

Whole School Approaches to Sustainability

Exemplary practices from around the world



Whole School Approaches to Sustainability: Exemplary Practices from around the world

This report on exemplary practices of a Whole School Approach (WSA) to Sustainable Development was made possible by the program DuurzaamDoor, and the Ministry of Agriculture, Nature and Food Quality in The Netherlands.

The report serves as one of the key inputs for the WSA International hybrid Conference held on the 28 - 30th of March 2022, Lunteren, The Netherlands, organised by SME Advies.

With the help of multiple practitioners connected to the school examples which are mentioned in each case study, this report has been prepared by researchers Rosalie Mathie of The Norwegian University of Life Sciences, and Arjen Wals of Wageningen University in The Netherlands^a.

Graphic design and illustrations: Nicolette Tauecchio (Nicniq)
Copy editor: Siri Elise Dybdal

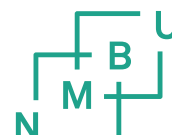
This work is licensed under the Creative Commons Attribution-NonCommercial 4.0 International License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc/4.0/> or send a letter to Creative Commons, PO Box 1866, Mountain View, CA 94042, USA.

Mathie, R. G. and Wals, A.E.J. (2022) Whole School Approaches to Sustainability: Exemplary Practices from around the world. Wageningen: Education & Learning Sciences/Wageningen University. 109 pages. <https://doi.org/10.18174/572267>.

ISBN: 978-94-6447-287-5
DOI: 10.18174/572267



WAGENINGEN
UNIVERSITY & RESEARCH



**Norwegian University
of Life Sciences**

^a: Arjen Wals is also associated with UNESCO, the Norwegian University of Life Sciences, and the Western Norway University of Applied Sciences

Preamble

This report provides an analysis of practical examples of the use of a WSA to help achieve Sustainable Development Goal (SDG) 4 - Quality Education for all, and all the other connecting SDGs. Distinct but inevitably connected and reinforcing features of a WSA are highlighted: *Curriculum design assessment and development; Pedagogical innovation; School management and leadership; School-community relationships; Professional development of all staff; and Institutional practices – The school as a 'living laboratory' for experimenting with healthy, equitable, democratic, and ecologically sustainable living.*

Schools engaging with a WSA from sixteen countries (Japan, The Netherlands, Mongolia, USA, South Africa, Cyprus, Norway, Canada, India, Hongkong, UK, Finland, Türkiye^a, Nepal, Uruguay, and Kazakhstan) have contributed to the report. They have provided critical examples of exemplary practices^b that not only highlight success stories, best-practice principles, and strategies, but also struggles, setbacks and challenges and approaches to overcome them.

A few words on privilege and access: While this report makes a conscious effort to bring together a diverse range of school examples from around the world, the countries and schools represented are limited due to a very short time-frame for identifying and selecting the case study examples. It is also clear that some of the cases feature schools that have a more privileged starting point than others, with regards to for example funding and access to support. Moreover, some schools may not be accessible to those who live under less favourable circumstances, or do not have the means to join a school such as the ones included in this report. Additional examples are still needed that come from different cultures and societies, as each will have unique insights that are impossible to capture in just one 'quick scan' best practice report. Moreover, one cannot ignore the inequities and disparities that are

apparent within the sustainability-oriented education context. Especially when many students witness and experience conflict, violence, social and environmental injustice, and extreme income disparities. Here, the policy-environment has a key role in making sure that attention is paid to inequality, and that extra support is provided to those schools and communities who are merely trying to survive daily as issues of inclusivity are an essential aspect of sustainability. One also cannot ignore that the 'green school' movement is still seen as transforming only a minority of schools as Tannock¹

discusses: "Annette Gough² estimates that "generally a third or less" of schools in any given country are currently participating in green school programs, "with a domination of early childhood and primary schools." Unless the best Green Schools and Eco-Schools can become prefigurative spaces for developing pilot models that lead to the transformation of the whole school system, the risk is that this kind of climate and environmental education can end up becoming what so often happens to progressive forms of education: a specialist form of schooling accessible only to a privileged few children and young people"³. It is vital we ensure that the momentum and traction holistic approaches such as a WSA are experiencing today is utilised to develop sustainability-oriented education and sustainable development that is inclusive and beneficial to all.

The lay-out of the report is as follows: First, a general introduction to a WSA to Sustainability is provided. The subsequent section contains the in-depth case-studies, preceded by a short explanation of how cases were selected, analysed, and reported on. The closing section consists of a meta-analysis of the case studies with key lessons learnt and suggestions for strengthening the WSA from a policy perspective.

a: As requested by the contributors, we are using 'Türkiye', instead of 'Turkey' in this report.

b: Disclaimer – Writing this report was a joint effort involving teachers and researchers from around the world. While we have all aimed to be critically reflective, this report is foremost gathering insight instead of presenting empirical studies as not all the schools have been visited directly. The main focus of the report was to gather up to date experiences and knowledge directly from schools engaging with a WSA, with the overarching aim to stimulate the discussion that will take place at the WSA international conference and beyond.

Contents

SECTION I INTRODUCTION

Whole School Approaches to Sustainable Development – A Transition Perspective	5
---	---

SECTION II CRITICAL EXEMPLARY WSA CASE STUDIES FROM AROUND THE WORLD

Case studies introduction	9
Türkiye • A Whole Classroom Approach as a WSA entry point	11
Uruguay • Sustainable School Buildings and Grounds as a WSA entry point	12
Japan • A 'Whole Community Service' Learning Approach to ESD	13
The Netherlands • Green Vocational Schools committed to a WSA	18
South Africa • Longstanding Eco-School members	22
USA • Chicago based Global Citizenship Experience (GCE) Lab School	28
Cyprus • A cross curricular holistic approach involving school, family and wider community	33
England, UK • Ruskin Mill - A Whole School, for the Whole Child, in a Whole Community	38
India • Quality Education' as an enabler for the SDG's	43
Norway • Montessori Students as changemakers	48
China • Hong Kong: A Whole School Sustainability Audit spearheading a whole school commitment to change	54
Finland • Terälahti a Nature-school holistic integrated approach	61
Canada • Belfountain 'Learning for a Sustainable Future School'	65
Kazakhstan • A Whole School commitment to sustainability - embracing the SDG's through stories	70
Nepal • Rupantaran whole school community research and development partnership	75
Norway • A university-school partnership on ESD in practice	79
Mongolia • A Nation's response to mainstreaming ESD practices utilising a WSA	84
Türkiye • A Green Flag Eco-School's Journey towards ESD Practices	89
Northern Ireland, UK • School - Community Partnerships in action	93

SECTION III SYNTHESIS & CLOSING REMARKS

Synthesis	99
Closing remarks	102

SECTION IV APPENDIX

Endnotes	103
Report contributors portraits	107

I Introduction

Whole School Approaches to Sustainable Development – A Transition Perspective

A Whole School Approach (WSA) provides a framework for re-orienting and redesigning education considering emerging global sustainability challenges⁴. It invites a holistic, systemic, co-creative and reflexive effort by all stakeholders involved in education to meaningfully engage students in complex sustainability challenges. *Holistic* here refers to the attempt to explore and address sustainability issues from multiple perspectives in an integrated and relational way. *Systemic* refers to considering key aspects of the education system simultaneously (curriculum, pedagogy and learning, professional development, school-community relationships, school practices, ethos, vision and leadership). *Co-creative* refers to the inclusion of multiple voices and multiple stakeholders in the development of the approach within a given context. Lastly, *reflexive* refers to the need for continuous learning, monitoring, evaluating and re-calibrating in light of a world that is in constant flux.

A WSA is not a tool or a prescription for implementing a topic or a specific agenda like ESD, but rather a means to encourage schools to use the WSA as a thinking tool for educational innovation generally. A WSA is a concept in which multiple themes can be simultaneously addressed within the overarching umbrella of 'sustainability' or 'sustainable development,' not by reducing them to 'learning tasks', but as entry points to a different way of working and living. As such a WSA represents a transition perspective, in that it does not intend to optimise mainstream education, but rather it seeks to re-orient it by anchoring it in different principles and values that contribute to education that is more responsive, relevant, responsible, and re-imaginative, in light of urgent global challenges⁵.

Just like 'business-as-usual' is no longer an option in times of obvious unsustainability, 'education-as-usual' is not an option either. This has also become apparent in international policy-arenas. In the first half of 2021, the United Nations Economic Commission for Europe (UNECE) strategic document on ESD⁶, also, the United Nations Education, Scientific and Cultural Organisation (UNESCO) ESD for 2030 Berlin declaration⁷, and even more recently, the European Commission (EC) Council recommendation

on learning for environmental sustainability⁸, all highlighted the potential of a WSA. It appears that the WSA or the broader 'Whole Institution Approach', is becoming a central concept in policy-discourse around education and SD. It should be acknowledged that the concept as such has been around in educational practice for quite some time already. Historically, the WSA has surfaced since late last century in related but distinct fields such as Education for Health and Wellbeing, (Global) Citizenship Education and, indeed Education for Sustainable Development (ESD). In the context of sustainability, the WSA can be traced back to the 1990's as well, when educational reforms started to engage more in holistic integrated sustainability agendas highlighting how environmental issues interconnect to multiple of social and political issues⁹.

UNESCO describes the WSA as a key thinking tool for ESD "to enable learners to live what they learn and learn what they live"¹⁰. Tilbury & Galvin's (2022) recent EC input paper, A WSA to Learning for Environmental Sustainability, listed key starting questions that need to be addressed by the school community: community: "What is taught (curriculum; hidden curriculum)? Where does learning take place (classroom; school buildings; campus; community)? Who do we learn from (teachers - school staff parents - partnerships)? How is learning taking place (action learning; participatory learning; critical reflective learning; values clarification)? Is there a culture of sustainability? Can staff, students and wider community see the alignment between what, where, who, and how?"¹¹ The EC input paper also concludes with a 5-point summary, based on Henderson & Tilbury's¹² characterising effective WSA's as:

"relevant" - to school's mission; national educational priorities; community identity; as well as environmental priorities of the region.

resourced - with expertise and support in sustainability and learning for sustainability; physical resources and technologies to make the transition; and medium-term finance to execute plans.

reflective - skilled in critical reflection and evaluation at all levels; developed critical thinking competences in its staff and students; striving to become a *learning organisation*.

responsive - embraced a flexible structure and adapted to local and cultural settings; developed learner capabilities that helped recognise complexity as well as the changing nature of sustainability challenges and rejected a one size fits all approach to sustainability.

reformative – appreciated that the agenda is not simply one of adding on environmental or SDG themes to the curriculum but that of reframing the entire educational experience.¹³

It is clear that a wealth of theoretical understanding and studies that promote and support a WSA to sustainability-oriented education does exist. However, as a WSA becomes part of a mainstream agenda, there is a pressing need for examples of WSA in practice to be collated and shared to



allow for joint learning. One conceptualisation of a WSA currently in use in countries like the Netherlands and Norway is the WSA flower model. This model consists of six interrelating elements (Figure 1) that together constitute a WSA.

Different variations of this model can be found, both in international education policy initiatives connected to SDG 4 (e.g. Ed.Scotland¹⁴, 2020; UNESCO, 2017¹⁵; COE, 2018¹⁶; UNGEI, 2018¹⁷), and connected research (e.g. Chopin et al, 2018¹⁸; Mogren et al., 2019¹⁹; Rowe et al., 201²⁰; Scott, 2005²¹; Shallcross et al., 2006²², 2008²³; Mathar, 2015²⁴ & 2016²⁵; Hunt & King 2015²⁶; Bosevska & Kriewaldt, 2020²⁷). However, they all highlight the multifaceted aspects of anchoring holistic, systemic and sustainable perspectives meaningfully in education, and emphasise that the whole is more than the sum of all the parts.

The WSA model is meant to be used as a thinking tool to initiate and guide an on-going multi-stakeholder dialogue about how sustainability can best unfold in a school setting (See also references mentioned above). Each of the components of the flower will be briefly described^a.

Figure 1: The Whole School Approach Flower Model with its 6 key components (adapted from Wals and Mathie, 2022²⁸)

a: This short WSA description has been modified from Wals and Mathie, 2022.

Vision, Ethos, Leadership & Coordination • All

stakeholders in a school are involved in developing a vision of what a sustainable school entails and invites. School leadership enables such participation and provides for some coordination as changing an entire system can be complex and messy. The school culture and ethos align with the vision, as consistency between thinking and doing is essential. Typically, a school ethos that aligns well with notions of sustainability is one that is caring, nurturing, inclusive, open, peaceful, and reflexive. Asking questions, including uncomfortable ones is encouraged, to foster a willingness to re-think and re-calibrate the school considering new insights and a changing world.



Curriculum • Schools have a say in the curriculum and can connect with key emerging sustainability topics from disciplinary (the regular subjects) and interdisciplinary vantage points. Ideally there is space and freedom to create a more localised, place-based and co-created ‘parallel curriculum’ that allows for engagement in and responding to cross-cutting interdisciplinary challenges such as climate urgency. Subject teachers do not dismiss their disciplinary focus, yet still engage in a ‘whole subject approach’ that allows for making links with SD-topics and the inclusion of perspectives from other disciplines. A curriculum that allows for alternative forms of pedagogy and learning to be experimented with is essential.



Pedagogy & Learning • The pedagogies and types of learning that are most suitable for realising this are not of a transmissive and singularly cognitive kind, but of a transformative kind affecting mind, body, heart, and soul. Typically, such pedagogies and learning processes are place-based, experiential, inquiry-based, transgressive, and critical, as well as socio-emotional with attention to moral issues, ethics, and values. In a WSA the pedagogical environment a teacher and the school create tends to be one of trust, curiosity, collaboration, participation, and democracy. Much of the learning does not take place inside the classroom but also in other spaces in the school building, as well as on the school grounds and in the local community, e.g., in outdoor classrooms, repair cafés, etc.



Institutional Practices • ‘Walking the talk’ and aligning what we find important and believing in what we do, is critical in creating a culture of sustainability (Shallcross et al., 2006). What a school does, what behaviour it invites, or makes difficult, all reflect a school’s intentions and ethos. For example, energy and water usage, the kind of food and nutrition that is offered or nudged, how biodiverse the school ground is, what forms of transport students and staff use, but also how people deal with conflict, diversity and inequality. Educational investigative explorations focusing on sustainability issues in and around the school itself provide rich educational opportunities that connect with curriculum, pedagogy, and learning, while at the same time establishing healthy school-community relationships. By interrogating, rethinking, and redesigning institutional practices the ‘hidden curriculum of unsustainability’ that is often present, can also be exposed and addressed.



Community-Connections • A school can be seen as a microcosm of the wider world nested in a community filled with resources for teaching and learning. To create a healthy habitat that invites and supports sustainability, a school will need to be both inward and outward looking, to be open and connected to the people and place/land it occupies, and the other species that live there. Establishing good relations with parents, residents, businesses (local farmers, bike [repair]shops, restaurants, etc.), community and cultural hubs (libraries and museums etc.), informal learning spaces and other education institutions, NGO's, special interest and advocacy groups, as well as with local government, is critical. The idea is that synergies and mutual learning can occur when students explore issues that are relevant, not only to themselves but also to others, whereby community partners can offer insights but can also benefit from students' attention, cooperative research and creativity. By using the local community as a living lab or an outdoor classroom, students also can become more rooted in their own habitat and gain a sense of place and connectedness.



Capacity Building • A transition in education towards more integrated, existential, and relational forms of teaching and learning also implies that all those working in schools, not only teachers, but also those cleaning the building, running the school canteen, the people maintaining the buildings and the schoolgrounds, etc., will need to have the competences needed to support such learning and contribute to the ethos a school aspires to realise. Depending on the kind of work staff members do, there will be differences in what these competences entail. Professional development of teachers remains critical as they will need to be able to work with a more open curriculum, broker relationships within the school and with outside partners in the community, and work with a range of disciplinary vantage points alongside their own. Teachers and examiners also will need to become comfortable with alternative forms of assessment that pay attention to socio-emotional and embodied forms of learning.



Another area, not covered by the model, is the policy environment in which a school is nested. Such an environment can be supportive or constraining. In the synthesis section (Section III) some characteristics of policy environments and policies that are conducive to a WSA will be provided.

In the next section the various elements, relationships and synergies, but also tensions and challenges that arise when enacting a WSA to sustainability, will be sketched out. Critical WSA-in-action examples are featured that emphasise both common and different entry points, and aspects, of a WSA to sustainability-oriented education.



II Critical Exemplary WSA Case Studies from around the world

Central in this report are the critical exemplary case studies from schools around the world that offer practical examples of a WSA to SD in action. The critical refers to 'also revealing barriers, set-backs, struggles' and sketching potential ways out of them. Through an international call for such examples – via international networks like, Eco-Schools, UNESCO and UNECE, as well as social media (LinkedIn, Twitter and Blogs), potential cases were received which were then screened for suitability. The selection criteria focus was to identify a broad selection (both geographically and school types) of primary, secondary, or upper secondary schools (including vocational ones) that provided practical examples of how a WSA is being utilised in practice. Any type of primary or secondary school was considered if they provided current and practical examples of holistic and integrated approach to sustainability-oriented education and were willing to be critically reflective. The contributions come from standalone schools that made contact directly, or schools that are part of larger relevant sustainable-oriented education collaborations or partnerships - for example, a teacher education department, an NGO, or wider educational innovation projects. The overarching aim was to be inclusive in the selection to ensure a broad range of entry points and school types were included. From compiling this 'quick scan' WSA report, it is clear the interest and commitment to a WSA is far and wide. However in some situations where the motivation and knowledge exists, the structural support and competencies to support schools is missing to enable schools to move beyond 'bolt on' or 'built in'²⁹ approach to SD. Take for example in Türkiye, the experience from one dedicated primary school teacher [Çelebi Kalkan's](#) (also [Scientix Ambassador](#)³⁰) experience (on page 10).

Another contribution submitted for this report highlights the need for flexibility and openness in the way a WSA is utilised and engaged with. In Uruguay, researcher Diego Posada documented the enablers and barriers for one school on its journey towards sustainability. While this inspiring school is not included as a main critical case-study due to constraints,^a it is clear this school can offer inspiration as to how a school building that lives and breathes sustainability, motivated staff, and full of low-tech sustainability and closed loop systems, can be an integral

entry point for a WSA. [Diego Posada](#), currently a PhD student at The University of Padova in Italy, provides a few insights (on page 11).

In the end, 17 cases from 16 countries were selected for further development in close connection with the case-study contributors. The cases come from: Japan, The Netherlands, Norway, Canada, South Africa, India, Hongkong, Finland, Mongolia, Cyprus, England, Northern Ireland, Nepal, Türkiye, Kazakhstan, and the USA.

The cases selected for this publication offer examples of a **WSA principles** in action from a diverse collection of schools, both in their geographical location, school type, and pedagogical approach. All highlight how multiple aspects of a WSA (*curriculum development, pedagogical innovation, school management and leadership, school-community relationships, professional development of staff, and the school as a 'living laboratory' for experimenting with healthy, equitable, democratic, and ecologically sustainable living*) can be engaged with, especially how these aspects can be integrated to mutually strengthen each other.

The cases are presented in a random order using a fixed structure of: 1). Title 2). The national ESD context in which a case is nested 3). Introduction to the case and its local context 4). Highlights and examples of key WSA principles in action at the school. 5). A box with the identified strengths and challenges of the case. As much as possible the cases are illustrated with photos, figures and/or illustrations to capture the richness of the examples. All cases contain references listed in the report endnotes.

a: It was not possible to contact the school management directly, which was a requirement for this report.

Türkiye • Çelebi Kalkan, primary school teacher, Scientix Ambassador - Hasan Polatkan Primary School

While the Turkish national curriculum supports an integrated approach to sustainability-oriented education through the primary school life science, science and social studies courses, in my school it is difficult to move beyond a 'Whole Classroom Approach'. This is because I am often doing this alone because not enough teachers have ESD related competencies. However, in my experience a strong entry point for utilising a WSA has been introducing ESD related pedagogy and learning processes, such as the inquiry-based learning studies Science, technology, engineering, and mathematics (STEM) education provides. STEM education in the 21st century aims to develop and present innovative solutions to global issues that are directly related to the 2030 Sustainable Development Goals. In our school this has also led to awareness activities happening connected to the issues related to the sustainable development goals (Protect Your Food -SDG 2, Zero Waste - SDG12 and Breathe into the Future - SDG13), for example, planting trees, cleaning the environment with students. However, the other WSA components are only partially embraced.

As a contribution to build capacity in Türkiye, Dr. Sümeyra Ayık and I have written a SDG [Activity book](#)³¹ based on pedagogical techniques that engage students in learning about the SDGs through play and having fun. It is designed to be relevant for all learners of all ages worldwide, and it aims to support policymakers, curriculum developers, and educators in designing strategies for ESD. As is the case all over the world, national policy and funding needs to be made available to support capacity building, otherwise the pedagogical inadequacy of teachers will continue to remain the biggest barrier. Human skills cannot be developed without quality education. It is not possible to achieve sustainable development goals without gaining human skill.

