



Education for sustainability in Japan

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Abstract

Education for Sustainable Development (ESD) is a global project championed by UNESCO. This article surveys the literature on ESD and highlights its aims and objectives, actions and outcomes. Firstly, I introduce the international history of ESD which emerged from the UN Earth Summit in Rio de Janeiro in 1992. A decade later a Rio+10 conference took place in Johannesburg in 2002 which subsequently led to the UN Decade of Education for Sustainable Development (DESD) from 2005-2014. Japan was instrumental in bringing about the DESD and the Global Action Programme (GAP) that followed. Subsequently GAP was adopted at the World Conference on Education for Sustainable Development (ESD) in November 2014 in Aichi-Nagoya, Japan and was followed by the adoption by UNESCO in 2019 of a new global framework on ESD called 'Education for Sustainable Development: Towards achieving the SDGs' or 'ESD for 2030'. This article includes a critical evaluation of Japan's ESD activities since its inception with examples of good practice to promote sustainability. ESD has become Education for the Sustainable Development Goals (ESDG) at the same time that the sustainability of the SDGs is being questioned as they are built on a foundation of unsustainable economic growth.

Keywords: Education for Sustainable Development (ESD); Sustainable Development Goals (SDG); UNESCO; ESD in Japan; Sustainability

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1. Introduction

Sustainable development gained global prominence with the publication of 'Our Common Future' - the report of the Brundtland Commission (WCED, 1987). The report highlighted the need to address growing environmental threats such as deforestation, desertification, pollution, acid rain, deforestation, climate change and ozone layer depletion. In addition, the report was concerned with the deterioration of social development and growing inequality. Whilst the concept of sustainable development is contested, the Brundtland Commission (WCED, 1987) produced the most often quoted definition:

Sustainable development is development that meets the needs of the present without compromising the needs of future generations to meet their own needs. (p. 43).

There are many other definitions of sustainability and already by the mid-90s, Dobson (1996) noted that there were over 300. One of the main disagreements in conceptualizing sustainability relates to the strong versus weak sustainability paradigms. The former paradigm considers the environment or ecosphere the most important dimension of sustainability, whilst the latter either gives equal weight to economic, social and environmental dimensions of sustainability, and some versions explicitly or implicitly privilege the economic dimension. As for the difference between sustainable development and sustainability, sustainable development is often referred to as the process to achieve the goal of sustainability (Diesendorf, 2000).

Twenty years after the first UN environment conference¹ in Stockholm, the Earth Summit² (UN Conference on Environment and Development) was held in Rio de Janeiro, Brazil in 1992.

There were participants from 172 governments and 2400 representatives from non-governmental organizations (NGOs). Also 17,000 people attended the parallel NGO Forum.

Agenda 21 (United Nations Conference on Environment and Development, 1992) was a product of the Earth Summit and is a non-binding United Nations action plan with regard to sustainable development. UNESCO³ was the lead agency for the Chapter 36 of Agenda 21 which outlined actions to orientate education towards sustainable development, increase public awareness and promote training. The chapter also recommended that "environment and development education should deal with the dynamics of both the physical/biological and socio-economic environment and human (which may include spiritual) development, should be integrated in all disciplines, and should employ formal and non-formal methods". The objectives, activities and implementation approaches set out in Chapter 36 were instrumental in raising the international profile of Education for Sustainable Development (ESD).

UNESCO (2014) broadly defines Education for Sustainable Development (ESD) as education that:

empowers learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society, for present and future generations, while respecting cultural diversity. It is about lifelong learning and is an integral part of quality education. ESD is holistic

¹ UN Environment Conference, 1972: <https://sustainabledevelopment.un.org/milestones/humanenvironment>

² UN Conference on Environment and Development, 1992: <https://www.un.org/geninfo/bp/enviro.html>

³ UNESCO: <https://en.unesco.org/>

and transformational education which addresses learning content and outcomes, pedagogy and the learning environment. It achieves its purpose by transforming society. (p. 12).

This understanding of ESD relates to the Brundtland Commission SD definition, especially the inter-generational aspect. In terms of the approach to the teaching and learning of ESD there is an emphasis on transformative/critical pedagogy and empowerment. UNESCO advocates a holistic whole school approach to ESD which is about “mainstreaming sustainability into all aspects of the learning environment. This includes embedding sustainability in curriculum and learning processes, facilities and operations, interaction with the surrounding community, governance and capacity-building” (UNESCO, 2014, p. 30). Whole-school approaches are reflected in the following:

- The formal curriculum contains knowledge, skills, perspectives and values related to sustainability.
- Learning includes real-life issues to enhance students motivation and learning.
- A sustainability ethos seen in the treatment of others, school property, and the environment.
- School management practices reflect sustainability (e.g. procurement, water and energy use, and waste management).
- School policies reflect environmental, social, and economic sustainability.
- Interactions between the school and the community are fostered.
- Special events and extra-curricular activities apply and enhance classroom learning about sustainability.
- Pupils engage in decision-making affecting school life (UNESCO, 2012, p. 46)

In 2002, a Rio+10 World Conference on Sustainable Development took place in Johannesburg, South Africa. In a conference address, Junichiro Koizumi, Prime Minister of Japan, proposed that the United Nations declare a Decade of Education for Sustainable Development (DESD). Acting on this proposal in partnership with Japanese non-government organisations, the UN General Assembly subsequently adopted a resolution to declare a UN Decade for ESD (DESD) from 2005-2014.⁴ Although DESD was a programme with global reach, each country was responsible for making it relevant to their particular context. Furthermore, all countries were required to produce a progress report for ESD which was intended to strengthen the implementation and evaluation of action plans.

2. Objectives

The background to ESD in the introduction affirms that Education for Sustainable Development (ESD) is a global project championed by UNESCO. The international history of ESD emerged from the UN Earth Summit in Rio de Janeiro in 1992 and the subsequent Rio +10 conference which took place in Johannesburg in 2002. Rio +10 led to the UN Decade of Education for Sustainable Development (DESD) from 2005-2014. Japan was instrumental in bringing about the DESD; and by this, expected to be at the forefront of ESD in terms of content and practice. This article therefore surveys literature on ESD and highlights its aims and objectives, actions and outcomes. It also focuses on the DESD, the Global Action Programme (2015-2019), and subsequently ‘ESD for 2030’ beginning in 2020. There is included Japan’s ESD activities with examples of good practice and an evaluation of their success to promote sustainability. The concepts of sustainable development and ESD are

⁴ Resolution (57/254): <http://www.un-documents.net/a57r254.htm>

viewed from a critical perspective. All these bear in mind that ESD has become tied to the UN's Sustainable Development Goals (SDGs) at the same time that the sustainability of the SDGs is being questioned. This paper aims to contribute to knowledge and practice of ESD by giving insights into how the Japanese experience may provide a critical reflection on the need to further educate for sustainability both in Japan and internationally.

3. Japan's UN Decade of Education for Sustainable Development 2005-2014

Japan contributed to the global programme of DESD through its financial contributions to the lead agency of DESD – UN Educational, Scientific and Cultural Organisation (UNESCO) and the UN University (UNU) headquartered in Tokyo (Singer et al., 2017). As a result, DESD witnessed countries putting more resources into ESD to carry out their action plans.

Since 2003 a civil society network promoting ESD called the Japan Council on the United Nations Decade of Education for Sustainable Development (ESD-J) was established. In 2006 the membership of ESD-J included 96 organizations and 107 individuals (Tanaka, 2017). It has held meetings on how to teach and learn ESD and implemented joint projects to promote ESD centred on teachers and 100 member groups such as NGOs engaged in policy advocacy, training and international network formation. It was also given the task of making policy proposals to government agencies. Japan's ESD is therefore characterised by both top-down government and bottom-up civil society efforts (pp. 9-10).

