need reinforcement. Embedded systems and information security related subjects indispensable to the IT industry are quite lacking and human interface and bioelectronics subjects, which have forecasted growth in demand, along with wireless knowledge needed for telematics connected services are also in need of strengthening.

### **3. Proposal for Curricula Design**

While Green Car related technologies are fundamentally of a fusion type nature and cannot be properly addressed on a single subject basis, serious consideration should be placed on whether establishing a separate fusion major would be needed. Participating in technology development research in post-graduate courses may and should lead to multidisciplinary knowledge production, yet the same approach on an

under-graduate level is questionable. While equipping students with communication abilities with other majors to address the advancements in fusion technology is necessary<sup>54</sup>, at least for undergraduate students, the method of combining other fields of study around existing department majors is more suitable.

If we were to say that hybrid cars, fuel cell vehicles, intelligence cars are all individual products, let us think of ways for composing compulsory subjects for each of these products. If a certain product is sustainable in itself for a considerable amount of time period and can accompany sufficient employment demands, curricula formation based on products can be efficient, yet if the product life cycle of creation, development and disappearance caused by advancements in technology development progresses rapidly, the demand for technical professionals would be limited. If an automobile to replace hybrid cars happens to emerge very rapidly, professionals specializing in hybrid cars must either changeover to a common area with the new automobile, or if such an area cannot be found, must unwillingly fall behind. Such situations highlight the importance of focusing on not hybrid cars itself but on element technology that compose hybrid car development and also the need to train abilities to absorb new technology that will follow on current trends.

The fact that hybrid, fuel cell and intelligence vehicles are not mutually exclusive and entail quite a lot of overlapping technology among them also provides grounds for education focused on element technology, compared to product based professionals. Thus, if training is carried out according to the technological classifications of power, body-chassis and electro-electric systems, professionals benefiting from such training can have better adaptiveness towards further technological advancements. It would seem that product based training can enhance immediate preparedness, yet in the long run, focusing on technological classification will prove to be more advantageous.<sup>55</sup>

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<sup>54</sup> According to various technologies, it may also be necessary to obtain a certain amount of knowledge on different technology fields as well as multidisciplinary communication abilities. Find Hwang, Gyu-hee et. al (2007) for more on this issue.

<sup>55</sup> This is also identified through interviews. When a new manufacturing method is introduced, the majority of interviewees point out that it is more to the advantage of the production line to have workers who have been carrying out similar operations than having non-related workers or new trainees operating.

**[Figure 4] Multidisciplinary Curricula Composition based on Products**

	HEV (Hybrid Electric Vehicle)	FCEV (Fuel Cell Electric Vehicle)	IV (Intelligence Vehicle)
Mechanical engineering	○ ○ ○	○ ○ ○	○ ○ ○
Material engineering	○ ○ ○	○ ○ ○	○ ○ ○
Electric-electronic engineering	○ ○ ○	○ ○ ○	○ ○ ○
Chemical engineering	○ ○ ○	○ ○ ○	○ ○ ○

**[Figure 5] Curricula Composition based on Technological Fields**

	Power System	Body/Chassis System	Electric-electronic System
Mechanical engineering	○ ○ ○	○ ○ ○	○ ○ ○
Material engineering	○ ○ ○	○ ○ ○	○ ○ ○
Electric-electronic engineering	○ ○ ○	○ ○ ○	○ ○ ○
Chemical engineering	○ ○ ○	○ ○ ○	○ ○ ○

The importance of training professionals focusing on technological classification is also reiterated through interviews in the industrial scene. Rather than workers who are skewed towards application and lack fundamentals, interviewed workers favored those who have strong fundamental skills to be more adaptive towards new technology. In the short term, they may show competence over different fields, yet in the long run, being well informed over multiple fields with shallow depth cannot overcome peers with a sound basis on limited fields.

In training technical professionals in response to Green Cars at the undergraduate level, understanding of different fields must be sought on the basis of having a firm grasp on the students' main field of expertise.<sup>56</sup> This leads to the suggestion of allowing necessary cross-over subject choices according to interests in different technology fields based on one's major. For example, if a student is majoring in mechanical engineering and is interested in Green Car related body-chassis systems, the curriculum should allow the student to take different subject courses necessary for body-chassis systems in a compressed time schedule. This case is not the same as a material engineering major, taking additional courses in Green Car related body-chassis systems. Below are examples of different technological (power, body-chassis, electro-electric system) interest based tracks based on each major (mechanical, chemical, material and electro-electric engineering).<sup>57</sup>

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<sup>56</sup> Such aspects will also encourage Green Car related technical professionals to be future-oriented rather than remain as technicians in element technology areas. This means growing one's competence for an environmentally friendly economic development, study on future societies, sustainable consumption and design trends. Need for multi-disciplinary combination of humanities to technology oriented majors may also be raised for this end. However, the current discussion is focused on multi-disciplinary curricula centered around technological fields and further debate will be needed on the subject of training personnel in full response to future Green Societies.

<sup>57</sup> For examples of other tracks, see Chapter 6. Hwang, Gyu-hee et. al. (2009)



future technological demands. Based on such analysis, suggestions to adjust or improve current education systems were devised. Here it was highlighted that direct response to immediate future technical demands can show limits towards continuous technical demand changes and ways to equip students with fundamental capabilities were suggested.