Students SDG activities on global food waste awareness day



Uruguay • Researcher Diego Posada: Public School No. 294 - Escuela Sustentable

Escuela Sustentable, otherwise known as the Sustainable School is situated in Jaureguiberry, a small coastal town 70 km East of Montevideo. It is a primary rural school located in a lower-middle socioeconomic background that works with around 80 students. The educational team consists of two teachers, one pre-school educator and a Headteacher. They are also supported by a Vegetable Garden Expert and volunteers from Tagma, the NGO that built the school in 2016. The school was built applying biotecture techniques and 60% of the materials used were recycled items such as tyres, glass, plastic bottles, etc. Water is collected for human use and vegetable garden irrigation and the energy grid relies on solar panels. The school has received international awards for being the first sustainable and self-sufficient public school in Latin America. Furthermore, the school has received significant media and public attention over the past years and is the first of a growing network of schools of similar characteristics built by [NGO Tagma](#)³² in Latin America in Argentina, Chile and Colombia. Based on my observations, support by the community and authorities are key. If either of these falter, as it has been observed in this case, every step is a struggle. Moreover, school leaders must be willing to embark into the unknown and learn in the process along with students. One of my interviewees claimed that the youth are pushing the older generations to take these steps, it's a matter of walking side by side and discover how to adapt our old ways into these new pedagogical perspectives.

Strengths • 1. The school building, which follows biotecture techniques such as rainwater collection and irrigation, solar energy grid, passive heating and cooling, etc. **2.** Experienced and flexible staff: two professionals have embraced the project since its inception and worked hard to draft an institutional project that promotes sustainability as its main aim. **3.** Support by external actors such as the NGO that built the school and a “vegetable garden expert.” **4.** The location: The school is located in a small beach town, which invites students to work outside and connect to nature.

Challenges • 1. Lack of community engagement: Most parents wanted a “traditional” public school and not an alternative one. This is something the professional team struggles with 6 years on. **2.** Uneven commitment by members of the educational team: Due to national educational policies, teachers rotate and therefore there has been an unstable team. Moreover, those teachers assigned to the school do not necessarily believe in its ethos or sustainability approach. **3.** Lack of support by national educational authorities to face the unique challenges this school faces. **4.** Standardised curriculum: since it's a public school, it has to follow the national curriculum. However, there are no standardised tests in Uruguay, which allows for significant pedagogical freedom for teachers.

The school building and grounds of Public School No. 294, Uruguay



Japan • A 'Whole Community Service' Learning Approach to ESD

Special thanks to Hiroko Shibakawa and Jun Takagi for this contribution

One of the practices in Japan that led to them proposing to have the UN Decade of ESD (UN-DESD), at the UN Summit in 2002, was the citizen-led environmental education project in Okayama. This project was conducted through close cooperation between schools, service learning and adult education organisations, and local communities. In the beginning of UN-DESD, Okayama City launched the citizen-led "Okayama ESD Project" and the city was one of the first seven cities in the world to receive RCE certification from the United Nations University. In Japan, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) has been promoting UNESCO Associated Schools (ASPnet) as regional centres for ESD. Since that time they have been aiming to increase the number of member schools. In 2014, the final year of the conference, the number of member schools had increased from 16 to nearly 1,200 - the largest number of member schools per country in the world. In the Okayama area, the Okayama City Board of Education, in cooperation with the ESD Collaboration Promotion Centre at the Faculty of Education, Okayama University, has started to support public primary and secondary schools to become members of the UN-DESD, and 51 of the city 163 public schools have been accredited, the highest membership rate in Japan.

School Overview and Features • The driving force behind this collaboration (The Okayama UNESCO School Network) is Okayama Prefectural Yakage upper-secondary school, located in the town of Yakage (population 14000), situated in a mountainous and nature-rich area. The school received the first UNESCO School/ESD Grand Prize in 2006 and in 2008 it was the first school in the prefecture to be accredited as a UNESCO ASPnet school^{a,33}.

School-based subject "Environment" • Since 1995, a Physical Education teacher, Jun Takayuki Muro had been practicing various hands-on activities with his students,

such as environmental conservation activities in local rivers, firefly farming, and hands-on activity camps on remote islands. He then encountered the concept of ESD, focused on its potential, and went through trial and error with the help of university experts. This led to the creation of a new subject called "Environment" in 2004, which was a rare attempt in Japan to set up a school-unique subject. Although it was the first course without a textbook, the school began to position this subject as a new and distinctive education. In 2008, a living and learning biotope, similar to what nowadays is referred to as a green school-garden, was created in the school's courtyard.

"Yakage Studies", a school subject • In 2010, a new element was added: "Yakage Studies". This is a Comprehensive Service-Learning Course designed to help students grow and realise their career goals by using the relationships with the local community that they have cultivated through their "Environment" courses to execute and experience actual activities that serve the well-being and sustainability of the community. Every Thursday afternoon, students ride their bicycles to various local places, such as kindergartens and nursery schools, primary and secondary schools, libraries, welfare facilities, farms, and businesses to provide a service. As a result, the students' sense of purpose changed to a clear one of creating a sustainable society, and this also clarified the educational goals of the school.

Establishment of the Okayama UNESCO Secondary School Network • In 2012, it was decided that secondary school students from UNESCO schools in Japan would take the lead in planning and organising a forum for high school students at the UN-DESD World Conference³⁴ to be held in Okayama City, where they would discuss the creation of a sustainable future with young people from across the world. UNESCO schools in Okayama Prefecture³⁵, including Yakage High School³⁶, held a series of study sessions in the prefecture, and the event was held. Students were the main organisers of the conference, but were supported by university students, mainly graduates of UNESCO secondary schools. In the time leading up to the UN-DESD World Conference, Jun Takagi, who contributed to the writing of this case study, became the teacher in charge of ESD at Yakage High School as a successor to Mr. Muro, the physical education teacher who initiated the project originally. Jun Takagi deepened his understanding of

a: The UNESCO Associated Schools Network (ASPnet) links educational institutions across the world around a common goal: to build the defences of peace in the minds of children and young people. The over 11,500 ASPnet member schools in 182 countries work in support of international understanding, peace, intercultural dialogue, sustainable development and quality education in practice." ASPnet, (2022)

Key WSA Principles in action at *Yakage upper-secondary school*

Capacity building • Community Connections • Curriculum

- These three WSA principles are the schools strongest WSA interlocking strands. However, it is not collaboration for the sake of collaboration, but something that can be done by the members of the group at the time as they face the issues that need to be addressed - The creation of a system that allows both teachers and students to tackle these issues boldly and happily has resulted in professional growth and regional collaboration
- In the current regular meetings of the ESD Section, each member talks about the growth of students that they have witnessed in ESD classes and events, and this has a positive effect on the team and the school as a whole
- Weekly meetings where the team of teachers in charge of the "ESD Basics" class develop the annual plan and share the progress are also a creative learning opportunity for the teachers

Vision, Ethos, Leadership & Coordination

- The school's mission of nurturing the shapers of a sustainable society is shared and has already become part of the school's culture
- ESD is well positioned in the school's educational goals and philosophy and sends a clear message as a pillar of the school

Pedagogy & Learning

- The ESD class "Yakage Studies," is recognised as one of the most unique classes in Japan in that it is based on students' independent activities in the local community
- Learning at the school covers a wide range of fields in order to solve sustainability issues in the local community

Institutional Practices

- The school has a biotope called Eco Square, which is a project of Okayama Prefecture and was planned and proposed by the students themselves from the viewpoint of universal design
- Blocks containing wood chips from thinning, recycled glass, and paving materials made from rubber chips from waste tires are used to deepen students' awareness of the need to create a recycling-oriented society
- An outdoor classroom area called FOREST, planned and proposed by the students. It is made of wood from Okayama Prefecture and is used in various ways like a meeting room for the UNESCO School

ESD and came to realise that the issues of sustainable development are connected to the issues of declining birth-rates, aging society, and depopulation in the mountainous region where the school is located. The students learned that the challenges of sustainable development are also connected to the challenges of declining birth-rates, aging society, and depopulation in the mountainous region where the school is located, and that addressing the challenges of local communities can lead to solving global sustainability issues. Jun Takagi proposed to create an international network of UNESCO Schools facing similar sustainability challenges to learn from each other.

Whole School Approach of Yakage Upper-Secondary School

• Entry points for ESD at various levels: Classes, events, and extracurricular activities. At Yakage upper-secondary school, there are various fields of activities: Biodiversity, disaster mitigation/disaster prevention, environment, cultural diversity, world heritage, intangible cultural heritage and local cultural assets, international understanding, welfare, sustainable production and consumption, and health. The three pillars of these activities are "community cooperation," "environmental study," and "international exchange," and in line with these pillars, (1) classes, (2) events, and (3) extracurricular activities are systematically incorporated and developed. In the first year, students take a class entitled "ESD Basics", and in the second year, they are divided into three courses: General Course, Exploratory Course, and Regional Business Course. In the General Course of the Regular Course, students experience "Yakage Studies," in which they practice at local facilities to create a sustainable local society. In the Exploratory Course, students enter a "student contest" to solve social problems. In the Regional Business Course, students work with the local shopping district to develop healthier and more sustainable products and services. In all courses and departments, cooperation with the local community is essential. Unlike urban areas, local communities are facing a variety of problems, including depopulation, declining birth-rates and aging populations, difficulties in sustaining various cultures and industries due to the outflow of young people, a decrease in number of farmers, abandonment of farmland, and issues related to the revitalisation of shopping districts.

Collaboration with the local community • At present, the whole town of Yakage is supporting the activities of Yakage upper-secondary school, and the town's PR magazine has a section introducing the school's activities in the community. Still, it is not so easy for any school to cooperate with the local community. One of the reasons why this kind of cooperation became possible was that teachers visited various facilities in the town when starting "Yakage Studies", so that they could share their philosophy firmly and gain understanding. It is of great importance that the students understand that the program is not simply an activity to

gain experience or to supplement the labour shortage at the facilities. Rather collaboration to support the growth of the students throughout the town and to form a sustainable society, which will benefit not only the students but also the school and the local community. Naturally, students will sometimes make “mistakes,” and it is these moments that will inspire growth and learning. Therefore, Jun Takagi clearly states in his explanation of Yakage Studies that students should expect to make mistakes in advance.

In Japan, many “comprehensive learning” programs do not allow room for failure, but rather lead the students to study the region as planned and to achieve the same results as in previous years, which results in superficial experiences without deepening learning. On the contrary, at Yakage upper-secondary school, it is noteworthy that the school considers that “learning does not proceed as planned” and that “it is not necessary to achieve the same results as in previous years”.

Integration of formal, non-formal and informal education

ESD events are also linked to ESD classes. For example, the YAKO Presentation Week is a fun event in which students share their learning on stage, and not only do second-year students report to first-year students on their activities in the above-mentioned Student Contest, Yakage Studies, and Product Development, but first-year students also share with second-year students what they have been working on in ESD Basics. At the YAKO Awards, groups of students will present their ESD activities to each

other, and the evaluation will be done by the students themselves. The presentations are open to the local community.

Strengths/Prospects

- The local community fully supports the school's ESD
- ESD regional coordinator is properly assigned
- The ESD Division has been established, which includes the school's public relations staff and those in charge of the primary and secondary school cooperation. This is very important so that the school does not have to take on everything

Challenges

- Schools in depopulated or rural areas are rich in nature and have strong human ties, but they face different sustainability issues from those in urban areas, such as a declining population and a serious shortage of successors in agriculture, even though they have a self-sufficient and sustainable economy
- Sometimes difficult to continue such efforts in public schools where there is a rapid turnover of teachers. It is urgent and a challenge not only to consider staffing by dividing the entry points to ESD and community learning for teachers into different levels, but also to create a foundation for developing the activities that have been carried out so far with an eye to after the next team that establishes the ESD Section moves on

Yakage upper-secondary school Eco Park and Biotope





Yakage Gaku Service Learning at a local farm

In addition, students take a field trip during the summer vacation to visit an ESD-developed area, which is related to all the classes mentioned above.

Pluralistic ways to participate in ESD activities •

Furthermore, ESD extracurricular activities provide a variety of entry points, including participation as volunteers in local community festivals. The following are some of those that have been implemented with ingenuity in the Corona disaster.

1. Japanese language classes for Vietnamese trainees living in the town
2. Yakage Children's English Day
3. Science Club's "Outdoor Experiment Class" for parents and children visiting the Sunday Market
4. Development and dissemination of SDGs card game
5. Interviewing and transcribing "experts" in various fields in the local community, and preserving their records
6. Meeting of primary and lower and upper-secondary school students, and local residents who suffered from the heavy rain disaster to talk about their feelings
7. Creation of a disaster prevention backgammon

In addition to the fixed annual projects with local partners, the school meets new groups and organisations every year and engages in a variety of small-scale activities, which has led to the emergence of new activities. This not only prevents the activities from getting stuck, but also provides a variety of entry points for students to become involved in ESD. For upper-secondary school students who are in the process of deciding their future career paths, challenging themselves to various types of activities can help them see what is truly important to them and discover new strengths that they were not aware of before.

Capacity Building of Teachers • Structure and Team Formation to Support Teachers' Community Debut. From the point of view of the continuous professional growth of teachers, it is important to consider who oversees classes, events, and extracurricular activities, and how these are organised into activities from the stage of "getting used to the community," to the stage of "worrying about the community," and then to the stage of "challenging the community". In Japanese public schools, teachers are transferred every few years. Newly appointed teachers may have no connection to the Yakage area. Not all teachers understand or are good at working with students in the community and solving problems for a sustainable society. If such teachers are suddenly put in charge of classes and activities at the level of "taking on the community," they may not only fail to continue their existing activities but may also fail to work well with the community. This is a serious problem because the ESD practice that has been accumulated and matured will be discontinued when the teacher changes. Therefore, it is necessary to start from the level of "getting used to the community" and explore the field in ways that are suitable for the individual. Like the students, some of them come to move onto the stage of "worrying about the community" or even to "want to challenge the community".

The most important point is to set up a Division of ESD, form a team of teachers, and have a meeting once a week. The Division of ESD consists of five teachers including Jun Takagi, the division chief, and one regional coordinator. Each teacher is in charge of "Public Relations", "Volunteering", "Planning", "Yakage Studies", "UNESCO School", and "Primary and Secondary School Collaboration". This has a significant effect on the promotion of ESD. In other words, having a person in charge of the pillars of school education in the Division of ESD makes it possible to incorporate ESD perspectives and principles into all activities. The person in charge of public relations, who disseminates the school's activities to the community, learns from Yakage Studies and UNESCO School staff about the skills that students have developed through ESD activities in the meeting. Afterwards, s/he disseminates this information through newspapers, government magazines, and the school's website. This is where the "Primary and

Secondary school collaboration," which is responsible for cooperation between all the schools can be linked. When local school students learn about the ESD activities of Yakage upper-secondary school. They then enter the school with similar aspirations, it is beneficial for both the town, which wants to reduce the outflow of young people to urban areas, and the upper-secondary school, which is in danger of reducing its capacity. This is a mechanism for the local community to fully understand what effect the ESD activities of Yakage upper-secondary school are having. It is also a mechanism for fostering a culture rooted in sustainability in the local community.

Assignment of regional coordinators • Yakage Kids Group (YKG) was founded in 2015 by Mr. Muro and local parents and is an organisation for all primary and secondary school students to develop activities to improve the community in the town of Yakage. Its representative serves as the regional coordinator for Yakage upper-secondary school. Jun Takagi has been introducing students to the coordinator, who have an idea of what they would like to try but are unlikely to be able to realise it in the school education system with its various restrictions. As these students have achieved results, the school has gained trust in YKG, and this has led to the securing of a proper budget and the inclusion of YKG as a coordinator within the school. By being involved inside the school, the regional

coordinator has been able to better understand the work of the teachers. It is considered important for informal education (YKG) and formal education to work together in just the right degree. It is a unique job for teachers to identify students' potential and growth buds, and providing them with support, rather than sending them out completely irresponsibly. Although there are some activities that can be done because they are away from formal education, it is believed that greater results will be produced if both the community and the school support students' community experiences so that they can feed their own learning. In other words, the school's Division^b of ESD believes that students should be able to experience the local community. Having a division just for ESD is unique for Japanese high schools and is making a huge difference. Accordingly, the Division of ESD plays the role of "a behind-the-scenes producer" who creates a learning environment so that students can experience authentic learning rooted sustainability.

^b: Generally, in Japanese high schools, several divisions are common -Academic Affairs Division General Affairs Division, Career Guidance Division, Student Guidance Division. Teachers are generally assigned to any of these four. As Yakage HS's unique point is that they established ESD Division, assigned the dedicated teacher (Jun Takagi) as its chief, and four other teachers, who also belong to other sections, and one regional coordinator.

Yakage Gaku Service Learning in a local canteen



The Netherlands • Green Vocational Schools committed to a WSA

Special thanks to Sandra Menkhorst and Vivian Siebering for this contribution

In the Netherlands the development of ESD in primary and secondary education was initially informed by Environmental Education (EE). In the Dutch language this is referred to as *Natuur-en-Milieueducatie*, or Nature- and Environmental Education³⁷. Whereas EE was well understood in educational practices, ESD was not. EE-organisations played a big role in developing lesson plans, curricula, modules, projects, etc. covering SD-related topics to be added on or infused into the regular curriculum. At policy-level and through national education institutes, such as the National Institute for Curriculum Development (SLO), attempts were made to influence the official learning objectives and graduation requirements to incorporate SD-related issues.

During those early years of ESD-development, schools also started paying attention to reducing their own ecological footprint. In recent years, for reasons varying from increased societal concern around climate change, health and well-being, to the desire to make education more relevant and responsive in light of the rapidly changing and confusing world, schools have started to see SD and the SDGs as a trigger to rethink schooling, teaching and learning altogether. Interdisciplinarity, boundary crossing between school and community, action-oriented issue-based learning, student participation and voice, have all been identified as important. Sometimes supported by NGO's, like [SME-Advies](#)³⁸, the coordinators of the Dutch Eco-School program, or network organisations like '[Leren voor Morgen](#)'³⁹, schools have begun developing what might be considered a WSA to, basically, good education.

This example is from Zone College, a collection of eight Green Vocational Schools, formerly known as agricultural schools, situated in the east of the Netherlands: Zwolle, Twello, Enschede, Hardenberg, Borculo, Deventer, Almelo and Doetinchem. They provide green education for lower-secondary vocational education, upper-secondary vocational education, and adult vocational education. Vocational schools seem to have an edge in this transition since they have always used embodied, applied and interdisciplinary forms of active learning, and have a tradition of working with the local place/land and local stakeholders. Zone College's sustainability profile is also

supported and enhance by their participation in the Eco-School scheme and works closely with the Eco-School framework which has 7 key steps.

Established by the Foundation for Environmental Education (FEE) in 1992, the Eco-Schools programme represents the largest international network of students and teachers. The programme has been implemented, albeit in various shades of green, in 59,000 schools in more than 72 countries⁴⁰.



Eco-Schools seven steps⁴¹

Eco-Schools' seven step plan (above) helps the Eco-team getting started. Step 2, 3 and 4 form a cycle of measuring, planning and evaluating, which the Eco-team runs by annually. Students execute an environmental review within the school and carry out actions to make the education, the building and the community in and around the school more sustainable⁴².

An important aspect of being an Eco-School is bringing in students' voices in deciding what to learn and what to do. The student-led Eco-Team that coordinates and initiates sustainability initiatives in and around the school, is a key tool in realising this. Students who want to join this team need to formally apply and provide a sound motivation why they want to be actively involved. At Zone College Twello, students have a high level of autonomy and learn from each other as student teams organise activities for their

peers. The Eco-Team has its own Instagram account and YouTube channel for sharing the schools' sustainability efforts with the outside world.

The image, from Zone College's campus in Twello, is an example from one year's (2019) Eco-Code development. An Eco-Code is the Eco-Team's mission statement demonstrating – in a positive, clear and imaginative way – the school's commitment to improving its environmental performance. The Eco-Code can be anything you want – a song, statement, poem, rap, acronym or something even more creative. A recent Eco-Code focused on problematising and combating plastic soup by creating an imaginative work of art. The artwork shows how we are surrounded by plastic, and that there are no more plastic-free places. Students investigate ways to reduce the use of plastics in the school and in their home environment, engage in community clean-ups and engage in awareness raising activities. Through this Eco-Code a link is made between the local and the global.

“Sustainability is really in the DNA of the school, both in the building, the teachers, the lessons and the environment”

Hak van Nispen

“Increasing attention is being paid to healthy living, safe food, sustainability, nature and a green living environment. This requires well-trained people and new knowledge. As an educational organisation we contribute to a healthy, green future for people and the world. In doing so, we constantly seek coordination between the needs on the labour market and those of our students. With care and attention, we offer our pupils, students and employees a green, challenging learning environment in which they discover new possibilities. And in which they develop with head, heart and hands. On your own and especially

together. In this way they grow into self-conscious, caring, enterprising and socially involved people. Global citizens with an eye for sustainability and quality of life”⁴³.