The Japanese government produced its Action Plan for DESD in 2006 (revised in 2011). This stated that the objectives of ESD were to bring about a transformation of behaviour that would enable the realization of a sustainable future. The plan included government directives as well as partnerships between the public and private sectors. In another report (Japan Cabinet Secretariat, 2009) the Japanese government gave an overview of ESD activities carried out from the outset of DESD. The report described the following features of ESD in Japan.

Approaches:

- Activities addressing participatory, problem-solving learning from the perspective of 'building a better society' had been conducted not only in schools but also in institutions of higher education, social educational facilities, communities, enterprises, and other venues even before the start of the UNDESD.
- Efforts are being made to advance this approach in diverse educational fields, including environmental education, human rights and welfare education, peace education, and development education, while incorporating environmental, economic, and social perspectives.
- These have evolved into actions for partnerships and integration of ESD that take root in communities and develop into efforts to build sustainable communities by linking the wisdom of traditional lifestyles with natural, industrial, and cultural resources and also with the school curriculum.
- In line with the development of ESD, these activities are increasingly pursued through partnerships involving schools, community centers and other local government bodies, NGOs/NPOs, institutions of higher education, enterprises, and others.

Effects:

- ESD in school education has led to the cultivation of 'zest for living (vigorously in difficult times).

- ESD rooted in local communities is a powerful tool for building and revitalizing communities. It enables residents to discover the qualities of their community, nurtures affection for and pride in the community, and raises people's awareness as members of the community. (pp. 1-2).

The report was notably positive about both the approaches to ESD and also the effects that the activities had both in formal school education and local communities. Teaching in a wide variety of settings was reported as characterized by a pedagogy focused on participatory, problem-solving learning to build a better society.

The goals for the second half of Japan's DESD were also included in the 2009 report. These goals recognized the importance of evaluation and revision of the approaches to ESD. Further dissemination was proposed to all stakeholders including formal and informal education and community-based organisations. The government recommended choosing projects to serve as models of good ESD practice and effectively disseminating these. Measures to foster closer alliances were proposed such as promoting joint community-school ESD collaboration, including forums to promote ESD with individuals and community organisations. The government also planned steps to train and deploy coordinators to promote ESD in the community. More ideas were proposed for the promotion of ESD at the global level including efforts to increase the number and quality of UNESCO Associated Schools in Japan.⁵

The learning objectives of Japan's ESD were further formalized in a report by Didham and Ofei-Manu (2012): (1) to develop the ability to see through the essence of specific problems and the capacity to assess and critically evaluate these problems; 2) to be able to clearly express one's own feeling, thoughts, and ideas; 3) to accept and respect different values; 4) to work cooperatively with others; 5) to seek concrete solutions; 6) to understand environmental carrying capacity; 7) to imagine the ideal society and to implement spontaneously (p. 29).

At the conclusion of DESD, Japan produced a report on a decade of its activities (The Interministerial Meeting on the United Nations Decade of Education for Sustainable Development, 2014). The report included 3 sections: (1) achievements and issues, (2) implementation and (3) good practices in Japan. The stated aim of ESD stressed the importance of transforming awareness and actions and thinking globally and acting locally. The goal was to build sustainable communities, sustainable nations, and a sustainable world. (p. 4).

The report noted that during DESD the number of UNESCO Associated Schools rose from 20 in 2006 to 705 in 2014. As well as efforts in formal education, ESD had been promoted in the community e.g., social education facilities and public halls. Some projects involved community revitalisation based on lessons from experiencing pollution. The approaches centred on the preservation of a clean environment involving victims of pollution, polluting companies, government agencies, schools, and public welfare personnel (ibid p. 8).

In higher education there were initiatives to include ESD in courses including teacher training and sustainability research. A voluntary network of 18 universities (ASPUivNet) assisted schools in becoming a UNESCO school and provided ESD teachers with professional development (ibid p. 31).

Although this 2014 report gives an account of policies and activities during the DESD, it is lacking in evaluation, which I shall return to later. Overall, the report acknowledges that there is still a lot more to do and "it can hardly be said that ESD has spread widely enough to bring about a transformation into a sustainable

⁵ See: <https://aspnet.unesco.org/en-us>

society” (p. 2). Nonetheless Japan remained enthusiastic about bringing about the continuation of ESD following the end of the UN Decade of ESD.

4. Post DESD – The Global Action Programme (GAP)

As DESD was coming to an end there were many calls to continue the work begun during the decade and UNESCO was asked to devise a strategy to continue. At this time the Government of Japan and UNESCO jointly organized a Stakeholder Meeting in Okayama (4-8 November, 2014) and the UNESCO World Conference on Education for Sustainable Development in Aichi-Nagoya City (10-12 November, 2014).

The Stakeholder Meetings included UN organizations, researchers, and school personnel. “Promoting ESD beyond DESD through Community-Based Learning” was adopted as the proposal for realizing the continuation of ESD (MEXT, 2014, p. 28.). The Stakeholders ideas for strengthening ESD were shared a few days later at the World Conference.

The World Conference was attended by 76 ministerial-level representatives of UNESCO Member States and around 3,000 people, including those from UN agencies, research organizations, academia and ESD practitioners from both school education and social education. There was a review of the achievements of the UNDESD and exchanges of information and ideas to upscale ESD. This led to a declaration by education ministers calling for urgent action to mainstream and broaden the scope of ESD (Japan Interagency Coordinating Council for ESD, 2014). The conference concluded with the launch of the Global.

Action Programme on Education for Sustainable Development (GAP)⁶ – the follow up to UN DESD. GAP highlighted 5 priority areas for action:

- Advancing policy
- Transforming learning and training environments
- Building capacities of educators and trainers
- Empowering and mobilizing youth
- Accelerating sustainable solutions at local level

In 2015, the UN Member States adopted the 2030 Agenda for Sustainable Development (UN, 2015) with its 17 Sustainable Development Goals (SDGs) to guide sustainable development in 2016–2030. At the World Education Forum in 2015 in Incheon, Korea, Ministers of Education approved a global education strategy to implement Target 4.7 of SDG 4:

By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture’s contribution to sustainable development. (UNESCO, 2015, p.21).

⁶ See: <https://unesdoc.unesco.org/ark:/48223/pf0000246270>

Also, at the 2015 World Education Forum Ministers approved the publication of the Global Education Monitoring Report which required nations to make yearly reports on their SDG 4 progress. The 2030 Agenda for Sustainable Development was put into effect in 2016.

GAP aims to support UN member states in the realization of Agenda 2030 by reorienting education and learning so that everyone has the opportunity to acquire the knowledge, skills, values and attitudes that empower them to contribute to sustainable development. Therefore GAP, coordinated by UNESCO is viewed as a key element in the implementation and upscaling of ESD actions. Addressing climate change, biodiversity loss, pollution and unsustainable consumption and production are viewed as important ways to promote sustainable development through education.

4.1. Global Action Programme (GAP) in Japan

The Ministry of Education, Culture, Sports, Science and Technology known as MEXT published a report on ESD in Japan under GAP (MEXT, 2017). A number of platforms and support schemes were created to integrate ESD activities and implemented by various stakeholders in the public sector. These include:

- Intersectoral Coordination: (1) 23 ESD stakeholders meeting annually to review the implementation of GAP and future direction; (2) 14 stakeholder ESD consortiums and (3) An ESD promotion network to enhance collaboration between the school education system and environmental education programs.
- Capacity Building Schemes: MEXT supports schools to implement ESD practices through teaching training e.g., for environmental education practitioners, providing experts and developing guidelines for promoting ESD.
- Interministerial Coordination comprising 11 ministries which formulated the 'Implementation Plan of GAP' in Japan.
- Activities on Youth: MEXT has organized annual ESD Japan Youth conferences. The Ministry of Education, environmental agencies and UN University, conduct projects promoting the formation of ESD high school student networks.
- Developing data bases: The Government identified and registered personnel and private-sector entities and built an ESD project database.