ESD incorporates “the vision towards almost all that we aspire and for a better life,” and if we were to accept its definition as “all forms of education and learning to develop knowledge and skills required for a sustainable future” (Korean National Commission for UNESCO, 2007), responding to future technological demands in the transition towards a low-carbon/environmentally friendly economy can count as an activity of ESD. Furthermore, this will not only act as a one-shot response towards a certain technological demand but will also equip future generations with the fundamental ability to respond in a sustainable manner, leading to not only the circulation (recycling) of energy resources but also of human capabilities and to the realization of human values.

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## **PHOTOS & COMMENTS**

**Yeon-hee JUNG**

Manager of Educational R&D Department/Ph.D. in Arts Education,  
Korea Arts & Culture Education Service (KACES)



“Arts education can be tackled as part of an integrated education program for expanding sustainable thinking in line with the values and criteria of ESD.”

**Sun-kyung LEE**

Associate Professor,  
Cheongju National University of Education

“Grasping the transformative characteristics of ESD, which is an approach to understand the complexity of the issue and to develop the competencies to understand and resolve such complexity, is essential.”



The 1<sup>st</sup> ESD Colloquium:  
**ESD & Green and Creative Human Resources** (4 May)

**Mi-sug JIN**

Senior Fellow,

Korea Research Institute for Vocational Education & Training (KRIVET)

“Green growth could place itself as a future-oriented social development paradigm only if it considers the integral and balanced aspect that underlies sustainable development.”



**Dong-wook LEE**

Deputy Research Director,  
SK Telecom



“It is high time for both public and private sectors to identify and extract value intersections by actively engaging in dialogue exchanges that explore ESD-applicable information & communication technology.”

The 2<sup>nd</sup> ESD Colloquium:  
**ESD & Innovation of Curriculum and Teaching-Learning Process** (30 June)



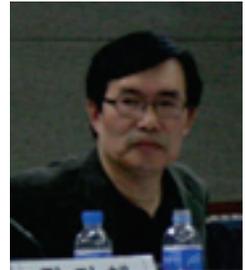
**Eun-jin PARK**  
Research Fellow,  
Gyeonggi Research Institute (GRI)



“The recognition and resolution of the DMZ’s socio-cultural, economic, political and environmental problems before and after reunification through the application of ESD will contribute to recognizing the values of and providing best practices for ESD to be applied in other regions of the world.”

**Jung-ki CHO**  
Curriculum Coordinator,  
Seoul Pungnap Middle School

“It is necessary to set a new direction of peace & unification education in terms of ESD as a new paradigm with a mid and long-term view considering the change in the state of affairs on the Korean peninsula.”



The 3<sup>rd</sup> ESD Colloquium:  
**ESD & Local Development**  
(24 August)

**Youl-kwan SUNG**  
Associate Professor,  
Kyung-Hee University

“Global Citizenship Education (GCE) and ESD are not education systems with a single answer but the teaching of the capability to explore complex problems.”



**Mi-hye CHANG**  
Research Fellow,  
Korean Women's Development Institute (KWDI)



“ESD basically shares the same goal with multicultural empowerment of multicultural education in the sense that they both pursue universal sympathy and a sense of responsibility.”



The 4<sup>th</sup> ESD Colloquium: **ESD & Educational Competitiveness** (29 October)

**Joo-hoon KIM**

Senior Research Fellow,  
Korea Institute for Curriculum and Evaluation (KICE)



“The complexity and multidimensional character of the green growth concept itself justifies education as the most effective and vital method for long-term and fundamental changes in human lifestyle beyond mere behavioral changes.”

**Gyu-hee HWANG**

Research Fellow,  
Korea Research Institute for Vocational Education & Training (KRIVET)

“The education and training for nurturing and utilizing green personnel will be more important in terms of improving quality of existing programs rather than creating new ones.”



The 5<sup>th</sup> ESD Colloquium:  
**ESD: Potential and Application** (16 December)





Amid more than one billion poverty-stricken people globally, our world is intensely suffering from climate change, economic crises, mass consumption, human security threat, etc. In this situation, sustainable development is our fateful task to resolve on the basis of a global effort for whole generations in the past and the future.

Sustainable development is a vision of development that encompasses populations, animal and plant species, ecosystems, natural resources and integrates concerns such as the fight against poverty, gender equality, human rights, education for all, health, human security, intercultural dialogue, etc.

For the holistic realization of economic development, environmental preservation and social peace, sustainable development demands a paradigm shift throughout production, consumption, education and our daily lives. Above all, reconstruction of consciousness through education is the top priority for sustainable development with the precondition of renovating of people's attitude, and values.

In recognition of the importance of Education for Sustainable Development (ESD), the United Nations General Assembly declared 2005-2014 the UN Decade of Education for Sustainable Development (DESD), and designated UNESCO as a lead agency for promoting DESD; UNESCO has sought to integrate the principles, values, and practices of sustainable development into all aspects of education and learning in order to address the social, economic, cultural and environmental problems we face in the 21<sup>st</sup> century.

ESD is to inculcate capacity and responsibility in society for the future, and it is getting widely utilized around advanced countries due to its infinite potential to integrate with domestic strategies in various fields. In light of the difficult circumstances of Korea, with many national issues that hinder sustainable development such as growth without development and ecological inequality, the Korean National Commission for UNESCO (KNCU) has embarked on the ESD Colloquium Series since 2010.

The ESD Colloquium Series, which will continue through 2014, aims at domestic specialized agencies, policy makers and experts, boosting their endeavors to adopt, graft, and apply ESD in their own fields. In 2010, there were five thematic sessions based on green and creative human resources, curriculum and teaching, local development, educational competitiveness, etc.

In the next five years, this series will accelerate in-depth debates among stakeholders for effective vitalization of ESD in Korean society and will also be a facilitator for contributing to global sustainable development.

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