The following contribution is by Vivian Siebering, Sustainability coordinator at Zone College, and Sandra Menkhorst, educational advisor of the secondary school (age 12-16) campus in Doetinchem:

Zone College Doetinchem, is located in a semi-rural public green vocational secondary school consisting of just over 1000 students between the ages of 12 and 17 years. Students are mostly native Dutch with a non-immigrant background and tend to have an agricultural or rural background. In 2017, Zone college also started the work to become an ECO-school through the Eco-Schools programme. At Doetinchem campus, along with all the other Zone College Secondary Schools, developed its own Green Profile curriculum which has two key components. During the first two years, students participate in 'Green World Orientation' which is a practice-oriented course focusing on cross-cutting green vocational themes: Animals, nutrition, landscaping and creative vocations. In the final two years the students can combine one of these themes of their own choosing with a sphere or world in which they want to explore the theme in more depth. These worlds are: The living world, the active world, the healthy world, the creative world, and the green technology world. Working with these four domains and four different worlds throughout the entire four-year program assure that students are actively engaged in hands-on sustainability-related issues every school week. Still, there the curriculum greening could go deeper when playing by the rules of the Natural Step (<https://thenaturalstep.org/>) which inspire staff at Zone College. One area of improvement is the purchasing of the materials students use for their creative

Zone College Secondary school Eco Code



design and construction work. Often these materials are bought at a local discount store without paying much attention to the ecological and social footprints of the materials. Another example comes from the animal domain where students learn about the wellbeing of domesticated rabbits and their natural behaviour. However, the way the rabbits are housed at school does not necessarily reflect

Key WSA Principles in action at *Doetinchem secondary school*

Vision, Ethos, Leadership & Coordination

- The vision of our school is clear, visible in school and known by teachers. Sustainability is part of it
- Zone college has 8 locations in a large area. Since a year, there is a sustainability coordinator who is developing now a vision and strategic goals for sustainability for the whole organisation of Zone college

Curriculum

- We believe that sustainability is in the heart of our curriculum, but we want to improve it and develop circularity in our school through our curriculum. For example, by using the coffee grounds to grow oyster mushrooms, using the harvest of our kitchen gardens in the cooking lessons, selling the things we make, in other words: giving things another life by closing cycles

Pedagogy & Learning

- Tailor-made hours (Maatwerkuren) and moments of interest (Interessemomenten) - give our students the opportunity to choose what they are interested in
- Our MECA week is a good example, but we want to develop more of this kind
- Head, heart & hands philosophy

Institutional Practices

- We try to connect all technical installations to the curriculum and involve teachers to work with them
- The design of the building invites sustainability

Capacity building

- There is no separate programme, but the staff learns a lot by doing: by speaking with the companies that install the technical installations for example, by speaking with the sustainability coordinator, there are stimulated reading books and learn a lot by preparing projects like the *Make Earth Cool Again* week

Community Connections

- Business collaborations with small- and medium enterprises traditionally already exist in green agricultural schools

what is taught. Often teachers want to do better but need time to investigate and resources to act accordingly. Both are often lacking. Another area of struggle or contention is how to navigate the tension between what society is increasingly demanding from farmers in terms of sustainability and animal well-being, and the way the parents of the students – many students grow up on a farm - manage the farm which does not always correspond. Teachers are confronted with these tensions and emotions that the intense discussion might evoke and dealing with them in the classroom is a challenge. On the other hand, the school does also try to walk the talk, for instance in the energy domain by creating a climate neutral building with the support of Eco-Schools.

Another curriculum link is the major project weeks focussing on interdisciplinary sustainability topics. In 2021-2022 the school created the project *Make Earth Cool Again* (MECA). During the MECA week, the majority of theoretical and practical lessons for the first-years students at of Doetinchem focus on sustainability. Teachers take the lead, and form working groups that consist of an educational developer and students, and together they design the program and its activities. As a result, they themselves learn a lot about the different meanings, complexities and ambiguities that characterise sustainability issues, and



As part of MECA week students at Zone college learn about how sustainable jeans are, including the raw material life cycle

about ways to make these accessible to the students in a meaningful way. Critical here are the workshop that involve local businesses and NGOs and the guided tours for the parents of the students. The activities were interesting for students because they connected with their everyday lives. For instance, the challenge of 'beating the micro-beat', which made students aware of micro-plastics in toothpaste and cosmetics, challenges them to come up with healthier and more sustainable alternatives. Another important aspect of the project weeks is the visual documentation of the process and the outcomes using filmmaking. The resulting documentaries can be integrated in the curriculum for the next generation of first-year students. The working groups which did the preparation of the MECA week are an example of peer-to-peer learning, the students 'taught each other' while developing the week, with some input from the sustainability coordinator. As part of MECA, local companies came to give free workshops because the social purpose is important for them, and they genuinely want to contribute to the education of their new future employees.

The sustainable aspects of the school building and school grounds become sources for teaching and learning, while the teaching and learning provides input for making the building more sustainable. After participating in practical lessons and the MECA-week students create and maintain their own gardens for example. Through the new glasshouse that has been designed to be able to treat the school's sewage and wastewater by a filtering system that preserves the nutrients as input for growing vegetables, students come to understand cycles and circularity. Lastly, the building itself – which was quite expensive – is a building that teaches in and by itself as it invites a green spirit and more sustainable behaviour.

Some reflections • The agricultural background of our students is a struggle sometimes. Students (and also teachers) that grew up in the countryside, often associate sustainability with the measurements of our government to reduce the livestock. That can have a tremendous impact on their parents' business and creates a lot of stress for many people they know. We have learnt that it is important to give space to these emotions. It is important to acknowledge this, before you can go on to work on sustainability at school.

We want to increase the amount of activating didactics in our lessons and increase the coaching skills of our teachers so they can help students in making their choices. We also want to organise more activities where classes are mixed. Our MECA week is a good example, but we want to develop more of this kind.

The working groups of teachers work very well. They develop themselves and spread information to their team.

Strengths/Prospects

- The ECO-School scheme and the support provided through SME-Advies provide concrete steps and support for developing a WSA
- The role of the educational advisor to develop new projects and connect the ideas of the different working groups of teachers. Teachers alone don't have the time to work out things like the MECA project week
- The focus on circularity, closing cycles, and creating a local 'micro economy' that generates funding for future sustainability efforts
- Vocational and place-based aspect of the college means it fits well with a WSA due to the pre-existing values and environmental focus of the college
- The organisation of special curriculum activities – like the sustainability project week – that include all teachers and all students

Challenges

- Sometime sustainable solutions cost more and time to explore what is the best choice is needed. Time and money remain a challenge
- To engage every teacher in the school and ensuring that sustainability is implemented in other lessons
- Pedagogically it can be challenging to navigate tensions around different forms of agriculture when having students who are closely connected to the agricultural sector in the same classroom as students who do not have an agricultural background
- Sustainability has to become in everyone's DNA before it is in every lesson!
- Hard to keep track of all the progress and have a clear action plan when there is so much going on throughout multiple aspects of the college. This needs to link better to monitoring, evaluation and assessment

A vision that is built by the staff itself is helpful. And again: You need someone who carries it out. Further: People at the right place and a good vibe in the organisation make things work. A person who has time to facilitate the working groups and connect between teachers and other staff is essential, this is what makes things go faster.

Another example is the construction of our 'Zuiverende kas' a purifying greenhouse. This year we are organising working sessions with colleagues and external partners to translate this system of the 'zuiverende kas' into our curriculum. This is an example of us developing innovative education together. Also, our campus has visual sustainability displays and signs around the campus. For example, the Doetinchem Campus school vision/mission statement is visible for everyone who enters the school.

South Africa • Longstanding Eco-School members

Special thanks to Alice Surmon, Arefa Haffejee, Nomfundo Ndlovu, Cindy-Lee Cloete, and the Wildlife and Environment Society of South Africa for this contribution

The National Curriculum and Policy Assessment Statement (CAPS) in South Africa shows education for sustainable development is incorporated into the curriculum⁴⁴. Heila Lotz-Sisitka's analysis of CAPS showed "...that in some subjects, up to 50% of content is 'environment' or is related to 'sustainability'; and that environment and sustainability content permeates a wide range of subjects, in line with a curriculum principle that seeks to ensure an environmentally literate citizenry. [...] Because the Department of Basic Education (DBE) is concentrating on improving basic capacity in areas of literacy and numeracy, inadequate attention is being given to this new knowledge area (environmental and sustainable development knowledge) that is essential for improving the quality and relevance of teaching in South Africa"⁴⁵. Therefore, as this environmental content knowledge continues to still be 'new knowledge' for many South African teachers, this has an impact on how environmental education is delivered within the school curricula. There is a need to capacitate teachers with professional teacher development on education for sustainable development.

Programmes such as the Eco-Schools programme are supporting Education for Sustainable Development in the national curriculum. Since 2003, the Wildlife and Environment Society of South Africa⁴⁶ (WESSA) have been coordinating the Eco-School programme in South African schools. The Eco-Schools programme⁴⁷ is centred on

active learning through hands-on action to help promote sustainability in schools and inspire a generation of environmentally conscious individuals.

The two schools featured in this South African Contribution are longstanding members, with Pitlochry primary school establishing as an Eco-School in 2005, and in 2020 Amanzimtoti primary school⁴⁸ celebrated a decade of being an Eco-School. These examples offer up sustainability journeys that started off with a few dedicated teachers and have since grown to a whole school commitment. "The key features of the [Eco-School] programme are that it is holistic and participatory in nature. It promotes whole school development and improvement by educating learners and taking action to improve the environment in both the school and the local community. It is about environmental management and learning in a school whereby teachers, learners and community members get together and undertake a project to improve some aspect of environmental management" (from Pitlochry primary school eco-code).

Contribution (1) by Arefa Haffejee, EcoSchool coordinator at Pitlochry primary school (grade 1-7 government funded public school):

Pitlochry primary school has been working with sustainability-oriented education for the past 17 years. We have been supported by WESSA since becoming an Eco-School in 2005. Valuable resources can be found on their website curriculum links for each theme. This makes it easier for the teachers to complete activities

School garden clean up, learning sustainable solutions, learning from trial and error! / School nature lesson



and incorporate environmental education in the teaching and learning process. We have a very well-established Eco School Policy⁴⁹ at our school. The Eco Committee at

Key WSA Principles in action at *Pitlochry primary school*

Capacity building

- Eco-Schools and WESSA is a main resource for ESD related teacher training and learning materials
- Peer to peer professional development

Vision, Ethos, Leadership & Coordination

- A strong and well-developed vision that the whole school commit to
- Head teacher is very committed
- School has prioritised sustainability and environmental education for over 17 years

Curriculum

- Majority of school subjects include sustainability. For example, learners are taught data handling in Maths using information about recycled materials collected
- Eco-School activities are linked into the curriculum

Pedagogy & Learning

- School uses a cross curricular approach to identify how the relationship between human rights, social justice, inclusivity, and a healthy environment can be emphasised in all teaching

Institutional Practices

- School garden
- Health and Wellbeing measure in place, including sustainable sanitation toilets and healthy eating campaigns
- Constant monitoring and sustainable measures happen at the school and are used as learning opportunities
- Energy key focus of the school - Monitoring electricity consumption. Developing leaders amongst learners and teaching them how to record data with energy checks, and the school makes their own solar electricity.
- Waste is another key focus, recycling and water conserving
- Making of Eco-bricks to build seats for learners to eat their lunch

Community Connections

- Community & Heritage is one of the school's key areas of focus: Giving back to the community, promoting a sense of community amongst learners, making learners aware of their heritage and respecting diversity among learners

Pitlochry Primary plays a key role in achieving this and forms the leadership of our Eco-School Programme. The committee represents the whole school community. Our committee has 3 main purposes: 1. To ensure a whole school approach about caring for the environment; 2. To design programs that give learners responsibilities and promote teamwork; and 3. To develop a structure for the Eco-School Programme.

Currently our Eco School Focus Areas are:

- Community & Heritage – Giving back to the community, promoting a sense of community amongst learners, making learners aware of their heritage and respecting diversity among learners
- Nature and Biodiversity – Redoing the school gardens with indigenous plants to create succulent gardens, creating different ecosystems for learning.
- Health & Wellbeing – Making learners aware of the different food groups to maintain a healthy lifestyle. Helping them to learn to live sustainably. Improving the school toilets for a learners' health and wellbeing.
- Energy - Monitoring electricity consumption. Developing leaders amongst learners and teaching them how to record data with energy checks.
- Waste - Enhancing our recycling programme. Making of Eco-bricks to build seats for learners to eat their lunch. Making of CD string to prevent vervet monkeys from taking learners' lunch.

In terms of Curriculum, Implementation and Monitoring, we link Eco-School activities into the curriculum in different ways. We embrace a cross curricular approach to identify how the relationship between human rights, social justice, inclusivity and a healthy environment should be emphasised in all teaching. Staff continually give feedback and report work completed. Staff also document the process and encourage learners to write short articles for Facebook, the D6 (a school-parent communication platform), and local papers. There are also monthly class progress reports where a Green Award is given to the class who attains the most points for having been environmentally conscious.

Water explorer project



What has changed over the most recent years is that sustainability is now part of most subjects taught at the school. Most of our lessons incorporate environmental education for sustainability. Learners are even taught data handling in Maths using information about recycled materials collected. The Eco-School Programme is linked to the CAPS curriculum in the following ways:

Natural Sciences	Emphasises the importance of biodiversity in life support systems.
Social Sciences	Learners' abilities to identify and analyse a range of environmental and developmental issues is emphasised.
Life Orientation	Emphasises environmental health, and creates links between human health, and creates links between human health and environmental health risks (e.g. water pollution).
Economic and Management Sciences	Sustainable developments and growth, and calls for approaches to reduce waste and protect resources is emphasised.
Arts and Culture	The importance of cultural and natural heritage is considered.
Technology	Emphasises the importance of environmentally friendly designs and encourages learners to investigate technological impacts on the environment.
Languages	Critical literacy skills needed to analyse and address environmental issues and risks is developed.
Mathematics	Develop numeracy skills needed to address environmental issues and risks.

Inclusion: All learners regardless of race, gender, culture or disability are given the opportunity to participate. Learners are given active participation jobs. For example, 'Energy busters' are responsible to check on lights and fans, recycling bins are monitored for good use and all students are part of our whole school recycling efforts to collect bread tags, plastic bottles, ink cartridges and newspapers.

We are committed to, for example; selecting material related to the environment, from the curriculum, and relating this to the eco-school action plan; identifying basic environmental problems and motivate learners to explore and solve them; cultivating individual people's awareness of the environment; encouraging critical thinking; teaching lessons in an outdoor environmental situation; protecting indigenous plants and habitats in the school ground; and bringing about a supportive and democratic learning process in the classroom or learning situation.

Examples of a WSA in action on campus is the newly installed JoJo tanks to flush our toilet systems. These were installed in the new toilet block that was built two years ago. The new block is run on solar power. We plan on using solar energy throughout the school. We have gardens outside classrooms that learners use during natural science lessons to study different ecosystems. Learners make boats with recycled materials and sail them across the pool.

A good starting point for us has been the edible garden. This can be done on a budget, as it can be started using slips or seeds donated by learners. The garden consists of vegetables, fruit or herbs depending on the interest. Another low-cost starting point is to make a 'wormy', or to paint old tyres and plant 'spekboom' plants which reduce the carbon footprint. Also, to use permaculture principles to set up watering systems for the school garden. While expensive to invest in, the solar panels in the new block have been a worthwhile investment as now we still have electricity during load shedding times and lessons continue.

In our experience Primary school learners care about the environment and are willing to help save it. Learners are motivated to collect bread tags to fund the wheelchair campaigns; they participate in the food for needy campaigns and prepare sandwiches for the poor; they are motivated to take ownership of the school's gardens and environment. They are also keen to go on beach clean-ups, nature hikes and learn new skills like how to test river water. Motivated learners motivate others, so this school culture continually develops, and this awareness raising is helped through our assemblies and newsletters. Some projects work and some fail, but if you persevere it works out in the end and you learn through trial and error!

Contribution (2) by Alice Surmon, Teacher and Eco-School Coordinator at Amanzimtoti Primary School:

[Amanzimtoti Primary School](#)⁵⁰ is a fee-paying school based in KwaZulu-Natal with over 700 students from grade 1 – 7. The school follows the national Curriculum and Assessment Policy Statement (CAPS). The language of teaching and learning is English. Afrikaans is incorporated as the 1st additional language. While the CAPS curriculum lends itself to developing awareness in some Grades, this is not the case in all subjects. Therefore, our sustainability education efforts have been self-driven with encouragement from the Eco-Schools programme, and the [One Planet network](#)⁵¹. We have been an [Eco-School](#)⁵² for over a decade, however, over the last 4 years we have intentionally focused on engaging with the most achievable SDGs. Since working with the SDGs our school has had a greater awareness of what we can do to reduce our carbon footprint.

Vision, Ethos, Leadership & coordination • Key to our school's approach is that we have had the support of our School Governing Body in projects we have undertaken, and the Head teacher (Principal) of the school sees the value of Sustainability Education. Each Grade representative educator, and the specialist teachers, fully support the Eco-Schools programme. Through the Eco-School programme, we are also encouraged to develop and adapt our Eco-Code regularly and complete a yearly audit. This helps us to continually reflect on what we have done previously and what we have achieved in the current year. This report is



they shared with the representative team, and they ensure that their Grade tries to achieve a target each term. Each Grade submits their activities on an ongoing basis.

Something successful that was low cost to establish has been our recycling programme for glass, paper, and other materials. We have 28 classes (800 learners), each class has a paper recycling bin which is cleared by the Enviro-Club team on a biweekly basis into the large collection igloos, provided to us by [Mpact Company](#)⁵³. We also collect cold drink bottle tops and bread bag tags as part of a whole school effort to reduce waste and recycle plastic. Funds from these items are used to purchase wheelchairs for those who desperately need them as part of the Quadriplegic Association of South Africa (QASA). The school also supports a local Youth programme – [Indwe Learning Centre](#)⁵⁴ with their requests of yoghurt cartons, bread bags and other items of repurposed waste that they use in their education programme using the Montessori method. Egg boxes are re-used to support our worm farm health, as well as a water retention base for seedlings. We have also taken our excess stock to a local Farmers' Direct shop that obtains supplies locally. Another example is participating in the repurposed and recycled goods craft market last Christmas, which raised funds for the school vegetable garden. Another example of 'ESD in action' are the school vegetable gardens where we use [Permaculture principles](#)⁵⁵. We also have; signage in the bathrooms regarding wise water use; reminder notes by the light switches to encourage thrifty use of electricity; invested in a Solar panel installation to make us less dependant on fossil fuel energy; and the setting up of [Jojo water tanks](#)⁵⁶ to harvest rainwater.

Curriculum, Pedagogy and Learning • There is a lot of support for ESD at our school. Sustainability awareness and knowledge is created through our Life Skills, Social Science and Natural Science curricula, as well as in other aspects of the school curriculum. We have incorporated programmes that are relevant to the curriculum or participated in activities that can be achieved locally or within a reasonable distance from our school. We have walked to our local bird park to find out more about what we have on our doorstep. Our school fields are also fully utilised. The children participate in Beach and Local area Clean-ups. They investigate river quality by conducting Stream Assessment Scoring System ([Mini-SASS assessment tool](#)⁵⁷), in the Technology lessons they have created awareness posters about local Ecotourism, and we encourage healthy eating as a lifestyle choice for the whole school community. We also plant and maintain indigenous trees and plants at the school. Of note though, is while ESD is integrated into all aspects of the school, it is specifically incorporated in the

Students enjoying their garden, a chicken coop was made during Lockdown, two hens are laying eggs every day / Student enjoying 'Lockdown' gardening with grandparents

Enviro-Club extra curricula activities and through this we reach a lot of students. Through the three Enviro-Clubs we run the students and the educators involved are dedicated to the need for understanding that there is no Planet B. Our Enviro-Club teachers design activities that raise awareness of Environmental and Sustainability issues and teach about preserving what we have. Practical activities

Key WSA Principles in action at *Amazimtoti primary school*

Capacity building

- Eco-Schools and WESSA is a main resource for ESD related teacher training and learning materials
- The school also provides venues for workshops both for teachers but also for the local community

Vision, Ethos, Leadership & Coordination

- Head teacher and school management is very committed
- School has been an Eco-School for over a decade

Curriculum

- There are sections that lend themselves to sustainability education but not all

Pedagogy & Learning

- Eco-School activities happen through the Enviro-Club, this is an alternative learning area beyond the classroom

Institutional Practices

- School vegetable [Permaculture](#) gardens
- Health and Wellbeing focus including learning about food security
- Energy conservation is a big focus. Solar panels are also installed. constant monitoring happens through the Enviro-Club initiatives
- Waste is another key focus, recycling and water conserving
- Making of Eco-bricks to give to local building projects

Community Connections

- Community links with various charitable organisations is the biggest link to the community
- Actively engaging with the school's neighbours regarding any concerns they have and utilise their expertise – e.g., one of our local areas is a Bird Park and one of the employees is an amateur ornithologist who has a wealth of experience. He is happy to share with our children and families
- Collaborating with local organisations and businesses, for example a local Adventure Group ran outdoor challenges for the different Grades in the school grounds

also equip the children with skills they will take home to the wider community. For example, will be learning about how to grow our own 'micro greens' from our new Department Head this year – this skill can be used in a limited space.

The portfolio/audit we submit providing evidence of what we have done on an annual basis to Eco-Schools helps us to focus and challenge us to continuously develop and improve on what we have achieved. Examples of theme we work with connected to the Eco-Schools programme include; Climate change; Community and Heritage; Energy; Health and Wellbeing; Marine and Coastal; School Grounds; Waste; and Water; Nature and Biodiversity.

For example, food security has been a focus under the health and wellbeing theme, especially because of lockdown. Families and administration staff have been using the school garden and school grounds to grow food, and students have been learning and sharing various 'lockdown' lessons. One of our learners assisted her grandmother during lockdown at her small farm with growing vegetables, Some other students planted a vegetable garden and built a chicken coop during lockdown.