5. UNESCO Associated Schools Network (ASPnet)

MEXT and the Japanese National Commission for UNESCO designated ASPnet Schools as hubs to promote ESD. The number of member schools in 2016 was 1044 - the largest number for any country in the world. Guidelines were prepared for the participating schools to ensure quality and included:

- What is expected of ASPnet Schools:

Mutual learning and building an open network through collaboration with multi-stakeholders; promoting ESD outside of school; inclusion in school management policies efforts to implement the activities of ASPnet Schools.

- What is expected of hubs to promote ESD:

Clarify the qualities and abilities schools aim to foster through ESD; formulate curricula that puts emphasis on the process of learning that aims at problem solving, improve teaching methods and engage in research and practice and spread the ESD concepts.

A secretariat to manage the ASPnet Schools has been established that acts as the clearing house for accessing good practices, useful materials and information on events. MEXT organises an annual national conference to provide opportunities for ESD practitioners to discuss and share good practices on ESD conducted in ASPnet Schools.

Japan has made progress in developing ESD in school education. ESD is included in the government's 5-year basic plan on promoting education, and Sustainable Development (SD) is included in the National Curriculum Standard. SD has been integrated with longstanding environmental education, and ESD perspectives have been embedded in some daily activities, and also in some areas not necessarily labelled ESD. ESD has also made efforts to ensure the sustainability of local communities.

The next step for sustainability education in Japan is more teacher training, promotion of ESD networks to increase collaboration between stakeholders, and sharing of good practices. Japan has also considered it important to disseminate examples of ESD good practice and I include some of them in the following section.

6. Examples of good practices of ESD in Japan

Section 3 of Japan's DESD Report (The Interministerial Meeting on the United Nations Decade of Education for Sustainable Development, 2014) gives 30 examples of good ESD practices in Japan. This includes schools (Junior and Senior High and University); Local Government and Community, Non-Profit Organisations and Private Sector. Each contribution has a summary of activities; ESD Characteristics; Aims and Background of ESD Promotion; Achievements; Future Perspectives and Challenges. This section of the Report is important in communicating what is concretely happening with ESD in Japan.

Below I have summarized the only High School initiative in the Japan Report: Creating Attractive Challenging School & Sustainable Islands (The Miriyokuka Project). This initiative has attracted quite a lot of national attention and was carried out by Oki-Dozen High School on Nakanoshima Island (known as Ama), one of the Oki-Islands in Shimane Prefecture.

6.1. Oki-Dozen High School⁷

6.1.1. ESD Characteristics

- (i) A regional partnership system comprised of participants from the High School, local mayors, chairpersons, superintendents of education, and principals of junior high schools. In addition, town hall employees, elementary school teachers (social education directors), individuals from urban areas with experience in private enterprise, and international exchange support school staff to build a system that connects the school with the community, society, and other countries.
- (ii) Nurturing "glocal" human resources to create a sustainable local society through learning that solves issues faced by the islands. 'Local & Global Studies' to promote student-led projects, including proposals to government.

⁷ The author undertook fieldwork at Oki-Dozen High School in November 2019 and this is the subject of a to be published article.

- (iii) Establishing a public 'Oki no Kuni Learning Centre' to carry out projects and independent learning. Dream Seminars create opportunities for dialogue with experts from Japan and abroad, and high school students from various regions through the utilization of ICT.
- (iv) The Island Study Abroad program welcomes students from outside the island and cultivates the ability to live in harmony and collaborate within a multicultural environment. Local volunteers take on the role of passing on the island's traditions and cultures, and wisdom for living in harmony with nature.

6.1.2. Aims and Background of ESD Promotion

Dozen High School was close to shutting down due to a regional decrease in population. This resulted in initiatives by the high school, local government, parents, local residents to revitalize the school and community to launch initiatives to create a sustainable future.

6.1.3. Achievements

- (i) An award-winning student-proposed tourism plan, Hitotsunagi.
- (ii) More students wanting to return to the island in the future and make it a global model.
- (iii) Since starting the program the student population has grown from 89 in 2008 to 156 in 2014. More than 40% of students come from places outside the island. The population of the town of Ama has started to grow.

6.1.4. Future Perspective and Challenges

Foster 'glocal' human resources, promote membership in UNESCO Associated Schools, advance international exchange, support studying abroad, accept foreign students, establish a base for utilizing ICT, become designated as a super global high school, revise courses of study, establish a university-related research institute and promote education that teaches lifestyles rooted in the community. (pp. 52-53).

Oki-Dozen High School was also mentioned as a case study in a 2014 government report (MEXT, 2014) on 'Regional Revitalization and the Participation of Human Resources in Local Communities' (pp. 42-44). The report mentioned a 'Comprehensive Strategy on Overcoming Population Decline and Vitalizing Local Economy in Japan and Educational Policy',⁸ which sort for the regions to draw on their strengths and create an autonomous and sustainable society. The strategy included the promotion of school-community collaboration utilizing local resources such as local history, historical townscape, local arts and culture, and sport.

Sato has traced the origins of three strands of endogenous educational movements (Mochizuki, 2017). Oki-Dozen's initiative has some characteristics of the grassroots reform movement in the 1950s in so far as it "aimed to give students the capabilities to improve and support their own village" (p. 7). However, whereas the reform movement discouraged youth to leave their villages behind to pursue higher education and, subsequently, a better life in the city, Oki-Dozen aims to equip students with a first-class education and desire to make the island their home after university education.

⁸ The Act for Overcoming Decline Population and Vitalizing Local Economy was enacted in December 2, 2014 and stipulates the regulations on basic policy and formulation of comprehensive strategy.

6.2. Super Global High School Program

MEXT launched the five year Super Global High School (SGH) programme in April 2014 to cultivate global leaders who will be able to play an active role on the international stage by choosing careers in international organisations. The programme promoted international understanding through active and inquiry-based learning that develops awareness and deep knowledge of social issues, communication ability and problem-solving skills.

Students conduct multidisciplinary, comprehensive and exploratory studies on social and business issues at the global level, in collaboration with domestic and overseas universities that promote globalization, as well as corporations and international organizations. This program requires high school students to conduct fieldwork both domestically and internationally on a research topic as part of their learning in order to broaden their views and pursue their goals. The designated schools are expected to set specific research topics and education content in consideration of their regional characteristics and features of the schools.⁹

Of the 246 high schools that applied in 2014 to take part in the SGH in 2014, 56 were selected along with 54 SGH associates (more schools were added in 2015 and 2016). Of the 56, there were 4 national (central government-run), 34 public and 18 private, representing 32 prefectures. During the five-year duration of the project, each of these schools received an annual subsidy of ¥16 million.

Oki-Dozen High School was one of the schools selected to participate in SGH. Some other participating schools and their activities are mentioned in a Japan Times (2014) article.¹⁰ These schools chose a range of Global topics with most focusing on social entrepreneurship and include the following.

Gokase High School located in Miyazaki Prefecture established an organization to protect its local environment and carried out a comparative study of arsenic pollution with an area in Bangladesh. Ritsumeikan Junior and Senior High School in Kyoto worked to prevent typhoon damage in East Asia through reforestation. Nagano Senior High School sent students to Taiwan to discuss Nagano's culture, landscape and sports with high schools, companies and government officials in a bid to increase tourism to the prefecture.

To improve English Language skills, Shibuya Makuhari High School in Chiba organized a two-week home-stay trip to New Zealand for the entire third grade, who stay with families of students of 20 local schools. At the high school level, students can participate in up to four school-run overseas programs per year. Shibuya Makuhari's SGH project is focused on issues related to food with plans to organize an international conference on sustainability, global interdependence and poverty.