Another example within the waste theme is the [Ecobricks initiative](#)⁵⁸ - making building materials out of rubbish! We delivered consignment of Ecobricks that we make at school to local projects that are in need of them.

Within the Climate change theme Grade 3 and Grade 6 learners worked together to learn about climate change and an eco-friendly method of cooking – harnessing the energy of the sun. We were visited by Julia, a [Water-Explorer](#) representative (via the One Planet Network) who guided us on the making of our own solar cooker boxes using found materials. The children also sampled a delicious solar baked apple pudding with custard that was cooked while we were making our own boxes. The Grade 6 learners followed up on this activity by baking their own puddings as a group challenge.

Capacity building • In the event of courses being offered – staff are supported and encouraged to attend. For example, the [Clean Surf Project](#)⁵⁹ presented to the whole school about the importance of looking after our oceans. A spokesperson from Clean Surf also spoke at our networking workshop in March 2018 and 12 of our educators were in attendance. We were able to share the contacts of the organisations that support us and others that we support at our workshop. We shared some of the projects we were doing – succulents for Mother's Day, Art – animals made with recycled items. We also hosted an Awards Ceremony in May 2021 – we put together a display of the projects we undertake at the school and an optional walkaround was on offer after the ceremony. We invited other educators from the area that were not currently on the Eco-Schools

Ecobricks



Ecobrick making and collection, an Enviroclub initiative

programme. Another more long-term investment was the professional development I went on as the Eco-School Coordinator. I attended the weeklong Enviro-Education course at an educational facility run by WESSA - [Twin Streams](#)⁶⁰. This course provided multiple insights on various topics such as: purposeful shopping of goods using little or no packaging; cooking and presenting food as economically as possible; auditing water and energy use; exploring local ecotourism ventures; sustainable harvesting of reeds in the wetland in the conservation area; determining the health of our rivers using the MINISASS method – all of which we now apply the Eco-School programme at our school. I also had to submit an assignment on the related work we implemented as a follow-up to the course and afterward shared my insights with the other Eco-representatives at our school. Two educators at our school also attended a session run by Nomfundo Ndlovu from WESSA on plant propagation last year. The school also offers a venue for networking workshops not only for our staff but for the local area as well. We always aim to share the contacts of the organisations that support us and the knowledge they give us to others that we support at our school run workshops. Recently I shared a gardening exercise at a local high school with Grade 8 – 10 learners who attended the interact club (20 learners).

Community connections • We have the backing of our parents with regard to events and activities the school organises and find the parental involvement is a great gateway to the wider community. The school also connects to various community organisations whose need are greater, for example, the Society for the Prevention of Cruelty to Animals (SPCA); less resourced schools (furniture, stationery, books); cancer support programmes; and pone off projects like the wheelchair project where the schools helped collect bottle tops and bread tags to raise money. Another example is the school collaborating with some of the immediate neighbours about greening immediately inside our boundary. Parents have also assisted in providing expertise regarding our Solar Panel project. One of our parents also works for Endangered Wildlife Trust, with particular interest in the amphibians at risk and recently spoke to the children about Ecosystems and the importance of maintaining the balance with excellent

examples (30 learners). Our parents also join us at the Coastal Clean-ups which we do about 3 a year.

Advice to other schools starting out:

- It has been an exciting journey following the Eco-Schools and One Planet/Water Explorer guidelines and programmes. These existing organisations help to develop creative and meaningful ways of encouraging young people to see our local environment as something precious.
- Every little contribution makes a difference. There were times at the beginning of our journey that one felt like a lone voice, but this changed once other teachers came on board to contribute to the programme. Don't be afraid to ask for help.
- Be patient – sew the seed, network with like-minded individuals and dream big. Take opportunities if they are offered. Gain inspiration from others who have a story to tell.
- Stay relevant – add new ideas. Continue to learn and develop as you go along.

Strengths/Prospects (from both schools)

- Teachers are the key to changing the mindset of learners and they can instil good environmental values among learners from a young age.
- Not being afraid to make mistakes and learn from them
- Curriculum does include ESD related content
- Long standing school culture for protecting the environment
- Supportive management

Challenges (from both schools)

- A challenge but also an opportunity for teachers to build up more hands-on experience for learners to understand problems and develop solutions, this provides opportunity to develop problem-solving activities for learners.
- Not all teachers are driven and some focus only on curriculum delivery.
- Teachers need more professional development concerning ESD and connected pedagogical approaches

USA • Chicago based Global Citizenship Experience (GCE) Lab School

Special thanks to Stephanie Leite and Aaron Moring-D'Angier for this contribution

The United States does not have a centralised, national curriculum. Each state has its own department of education, which sets educational standards, curriculum frameworks, standardised testing schedules, and teacher certification requirements. Schools may be classified as public (funded through taxes and run by the government) or private (funded and run by non-governmental entities). Independent schools are a special distinction of private schools that are classified as not-for-profit and governed by a board of trustees or directors. Private and independent schools are not obligated to follow the standards and testing requirements of the state in which they are located. In an effort to standardise curricula across the 50 states, the federal government introduced the Common Core State Standards Initiative⁶¹ (CCSSI) in 2010, which details what students should be able to know and do in English and Mathematics in grades K-12. Forty-one states use the CCSS, but adoption is optional (CCSSI, 2022). In 2013, the Next Generation Science Standards (NGSS) were released, providing recommendations for K-12 science education. The NGSS were developed through a multi-year committee process and in collaboration with a consortium of 26 states. Yet less than half the states, plus the District of Columbia, have adopted them⁶².

The NGSS include the subtopic of human sustainability and approach sustainability “as a set of global problems affecting all humans equally and solvable through the application of science and technology”⁶³. However, they have been critiqued for not including the ethical, social, and political dimensions of sustainability challenges (ibid.). While a WSA to ESD is not commonplace, nor promoted nationally in the USA, there are numerous standalone examples of schools that have taken the initiative to meaningfully engage with a WSA. The following independent lower-secondary school in Chicago, Illinois offers multiple entry points and examples of ways they have embraced a WSA.

Global Citizenship Experience (GCE) Lab School, serving students in grades 9–12, has consistently been named one of the most diverse private schools in Chicago⁶⁴, with students commuting from 35 neighbourhoods in Chicago and 6 surrounding suburbs. The school follows

a flexible tuition model that ranges from \$4,550–\$29,150 USD, with 86% of students receiving tuition assistance. The student body includes 53 students, with plans to grow to 175. The school was founded on the belief that to cultivate responsible global citizens in the 21st century, the traditional transmissive models of education needed to be rethought from the ground up. The keywords in the school's name—*global, citizenship, and experience*—have shaped the mission, identity and operation of the school since its inception in 2010.

The staff and faculty at GCE want the school not only to have focus on the global citizenship experience, but to embed these three key concepts into the DNA of the school. Figuring out what this means and how to do it has been a lengthy, ongoing process. In GCE's first two years, faculty and staff spent hundreds of hours on collaborative professional development in efforts to “unlearn” the deeply ingrained habits and expectations they had brought with them from previous educational environments. Teachers had dedicated time each week to write curriculum, reimagine assessments, test lesson plans, establish community partnerships, and support each other in this intensive work. Early in the school design process, GCE adopted sustainability pedagogies⁶⁵ with an emphasis on real-world, inquiry-, and project-based learning. This learning approach meant that the *how* and *why* of learning were foregrounded, and the *what* (curriculum) was an extension of these methodological values. A whole-school approach was needed to support such a learning model, so the mission, professional development, schedule, and curriculum were all in alignment. As a result, several features were built into GCE's core that may offer inspiration to other schools:

Vision and Leadership • GCE's [Portrait of a Graduate](#) (POG) resulted from a year-long strategic planning process that included a survey of the GCE community (including students, staff, parents, alumni, and board members) as well as research into 21st century learning frameworks put forth by organisations such as P21⁶⁶ and World Economic Forum⁶⁷. The POG includes five characteristics that describe a global citizen, according to the GCE community: Real-world educated; professionally prepared, culturally competent, independently motivated and consciously innovative. The POG guides the decision-making at all levels of the school, with the overall goal being to cultivate

graduates who have an understanding and awareness of the wider world and how it works, a sense of their own role as a world citizen, and who are willing to act to make the world a more equitable and sustainable place.

Curriculum, Pedagogy and Learning • Curriculum and pedagogy are inseparable at GCE. Starting in Grade 9, students begin a 4-year learning journey designed around integrated themes. Students take two core classes each term (one STEAM and one Humanities), which are supplemented by targeted skill-building classes in areas such as mathematics and writing, as well as areas like computer coding, woodworking, podcasting, and ethnography. STEAM is an educational approach to learning that uses Science, Technology, Engineering, the Arts and Mathematics as access points for guiding student inquiry, dialogue, and critical thinking. The themes for each term

are meant to complement each other; for example, Grade 9 students take the *Food STEAM* course, which focuses on ecology, chemistry, and genetics, at the same time as they take the *Food for Thought* Humanities course, which investigates world history and geography through the lens of global food trade. This overlap encourages interdisciplinary collaboration in lesson planning and field experience excursions.

The curriculum is aligned with the Common Core State Standards and Next Generation Science Standards. In addition, each course is aligned with at least one SDG Target. For example, in the Water course, students learn Algebra and Earth Sciences while also investigating SDG 6 and how to achieve universal access to safe and affordable drinking water, sanitation, and hygiene. Most GCE courses are divided into three units, each of which follows a three-

Key WSA Principles in action at *GCE Lab Secondary School*

Capacity building

- All faculty and staff receive training in inquiry and project-based learning
- Teachers complete a Model the Learning experience that introduces them to the curriculum and invites them to customise courses for themselves and their students
- GCE offers professional development in teaching and designing project-based learning at other schools

Vision, Ethos, Leadership & Coordination

- GCE's Portrait of a Graduate guides the cultivation of graduates who have an understanding and awareness of the wider world and how it works, a sense of their own role as a world citizen and are willing to act to make the world a more equitable and sustainable place
- The Portrait of a Graduate guides decision-making for curriculum and other school programming

Curriculum

- Courses are interdisciplinary and thematic to foster critical and systemic thinking. All courses are aligned with the UN SDGs as educational standards, which provide a curricular grounding in sustainability and social justice
- Curriculum is digital and frequently updated with current case studies, news stories, and real-life data
- Imagining a Sustainable Future is a 3-part open-source curriculum that introduces students to the science of climate change (ReFueling the Future), design and systems thinking to propose solutions (ReDesigning the Future), and policy levers that can be used to enact change (ReMobilizing the Future)

Institutional Practices

- The campus is designed as a living laboratory for collaboration, community-building, data analysis, and critical thinking
- Features such as a living wall, aquaponics system, and rooftop garden will immerse students in a learning environment where they engage with natural systems and cycles

Pedagogy & Learning

- Sustainability pedagogies including inquiry- and project-based learning form the basis of GCE's learning model
- Teachers act as facilitators who model the learning process with students
- Learning is collaborative and student-driven. Students are encouraged to adapt projects and assessments, so they are customized according to interest and need

Community Connections

- Weekly field experiences out of the classroom and into the city allow students to make real-world connections and test classroom learning with local experts
- The Professional Immersion Experience for students in Grades 11-12 is an opportunity to become immersed in an internship with a business or organization of their choosing



During Covid-19, grade 9 students study SDGs 3 and 5 by meeting with artists to explore why gender disparities exist and persist, and how those issues often manifest as unsafe, insufficient, and/or inaccessible healthcare

part experiential cycle: 1) Internal Investigation (students pursue guiding questions that result in understanding foundational concepts); 2) External Investigation (real-world experiences provide context for classroom learning); and 3) Action Projects (students synthesise learning from Internal and External Investigations in multimedia projects). GCE's curriculum is digital, and teachers dedicate 3 weeks each summer to curriculum revisions, a process that includes updating multimedia sources, refining rubrics, and revisiting guiding questions.

Assessments have been an ongoing challenge for GCE. Currently, student evaluations are based largely on end-of-unit action projects, which include a rubric designed using a 100-point scale. Each action project has a suggested rubric, which teachers often modify in consultation with students when a new action project is introduced. GCE is a member of the [Mastery Transcript Consortium](#) (MTC), which is working to design and pilot an alternative to GPA-based transcripts and engaging with higher education institutions to rethink admissions indicators. The efforts of MTC are lessening the burden on GCE's school counsellor, who spends many hours on the phone with college admissions officers, interpreting GCE's courses and translating them into more familiar subject-based terminology.

In 2019, GCE partnered with the renewable energy investment company Greenbacker Capital to design a three-part curriculum series entitled [Imagining a Sustainable Future](#). The series is designed to encourage collaboration among teachers from different disciplines. It approaches sustainability from a science, design and engineering, and civics perspective. These open-source projects are available for teachers to download and supplement traditional curriculum. Each of the three

projects can be taught on its own or as a full package in regular classrooms, after school programs, or summer enrichment classes. The series begins with an introduction to the science of climate change (ReFueling the Future), then introduces design and systems thinking to propose solutions (ReDesigning the Future), then presents policy levers that can be used to enact change (ReMobilizing the Future).

Community Connections • GCE's weekly schedules are structured around hands-on field experiences. Each Wednesday, the schedule is divided into two long blocks, so students spend 3 hours in each of their core classes (STEAM and Humanities). This longer block gives teachers the opportunity to either plan a field experience into the city, host a guest speaker, or have dedicated time to work on a project. Example field experiences include neighbourhood walks and observations; meeting with non-profit organizations; visiting surrounding universities; interviewing local business owners; speaking with politicians; attending a play or other cultural event; or any other experience that can be conducted in the time allotted. There is a small budget available for field experiences, but most are arranged free of charge, and the only cost is public transportation for students. Field experiences allow students to connect and test what they're learning in the classroom with real-world applications. Many field experience partners go on to host GCE students for a Professional Immersion Experience, which students in Grades 11 and 12 participate in each December.

Capacity Building • The onboarding process for new staff members at GCE includes an introduction to inquiry- and project-based learning. All employees are required to participate in this training, even if they are not classroom

teachers. This reinforces the school culture that learning happens anywhere, at any time, with anyone. Teachers also participate in a Model the Learning course, which guides them through the process of being a student in their own classroom. As teachers new to project-based learning, this requirement allows them to get to know the courses they will teach, do sample action projects, modify rubrics, test sample lessons, and get feedback from peers. GCE offers these training modules as professional development courses to other educators and schools who are introducing project-based learning.

“There is a through-line in the history of GCE Lab School about working within boundaries and means, while at the same time pushing forward with ambition and vision. Because we have integrated courses and dedicated time to get into the real world, we can lean on existing structures to continue our ambitions rather than fight against a system designed for unsustainable practices: our school was designed to remove many of the internal institutional barriers, leaving us more time and energy to push past other barriers such as social expectations, limited resources, and the problems facing our world at large. This is reflected in our use of the UN Sustainable Development Goals to guide our curriculum and class explorations.”

Aaron Moring-D'Angier, Curriculum & Instructional Specialist, STEAM Teacher

Institutional Practice • GCE moved into its first dedicated space in 2022, 12 years after it began admitting students. Until then, the school rented space from other organisations and community centres until it raised the funds to purchase a location in downtown Chicago. The design process for the new campus was a collaboration among three architecture firms: One specialising in social justice, one in sustainability, and one in educative design. The resulting design was influenced by more than two years of planning, with input from students, staff, and the wider GCE community. For the first time in its history, GCE's campus is an expression of its core values and educational model.

The new campus includes spaces such as an open teaching kitchen, a living wall and a community circle to create

dynamic areas for collaborating, socialising, and community programming. Data on energy usage and air quality are prominently visible, and this information can be used in STEAM classes and school-wide activities. Plans are in the works to build an aquaponics system and a rooftop garden or apiary. Students engage in a mixture of low-tech and high-tech tools, including a wood shop equipped with a table saw and drill press, as well as a digital fabrication lab with a laser cutter and 3D printers; a manual typewriter lab housed in the same room where students learn computer coding; and a music room where students play store-bought instruments or build their own as part of a STEAM course. In terms of facilities and operations, one long-standing challenge for GCE has been its food program. Due to budgetary constraints and lack of certified food facilities, it has been difficult to build a food program that reflects the school's commitment to sustainability and responsible consumption. The new campus includes plans for a teaching kitchen that will be used for preparing community meals, composting waste, and nurturing a culinary culture at GCE.

Strengths/Prospects

- GCE had the freedom to build the school model from the ground up and did not need to transition from a previously established school model
- Staff realised the importance of “unlearning” the deeply ingrained habits and expectations that stand in the way of sustainability
- A small staff and student body make the GCE nimble and well-equipped to experiment with new approaches to schedules, calendars, and curriculum
- Connecting the curriculum to the UN SDGs offers immense opportunity for inquiry-based learning and making connections between local and global issues

Challenges

- The work is intensive and there is always a risk of teacher and staff burn-out
- There are many well-established and reputable private schools in Chicago. Convincing families to invest in GCE's approach to learning can be challenging
- Assessing and communicating student performance is an ongoing question. Until higher education moves away from GPA-based student evaluations, GCE will need to translate the school model into language that colleges understand
- Being located in an urban environment can make a focus on sustainability a challenge. Making connections between social and ecological problems is difficult when many students witness and experience violence and extreme income disparities across the city

GCE has spent over a decade refining the elements of its WSA to sustainability and continues to revise each dimension in response to the needs of students, families, and the world. A longstanding commitment to community-building has led to a sense of shared ownership and trust among students and staff; this trust in turn enables support for innovation and experimentation. For other schools transitioning to a WSA approach to sustainability, this stakeholder buy-in is essential, so that the resulting school model is localised and relevant to the community it serves.

Transitioning to a whole-school, project-based learning model can be difficult and time-consuming for teachers and staff. Shifting from being a “teacher of content” to being a “facilitator of learning” changes engrained power dynamics with students, as well as approaches to lesson planning. The unpredictability of a project-based environment can be unsettling and physically draining for unaccustomed

teachers. Therefore, it is essential to build in supports such as mentoring sessions, extra planning time, and ongoing professional development.

Students also experience an adjustment period when they arrive at GCE, as school-related habits and expectations are modified. Since the program only starts in Grade 9, students enter the school with years of training in a more traditional “banking” model⁶⁸, where they are not required to participate, and where test grades are the primary measurement of success. On average, students need six months to adapt to the high demands of a project-based setting and GCE’s intimate environment where every staff member knows them and checks in on them. The personalised approach to curriculum is unfamiliar to the majority of new students, and it takes time to build agency and confidence.

On September 20, 2019, GCE Lab Schools students participated in the Global Climate Strike in Chicago as a part of a series of international strikes and protests to demand action be taken to address climate change. The protests took place across 4,500 locations in 150 countries and were a part of the School Strike for Climate movement, inspired by Greta Thunberg. The September 20 protests were likely the largest climate strikes in world history



Cyprus • A cross curricular holistic approach involving school, family and wider community

Special thanks to Diamando Georgiou, Vasilis Papastavrou and Aravella Zachariou for this contribution

ESD is at the core of the Cyprus Education System, and many reforms promoted within the National Strategy on ESD aim to integrate ESD in a holistic and comprehensive way in all educational levels. The National Strategy on ESD includes several policies which support its implementation in formal, non-formal and informal level. Main policies that support the sustainability- oriented education are:

The ESD National Curriculum constitutes a hallmark for ESD in Cyprus as it highlights the transition from the marginalised and occasional study of environmental issues in schools, to the holistic approach of these issues as a fundamental part of the educational vision and policy of each school in the country. The ESD curriculum's structure includes 12 thematic units (i.e. forests, energy, water, waste management, urban development, production and consumption, desertification, transport systems, poverty, culture and environment, biodiversity, tourism) of national, regional and global interest. The school subjects (modern Greek, maths, science etc.), operate as tools for an interdisciplinary- holistic exploration of the thematic units. The ESD curriculum has been allocated time within the timetable of primary education (Stages 1–4: two teaching periods per week [2 sessions of 40 min each] within the interdisciplinary area of "Life Education"; Stages 5–6: one teaching period per week [1 session of 40 min]). This time is to be used over and above the time used for activities within other curriculum subjects, so as to facilitate additional actions⁶⁹.

The ESD Curriculum is based on indicators and learning outcomes, which are differentiated according to the age of the students: All the indicators and learning outcomes in each grade (pre-primary and primary) are developed gradually on the axes of knowledge, awareness, skills, attitudes, values and participation/ action. The curriculum is developed in 6 main success indicators, 21 achievement indicators⁷⁰ and the learning outcomes for each thematic unit⁷¹.

The enactment of the **Sustainable Environmental Education Policy (SEEP)** in pre-primary and primary education aims to integrate Whole School Approach in every school.

The SEEP is developed by the whole school and the entire school works together towards its implementation. It responds to the needs and particularities of the school unit and the school's immediate environment. The issues of the SEEP are agreed and everyone in the school engages in their exploration and study through the curriculum's thematic units. SEEP requires the cooperation with the community and the formation of collaboration networks with organisations and institutions. Its evaluation takes the form of schools' self-evaluation in pedagogical, organisational and social levels and the outcomes become the basis for its continuation in the long-term⁷². The integration of ESD in schools is supported by teachers' professional development on ESD, which is organised on both an obligatory and on an optional basis. For example, the compulsory education and training courses which focus on primary teachers' training for the implementation of the National Curriculum of EE / ESD are implemented centrally on an annual basis. In these courses, teachers are introduced to planning their school's ESD School plan (SEEP), to developing ESD lessons using the interdisciplinary approach, to using various ESD pedagogical techniques such as concept maps and moral dilemma, simulations⁷³. An important innovation for ESD professional development in Cyprus is the introduction of professional development courses for newly appointed principals. Through these courses principals and deputy head teachers are guided on how to coordinate the development and implementation of SEEP in their school's context⁷⁴.

While policies and measures regarding ESD implementation have been adopted in Cyprus, challenges remain. For example, teacher incentives for working in a more systemic way on ESD is lacking. Moreover, despite the fact that schools are provided with a self-assessment tool aiming to help them to identify the degree of achievement of their SEEP, there are gaps and weaknesses. For example, an accreditation scheme that will certify a school that operates towards sustainability is missing.

Geroskipou A' Primary School is located in the Geroskipou municipality in Paphos province. The municipality has a population of about 8000 people and even though it is considered a rural school, it is near Paphos City. Most of the students are local, however there is a considerable number of students who are emigrants. This Primary school develops its own SEEP which has been implemented

through the ESD Curriculum since 2013, when ESD was officially introduced in Schools. SEEP is not developed in schools on a voluntary base, but it is a mandate. SEEP is long-term and usually is planned for 2 or 3 years.

Through SEEP our school investigates the biodiversity in Cyprus in relation with our culture. Our school pursues certain changes based on the specific objectives and actions that are identified in the SEEP assessment. This is on by all the participants (school and community) as pre-requisites for creating a school and community culture for protecting the biodiversity of our land.

For example, the following changes were made:

- **School organisation:** Establishment of material recycling system, stationery reuse, clothing recycling and, a vegetable garden was created and students take care of it. The vegetables produced in the school by the students with the support of their parents, are sold to the municipal market by the students. The money collected is used for replanting as well as for other school activities related to the greening of our schools and for further activities that will transform our school towards sustainability. Moreover, students participate in local agricultural activities such as helping locals to collect olives and carobs. These outdoor learning places make the learning process more attractive and meaningful to students.
- **Pedagogical techniques:** Our school incorporates innovative teaching approaches that are also promoted by the national ESD curriculum to enhance and facilitate indoor and outdoor learning such as brainstorming on relevant concepts with biodiversity. Also, field studies, problem solving role play, project-based learning activities, case studies and surveys are used.
- **Social skills:** Our school works together with the parents' association, the local community and non-profit organisations (like Akti Project and Research Centre) in order to fulfil the school plan for moving towards sustainability.

The schools' WSA approach • Partners (school, teachers, school personnel, community, NGOs...) come together to plan the school SEEP. At first, teachers guide students to identify environmental and sustainable issues that impact the well-being, the quality of life and the sustainability of their school and community. The issues are identified and discussed, and the participants in SEEP jointly agree on the issue that will be investigated. In the SEEP, justification as to the selection of the specific issue for study is provided, with reference to the reasons why it was chosen, its importance and the learning outcomes for the students regarding knowledge, awareness, skills, attitudes and competences. The SEEP is implemented by all the school. Each class (teachers with their students) organises its plan, which includes the way that the class is

Key WSA Principles in action at *Geroskipou A' primary school*

Vision, Ethos, Leadership & Coordination

- School vision includes input from the wider community, promoting intergenerational communication and learning outside the class
- All the school plan developed jointly with the school, the community, and the professionals
- The Sustainable Environmental Education Policy (SEEP) in pre-primary and primary education, aims to integrate Whole School Approach in every school
- A WSA to ESD vision supported nationally by the government

Curriculum

- The national curriculum has an ESD focus including 12 thematic unit
- This is also connected to the SEEP initiative (above)

Pedagogy & Learning

- Project based learning - the community and its environment as a place of learning. In cooperation with municipal authorities, students, teachers, and parents worked together

Institutional Practices

- Utilisation of rainwater for watering pots and plants in the corridors. Every time it rained, we collected rainwater from the roof tabs in buckets and during the break, children watered the pots that were in a covered area
- The biodiversity park has sparked many behavioural changes in the school beyond the garden

Capacity building

- Peer to peer teacher training scheme
- Top-down support for example from - the Unit of Education for the Environment and Sustainable Development
- Parents teachers and professionals from the local community have been engaged with running workshops to support the primary biodiversity park the school manage

Community Connections

- meaningful relationships and cooperation among the school community and local society because of SEEP and the biodiversity park project
- The school with the community explored the issue "protecting the biodiversity of our land through the culture and civilization" – the outcome being - To create a green park for biodiversity next to the school which for its maintenance responsible is the school and the community together

going to work to contribute to the achievement of school SEEP (activities, subjects that will be used). The plan of the class is monitored by teachers and students. At the end of the school year, a self-reflection – self assessment – takes place for each class and for the school SEEP. This, based on qualitative criteria on organisational, pedagogical, technical, and social levels, operates as a tool for helping the school and the community to identify what has been achieved, what difficulties and obstacles emerged, as well as what remedial measures can be taken for more effective implementation of the SEEP.

The cross curricular approach reflected positively in our effort to apply a holistic approach in our SEEP. The interdisciplinary approach of the issue, in addition to collaboration with parents, children, grandparents and community members, facilitates the school to operate as an open community of learning to improve the quality of life in the school and in the community.

At the same time, we wanted to operate as an example of a school that apply ESD in everyday school life through the implementation of our SEEP. For this reason, we invited the students at the neighbouring school to our school, we presented them with our SEEP and we explained how we worked to implement it. We showed them our green corner, we explained in the field what plants we chose to include and why, how we work with the parents and local populations, and how they supported us to promote our products.

3 Ideas for a WSA in Action:

- Utilisation of rainwater for watering pots and plants in the corridors. Every time it rained, we collected rainwater from the roof tabs in buckets. During the break, children watered the pots that were in a covered area. We used leaves that fell from the trees of our environmental corner and other green materials for making compost and fertilising the pots and our herb garden.
- Establishment of a recycling system of various materials in the school. We bought recycle bins for each classroom and larger bins for the schoolyard. In collaboration with the community, these materials were collected once a week from the entrance of the school and transported to the Green Point of the Municipality of Geroskipou.
- Creating a vegetable garden. We needed a budget for fencing the area, for the purchase and transfer of suitable soil, for the purchase of tools and for the installation of an irrigation system. After this initial cost, the vegetable garden was cost free since the maintenance was undertaken by the children, teachers and parents. In addition, we used money from vegetable sales to fund any other expenses that came up regarding the vegetable garden and other school activities.

Vision, Ethos, Leadership & Coordination • The principal of the school supported and facilitated the development and implementation of SEEP. She allowed the internal changes in the school timetable to facilitate cooperation among teachers. The school principal supported all the activities that were planned and implemented, and also contributed significantly to the establishment of good relations with partners and the local community. Last but not least, was her role in securing the necessary financial resources to implement our actions. From our experience we learned that if you don't have an inspired principal with a vision and willingness to reorient his/her school towards sustainability, ESD and sustainability actions in schools cannot be collective and participatory and cannot be sustained.

Institutional Practice • Getting to know, preserving and maintaining the flora of our community in a sustainable way was our main goal. Students visited nearby areas with olive and carob trees, learned how they connect with peoples and local society. Moreover, they learned about traditional jobs, customs and traditions and traditional products concluding that the natural environment of their community contributed significantly to give shape to their local civilisation. Through this, students realised their own potential and responsibility in protecting their immediate environment in a sustainable way to deliver it to the next generations in the same way the previous generations delivered it to them. They learned and appreciated the intergenerational communication and interaction. Moving to a sustainable way of life needs time. Students managed to change certain behaviours. However, they still need to stay on track to maintain a sustainable way of thinking in order to incorporate its added value and transform their attitudes and actions towards the environment. For example, we noticed that they stopped leaving garbage nearby the vegetable garden, but garbage was still thrown at other places of the school. Moreover, even though they took care of the trees in the environmental corner, they did not seem to be interested in taking care of the other trees and plants in the school. On the other hand, we observed that the students that were more actively engaged in planting the vegetable garden, and they were more aware of protecting and taking care of their garden; they advised and urged their classmates not to cut flowers or plants for no purpose. So, even though switching to sustainability needs time, we were proud to notice that our students made their “leap of faith” towards it.

Capacity Building • Teachers had the chance to train with other schoolteachers that had expertise in the relevant subjects. In addition, we asked environmental organisations to provide us with professional development courses on specific issues such as planting. We also required the Unit of Education for the Environment and Sustainable Development to support us and guide us practically on

designing and implementing our SEEP. We organised various workshops in school with the engagement of teachers, parents and professionals who trained us in the field on agriculture and local crops.

Community Connections • Our local community is relatively small, so we had the chance to establish meaningful relationships and cooperation among the school community and local society. Municipal authorities support us in many ways such as transferring olives and carobs to the mill. Grandparents helped students to package olives in a proper way. The municipal workers also took care of the trees in our "Environmental Corner". Students were taught by local people about sericulture - to care of the silkworm from the egg stage through completion of the cocoon. Geroskipou municipality bought reusable bags for all the students to help eliminate plastic ones.

Curriculum • The curriculum of environmental education/ education for sustainable development defines and enhances the formation of the SEEP of each school. Our School SEEP was based on students' needs and interests. Each class followed the plan that was prepared by their teacher by choosing learning outcomes that were appropriate for their age and grade. We had the chance to self-reflect and self-assess our work process, to write down which outcomes were fulfilled, what obstacles we phased, and how we solved them. Moreover, the SEEP self-evaluation helped all the school to identify the next year's sustainability actions.

Pedagogy & Learning • Through project-based learning, students investigated the kinds of trees that exist in their area, their use and impact on their community over the

years. We used our community and its environment as a place of learning. We learned the importance of collaboration to improve the quality of life in our school and in our community. In cooperation with municipal authorities, the students, teachers and parents planted trees in a nearby area. We adopted that area and transformed it to a place where people can feel the positive energy of nature. We gave the example experientially and in real situations of how an abandoned place can come into life and benefit the whole community.

Strengths, challenges, opportunities & threats • The holistic approach allows for interdisciplinary approaches. All the subjects are used as tools for integrating the learning outcomes of the ESD curriculum, which relates to the School SEEP assessment. A challenging issue encountered was to find a common time for teachers' coordination and for preparing and implementing joint activities. In this case, the school principal had to search for and allow changes to each teacher's teaching schedule that sometimes was not an easy procedure. An additional challenge was the in-service training of teachers. Teachers needed school-based training on how to practically apply various teaching practices in their specific school context and community. This wasn't easy to achieve because of the strict schedule of the school and other priorities. The holistic approach requires a different way of school operation and reconsidering the teaching processes. Engaging the local community and parents in many of the school activities and actions wasn't always easy because of the schools limitations. Accordingly, activities outdoors, in farms, in local trades and in the municipal market needed time and very good planning, which sometimes was challenging. Furthermore, biodiversity as a subject connected with the culture of the community was a local

Elder generations teach youngsters to make olive pie / Parents, teachers, children and local authorities, collecting carobs



based issue. This demanded, the preparation of new materials based on the specific objectives of the SEEP, despite the existing educational materials on ESD. This could be seen as a burden because it wasn't easy for teachers, amongst other commitments in the school. One more challenge we had was the maintenance of our green yard, especially during the summer, when the school was closed. This challenge was overcome with the support of the local authorities which, in collaboration with the teachers and students, organised teams of volunteers which visited the school on a weekly basis to take care and do the work that was needed for sustaining our green corner.

Students need to realize their potential in transforming our world to a more sustainable place of life to have a positive impact on climate change and help our planet survive. This can only have a real impact on to their lives and encourage a better way of living for them and their environment if they are actively engaged in a meaningful way. We strongly recommend that students are actively engaged in developing of their ESD School action plan. It's important to give them voice and listen carefully to their needs, what they want to change and how they envision their school and their community in the framework of sustainability. Additionally, we suggest to our colleagues when they engage in School ESD plan development, to have their students in mind. The objectives and the intended outcomes must be feasible for the students. Another suggestion is to engage local partners or organisations that can help implement and monitor the action plan. In addition, it is vital for teachers to feel that they are not obliged to work for ESD. They must be self-motivated to engage actively. Supporting them in this direction is a critical factor for their empowerment and motivation.

Professional development and incentives are critical for WSA. We have to listen to students, and we have to listen to teachers. In addition, we suggest the SWAT analysis to identify strengths and weaknesses of the interventions and actions that are planned. Also, peer-learning and establishing networks of collaboration between neighbouring schools strengthen the idea behind WSA, which sees schools as an open community of ESD learning.

Strengths/Prospects

- All the subjects are used as tools for ESD in this example and this in turn strengthens teacher cooperation
- Top-down commitment from the national curriculum to support a WSA to ESD through the enactment of a Sustainable Environmental Education Policy (SEEP) in pre-primary and primary education, which aims to integrate Whole School Approach in every school
- Community connections – examples from this primary school show how the whole community can be involved

Challenges

- More work needs to be done – an assessment and accreditation structure for following up the ESD national curriculum and SEEP is missing
- Finding staff who want to take on the coordination role – this is a specific skill
- Organising the schedule so teachers can have the time to plan together
- Preparation of new materials despite a lot already being made available

Vegetable garden care



England, UK • Ruskin Mill - A Whole School, for the Whole Child, in a Whole Community

Special thanks to Matt Briggs, Keith Griffiths, Aonghus Gordon and Ruskin Mill Trust for this contribution

This contribution presents a UK based school that provides a comprehensive example of relational place-based education for children with special needs in practice. In essence it is an example of a 'WSA in action' within the context of [Specialist Independent Education](#)⁷⁵ for children and adults with complex needs, including learning difficulties and autistic spectrum conditions. However, its key philosophy, principles and practices are relevant for all type of schools, especially its utilisation of creativity, the arts and of learning rooted in the local community. This integrated approach to education ESD offers multiple methods and practical examples for meaningfully integrating sustainability-oriented education. It is important to note that most Ruskin Mill schools and colleges^a work with students who come with, what is named, an individual Educational Health and Care Plans (EHCP). The EHCP is created by a multi-agency group (include government and independent agencies) specific to each young person a set of targets that are developed to reach longer term goals of becoming more independent and live healthy, purposeful, and meaningful lives. In this respect, the craft and land-based activities serve as vehicles through which each individual EHCP target can be

addressed, tracked, developed, and assessed. Funding is provided by local authorities for each student's programme (or privately funded by parents/carers). This affords the schools independent status, which means they are not constrained or regulated by the national curriculum. However, they are still subject to regulatory inspection frameworks such as OFSTED, CQC and the independent schools' standards.

Contribution by Ruskin Mill Trust - Matt Briggs, Researcher and Lecturer, Aonghus Gordon, Founder & Executive Chair and Keith Griffiths, Head of Staff Education and Training: A collection of 9 primary, secondary and upper-secondary schools (age 5 – 25)

Ruskin Mill Trust (RMT) operates in England, Scotland, and Wales, offering exciting outdoor learning environments, utilising practical land and craft activities to support the development of work and life skills in young people with autism and other learning difficulties. For over 30 years, Ruskin Mill Trust has managed, among other residential placements and social care provisions, four schools (primary and secondary) and five upper secondary schools/colleges (taking students up to 25 years of age). At both the schools and colleges students experience holistic learning by role modelling positive relationships in the fields of

a: In the UK the term college is also used for secondary school education

Tutor and student working collaboratively in the forge⁷⁶



Key WSA Principles in action at *Ruskin Mill primary & secondary schools*

Pedagogy & Learning

- The Practical Skills Therapeutic Education offers innovative WSA learning and assessment methods
- Co-developed individualised curriculum for each student

Curriculum

- Craft based curriculum offers examples of how social, economic, and environmental pillars of ESD can be taught in theory as well as experienced in practice
- A Whole Child, Whole School, Whole Community based Curriculum
- Curriculum connected to social enterprise

Vision, Ethos, Leadership & Coordination

- The vision, values and methods involve a strong emphasis on self, community and environmental developmental and renewal
- Seven Fields of Practice first step is a Genius loci audit. This ensures each school identifies a holistic place-based practical curriculum

Institutional Practices

- School grounds are managed following sustainable and ecological Biodynamic principals
- School farms and gardens produce food for the students' meals, sold in local community, and is used in some of the schools' outward facing cafes
- Sustainability policies in place, for example, for sourcing materials and products

Community Connections

- Ruskin Mill Trust's core purposes is to aid integration into community and contribute to society
- Students are encouraged to lead community and charity orientated projects such as restoration of community/heritage spaces

Capacity building

- Training and development opportunities for all staff and wider community is provided by the trust, from induction to a newly accredited master's degree
- The trust running the schools also support continual research and professional development opportunities for their staff through the 'Field Centre'

arts, crafts, commerce, agriculture, nutrition, living skills and the environment. By immersing students within the productive aspect of the curriculum, students learn to care for their own well-being and development and overcome

their barriers to learning. This approach is also embedded within a research and training culture up to master's level delivered through The Field Centre providing opportunities for all staff and the wider community.

Vision, Ethos, Leadership & Coordination • The vision, values and methods at Ruskin Mill involves strong emphasis on self, community and environmental development and renewal⁷⁷. The method developed called *Practical Skills Therapeutic Education* helps learners overcome barriers to learning, become skilled and contribute to community. Practical Skills Therapeutic Education and the underpinning Seven Fields of Practice have been developed⁷⁸ by Aonghus Gordon OBE, drawing from the inspirations of Rudolf Steiner (1861 – 1925), John Ruskin (1819 – 1900), and William Morris (1834 – 1896). Working with hand, head, heart and place, through practical activities, performing arts, therapies, culture and social enterprise, Ruskin Mill Trust aims to help individuals to re-imagine their potential.

Curriculum, Pedagogy and Learning at Ruskin Mill •

The Practical Skills Therapeutic Education has emerged from 35 years of practice and on-going research, and the Seven Fields of Practice provide the scaffolding for the student journey towards the aspiration of developing 'self-generated conscious action'. This goes further than autonomy to acknowledge the capacity and motive, to give back to community and earth. The co-developed curriculum, not hindered by national curriculum requirements, supports each student finding their own route to self-generated conscious action through experiencing meaningful relationships with universe, earth and people. Therefore, each curriculum is co-designed with the student to suit their needs. This offers examples of how social, economic and environmental pillars of ESD can be taught in theory as well as experienced in practice. For example, the seed to table curriculum enables students to experience being part of a healthy holistic experience of growing, harvesting, preparing and eating the food in school/college canteens and public facing cafes, as well as being part of veg box schemes for the local communities and supplying shops. Other aspects of the curriculum include, vocational and work experience opportunities, a mix of therapies, music, arts and drama. Each individualised curriculum is built through role modelling (both via practitioners/tutors and the consciously created environments and workshops in which they are placed and purposeful) and contemporary apprenticeship learning in which the learner is invited into a production/world-based focus/outcome of their learning and involvement. This is functionalised by situating individuals within the real-world environments of the biodynamic ecologies and farms, craft workshops, cafes/canteens and shops, to name a few.

Practical Skills Therapeutic Education • Practically applied principles, known as the Seven Fields of Practice,



Nature based practical education⁷⁹

Staff and student in biodynamic school garden underpin the research-based method Practical Skills Therapeutic Education (PSTE), and guide each student's journey. These are: 1. Genius loci (spirit of place), 2. Practical skills, 3. Biodynamic ecology, 4. Therapeutic education, 5. Holistic support and care, 6. Holistic medicine and 7. Transformative leadership. In terms of place-based learning and community connections, the first field of practice (connected to Genius Loci) is an example of how a school can become further embedded in their local community and surroundings.

Each student is provided with an individualised and tailored curriculum such that the practical skills they will engage with are those specifically chosen to meet their own developmental needs. By providing students with the tools to transform material, they transform themselves. This is so students learn to recognise their capabilities and positively contribute to society. Schools also provide opportunities to relate the curriculum to the wider world and work experience through social enterprise. Although each learner's curriculum is individualised, the integrated syllabus seeks to create solidarity through establishing community (local and heritage-based events, exhibitions and community orientated projects), social enterprise (cafes, shops, farms, vegetable-box schemes, charity and nature-based projects) and festivals (celebrating seasonality and diversity through world and local traditions, cultures and beliefs) to achieve healthy movement between self and other. The craft and land curriculum further encourages ethical resourcing of materials and encounters with local environments, traditions, cultures and practices,

enabling community engagement in a very pragmatic and purposeful way. Although these practices require significant time and resources to establish, the principals could be applied on a smaller scale within mainstream curriculums.

Craft • Working from source materials through to purposeful crafted items provides holistic opportunities for learners to meet real life, world-based challenges, which in turn can provide therapeutic and educational opportunities within an integrated and true-to-life settings. In the craft sessions, students develop the ability to focus their attention, co-ordinate their movement and co-operate with others through the craft. By creating craft objects of the highest quality under the guidance of experienced master craftspeople, they create a new sense of their own potential and self-worth. Each school has a signature craft, for example: At Ruskin Mill in Nailsworth, the signature craft is textiles and weaving, carrying on the tradition of the woollen mills on the site; in the locality Glasshouse Stourbridge in the Midlands, the signature craft is hot glass and glass engraving - the students work in the footsteps of the master craftsmen who worked the furnaces before them; at Freeman in Sheffield, the students engage in the signature craft of silver and copper spoon forging and cutlery manufacturing carrying on the traditions of the Sheffield cutlery industry; Argent, in Birmingham, has jewellery making as its signature craft and students, like their peers at the nearby Birmingham City University – School of Jewellery, learn to make a range of rings, necklaces, and bracelets; and at Coleg Plas Dwbl, in Wales, the signature craft is greenwood work, building on the

traditions of Welsh chair making. These signature crafts form a backbone through the land and craft curriculum and help shape the other educational activities at the schools.