Tamagawa Gakuen is a kindergarten-through-university in the city of Machida. The focus of the school's activities is human rights, poverty, the environment and leadership and diplomacy. The school is the only Japanese member of the Round Square organization, an association of over 100 schools in 24 countries committed to promoting six "ideals" of learning: Internationalism, Democracy, Environment, Adventure, Leadership and Service. Member schools incorporate these themes into their curricula and engage in student and teacher exchange programs. The school has engaged in curriculum and teacher capacity development to

⁹ See list of schools: <https://www.sghc.jp/en/>

¹⁰ See <https://www.japantimes.co.jp/community/2014/06/01/issues/56-schools-across-japan-aim-to-nurture-super-global-leaders/#.XSCLfHtS82w>

develop the knowledge and skills of the students.¹¹ Separately, Tamagawa coordinates exchange programs with 14 overseas schools based in countries including the U.S., Canada, Botswana, Germany, Brazil and Taiwan. Students are expected to understand global problems and through exchange programmes observe and experience these issues, as well as think critically about what they can do while overseas, and on their return to Japan. The school planned to host a conference with its network of overseas schools to discuss global issues.

Tsukuba High School is a Senior High School at Otsuka, affiliated with the University of Tsukuba. The school aims to give students training to become leaders and emphasizes the implementation of problem-solving methods. The schools' SGH plans described how its high school students will work with the university's professors and graduate-school students to research global issues such as how the upcoming Tokyo Olympics and Paralympics can help transform society and promote peace.¹²

Since 2014 SGH has resulted in an increase in number of participants in overseas project research training. English language abilities have significantly increased and some 60% of SGH participants said they would like to study overseas and pursue international careers.

7. Monitoring and evaluation of Japan's ESD

Robust monitoring and evaluation is essential for improving the implementation and effectiveness of ESD. However, evaluation has not been one of the strong features of ESD. According to Mochizuki (2017) Japanese academics tend to critique Japanese ESD policy and practice in light of UNESCO's ESD principles. Therefore, I will therefore firstly consider UNESCO's approach to teaching and learning ESD.

7.1. UNESCO and ESD Pedagogy

According to UNESCO (2012) ESD is education for social transformation with the goal of creating more sustainable societies. This represents a profound change from traditional education with its focus on imparting knowledge. As Nagata (2017) puts it:

Rather than the obtaining of surface-level knowledge, what's needed is transformation along the dimension of enabling individuals to develop perspectives that will help them create a sustainable society. If traditional education is transmissive education, then we should call ESD truly transformative education.' (p.33).

UNESCO (2006) proposed seven essential characteristics for ESD as follows:

- Interdisciplinary and holistic: learning for sustainable development embedded in the whole curriculum, not as a separate subject;
- Values-driven: it is critical that the assumed norms – the shared values and principles underpinning sustainable development – are made explicit so that can be examined, debated, tested and applied;

¹¹ See: <http://www.sustainabilityfrontiers.org/index.php?page=the-super-global-high-school-program-tamagawa-academy-japan>

¹² See: <https://www.japantimes.co.jp/community/2014/06/01/issues/56-schools-across-japan-aim-to-nurture-super-global-leaders/#.XShPHHtS82w>

- Critical thinking and problem solving: leading to confidence in addressing the dilemmas and challenges of sustainable development;
- Multi-method: word, art, drama, debate, experience. Teaching that is geared simply to passing on knowledge should be recast into an approach in which teachers and learners work together to acquire knowledge and play a role in shaping the environment of their educational institutions;
- Participatory decision-making: learners participate in decisions on how they are to learn;
- Applicability: the learning experiences offered are integrated in day to day personal and professional life;
- Locally relevant: addressing local as well as global issues Concepts of sustainable development must be carefully expressed in other languages. – languages and cultures say things differently, and each language has creative ways of expressing new concepts. (p.17).

According to Didham and Ofei-Manu (2012)) this critical pedagogical approach ‘places learners at the centre of a socially-constructed and dynamic system for which their education is helping to develop the capacity to become an effective agent of change for social transformation.’ (p. 7).

UNESCO (2009, p. 7) further identified the application of two distinct pedagogical approaches to ESD: (1) ESD as a means to transfer the ‘appropriate’ sets of knowledge, attitudes, values and behaviour; and (2) ESD as a means to develop people’s capacities and opportunities to engage with sustainability issues so that they themselves can determine alternative ways of living. Sterling (2001) makes a similar distinction between a transmission and transformation approach, as does Freire (1973) between a banking and problem-solving approach. Didham and Ofei-Manu (2012) also contrast transformative to traditional transmissive teaching approaches to ESD (the former shown in brackets):

- Student-centred learning (rather than teacher-directed learning);
- Engaged learners (rather than abstract observers);
- Cooperative and social learning (rather than individualistic learning);
- Learners oriented towards problem solving and practical experience (rather than information memorization and rote learning);
- Critical awareness and reflexivity to create personal knowledge constructs (rather than rationalistic, factual transmission);
- Learners’ perception guided by interdisciplinary, holistic systems thinking (rather than disciplinary boundaries and constructs);
- Learning objective to create socially aware and responsible citizens (rather than transmission of core knowledge set);
- Learners who appreciate interdependent relationships between themselves, society and ecosystems (rather than individualistic orientation). (p.9)

Sterling (2001) argues that traditional or “mainstream education sustains unsustainability – through uncritically reproducing norms, by fragmenting understanding, by sieving winners and losers, by recognizing only a narrow part of the spectrum of human ability and need, by an inability to explore alternatives, by rewarding dependency and conformity, and by serving the consumerist machine”. (pp.14-15).

Huckle (2012) also calls for a critical pedagogy for sustainable development that enables learners to realize that the existing paradigm of development is unsustainable. Learners need to “become more firmly anchored

in the realities of the dominant forms of unsustainable development and underdevelopment that shape the contemporary world". This means that learners need to be empowered to seek alternatives.

When it comes to ESD pedagogy how does Japan fair? Has there been a shift from traditional transmissive towards transformative pedagogical approaches to ESD?

7.2. Evaluation of ESD Pedagogy in Japanese Schools

Nagata (2017) in his critical review of ESD in Japan notes that there have only been a few studies on ESD with a critical perspective and publications in English are also scant¹³ (p. 30). However, Didham and Ofei-Manu (2012) carried out a research project to evaluate national implementation during the UNESD in East and Southeast Asian countries. Japan was one of the countries that was evaluated. The report noted that some seven years into DESD that there was 'still no existing framework for systematic and structured assessment of ESD implementation that is regularly being applied' (p. ii). One of the reasons given for this is that ESD emphasises qualitative improvements to practice that do not fit the usual quantitative approach to educational assessment.

Nagata (2017) asserts that there has been insufficient debate on whether Japanese ESD has brought about the necessary transformations expected to build the foundation for a sustainable society. This is despite the level of backing that the Japanese government has given. Nagata differentiates between 'shallow ESD' and 'deep ESD' with the latter deeply rooted in fundamental principles such as equity, resilience, de-growth, planetary conscience, earth rights and democracy. DESD has produced examples of shallow ESD and deep ESD but a problem is that "even if one aims for deep ESD at the planning stage, there is a trend towards fragmentation and stunting of ESD when it is integrated into the existing system (shallow ESD)". "In other words, by pouring the 'new wine' of ESD into the 'old bottle' of the traditional Japanese educational system, ESD be-came stunted". In order to prevent the loss of dynamism in ESD implementation it is essential to be conscious of 'deep ESD'.

To realize 'deep ESD', one needs to replace traditional educational methods with holistic critical pedagogical approaches. It also requires a reform-oriented mindset from administrative agencies down to the actual places where the education is being implemented. Nagata (2017) notes that Education in Japan is mostly transmissive, however ESD demands a transformative educational approach. Nagata also notes that teachers talk too much, give too much direction and most education is knowledge rather than values based.

Maruyama (2022) has also been critical of ESD teaching methodologies in Japan due to the prevalence of conventional transmissive approaches. He calls for a transformative approach with more student-centred empowering pedagogies. Maruyama chose a sustainability educational programme at a university in Tokyo as a case study to compare the programme before and during the COVID-19 pandemic. The results demonstrated the importance of transformative learning through ESD in both on-line and face-to-face teaching. He found that transformative, social, participatory and experiential pedagogical approaches led to effective ESD learning. In addition, self-discovery and dialogue and collaboration with other students is important. As experiential learning can be weak in the online learning environment as during the pandemic, ICT was the crucial to ensuring social and participatory learning. Transformative Education is the approach that UNESCO (2021) now strongly advocates and this could give impetus for further pedagogical change in Japan.