One of the most powerful and adoptable aspects of Ruskin Mills trust's PSTE methodology can found within its unique approach of using a Genius Loci audit to reveal a local holistic place-based curriculum, which inherently addresses and enhances sustainable development on a multitude of levels. The audit involves several steps and approaches that help identify, connect and build a unique holistic curriculum acknowledging and utilising the local resources, history and cultures. By synergising these elements, a dialogue between past, present and future can be formed to help guide schools, individuals and communities towards a shared sustainable vision of development of both 'self' and 'world'. Through this process students come to acknowledge the 'world' as a collaborator and educator and begin to put sustainability, ethics and ecological thinking at the forefront of their own curriculum design. Functionalising the findings of the Genius loci audit into a holistic practical curriculum through craft and land work encourage meaningful direct contact with the world (getting hands on with locally sourced materials). By establishing a 'seed to table' orientated curriculum through growing and locally sourcing materials and food (ideally biodynamically or organically produced) people are given the opportunity to form ethical and ecological relationships with the world. The students transform materials and food into purposeful, sustainable, and community-oriented items and meals, that offer meaningful encounters that promote self-generated ecological and sustainable thinking and innovation.

Institutional Practices • The schools have a strong connection to the garden and the land, providing outdoor space for pupils to learn and grow. The curriculum at each site is supplemented by a wide variety of enrichment and therapy sessions in both daytime and residential setting. Each student's programme of study is crafted to meet that student's specific educational needs. All activities support the student to work towards achieving his or her potential and future destination, whether that is work experience, independent living or further education. Activities offered at each site are particular to the cultural and geographical history of the location of the provision. The school grounds are managed following sustainable and ecological biodynamic principals, which aims to create holistic symbiotic cycles, to enhance not only the land, soil, food and materials, but also improve the surrounding biosphere and environments by harmonising and increasing the capacity for life and nature. By placing students within these environments, they witness the role modelling of sustainable practices and holistic cycles that benefit themselves, the ecology and the community through the production of sustainable and natural growing and animal rearing practices (organic, non-intensive, non-toxic). Through this process, meaningful relationships and values are fostered between humans, ecologies and communities, which allow the students to experience real life sustainability first-hand. Researching and sourcing sustainable locally sources (where possible) materials used within crafts and subjects, allows students to make informed moral decisions and choices around the scarcity and sustainability of local and planetary resources and the direct consequences to the world of such choices.

Staff and student in biodynamic school garden⁸⁰



Challenges

- Any land-based initiative requires forward thinking and a sense of entrepreneurship as it is based on a non-standard approach
- There is a training requirement which requires practitioners to increase their self-reflexive process. The development of action research can be a guiding principal
- Practitioners need to approach the content with a collaborative attitude and teachers need to risk entering a domain of unfamiliarity to enter the practitioner mind set, however the rewards for teaching and practitioner-based learning are immense
- Requires external funding and grants (and large fund-raising team) which are mostly attained through its charity status
- Collaborating with the local community and various stake holders can be challenging, expensive and time consuming. This element takes a lot of considered coordination, but vital in both its implementation and impact

Strengths/prospects

- Harnessing and harmonising with the local ecology, cultures and history (via a Genius loci audit) can help reveal and acknowledge both negative and positive practices and approaches to help create a more sustainable and community orientated curriculum that meets the needs of both the people and earth
- A holistic practical focused curriculum involving land, craft work and nutrition, using sustainably sourced and local materials where possible, encourages situated and embodied learning for the whole human being and community
- Creating sustainable 'seed to table' systems for food and material production that involves learners (using Biodynamic/whole system principals) encourages sustainable, ecological and environmental practices and thinking
- The will and support for a holistic integrated approach as it is essential to the schools and not-for-profit charity vision

For example, using a sustainably sourced locally cut tree, instead of a rare hardwood transported from the Amazon rainforest.

Community Connections • Ruskin Mills Trust's core purposes is to aid integration into community and contribute to society. The focus towards community is paramount within the trusts PSTE methodology as it creates a pull (as opposed to push) for the students to gently self-generate their own desire to engage with community, society and world. Multiple opportunities for students to engage and develop both the local communities and wider society are experienced; farms/land (contributing produce to local communities via veg boxes and shops), cafes (using the grown produce from the land/farms), shops (selling and showcasing Trust grown and locally made, sustainably sourced produce) and exhibition spaces (where established artists, crafts people and student can exhibit and showcase their work alongside and for the local communities). Further to this, students are encouraged to lead community and charity orientated projects such as restoration of community/heritage spaces (canals, buildings, mills, greenspaces etc) which can help engender a sense of belonging, giving back and community building, while aiding integration into community and society in a meaningful and purposeful way.

Capacity Building • Training and development opportunities for all staff and wider community is provided by the trust, from induction to a newly accredited master's level course. CPD Courses in all 7 of its fields of

practice (with many open to the public) are also offered emphasising 'practice enhanced research, research enhanced practice'. These courses and other resources available to the students and staff also encouraging renewal and development in the Ruskin Mill Trust methodology and practices to ensure they meet emerging educational, social and environmental needs. Doctoral and post-doctoral research at various Universities along with other external research project - such as ERASMUS partnerships - serve to enhance our evidence-based methodology. The charitable objectives support the dissemination of all research findings widely and it achieves this in various forms, including 'The Field Centre Journal of Research and Practice'.

The alternative pedagogy and learning processes these school examples have presented interconnect all aspects of a WSA. They also illustrate how the craft process and creative based learning can reveal and meet both societies' challenges and potentials through an active dialogue between individual and world. In turn, this opens the possibility of the world becoming our teacher. The capacities developed through craftwork, such as autonomy, agency, innovation, self-reflection and a sense of morality and ethics⁸¹ are now more important than ever in helping to develop meaning and purpose in light of today's sustainability challenges: On an individual and local scale, and equally crucial in reconnecting us to the world, and stimulating innovation and solutions to address the new imperative within education of contributing towards sustainability, ecological thinking and environmental renewal.

India • Quality Education' as an enabler for the SDG's

Special thanks to The Centre for Environment Education, Eco-Schools Programme India, Khushbu Shah, Mansi Shah, Swarnima Luthra, Padma Jyothi Turaga, Renuka Rawat, Chetna Bhardwaj, and B. Rakesh for this contribution

National Policy of Education (NPE) 1986 (modified in 1992), in which "Protection of the Environment" is stated as a common core around which a National Curriculum Framework (NCF) would be woven.

In India, environmental education is mandated by the Supreme Court of India and overseen by the National Council of Education Research and Training (NCERT). The National Curriculum Framework, developed by NCERT, includes a "Protection of the Environment" component comprising of a graded syllabus for EE for class 1 to 12 standards. At secondary school level, an infusion model has been adopted for imparting EE, which means environmental education is now imparted in most schools and colleges in India. At present, at the national and sub-national level, the government has adopted the SDGs as a guiding framework to steer development actions. NITI Aayog⁸², a governmental portal in India, plays a central role in the country's SDG efforts. "Schools accredited by India's Central Board of Secondary Education (CBSE)⁸³ are now in compliance to new Education Policy 2020 which has proposed the revision and revamping of all aspects of the education structure to align it with SDG 4 Quality Education and the aspirational goals of 21st Century education" (Swarnima Luthra, headteacher). Both schools featured in this example states that the changes support ESD being

further integrated into the curriculum. "This has aided the school to integrate this into the pedagogical approaches. The school has also received State level recognition for the sustainability programs done by our students" (Padma Jyothi Turaga, head teacher). Most schools in India are funded and run by the government. However, the public education system faces serious challenges including a lack of adequate infrastructure, insufficient funding, a shortage of staff and scarce facilities. Since many government schools do not provide adequate education, Indian parents aspire to send their children to a private school. Some expats choose to send their children to private Indian schools. "The Centre for Environment Education (CEE) works with local, state, national and international agencies, organisations and governments in India and in various other countries to help create a sustainable future"⁸⁴. Both schools are private schools that are run by their own management.

Contribution (1) by head teacher Swarnima Luthra and eco-club coordinator Renuka Rawat: Adarsh Shiksha Niketan (ASN) Upper Secondary School, Dehli (established in 1975):

The ASN school vision is to have an intellectually possessed an amiable society, spreading the light of education all over the World, moulding every individual environmentally conscious, socially endowed, making the planet 'Earth' worthy for living. The mission is to create an awareness to evolve environmentally and socially the pristine World through well devised curriculum, excellent infrastructure,

ASN schools vertical gardens - making every space count and breathe! / Yoga sessions conducted on regular basis ensured students practice self-care, physical fitness, developing a healthy mind in a healthy body. Meditation, breathing exercises and prayer are an integral part of the daily routine for all the learners



Key WSA Principles in action at *ASN upper-secondary school***Vision, Ethos, Leadership & Coordination**

- School vision directly linked to sustainability core values
- Top-down accountability and support from both the national curriculum and school leaders
- International collaborations also strengthen the schools vision and keep the way they lead and coordinate current

Curriculum

- SDGs actively incorporated into the curriculum
- Alternative forms of assessment 'for the learning and not of the learning' – ppt, article writing, role play (alternatives to exams)
- Global citizenship and social entrepreneurship incorporated into teaching

Institutional Practices

- Eco-friendly campus: numerous sustainability-oriented school practices in place; rainwater harvesting, solar panels, school garden, vertical garden, bio-gas plant, composting
- Signs throughout the school to promote and nudge responsible environmental behaviour
- Ongoing waste management campaign involving community and other schools
- Best practices for the school are based on multiple approaches of the SDG's.

Pedagogy & Learning

- Integrated project-based learning is central to ESD
 - School grounds and gardens as a classroom
- Interdisciplinary teaching focus

Community Connections

- Strong community outreach programs that involved all community stakeholders
- Mentor and exchange workshops set up with other schools and community members
- Involved in government organised events connected to sustainability, good health and wellbeing
- Joint sustainability campaigns (for example waste management) with other schools and community members
- Awareness raising beyond the school is a major focus at this school

Capacity building

- Continuous professional development of all staff is prioritised including regular capacity building workshop
- School's capacity made stronger by being part of the International Eco-School network, both local, national and international partnerships like CEE

innovative teaching learning practices with an entrepreneurial dimension. Our school, since its inception, upholds its core values - **social responsibility, cultural consciousness, global citizenship and environmental consciousness** which support the vision, shape the school culture and is well reflected in the teaching, ethical conduct of our learners and even in our infrastructure. The school's vision, mission, core values and whole school engagement are aligned to achieve sustainable mindsets through positive change in behaviour and actions in all the stakeholders. After the launch of UNSDGs in 2015, we realised the potential in the SDG framework as a learning tool for our students. Therefore, we redesigned and revamped our educational goals in alignment with UNSDGs. Principal Luthra believes that 17 UN Sustainable Development goals can serve the purpose of both the educational themes and learning tools for making education relevant and in context with real life.

Extensive discussions, brainstorming and meetings amongst the head teacher and teachers are carried out regularly for the planning and (re)designing of the school's pedagogical plan to create a multi-faceted curriculum which integrates real life lessons into the classrooms

through curriculum linkages and connections. By imparting sustainability-oriented education effectively through school culture and practices, the school has endeavoured to align the integral drivers - curriculum, pedagogy, and whole school engagement. This has transformed the school's learning environment into the hub of research and action on SDGs where every student at the school has understood global goals, how they impact their lives and what they can do every day to help their country achieve these goals. The assessment is focused on 'for the learning and not of the learning'. Different types of formative assessments like – Quiz, role play, PPT presentation, recitations, article writing, performing art and art activities are carried out at all class levels.

We believe the following suggestions can help realise the objective of facilitating quality education to all: **1.** A school with *good infrastructure* goes a long way in improving the interest of both students and teachers alike. It plays a role in improving the attendance of students too. For this same reason, it can be said that investments in school infrastructure play an enabling role in solving many access-related problems of students to the school system, thereby improving their academic performance too. **2.** Some

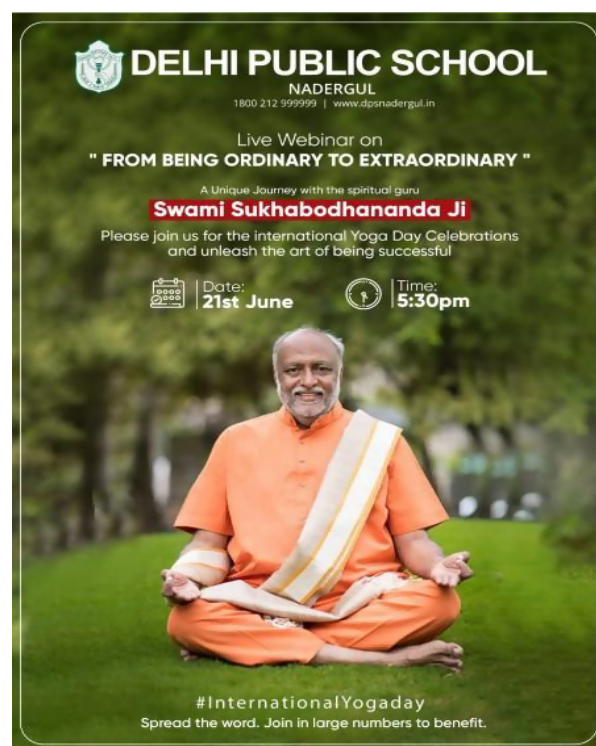
flexibility and responsiveness in the curriculum is needed to allow for adjustments and modifications considering changing and new circumstances or priorities. Sometimes such adjustments can be minor in that they do not affect the curriculum structure; sometimes they require a form of modernisation to ensure that the curriculum remains current and relevant, reflects new developments in society and adequately prepares learners for life; and sometimes they call for innovation that brings new approaches and solution; and large scale, system-wide reform that entirely reshapes the existing curriculum. **3.** It's necessary to seek *policy change* in schools or school systems to enhance or protect the educational benefits to students, the physical and psychological health and safety of students and school staff, or the management and integrity of the system. **4.** *Changes in pedagogy* are reflected in experimentation with active and collaborative forms of teaching and learning tied to community-based public problem solving. New community-based, engaged pedagogies—most prominently service-learning—connect structured student activities in communities with academic study. **5.** *Changes in curriculum*, in educational content, in expectations for students, in teaching methods, in class size, in teacher independence – all these and many other factors can lead to a better educational experience for students.

Our WSA, SDG 4 Quality education whole school approach report⁸⁵ goes into more details, however, our eco-friendly campus and integrated project based learning are what we feel best showcase the holistic approaches to sustainability orientated education at our school. The integrated project-based learning is a part and parcel of our teaching strategy, action research projects, the *in-situ* school practices (Annual Green Drive, Health and Hygiene drives, awareness programs like Special assemblies, Celebration of Earth Day, Tiger Day, Observing Earth Hour, Audits on land, water, energy & air etc.). Revamping Curriculum & Pedagogy (for example – designing lesson plans, adopting integrated project-based approach, creating inquiry-based classrooms, designing hands-on activities, stimulating and creative worksheets) with the clear objective of imparting sustainability education, is the foundational starting point which comes at no extra cost. It only requires effective engagement of teaching faculty and principal to its best of their abilities. Practices like observing earth hour, check on water and electricity consumption patterns and wastage, intra school cultural and literary activities, and class wise assemblies on pertinent social and environment issues are also beneficial with no cost implication. The following measures with little investment have proved to be beneficial directly or indirectly in the impart of sustainability education; installing eco-friendly measures like solar panels, rainwater harvesting systems (under subsidised promotional projects from government); installing sensor taps, half flush options, sprinkler system for optimum use of water; creating and maintaining herbal garden

and green spaces in the school campus, constructing compost pits and leaf composts; holding theme-based exhibitions on students work; and organising awareness programs within and outside school like tree plantation, inter school competition etc. Certain measures which the school has taken up at substantial costs are incorporating Continuous Professional Development Programs (CPD) and Capacity Building Workshops through experts in the field of education; collaborations with international and national organisations; organising cultural exchange programs, inter school meets and events; adopting latest edu-tech solutions like installing View Sonic Interactive Panels.

Contribution (2) by head teacher Padma Jyothi Turaga, Deputy head Kiran Khanna, teacher B. Rakesh and Eco-Schools coordinator Chetna Bhardwaj: Delhi Public lower secondary School (established in 2016):

Our school has been working with Sustainability-oriented Education since establishment of the school in 2016. This has led to increased awareness amongst students for the environment through various initiatives and methods where inclusive learning is combined with some form of action taking and activism. For example; waste management; learning through life skill lessons; campaigns for social causes, such as, campaigns for tree planting and a campaign against the use of firecrackers during festivals to avoid pollution.



Teacher professional development workshop: Multiple webinars are hosted by the school management for the well-being of its staff members. A recent webinar by Sukhabodhananda focused on the concept of inner peace and development and how to combat stress at work.

The school has also encouraged and adopted various ways and means of engaging with sustainability-oriented education, some of which are connected to becoming an Eco-School and a School of Excellence (SOE). This included, for example, (a) Practising Reduce, Reuse and Recycle, (b) Activities and learning about saving energy and water conservation, (C) Learning about healthy lifestyles, and (d) ongoing projects based on sustainability.

As 21st century educators, we are morally and ethically bound to instil a sustainable oriented education and lifestyle. We recommend the whole school community to switch to sustainability-oriented practices like introducing green habits (switching off the power supply when not in use, adopting the 3 Rs as a way of living), to both organise and attend environmental awareness campaign and webinars, and to initiate environment positive thinking and behaviour. This happens both in and beyond the classroom, active participation of students plays a part of this and is promoted in various ways. For example, taking care of the classroom and school grounds: Students are given leadership roles such as becoming a “Green Crusader” where they take up sustainability related responsibilities within the school and in the community. Their efforts are also acknowledged and rewarded.

Examples of a WSA in practice at our school • One fun example is our Math Garden initiative. The teaching-learning session involved the growing of fenugreek and other herbs in the shape of mathematical operations and numbers to help explore these concepts through nature. Through this we tried to instil the value of love for nature and math.

Making our school green through the policy of donating saplings on birthdays has been a success. We have also made the switch to eco-friendly practices, such as; waste segregation; composting; growing vegetables and herbs in the school garden; growing flowers to increase pollinator; and making bird feeders to attract birds especially the house sparrow. Other relatively low cost investments include; installing rainwater harvesting and drip irrigation systems; and planting of trees on and off campus. Our most expensive sustainability investment has been solar panels. However, in the long run it helped us to reduce our electricity costs. More detail explanations can be found in our schools [SDG 4 report](#)⁸⁶, where many more examples are presented.

Another example includes our commitment to finding and integrating alternative **Pedagogy and learning methods**. We have enjoyed being part of the world-wide movement towards the commitment to [Fair Aware School](#)⁸⁷. As a part of our commitment, special Fair-Aware Assemblies are conducted every week in the school. The aim is to spread awareness among the school children about how the food

Key WSA Principles in action at *Dehli Public School*

Capacity building

- Professional development of all staff in topics connected to multiple SDGs, including the health and wellbeing of their staff (combatting stress)
- A monthly network set up to share best practices and teaching methodologies with 2 other Delhi public schools
- Peer to peer micro-teaching sessions led by teacher for teachers to learn from each other
- National mandates for 50 hours teacher professional development each year

Vision, Ethos, Leadership & Coordination

- Leadership and communication are seen as a key for a child's success. Students are given responsibilities to children from a young age, at class level (monitors) and school level (Student council)
- School vision and ethos directly linked to social responsibility and concern for the environment

Curriculum

- National curriculum (2020) is linked to the 3 pillars of sustainability – environment, society and economy

Pedagogy & Learning

- New learning approaches, such as, Fair (trade) Aware school assemblies, human Library
- National Geographic courses for teachers result in innovative teaching methods
- Peer to peer learning of knowledge between teachers
- Art, music and dance integrated into lessons

Institutional Practices

- Students learn that failure is a steppingstone towards learning
- Health and wellbeing practices for both students and staff
- Birthday garden in community, comprising all the saplings donated by the students on their birthdays

Community Connections

- Multiple ongoing school-community relationships have been established; Health camp for the local community and all school staff; cooperation with local orphanage; other donations to local charities
- Much of the learning revolves around concrete actions and influencing environmental behavior and connecting with the community such as; heritage walks in local community; fruit and vegetables grown on campus distributed to the local community; saplings distributed to parents and students to plant at home

and trade systems work and how fair trade can connect farmers to markets and enable sustainable food and fashion choices.

We are also an [Eco-School](#)⁸⁸. This work starts in the classroom and expands to the community by engaging the next generation in action-based learning. Our educators and students are an active part of the Eco-School project where they engage in various activities in and beyond the classroom as previously mentioned - growing food and establishing vegetable patches, making toys from trash, making bird feeders etc. Teachers also take up various courses by the National Geographic Learning and implement them in their classrooms. Our mission with the [National Geographic learning](#)⁸⁹ is to bring the world to the classroom and the classroom to life. We have also found that integrating art, music and dance into teaching opens newer facets of learning.

The school has also introduced the **Human library**, a unique program where students interact with personnel/ individuals from various fields who visit the school and share their stories with the students.

In terms of **professional development**, multiple webinars are hosted by the school management for the well-being of its staff members. A recent webinar by Swami Sukhabodhananda focused on the concept of inner peace and development and how to combat stress at work. Also, a 'All hands' meet is conducted every month where teachers from all the three Delhi Public Schools meet and discuss on the syllabus and other teaching-learning methodologies.

According to the curriculum mandate, the staff members must go through a 50-hour training during an academic year so there is top-down accountability for continued professional development. Teachers also learn new sustainability-oriented teaching methods through

regular micro-teaching sessions, where teachers, and other staff, learn from their peers about the newer methodologies. Vertical and horizontal training is provided to staff members and we strive for every member to be provided with equal opportunities for growth within the organization.

Strengths/Prospects (from both schools)

- New curriculum/education policy integrates ESD
- SDG's play a major role in supporting the sustainability education
- Sustainability-oriented projects motivate students and encourage a positive attitude towards sustainability
- It takes complete commitment to deliver WSA sustainable-oriented education from all staff. Dedicated teachers have worked very hard to develop curriculum linkages and connections for a holistic approach to be possible
- Successful collaborations with national and international organisations to provide an interactive and dynamic platform to the learners and the necessary expertise

Challenges (from both schools)

- Motivation of community
- Budget restraints
- Bringing a change in mindsets and societal behaviours and attitudes is a long-term undertaking to bring on board students, parents and teachers together to work towards adopting sustainable habits and actions was a challenging task
- Pandemic and shift to online learning limited some of our whole school environment action projects and hindered community initiatives, but few projects like litter less campaign, biodiversity, social-emotional connect seamlessly integrated and modified for the online learning were a great success

Students in the school garden caring for tree saplings / Tree planting: The school takes pride in its Harithaharam program, currently over 4000 trees were planted in the campus. The school also has a fruit garden and vegetable garden of its own where the children grow vegetables that are then distributed to the community. As part of the Harithaharam program the school also undertook sapling distribution to parents and students. The school also has a policy of felicitating Chief Guests and dignitaries who walk into the campus with saplings to promote the green cause.



Norway • Montessori Students as changemakers

Special thanks to Cecilie Fosseidbråten, Henning Johannessen and Montessori Norway for this contribution

All Montessori schools and kindergartens in Norway are private, which in Norway means independent, in the sense that these schools are privately owned and have more freedom to choose an alternative pedagogy and method. However, private does not mean elite as all private schools and kindergartens are strictly regulated, not-for-profit, and receive between 85-100 percent state funding. Unique to Norway is their National Montessori Curriculum organised by the national interest organisation Montessori Norway. This national Montessori curriculum is approved by the Norwegian directorate of Education (UDIR) and regulated through the [Independent Schools Act](#)⁹⁰. In line with Norway's national curriculum renewal, the Montessori curriculum renewal also took place in 2020 and is an example of a curriculum that supports a holistic integrated approach to sustainability-oriented education.

Maria Montessori's main focus was to assist children and adolescents in creating a more sustainable, fairer and more peaceful world. This became the driving force for her work with children and education and is central to the pedagogy even today. Consequently, Montessori pedagogy is often referred to as "peace education". The values in Montessori pedagogy are intricately linked to and in line with, human rights and the UN's Sustainable Development Goals. (Montessori curriculum 2020).

School gardening teacher training course, NMBU



Front cover Montessori Læreplan 2020 - illustration Marianne Karlsen

As of August 2021, 91 Montessori schools, 40 Montessori kindergartens and 10 associations are members of Montessori Norway. 32 of the Montessori schools have junior high schools. Norwegian Montessori schools (and all independent schools in Norway) receive 85 % state funding and thereby are accessible to most families. As well as the national curriculum aligning with a WSA, Montessori Norway have through their [Montessori 2030 strategy](#), made a commitment to achieve two aims in alignment with the SDG 2030 agenda: 1. To help our students become the change-makers the world needs today and in the future 2. To make sure we as institutions are part of the solution in all we do⁹¹.

Excerpt from Montessori Norway 2030 strategy •

"The Institutions as part of the solution: Our schools are institutions. These institutions purchase products and services. In these roles, we can take an active part. We can make sure we know the origins of the products services

we purchase – all through the value chain. [...] Do we ensure that our staff and student body include a diversity of ethnicity, gender, social background etc? Do we help the little girls and boys avoid gender stereotypes? Do we help the families understand how they can be part of the solution? Are we as carbon neutral as we possibly can? Are we using a financial service that is not involved in any financing of war, climate-challenging investments? Are we using our power to improve our own and our constituents' SDG friendly behaviour? These are just a few of the questions we will ask and find answers and solutions to together".⁹²

One example of this 'Montessori' approach in action comes from a cluster of schools situated in a semi-rural town called Drøbak, in southeast Norway. In 2016, Drøbak Montessori schools (a kindergarten, primary and lower-secondary), created and committed to their own 2030 strategy: "Children who start in kindergarten today will graduate Drøbak Montessori secondary school in 2030. What demands and challenges are placed on young people then cannot be fully anticipated. Nevertheless, it is our responsibility to give them the best possible skills/conditions for when they meet the challenges and

demands that will be placed on them when they advance into higher education, and / or enter the labour market. Our kindergartens and schools are part of the local community. We must have a clear role and voice in the community, to be an example, and an inspiration. The local community must know our goals and how we work to reach them. Everyone who is associated with Drøbak Montessori must agree to our vision and our goals and do their best to help live up to this." (Mervi Flugsrud, manager of Drøbak Montessori) The school strategy was part of the inspiration behind Montessori Norway's national agenda and is an example of how individual schools can support change on a national level. Ingrid Stange, founder of Drøbak Montessori, has spearheaded this national 'Montessori Norway' commitment to the SDGs through her role as the chairman of the Montessori Norway board and is also committed to [inspiring schools around the world to do the same](#)⁹³.

According to the heads of school, another 'top-down' influence, offering the authenticity and assurance needed to live-up to this commitment to the SDGs, is that all teachers have this focus included in their contract. For example, in the teacher contract for the primary school it states all teachers are required to use the school garden

Drøbak Montessori secondary school students preparing lunch for the whole school



and outdoor classroom in their teaching. Moreover, at board meetings, each school is required to give progress reports in connection to their yearly plan concerning the 2030 agenda, and within this ESD. While teacher autonomy is respected in these schools (historically teacher autonomy in Norway is very strong), this top-down requirement, that goes beyond the commitments upheld by following a national curriculum, helps support a whole school/staff commitment to a common goal. However, it is important to note that there needs to be flexibility and the ability for each teacher to find their own way. Cecilie Fosseidbråten, the primary schools head teacher describes this also in terms of student participation: "As with our students, some teachers are more interested in working outside than others and we really try to follow the students and teachers lead with this. While we require all teachers to interact and utilise the school garden, each teacher is given the flexibility to find their own approach. We want to find the balance between top-down support and bottom-up initiatives taking the lead."

Other top-down support includes Montessori Norway providing administrative support for teacher training course related to numerous aspects embedded a WSA ESD. For example, Montessori teachers have been offered to take part in a [2-year long education in School-gardening](#), a course provided by the university NMBU⁹⁴. Having this top-down support is further strengthening this as a resource for all teachers. It means more teachers, not just the ones already fully engaged, are receiving valuable high-quality training.

The schools also have close cooperation with various other national and international organisations such as United Nation Norway⁹⁵ ([FN sambandet](#)), as they are a UN-school. Through this initiative, teachers regularly join seminars and have access to other recourses. Practical examples of a 'WSA in action' is now presented by Drøbak primary and secondary school head teachers.

Contribution (1) by Henning Johannessen, head teacher of Drøbak Montessori secondary school: 75 students grades 7-10th (12-16 years of age):

The Secondary Schools vision⁹⁶ is grounded upon 5 principles 1. Freedom, 2. Individualisation, 3. Independence, 4. Cooperation, 5. Harmony with Nature. We have always (18 years) worked with sustainability-oriented education, but we intensified the focus in 2015 when the new SD goals were revealed. Our [school website](#) goes into more details about our pedagogical approach and everyday life at the school, and our involvement in national and international projects, such as Montessori Model United Nations⁹⁷. In our school we are really stressing the importance for students to be involved in their own learning experience/process. We have a council meeting every week, where the

students lead in front of other students, teachers and the principal. All the students have responsibilities for daily tasks such as cleaning, making warm lunches, feeding the hens, doing the hives etc. This approach was also taken when we built our new school building, Norway's first **powerhouse school** "Architects from Snøhetta designed the new school, while Skanska has been responsible for the construction. The school is a powerhouse, a building that during sixty years of use will produce more energy than it has used. The calculation includes the entire process, from material production, transport and construction to operation and finally disposal"⁹⁸. You can read more about the Powerhouse building process on the [school website](#). Student participation has been a focus here also, even in designing the building as Mervi Flugsrud, manager of

Drøbak Montessori secondary school students in the schools local forest



Key WSA Principles in action at *Drøbak Montessori secondary school***Capacity building**

- Teachers are encouraged to follow their interests and go on different types of training course, such as, bee keeping courses – both students and teachers have attended this
- The Human Resource Development and staff hiring strategies consciously looks for people who are attuned to the school's philosophy and the SDGs

Vision, Ethos, Leadership & Coordination

- The school vision is to assist the adolescents to develop a strong sense of self-worth, identity and a clear understanding of their meaningful role in society at large. To prepare the students for adult life, to be able to feel a strong sense of independence both socially and economically
- Elements of the school are non-hierarchical, especially in the classroom, the aim is to work side by side with the student
- All the teachers and school leaders eat, play sports and free-time games with the students, there is no separate 'teachers lounge'

Pedagogy & Learning

- Micro economies are set up and managed by students. Using circularity and creating a student and teacher-led micro economy as an approach to teaching sustainability
- Student-led learning is promoted, for example through the in-depth projects where the students get to learn about whatever they want for 6 week periods at a time

Curriculum

- The school has the freedom to develop its own localized curriculum which is supported by the wider Montessori school network (nationally and internationally)

Institutional Practices

- The school building makes 'walking the talk' a natural part of everyday life as it is a 'Powerhouse' building. Meaning that during 60 years of use the building (including construction) will produce more energy than it has used
- Students make money giving guided tours to visitors of the school showcasing the sustainability features inside and out
- Students directly contribute to the running of the school, they maintain the school ground, cook and clean.
- Students are part of school decision making - democratic decision making in action

Community Connections

- Citizenship science in our surrounding community such as working with local charities on water quality issues, also beach and nature clean-ups initiated by students
- Students take part each year in Montessori Model United Nations connects to the international community
- UN-school Norway – National community connections

Drøbak Montessori explains: "We had a workshop where we divided into groups, worked out suggestions, went back together and presented different solutions to each other. Then there was a student who asked: "Can we not just put the school here, towards the forest?" And that is the proposal we went for. One should not shy away from having people with different skills and ages in such projects. Just like in a Montessori classroom, we benefited from both age mixing and interdisciplinarity."

Another example of student driven education is when we had all the students and teachers focusing on and cleaning up the small pond we have in our neighbourhood. We spent 3 weeks doing this, and we went all in. The result is a really nice pond, bird boxes, the stream of water is cleaner etc.

Being a small school with limited resource, we have taken it one step at a time. For example, three years ago we started beekeeping, this took time to establish with both teachers and students being trained in how to do this responsible

work. This is a classic example of what we like to focus on. It is a good thing for our local environment, and it gives us money into our microeconomy. We feed the result into our daily operations. In terms of challenges, being a small school, we are always vulnerable when for example a teacher leaves or gets sick for a period of time. We have 9 teachers, all specialists in different areas, and it is not easy to substitute this on a short notice. It is also important to have long term plans for the school concerning continuing education for the teachers, and we need to have a plan for the next 4 years describing all the things we are going to do. **It is vital to make sure we have a security net when things fail, and to be prepared**, to be dynamic and creative. For example, 4 years ago, the cod in the Fjord disappeared gradually. We have a small boat we go fishing in, but now we had to look for other sustainable resources in the sea. We focused on seaweed. Now we collect seaweed and use it for food, soap etc.

Contribution (2) by Cecilie Fosseidbråten, head teacher of Drøbak Montessori primary school: 80 students, 1-6th grade (age 6-11):

I feel the successes we have had are because of ESD naturally aligning with the Montessori pedagogy. At the primary school this is best seen in the [cosmic education curriculum](#)⁹⁹. Another crucial factor is that all levels of management have been behind this from the start. Sustainability values have existed in our schools and curriculum since the school started in 1995. However, our focus on ESD really increased when our school garden and outdoor classroom was established in 2011 when a teacher committed to Environmental Education was employed. She coordinated numerous environmental education initiative at the school. One of our main focuses is that anything we start should be student led from the beginning and involve the students at every stage. This often means changes are slow, take time and often fail, but this is where we believe the real learning and culture of sustainability is fostered. In terms of challenges, figuring out how to collaborate with external actors has sometimes left us feeling overwhelmed. For example, Eco-Schools¹⁰⁰ and The Natural School Bag¹⁰¹ are two initiatives that offer schools support with ESD. Although we are very thankful for their support, the reporting and assessment required for these types of awards/initiatives can feel at odds with the way our school works. It is often difficult to capture all the different interdisciplinary and everyday sustainability actions going on in our school. We hope to find easier and more streamlined ways to monitor and assess our schools progress with all we are doing, as well as finding a way to be involved with external actors that is mutually supportive, and do not add to an already full administrative workload. We also feel that when embracing a WSA, it is essential to create opportunities for all students to be empowered in a role of responsibility. Establishing a school eco-committee supports this, as it creates more opportunity for active participation. It also holds us accountable to commit to continual improvements. While we have a sustainable focus at the schools, we are far from being fully sustainable. Our student committee also offers opportunities for active participation and peer to peer learning. The challenge though is for this not to be available to the 'few', but to create opportunities for all students to experience responsibility - and through this empowerment. The school garden can provide numerous ways to engage with sustainability. Some of what we have set up has cost very little, such as establishing bokashi composting and things we have managed to get donated to the school, like our greenhouse, while other aspects have been more expensive to set up like our outdoor kitchen and pizza oven. Students being able to follow food from 'seed to table' however continues to be an integral part of ESD at our schools. The questions that come from this are endless! The school ground also offers different ways for students

Key WSA Principles in action at *Drøbak Montessori primary school*

Capacity building

- Multiple Continued Professional Development courses attended connected to being a UN School, green flag EcoSchool and with project funded by DNS – The Natural School-bag
- Montessori Norway are also supporting and promoting schools to take part in professional development courses, for example the school gardening courses
- A sustainability-education coordinator in a 60% position was employed from 2011-2019 which supported 'in-house' capacity building

Vision, Ethos, Leadership & Coordination

- Strong top-down vision that directly addresses their commitment to the SDG's 2030 agenda. Everyone who is associated with the school must agree to our vision and our goals and will do its best to help live up to this
- Committed teachers that have officially agreed in their contract to support the schools ESD focus and teach lessons in the outdoor classroom

Curriculum

- A holistic and integrated approach to sustainability-oriented education is embedded in the Montessori national curriculum

Pedagogy & Learning

- Interdisciplinary teaching is a core part of the Montessori pedagogical approach
- Student led learning
- Peer to peer learning
- Garden as classroom

Institutional Practices

- Outdoor classroom and garden established in 2011
- Eco-School committee and student council work together continually to support the whole school to become more sustainable

Community Connections

- Nature and local town as our classroom, 'uteskole' takes place every week where the students visit the local beach or forest all year round.
- Students are proactive in writing letters to motivate changes in our local municipality – more recycling bins, reporting damage for example

to get involved, as over the years it has become clear not all students want to grow food. Different activities motivate different types of students. Most recently a ground of

Students hard at work in the primary school garden and outdoor classroom

young boys built a willow walkway in the school grounds and this year will teach their fellow students to build another. This is another example of the domino effect, peer to peer learning and the student becoming the teacher. We are also witnessing this in eco-committee as they become empowered to talk about what they are learning and discussing with the rest of their class. This really helps to build a sustainability minded school culture that is motivated, instead of overwhelmed, by the sustainability challenges our world faces. One area we feel we could do better at is being active and form more connections in our local community. We hope we can do this by supporting other schools (more peer-peer teaching) to set up eco-committees for example. We also have plans to involve more parents and local businesses. However, this needs to be done in a way that is manageable and slowly enough for us to learn from the process, including our failures and all our staff and students are involved.

Strengths/Prospects (from both schools)

- Long-term commitment to sustainability-oriented education
- Top-down support from all levels of managements
- Long-term core staff members (both the head and deputy head of the school have worked at the school since it opened 18years ago)
- CPD courses – educating the whole school not just a few teachers.
- Support on all levels – school board, Montessori foundation, school principles
- All teachers and leaders have ESD/2030 strategies are required in their contract –
- Legal requirement – in work requirements in the contracts – including a requirements to use the outdoor classroom and garden in their teaching (outdoor classroom was a saviour in COVID!)
- Real-life responsibilities given to students.
- Garden/outdoor classroom helped to motivate us to do more -

Challenges (from both schools)

- A small school with only 9 teachers, all specialists in different areas, it is not easy to substitute this on a short notice.
- Things fail, not all of the changes made succeed so there needs to be back up plans and a culture which responds positively to failure.
- Student led projects take more time and often fail BUT it is worth it! Students
- Not all students like everything (for example being in the school garden), there needs to be different task to suit and empower each individual child.
- To teach like this ideally needs small groups and a higher staff/teacher ratio



China • Hong Kong: A Whole School Sustainability Audit spearheading a whole school commitment to change

Special thanks to Sean Lynch, Victoria Astle, Sasha Manu, Anthony Dixon and Caitlin Shem for this contribution

China, and Hong Kong S.A.R in particular, place a high priority on sustainable development and pursue a range of governmental, corporate, education and civil society initiatives. [The Hong Kong Education Bureau](#)¹⁰² and [the Hong Kong Environment Bureau](#)¹⁰³ offer site visits, teacher education programmes, territory-wide green activities, and learning and teaching resources. The Environmental Protection Department¹⁰⁴ also helps local institutions to minimise waste and reduce carbon, among other green initiatives. There are also numerous NGOs working on sustainability in Hong Kong.

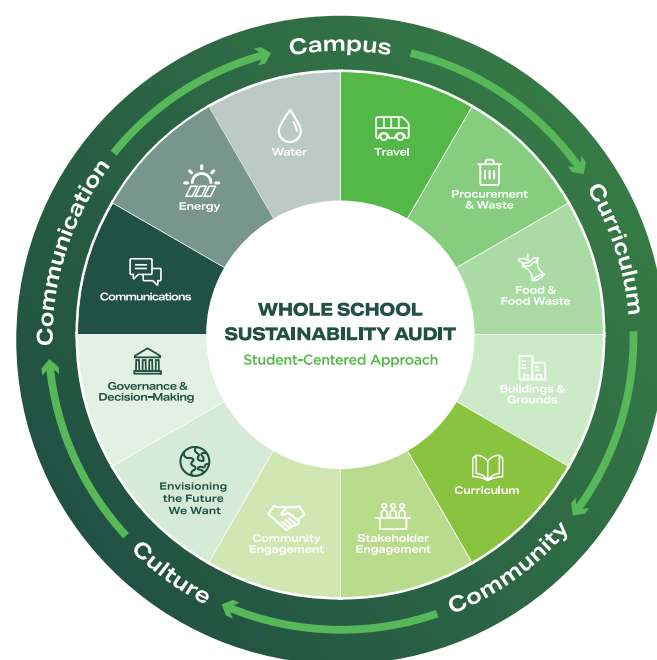
This case study is of the Chinese International School, an independent private non-profit school in Hong Kong. The school has had a focus on sustainability for many years, with student-led initiatives dating back over the last decade. In 2019 the school decided to take a more systematic, comprehensive and strategic whole-school approach to sustainability and sustainability-oriented education.

As the first major step in that direction, [Metanoia](#)¹⁰⁵ (a sustainability consultancy specialising in schools) were engaged to work with students and the school to conduct a whole-school sustainability audit. Metanoia's expertise is broad and includes energy efficiency (of lighting, air-conditioning, buildings), building-integrated solar energy - design and installation, food and food waste, sustainable school uniforms, sustainability communication, biodiesel-from-waste, carbon auditing, offsetting, education for sustainability, and governance for sustainability.

Anthony Dixon, Metanoia's founder explains: "Metanoia is a Greek word meaning 'a transformation of heart and mind leading to a change in behaviour.' It describes what happens when students are effectively engaged in the rich sustainability learning opportunities their school campuses offer. We believe this kind of educational experience is essential for a sustainable future." Metanoia's free online [School Sustainability Assessment Tool](#)¹⁰⁶ which schools can complete easily in a few minutes, encapsulates their view of what it means to be a sustainable school community using the 5Cs shown in the audit illustration (see right).

The Chinese International School (CIS) is a non-profit independent school located in Hong Kong, with approximately 1,500 students from Reception to Year 13. All students study Chinese from reception through to graduation, while completing the International Baccalaureate (IB) Middle Years Program (MYP) and the IB Diploma Program (DP). There are over 450 staff at the school including leadership, administration, teachers, teaching assistants, and operational staff.

The Chinese International School's example offers insight into what can be achieved with strong vision and leadership. Moreover, it shows that collaborations with external actors, can support a school in their journey to become sustainable. While some of what this school has done has required a significant financial commitment, their story also provides us with numerous examples of low-cost entry points and ideas for utilising a whole-school approach as a framework for sustainability-oriented education and the development of a sustainable school community.