¹³ One of the rare works published in English is Singer et al. (2017).

Didham and Ofei-Manu (2012) in their evaluation of Japan's ESD expressed surprise that Japan as a country at the leading edge of ESD was not using advanced methods and holistic approaches. Furthermore, when experts from abroad visit schools in Japan for their research, it seems that they are not infrequently surprised to find that the lessons are not progressive. This is in agreement with Nagata's view of ESD in Japan.

One would have expected the Japan Report on UNDESD (The Interministerial Meeting on the United Nations Decade of Education for Sustainable Development, 2014) to include an in-depth evaluation. However, there is just a description of the activities that had taken place. In the report the objectives of ESD are stated as:

bringing about a transformation of behaviour that enables the realization of a sustainable future, in environmental, economic, and social terms, in which all people can enjoy the benefits of high-quality education and in which the principles, values, and behaviour required for sustainable development are incorporated into all education and learning situations, resulting in a transformation into a sustainable society. (p.2)

The report acknowledges that Japan's DESD efforts "have produced certain achievements in school education" but goes on to say that "it can hardly be said that ESD has spread widely enough to bring about a transformation into a sustainable society" (p.2). Furthermore, the report adds that:

To transform the entire country in the future into a sound material-cycle socioeconomic system that is sustainable, low carbon, and coexists in harmony with nature, it will be necessary to more strongly implement ESD (the foundation of this system) beyond 2014 as well (p.13).

Didham and Ofei-Manu's research project aimed to improve ESD assessment had the following main objectives:

- To develop an ESD monitoring and evaluation framework;
- To develop an ESD learning performance-good practice case framework;
- To gather data for National ESD Status Reports;
- To collect case reports on ESD good practice and learning performance;
- To undertake data analysis to identify leverage points, success factors and barriers to ESD implementation; and
- To draft pilot ESD indicators for future application and assessment.

Based on the finalised evaluation framework, an extensive survey was prepared for reporting on ESD implementation in each participating East and South Asian country. The final report on Japan noted that ESD teaching is generally not guided by practice standards or auditing mechanisms. Due to this fact and the nature of ESD teaching through the integration of sustainability themes into core subjects, it is very difficult to assess the major learning outcomes. Teaching of ESD in core subjects is not guided by specific ESD teaching strategies or progressive learning objectives. Pedagogical approaches including materials are mostly tied to the core subjects.

There were few schools that integrated ESD across the curriculum with a whole-school approach. Instead, there was fragmentation whereby ESD content is incorporated into traditional subjects e.g. environmental sustainability in the natural sciences and sustainable consumption in home economics. ESD had also been

included in Integrated Studies (IS) - an interdisciplinary project-oriented learning activity developed autonomously at each school. IS had been applied in some schools to create a more holistically oriented ESD.

Didham and Ofei (2012) report also found that ESD mainly focused on knowledge transfer (rather than skill-based or value-based learning). Furthermore, there was very little application of the progressive learning methodologies connected to ESD. This is partly due to there being no clear mandate to provide teacher training on ESD, which is essential for pedagogical capacity building. The report adds that “it seems surprising that the country that has been at the forefront of ESD promotion is not further advanced in its practice of adopting progressive methodologies or holistic ESD approaches compared to the other countries reviewed”. Such whole-school holistic ESD approaches are ‘only really found in some of the ASPnet schools’ in the country (pp.31-33).

Therefore, despite all of Japan’s efforts to support ESD, there is still a long way to go to realise its objectives.

8. Global monitoring and evaluation of Japan’s ESD

Since 2016 all countries have had to supply yearly reports on their SDG 4 progress. This is compiled by UNESCO in Global Education Monitoring Report which shows the targets and indicators for SDG 4. The latest report was published in 2018 (UNESCO, 2018). Target 4.7 is about sustainable development and global citizenship’. The global indicator relevant to this is 4.7.1:

Extent to which (i) global citizenship education and (ii) education for sustainable development, including gender equality and human rights, are mainstreamed at all levels in: (a) national education policies, (b) curricula, (c) teacher education and (d) student assessment.

UNESCO Institute of Statistics did not report data in these areas and for Japan it only includes scientific literacy rate of 90% (Table 6, p.328). Besides even if the data were available, such as the inclusion in curricula on gender equality, human right, sustainable development and global citizenship would indicate nothing about the quality of teaching, course contents and whether it has achieved a transformation in attitudes and behaviours of students, their schools and communities. There is also no data on thematic indicator 4.7.4. - the percentage of students by age group (or education level) showing adequate understanding of issues relating to global citizenship and sustainability. Evaluation of ESD at both the national and international level clearly needs improvement to assess whether the goals are being achieved.

8.1. Evaluation of an ESD case study in Kesenuma, Miyagi Prefecture

Watanabe (2015) carried out a qualitative case study of ESD implementation in three elementary and three junior high schools in Kesenuma City, Miyagi Prefecture. The study included document analysis, interviews and questionnaires. Amongst the six schools there was a diverse set of ESD activities and evaluation methods. A summary for each of the six selected schools was compiled and included: practices of ESD, learning areas, aims, abilities to be fostered, viewpoints and methods of evaluation, challenges, and each school’s implementation characteristics (pp.32-38).

Table 1 gives an example from Elementary School B that has an environmental studies program with the theme of waterside environment. The school sought the cooperation of the local community, universities and special institutions to implement a disaster preparedness program based on self-help and mutual-help.

Table 1. School B's ESD program (Source: Kesenuma City Board of Education, 2013)

Program	Environmental Education and Disaster Risk Reduction education with a writing activities focus
1. Aims	<ul style="list-style-type: none"> To foster students' abilities to think independently and express themselves, as well as develop skills necessary for the future leaders who will contribute to building a sustainable society.
2. Abilities to be fostered	<ul style="list-style-type: none"> Ability to think critically. Ability to anticipate the future and make plans for it. Ability to think multilaterally and comprehensively. Ability to communicate. Attitude of cooperating with others. Attitude of respecting connections. Attitude of participating proactively.
3. Evaluation	<ul style="list-style-type: none"> Focus on changes in the students' awareness in regard to the two themes through a survey about student' awareness and attitude. From students' impressions, see changes in their students' behaviour. Carry out evaluations of the teachers to measure their awareness of ESD. Disseminate information to the local community and ask them about their opinions on activities.
4. Challenges	<ul style="list-style-type: none"> To improve the study program and link the content of each study. To re-organize the coordination and cooperation with local human resources based on the study contents and aims. To review the study content in relation to the learning environment affected by the 2011 earthquake disaster.
5. Characteristics	<ul style="list-style-type: none"> The school has engaged in ESD actively and their activities offer models of ESD to other schools. The school conducted their own research and survey on ESD. Taking into consideration the framework by NIER (attitudes and abilities to be fostered in ESD). Focus on developing abilities and attitudes rather than themes.

From the analysis of the selected six schools, the researcher found that most of the abilities and attitudes to be fostered in ESD fit into the seven categories of the National Institute for Educational Policy Research (Japan) (NIER, 2012, p.4). These categories are similar to those in the table above for school B (2. Abilities to be fostered).

In terms of evaluation, Watanabe (2015) reported that each of the six schools had utilised different methods¹⁴ that is focused on the students' learning process. From these six examples three ways to evaluate how and to what extent the students have attained the aimed abilities and attitudes were derived:

- teachers conducted observations throughout the ESD programs focusing on knowledge and skills gained and changes in the student' awareness and behaviour
- self- or peer evaluation by the students through surveys and reports. The written reports are kept as portfolios and teachers use them to evaluate how students have developed throughout the ESD activities
- feedback and comments given by parents/guardians and locals residents in response to presentations. Some schools had opportunities to hold presentations inviting both parents/guardians and local residents and thereby received comments.

Watanabe does not give any further detail of each schools' evaluation method, data analysis and results. Nonetheless the study reveals positive steps that schools have attempted to evaluate changes in students' ESD awareness, attitudes, critical thinking capabilities and willingness to take actions – such a task is not straightforward. An increase in critical awareness that translates into critical action is essential for creating a sustainable world.

8.2. Evaluating ESD learning at Moriyami High School, Shiga

Given that ESD aims to foster the transformation to a sustainable future, assessing changes in students' values, ecological awareness and actions for change is an important part of determining the success of ESD initiatives in schools. Zhou and Singer (2017) undertook an evaluation of the impact on students of a sustainability programme at Moriyama High School on students. The school is certified as one of the Super Global schools mentioned earlier. The sustainability programme was planned for five years beginning in 2014 and planned to:

- Coordinate with universities, companies and international organisations to enable students to carry out fieldwork or site visits and learn practically
- Organise sustainability-related lectures and workshops with university faculty
- Conduct in-school debates on sustainability topics
- Organise overseas study and training
- Produce a proposal for creating a sustainable society in Shiga and globally. (p. 54)

¹⁴ Different methods of evaluation used by schools:

- Observations by the teachers of student activities
- Portfolios including reports, worksheets and compositions
- Student self-evaluation and peer evaluation
- Student presentations to parents/locals with evaluations through comments and survey.
- Survey of changes in student' awareness, attitudes and behaviour
- Evaluations of the teachers to measure their ESD awareness.
- Dissemination of information to get local community to get feedback on activities (Watanabe 2015 pp. 32-38)

Debates were organized on a range of sustainability topics and there were also lectures from outside experts. Zhou conducted a five-month internship at the school to determine the impact of the sustainability programme on students' pro-sustainable awareness and behavior using questionnaires and focus group discussions. Pre- and post-programme questionnaires were administered to all 274 first year senior high school students. Using a Likert scale, the first part assessed students' perspectives and understanding of sustainability and pro-sustainable behavior in daily life. Part two identified the change in students' awareness and interest in learning about diverse social issues, their interrogative skills and their reflections on the programme. The post-programme survey also had two parts but the content was slightly different to the pre-programme survey. However, enough questions were the same so it was possible to obtain comparative data. The pre-survey took place on 10 and 17 October 2014 and the post-survey 19 February 2015, and the focus group discussions (FGD) on 27 February 2015. The questions for the FGD included: (1) understanding of sustainability; (2) the importance of sustainability; (3) responsibility to help make society more sustainable.

The results revealed an improvement in students' awareness of sustainability which was attributed to the focus at the beginning of the programme on learning rather than engaging with sustainability. However, there was no dramatic change in behaviour and this indicated that there should be more emphasis on experiential learning. The case study was unique in that it introduced an evaluation of a change students' awareness and attitudes due to a sustainability programme. Notably the study created a methodology for benchmarking. However, the study lasted just 4 months which is too short to assess the long-term impact of sustainability learning.

9. Action Research – the importance of evidence-based research

The Incheon Declaration and SDG4 - Framework for Action (UNESCO, 2015) highlighted the importance of research in achieving its educational goals. It proposed that the research community could (p. 59):

- develop policy-relevant research, including action research, to facilitate the achievement of the targets, and make knowledge on education available in a usable form for policy-makers;
- develop local and national sustainable capacity for qualitative and quantitative research;
- help chart progress, propose options or solutions and identify best practices that are innovative, scalable and transferable.

Critical action research could provide an effective means to integrate the theory and practice of ESD as well as provide the means for systematic evaluation. This was the approach taken by Cooper and Bedford (2017) in a Transformative Education for Gross National Happiness (GNH)¹⁵ teacher action research in Bhutan. The research involved teachers from Paro, Bhutan developing transformative pedagogy and transformative action research skills to promote GNH in their schools' involving cycles of planning, action, observation/evaluation and reflection. There were seven principles of Transformative pedagogy for GNH¹⁶ rooted in critical pedagogical theory: Ethical, Conscientizing, Activist, Situated, Diversity, Researching, Participatory. A similar

¹⁵ Gross National Happiness is Bhutan's unique development paradigm which stresses the importance of well-being over economic growth. See: <http://www.timothybedford.com/educational-projects/transformative-education-for-gross-national-happiness-gnh>

¹⁶ See presentation of Transformative Pedagogy for GNH: <https://education4gnh.webs.com/transformative-pedagogy>

approach with grassroots initiatives in Japan could improve the effectiveness of ESD through the empowerment of teachers.

10. Post GAP developments: ESD for 2030 framework and roadmap

Sixty Key Partners of the Global Action Programme (GAP) on Education for Sustainable Development (ESD) met in Ha Noi, Vietnam in 2019 to discuss the lessons learned from five years of the GAP in areas including policy, learning environments, educators and communities¹⁷. Overall, they noted that Key Partners had spearheaded innovative pedagogies and expanded ESD beyond the classroom.

As GAP came to an end in 2019 UNESCO adopted a new global framework on ESD called 'Education for Sustainable Development: Towards achieving the SDGs' or 'ESD for 2030'¹⁸. This global framework was designed for the implementation of ESD for the period 2020-2030. With this new development ESD had effectively become ESG (Education for the Sustainable Development Goals).

Japan has been instrumental in supporting the development of this global ESD framework and with government financial support through its Japanese Funds-in-Trust (JFIT) launched a new global network of education stakeholders - the ESD for 2030 Global Network (ESD-Net 2030). The ESD-Net 2030 is platform for knowledge sharing, collaboration, mutual learning, advocacy and monitoring and evaluation among a wide range of stakeholders, including governmental agencies, civil society organizations, educators, youth, research institutions, UN partners, international development communities, among others¹⁹. The ESD-Net 2030 was launched on 4 October 2022²⁰.

Japan's continued strong commitment to ESG post-GAP is further demonstrated by its support for several prestigious prizes. This includes the UNESCO-Japan Prize on Education for sustainable development funded by the Government of Japan and consists of three annual awards of USD 50,000 for each recipient. Award winners recognize the role of education in connecting the social, economic, cultural and environmental dimensions of sustainable development. The prize was established within the framework of the Global Action Programme (GAP) with the first award in 2015. At the conclusion of GAP in 2019 the prize was renewed with the next award in 2023²¹.

The ESD Okayama award was launched in 2015 by Okayama City which was the host city for the Stakeholder Meetings of the UNESCO World Conference on ESD in 2014. The city played a leading role in accelerating collaborative actions among people working for ESD. The ESD Okayama Award is organized by Okayama City and the ESD Okayama Award Steering Board composed of organizations which have been promoting ESD in

¹⁷ Lessons learned in five years of the Global Action Programme on Education for Sustainable Development:

<https://en.unesco.org/news/lessons-learned-five-years-global-action-programme-education-sustainable-development>

¹⁸ ESD for 2030: What's next for Education for Sustainable Development: <https://en.unesco.org/news/esd-2030-whats-next-education-sustainable-development>

¹⁹ Launch of the UNESCO ESD-Net 2030:

<https://unescochair.info.yorku.ca/2022/09/save-the-date-launch-of-the-unesco-esd-net-2030/>

²⁰ ESD for 2030 Global Network Launch:

<https://www.mission4point7.org/events/esd-for-2030-global-network-launch>

²¹ UNESCO-Japan Prize on Education for Sustainable Development:

<https://en.unesco.org/prize-esd>

Japan and around the world. The ESD Okayama Award aims to showcase good ESD practices worldwide and also to further advance SDGs. The prize of US \$3 000 is given to up to two projects²².

In February 2022 UNESCO and representatives of donor agencies from the Government of Japan held their joint annual review meeting. The meeting was a platform to share progress on ongoing projects, renew collaboration, and discuss future direction including, new project proposals were discussed including expanding and further developing the impact of “Good Governance for the Sustainable Development Goals: mobilizing UNESCO’s water and environmental science networks for the 2030 Agenda”.

The Government of Japan has been a long-standing supporter for UNESCO and ESD and the meeting reaffirmed Japan’s ongoing commitment including further financial support. In addition to its general contribution, Japan provides voluntary contributions to UNESCO through the Ministry of Foreign Affairs (MOFA), Ministry of Education, Culture, Sports, Science and Technology (MEXT), Ministry of Land, Infrastructure, Transport and Tourism (MLIT), and Japan Agency for Marine-Earth Science and Technology (JAMSTEC). The UNESCO Regional Sciences Bureau in Jakarta, along with UNESCO Headquarters, and the Intergovernmental Oceanographic Commission’s WESTPAC Office in Bangkok have been implementing projects supported by Japanese Funds-in-Trust (MEXT) for Scientific Programmes on Global Challenges in Asia and the Pacific²³.

Japan is performing well in ESD judging by a report published by UNESCO Institute of statistics (UIS, 2021) on the commitment of countries to fulfill their commitment to SDG 4 targets. The national benchmarks included a set of seven SDG 4 indicators: early childhood education attendance; out-of-school rates; completion rates; gender gaps in completion rates; minimum proficiency rates in reading and mathematics; trained teachers; and public education expenditure. However, there is an elephant in the room. ESD has become entwined with SDGs at a time when the sustainability of SDGs is being questioned as they are built on a foundation of unsustainable economic growth.

11. Are the SDG’s Sustainable?

According to UNESCO²⁴:

sustainable development represents the balanced integration of social and environmental objectives with economic development. These three aspects of sustainable development – society, environment and economics – were named as the three pillars of sustainable development at the World Summit on Sustainable Development in Johannesburg in 2002.

This ‘Three Pillar’ model is also known as the ‘Triple Bottom Line’ (TBL) model and is the dominant sustainable development paradigm and foundation of national and international policy making. The TBL model of sustainability is represented by model 1 in Figure 1 with the small black inter-section of the three circles representing the possibility of sustainability. However, in this model limits imposed by the environment

²² ESD Okayama Award, 2022, Japan: <https://armacad.info/2022-06-15--esd-okayama-award-2022-japan>

²³ UNESCO and Japan Reaffirm Long-standing Partnership for Science Cooperation in Asia and the Pacific:

<https://www.unesco.org/en/articles/unesco-and-japan-reaffirm-long-standing-partnership-science-cooperation-asia-and-pacific>

²⁴ UNESCO: Integrating ESD in Teacher Education in South-East Asia https://esdteachers.bangkok.unesco.org/?page_id=237

(biosphere) on economic and social activity are ignored. By disregarding the limits to growth and planetary boundaries it can be argued that this renders the model scientifically flawed and unsustainable. In contrast the 'Strong Sustainability' model recognises that all of life and human actions is contained within the biosphere of which the economy is a subset and part of the sociosphere. This is represented by model 2 in Figure 1.

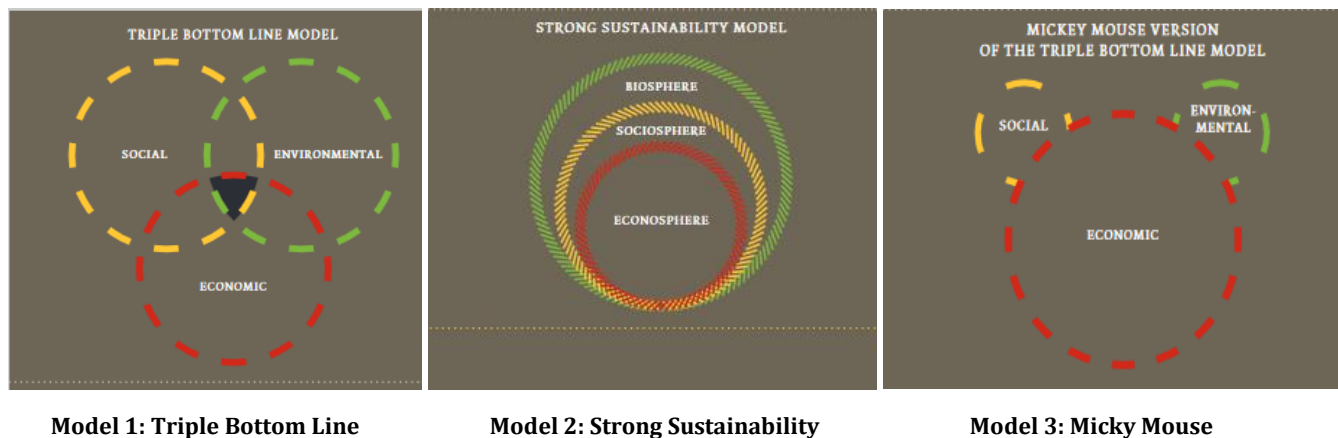


Figure 1. Three alternative models of the concept of sustainability
(Source: Sustainable Aotearoa New Zealand Inc (SANZ), 2009)

Strong sustainability as the foundation for human development supports the integrity of all ecological systems in the biosphere, and a sustainable human society that lives and develops as an integral part of ecosystems.²⁵ Therefore in the long run a “sustainable economy may exist only in a sustainable symbiosis with the natural system, upholding natural laws and respecting natural limits of economic growth. It is the only option which ensures long-term survival of human civilisation on earth” (Bogovic and Cegar, 2012).

Kate Raworth (2017) provides another model that combines meeting the needs of all within the means of the planet. These needs include providing life’s essentials while ensuring that collectively we do not overshoot our pressure on Earth’s life-supporting systems, on which we fundamentally depend. The model is depicted in Figure 2 as a doughnut and consists of twelve social dimensions derived from the SDGs and nine planetary boundaries as set out by Randers et al. (2009), beyond which lie unacceptable environmental degradation and potential tipping points in Earth systems.

Between the social and planetary boundaries lies an environmentally safe and socially just space in which humanity can thrive. It can be seen that already four out of the nine planetary boundaries have been exceeded whilst none of the social goals have yet been universally realized. If economic growth is the means to achieve the social goals this will result in further ecological overshoot.

²⁵ Daly (1990) proposes 3 operational rules for defining sustainability:

(1) Renewable resources such as fish, soil, and groundwater must be used no faster than the rate at which they regenerate. (2) Nonrenewable resources such as minerals and fossil fuels must be used no faster than renewable substitutes for them can be put into place. (3) Pollution and wastes must be emitted no faster than natural systems can absorb them, recycle them, or render them harmless

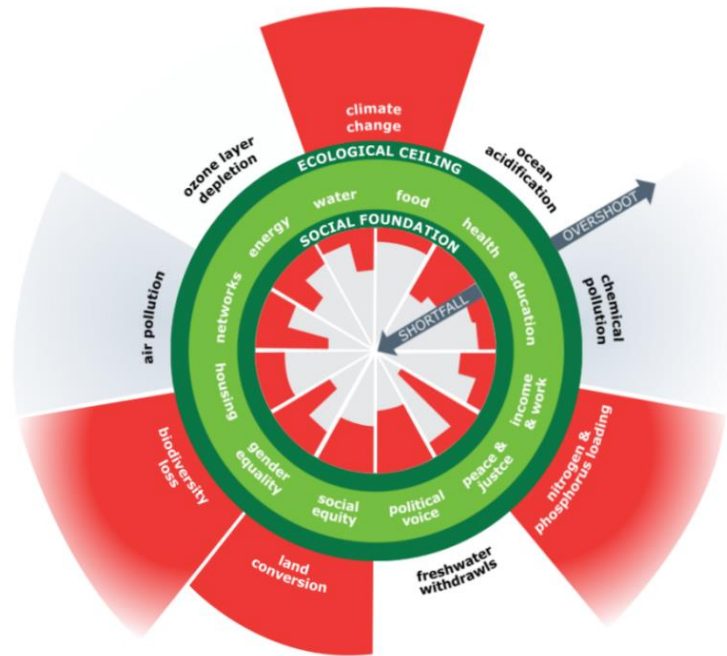


Figure 2. The doughnut of social and planetary boundaries (Raworth, 2017)

At its worst, the Triple Bottom Line model results in the prioritization of the economy and economic growth, whilst environmental and social outcomes receive much lesser attention. This has been termed the Mickey Mouse model (model 3) and is currently the model that underpins most global economic and political decision making today. More economic growth remains the priority even though it is not impossible to have infinite growth on a finite planet. With limits to production efficiency gains, more economic growth leads to an increase in material and energy use and contributes to environmental degradation, more CO₂ emissions, climate change, deforestation, loss of biodiversity and mass extinction.

Since the 1970s, humanity has been in ecological overshoot, with annual demand on resources exceeding what Earth can regenerate each year. Today humanity uses the equivalent of 1.7 Earths to provide the resources we use and absorb our waste. This means it now takes the Earth one year and eight months to regenerate what we use in a year. We use more ecological resources and services than nature can regenerate through overfishing, overharvesting forests, and emitting more carbon dioxide into the atmosphere than forests can sequester.

In 2008, Japan’s per capita Ecological Footprint was 4.17 global hectares, about 1.55 times the world average of 2.7 global hectares. This means that if everyone in the world lived the same lifestyle as the average Japanese citizen, we would need the equivalent of 2.3 planets (Japan WWF, 2012).

To create sustainable societies excessive consumption of resources needs to be addressed in order to live within the earth’s carrying capacity. However, not only does economic growth remain the priority of national governments it is the foundation of the SDGs. Economic growth is mentioned seventeen times in the UN’s SDGs

resolution 70/126 (Transforming our world: the 2030 Agenda for Sustainable Development), whilst planetary boundaries are not mentioned even once.

Agenda 2030 contains many contradictions and also affirmations of growth. SDG8 is 'Decent Work and Economic Growth' and 8.1 states: "Sustain per capita economic growth... at least 7 per cent GDP growth per annum in the least developed countries." However, if LDCs are to catch up with the North it would need at least 3.4 Earths to sustain this (GFN). Furthermore, poverty reduction (Goal 1) will increase consumption but also waste and pollution, and greatly exacerbate global climate impacts (Goal 13), undermining the goals of protecting biodiversity and managing the impacts of waste (Goals 14 & 15).

Although SDG Target 4.7 is about ESD, UNESCO (2016) has highlighted the importance of economic growth:

- Education contributes to economic growth. (p. 38)
- If education is to continue to drive growth, it must keep up with the rapidly changing world of work. (p.16)
- A future where economic growth does not exacerbate inequalities but builds prosperity for all." (Foreword)
- Education of good quality can help ensure economic growth does not leave anyone behind. (p. 38)

The economic growth agenda of the SDG's and ESD is therefore incompatible with environmental sustainability, especially as developed countries are already in ecological overshoot. Political leaders are complicit with neo-liberal and globalization forces that drive economic growth. As Huckle and Wals (2015) argue: 'the rationale for the decade was idealistic but 'failed to acknowledge or challenge neoliberalism as a hegemonic force blocking transitions towards genuine sustainability' (p.491). It is therefore important that students should explore ESD issues 'that reveal structural causes and consider reformist and radical solutions' (p.495). It is unclear to what extent this approach is evident in Japan's ESD. However, Mochizuki (2017) says that there are cases that demonstrate that ESD in Japan has challenged the status quo and pursued an alternative path (e.g., Singer et al., 2017, p.16). Further research is needed to explore the prevalence of a strong sustainability approach to ESD that deals with the contradiction of SDG's based on economic growth. Nagata (2017, p.30) argues there are two ESDs – one ESD with capital letters and one ESD with lower case letters. The former is the version of UN, UNESCO governments and other international organisations. The latter is grassroots ESD including local formal and informal education initiatives that seek to make a difference despite the fundamental flaws of the growth-based SDG's.

12. Conclusion

This paper has highlighted the aims and objectives, actions and outcomes of ESD which emerged from the UN Earth Summit in Rio de Janeiro in 1992. A decade later a Rio+10 conference took place in Johannesburg in 2002 which subsequently led to the UN Decade of Education for Sustainable Development (DESD) from 2005-2014. Japan was instrumental in bringing about the DESD and the Global Action Programme (GAP) that followed. GAP was launched at the World Conference on Education for Sustainable Development (ESD) in November 2014 in Aichi-Nagoya, Japan. As GAP came to an end it was followed by the adoption by UNESCO in 2019 of a

²⁶ UN Resolution 70/1: Transforming our world: the 2030 Agenda for Sustainable Development: https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_RES_70_1_E.pdf

new global framework on ESD called 'Education for Sustainable Development: Towards achieving the SDGs' or 'ESD for 2030'.

Japan has continued to show a strong commitment to ESD with financial and technical support. The successes are demonstrated by the examples given in the article of good ESD practices to promote sustainability. Nonetheless criticisms remain, notably that ESD is often based on transmissive pedagogy whereas effective ESD requires transformative pedagogical approaches as advocated by UNESCO (2021). Also, there has been a lack of interdisciplinary, holistic and whole school approaches to ESD.

Despite all of Japan's ESD efforts there is evidence that shows that there is still a lot more to do create a sustainable Japan and world. The ideals of ESD have not always translated into good practice in schools. According to E.F. Schumacher:

The volume of education continues to increase, yet so do pollution, exhaustion of resources, and the dangers of ecological catastrophe. If still more education is to save us, it would have to be education of a different kind: an education that takes us into the depth of things (E.F. Schumacher, quoted in Sterling 2001, p.21)

The call by Nagata (2017) for a deep ESD is rooted in sustainability principles that echo Schumacher's call for radical educational change. However, it has been seen that educational structures are rigid and established ways are difficult to change. This is evident in the problems that Japan has encountered in establishing holistic ESD approaches as well as introducing critical pedagogy. However, the biggest challenge of all is not in implementing ESD but rather transforming global economic structures that are based on a growth paradigm. SDG's themselves are built on a foundation of economic growth and as such are contradictory and unsustainable. Rockström et al. (2018) are in agreement that meeting the SDGs based on conventional growth policies is not possible and "by accelerating growth an increasing number of the socio-economic goals may be reached but it will occur at the expense of the environmental SDGs and push planetary boundaries into high-risk zones". (p. 6). What is needed is a change in ethics, values and policy that prioritises wellbeing with ecological and social objectives at the forefront.

ESD has become entangled with the SDGs and this means that no matter how critical lowercase ESD is, capital letters ESD is steering us on an unsustainable course. ESD being a part of the SDGs makes it less likely that the hegemonic principles underpinning sustainable development will be critically examined, debated, tested and applied. Indeed, Mochizuki (2017) claims that Japanese scholars tend to critique ESD policy and practice in light of UNESCO's ESD principles. This could result in an uncritical approach to the ESD project that does not consider the strong sustainability critique of sustainable development.

The world is at a critical turning point. Three of the choices to be made are: (1) continue with business as usual with the conventional economic growth paradigm, (2) pursue green growth - a more environmentally friendly approach version of the growth model, but growth all the same or (3) adopt a more radical approach which recognizes planetary boundaries where the goal is not economic growth but sustainable well-being.

The SDGs and ESD as practiced in Japan and elsewhere are insufficient to address the sustainability gap including climate change. Waiting until 2030 for new SDGs could be too late. A new strong sustainability paradigm is urgently needed with economic objectives and policies that foster well-being for all within the limits of a finite planet. This strong sustainability paradigm has to be the foundation of ESD. The challenge is

knowing what to do when the Sustainable Development Goals promote a failing economic model that impedes the implementation of deep structural change needed for sustainability. Grassroots lowercase ESD initiatives in Japan provide some hope for meeting this challenge.

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