Metanoia's Whole School Sustainability Audit

This contribution is by the Chinese International School¹⁰⁷ (CIS) Head of School, Sean Lynch, and the school's sustainability coordinators - Victoria Astle and Sasha Manu (both of whom are also full-time teachers):

Student groups have launched and championed environmental change within our school and local communities for many years. One of these groups is called 'Drop in the Ocean (DITO)', was founded over 10 years ago. This student group concentrates on environmental issues, aiming to advance sustainability at CIS and in Hong Kong. The Primary School has also started a 'Green Team' which engages our youngest students through different projects. Many individual student-led initiatives also happen throughout CIS; students have been and remain our most impactful agents of progress. In 2019, CIS sought external expertise through environmental consultancy Metanoia to support and compliment our efforts and work with our students, as well as our staff, parents and alumni, to undertake a comprehensive Whole School Sustainability Audit. This was a major project which we completed over the course of 2019-20. The findings and recommendations

from that far-seeing process are the basis on which CIS has since continued to structure its approach towards sustainability education and action.

In 2020 CIS's Sustainability Council (SCO) was created. The SCO is a consultative body with broad stakeholder representation that supports the CIS Head of School (HOS) and Leadership Team (LT) in their direction and oversight of our school's sustainability commitments. The SCO is made up of 23 members including 9 students from all areas of the school - secondary and primary. The SCO offers formal recommendations to the LT and serves as a sounding board for all matters related to sustainability including recommending short-, medium-, and long-term targets for carbon reduction, waste reduction, green operations, and eco-literacy. This year, it has also launched a thorough review of our curriculum, from Reception through Year 13, with a view to further deepening the ways in which we educate for sustainability. We have just developed a new strategic framework for the decade that lies ahead which places sustainability at its core, beginning with the embedding of environmental stewardship into our new

Key WSA Principles in action at *Chinese International School*

Vision, Ethos, Leadership & Coordination

- Top-down support – fully invested in supporting sustainability projects
- Investment (both time and money) into creating a sustainability audit as an intentional first step towards whole-school engagement
- Commitment to address unsustainable practices
- Students involved in sustainability measures and the sustainability vision of the school
- Paid positions for sustainability coordinators

Institutional Practices

- Student involvement in solar BIPV design
- Sustainability procurement and waste policies in place created by bottom-up participatory process involving all stakeholders in the school
- School farm, producing food for school and local food bank. Farm also engages parents and other local community members

Community Connections

- Parent-teacher sustainability representatives support ongoing community-school connections
- Student-led 'urban farmers' initiative donates produce to local food bank
- School hosts community events such as REDRESS to promote sustainable fashion
- Public space clean-ups - for example on local nature paths, beaches, and in the ocean on kayaks

Capacity building

- Workshops organised for staff and students with local sustainability-oriented Charities and NGO's
- Professional development courses and meetings to increase knowledge in sustainability, for example - a solar energy design course and a course on carbon literacy and decarbonisation run by Metanoia.
- Annual student-led school sustainability summits and a whole school Green Week where all staff and students get involved

Curriculum

- Curriculum mapping underway with a view to proactive integration of sustainability in a whole-school scope and sequence

Pedagogy & Learning

- New strategic focus on project-based learning; viewed as ideal context for developing interdisciplinary, real-world, community-based sustainability initiatives
- Experiential learning through multi-day experiences is deeply transformative
- More work is needed to develop sustainability-oriented pedagogy competencies; once a common framework for this is established teacher professional development will be a focus

Mission Statement and first-ever whole-school Values Charter. One of our strategic goals as part of this “Vision ‘33” is a sustainability pledge to become zero carbon and zero waste.

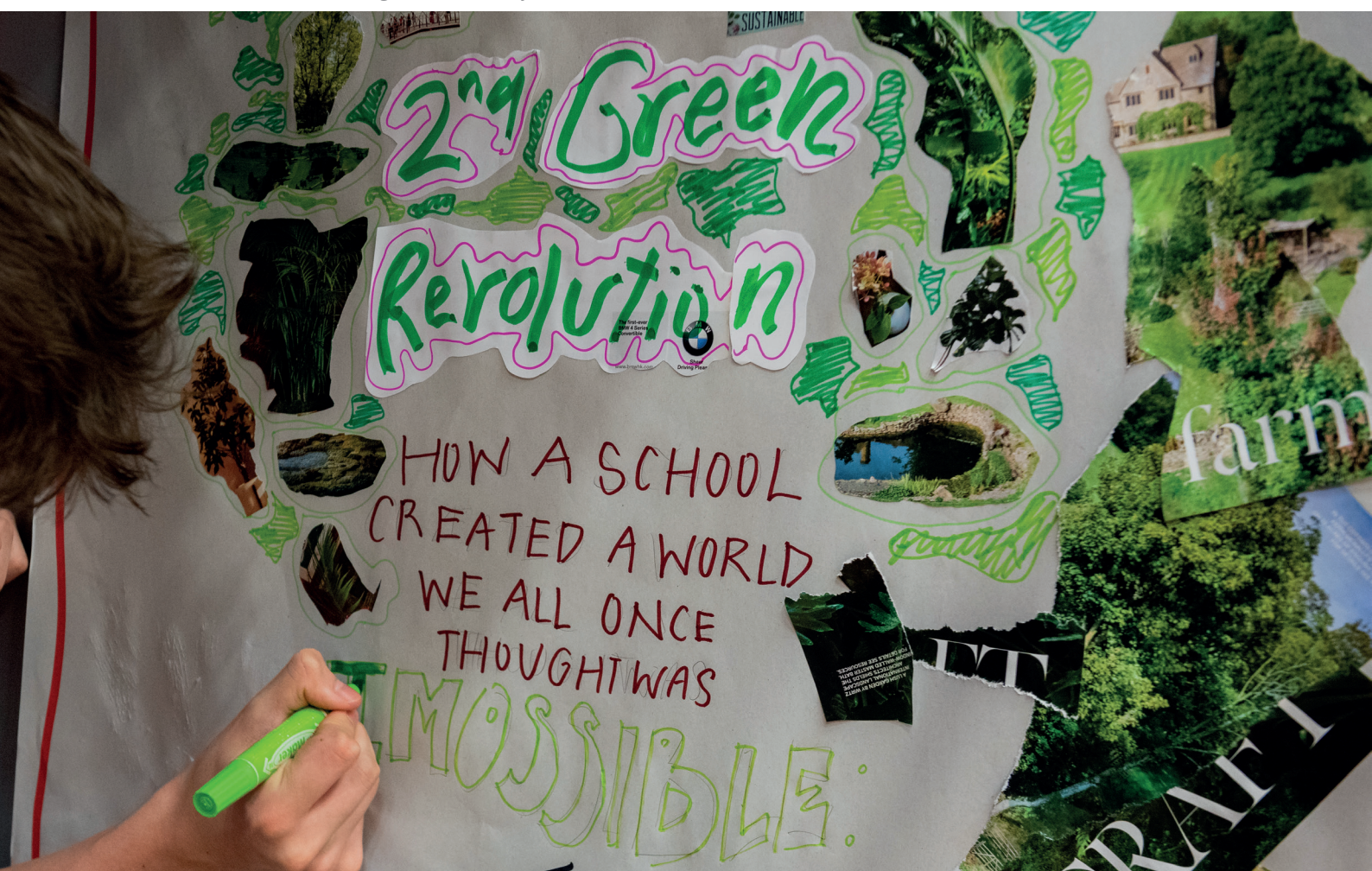
Participation has dramatically increased over the past three years. Previously, sustainability efforts were predominantly student-driven (by a relatively small group of students); now, more students are involved, including primary school students, and with prioritisation from the leadership team, more staff have also become involved and invested in the school’s sustainable future.

Vision, Ethos, Leadership and Coordination • It has been a significant but highly beneficial ‘environmental investment’ to engage with outside expertise (Metanoia). It enabled CIS to undertake a full sustainability audit of the whole school, while also empowering students to help in leading that work, in keeping with our focus on student agency. Six main themes emerged from the interviews with stakeholders conducted as part of the audit: The importance of student leadership; the need for a whole

school sustainability strategy; connection to nature; how to catalyse behaviour change; sustainability in the curriculum; and greater collaboration on sustainability between primary and secondary schools. Our ongoing partnership with Metanoia has provided decisive support on this pathbreaking trajectory. Working with Metanoia, our students are taking charge of ongoing data collection, working to provide benchmarking that can be supported by Key Performance Indicators (KPIs), and driving behavioural change. Decarbonisation and sustainability education are thus becoming more and more of a reality for our community.

Capacity Building • One of the recommendations from the Whole School Sustainability Audit was to create a **multi-stakeholder Sustainability Council (SCO)**. In 2020-21, the Sustainability Council worked on creating focused procurement policies for the school, which were put into practice at the start of this academic year 2021-22. The focus of the SCO this year has continued to be to implement the 100+ recommendations from the Sustainability Audit.

CIS students envisioning the sustainable future





CIS students speaking at the launch of the school's whole school sustainability audit in September 2019

Other low-cost measures included setting up student groups across the whole school. These have had a tremendous impact by engaging and harnessing interested students to make a difference to their school and local community. Having some staff volunteer to help some of the logistics of these groups, especially in Primary, is also key to its success.

Institutional Practices • Our school has engaged in numerous local partnerships with different environmental NGOs, such as: Encompass HK which have helped students to organise CIS community ecotours; Redress, a textile and fashion NGO; Ecodrive, to help community recycling efforts; Plastic Free Seas to engage students in responsible disposal and consumer choices; and St Barnabas Shelter and Home where students donate crops they have grown on our school farm.

The **CIS farm** is run by the school with help from our parent community. However, this year, our Urban Farming strand of DITO has taken the reins. When we have in-person campus learning, these students meet at the garden once a week to plant crops, harvest, weed and

water. We have engaged local farmers for their expertise working with the students regarding which crops are best to plant depending on the season. We are also lucky to have community and parent volunteers, which is greatly appreciated when the school campus is closed to students.

The farm has benefits for the whole school community. Parent representatives hold monthly family workshops. Primary students grow plants in the garden, create artwork and make science observations of plants and wildlife. Some of our older primary students were recently given a 'Live from the farm' virtual tour by some of the secondary 'urban farming' students. Outdoor education has many benefits, especially for students who live in a very urban environment like Hong Kong.

Pedagogy and Learning • Project Based Learning (PBL) is new in the Secondary School but in the school's new strategic plan it will be expanded, not only throughout Secondary but also starting from the earliest years. The primary school is currently embarking on its own journey of staff training and creating pilot PBL projects. These PBL projects will dovetail with our focus on developing education for sustainability. This emphasis is something that the school is looking to develop with staff training and dedicated time for implementation.

Experiential Learning • The following examples represent multi-day experiences that students undertake, many of which are often deeply transformative. Some have a sustainability focus: China Experience Week, Project Weeks e.g. Mindful Adventure (students spent the week on Lantau island engaging in Yoga, Meditation, and daily hiking and water-based activities), Hong Kong Experience Week, Experiential learning in Primary through the Integrated Studies side of the curriculum.

Opportunities • As detailed above, the culture at CIS is very much focused on problem-solving. Addressing some of these challenges has created opportunities to become a more sustainable school and drive change in the right direction.

- For example, the challenge of heavy traffic-on the roads near the school has led us to implement mandatory bussing for students.
- With the approach of the school's 50-year anniversary in 2033, the leadership team and board of governors established 'Vision '33'. This was an opportunity to reset our focus and priorities, putting sustainability at the forefront as one of the school's key priorities moving forwards.
- The Sustainability Council is currently working on auditing the primary and secondary curriculum and this will lead to partnering with Education for Sustainability experts and Project-Based-Learning experts, to embed

- a whole-school approach to sustainability education
- The challenge of pandemic travel restrictions means that further work can be undertaken by secondary students through a carbon literacy course.
 - The current renovations to the school building are an opportunity to emphasise sustainability by installing BIPV and green walls.
 - Working with the other schools in our neighbourhood is an opportunity to further sustainability initiatives and engender inter-school collaboration. This permeates through the whole community, not just faculty and leadership.
 - Primary and Secondary school sustainability curriculum mission statements are being developed internally and will be rolled out in the latter half of 2022.

Threats • During the pandemic in Hong Kong, school has been conducted in person, online, or via a hybrid approach for over two years. Since January 2020, this changing platform has illustrated that we need a very flexible schedule that can be managed both online and in person. This can be a challenge for some sustainability practises; for example, ensuring maintenance of the school farm when students and staff are not allowed onto campus. However, CIS has tried to mitigate the impact of these by getting advice from local farmers; before the complete recent shutdown of school in January 2022, food was harvested by a socially distanced group of teachers and then donated. Longer growing and lower maintenance crops have recently been planted, in the hope that they will mature by the time the students can come back onto campus.

Stronger together - a community of practise for sustainable schools • Chinese International School is also one of the founding members of [The Alliance for Sustainable Schools](#)¹⁰⁸ (TASS). The Alliance is a non-profit network of schools working together to help accelerate the transition to a sustainable future through their shared commitment to the principles of the Sustainable Schools Charter.

As a community of practise, The Alliance connects, aligns and amplifies the efforts and know-how of sustainability practitioners - including students - in schools around the region.

The Alliance leverages its collective influence and partners with innovators to catalyse systems change in four key areas: sustainable school food, sustainable school uniforms, sustainable school buses and sustainable school buildings. These issues can be addressed more effectively by schools working together rather than individually.

The Alliance is also beginning to lobby organisations like the [International Baccalaureate](#)¹⁰⁹ (IBO) and other

school accreditation and certification bodies (such as the Council of International Schools) to consider introducing sustainability as an accreditation requirement, as well as examination and curriculum bodies (IBO, Cambridge) to incorporate education for sustainability and sustainability literacy in their standards and curricula.

Strengths/prospects

- Strong leadership and vision
- Sustainability coordinators
- Ability to invest in sustainable solutions
- Seek External expertise where needed e.g. the Sustainability Audit (partnering with experts in relevant Sustainable Development fields – consultants, but in other countries this could also be universities)
- The challenges get turned into opportunities!

Challenges

- Logistics – making the interconnections, both with curriculum and extra curricula but also between the primary and secondary schools
- The IB subject choices provide fewer sustainability-related learning connections than the school would wish but it is considering an IB course focussed on environmental science and systems
- Pandemic – delays in projects, audits and increased online learning led to difficulties, for example, running the school farm - but solutions were found!
- Harnessing and developing the sustainability expertise of school staff
- Complexities of mobilising a highly pluricultural community with different languages and perspectives all of which has now been thoughtfully addressed through the school's new guiding statements and strategic plan, thus prioritising sustainability through whole-school values and commitments
- Financial challenges. Decarbonisation is a costly exercise. CIS is a well-resourced school, however funding still a constraint for large scale projects

Metanoia's Insights on Chinese International School's (CIS) Whole School Sustainability Journey

From Anthony Dixon, founder of Metanoia: We began working with CIS in August 2019 with our student-centred whole school sustainability audit. The audit is a year-long review of every aspect of the school's operations and daily life through a sustainability lens, one outcome of which is a 300-page final audit report with 100+ recommendations. We have been re-engaged each year since then to provide support in implementing the audit recommendations, and in institutional capacity-building around sustainability. Among other things, we sit on the schools' Sustainability Council which meets 5x per year, and we participate in all of the Council's working groups which meet an additional 4-5 times per year. We also meet once every two weeks with the school's sustainability coordinators, once every two weeks with the student environmental leaders, and quarterly with the Head of School.

Prior to the audit, CIS had been active in sustainability for at least a decade and had an active student environmental group. Since the conclusion of the audit, the school has established a broadly participative Sustainability Council (co-chaired by the Head of School and a student), researched and developed several sustainability policies, created a designated staff sustainability coordinator role, installed solar energy on campus, reviewed its mission statement with sustainability in mind, embarked on a coordinated approach to the integration of sustainability in the curriculum, conducted an in-depth review of the sustainability of its school uniform, held regular stakeholder dialogues about sustainability in the life of the school, and committed to becoming zero carbon and zero waste – goals that would have been unimaginable three years ago. Sustainability at CIS is no longer principally the preserve of a few committed students, teachers and parents; the breadth of engagement is exponentially greater and the level of student engagement, in particular, is exceptional. Sustainability permeates many more aspects of the school's life and decision-making. The Head of School initially sought the Whole School Sustainability Audit as a lever for whole-school sustainability reform and commitment and he regularly attests that, thanks to the partnership with Metanoia, that is exactly the role the audit has played and continues to play. To this we would add that the ensuing transformation would not have been successful without the visible commitment to, and active leadership of the process from him and his leadership team.

Among the key factors that have contributed to this transformation in our view are:

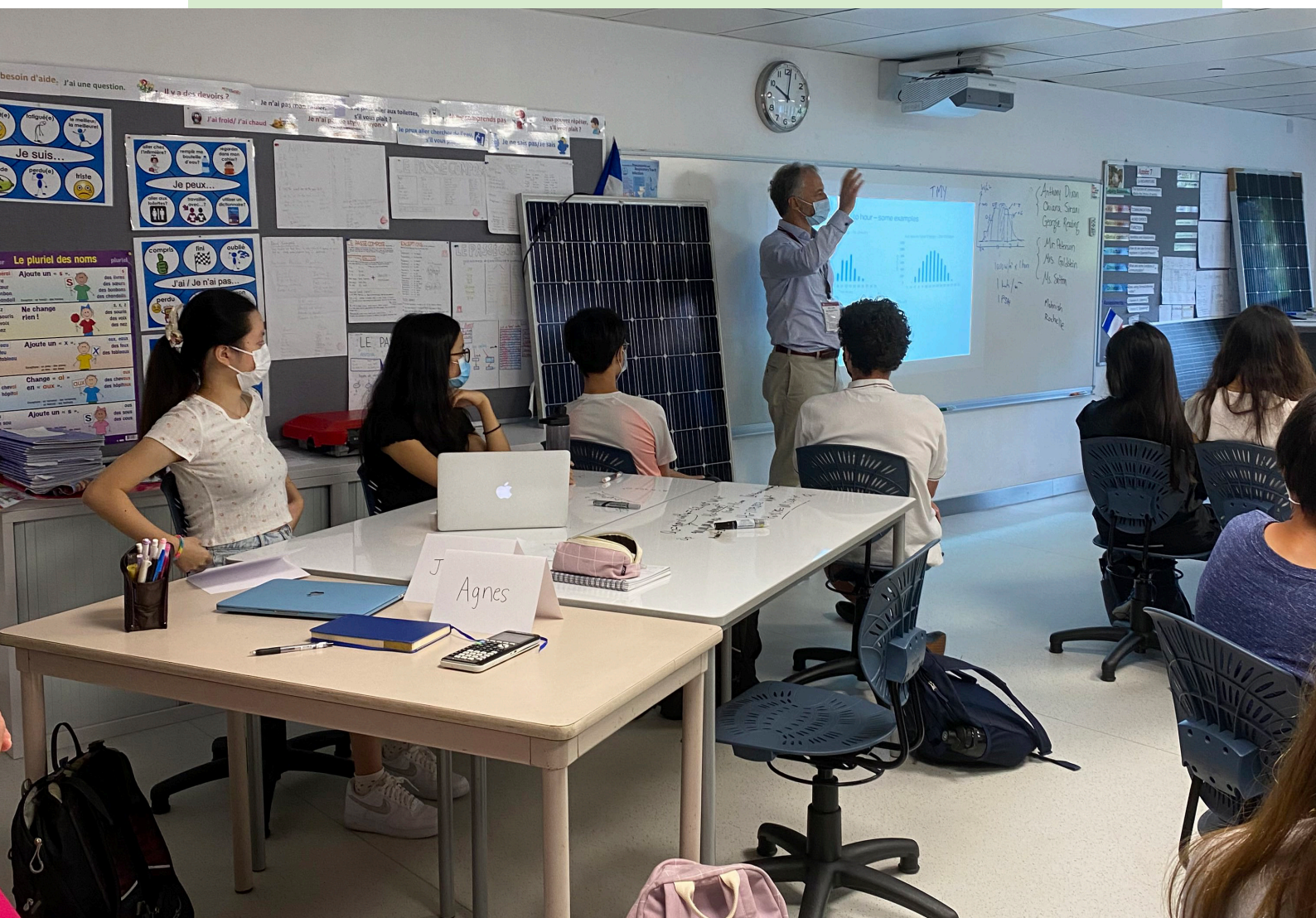
- 1. Top-down and bottom-up approach.** High levels of student engagement as well as the visible commitment and active participation of the school leadership – both necessary conditions for a whole school approach to take root and flourish.
- 2. Designated sustainability coordinator role.** A designated sustainability coordinator (whether voluntary or paid, part time or full time) provides an essential focal point for coordination of the school's sustainability initiatives, helping to build and make use of institutional knowledge, and ensuring continuity when staff and students inevitably move on.
- 3. Partnership model with external technical experts.** School communities contain a wealth of expertise in everything from facilities management to ICT, procurement, project management and pedagogical principles, as well as the gamut of academic disciplines. But this in-house expertise is rarely harnessed effectively in the service of making the school community more sustainable. Even when there is a full-time sustainability professional on staff, because sustainability is such a broad inter-disciplinary subject, it is likely there will be still be gaps in expertise. These are strong grounds for engaging external advisors like metanoia who bring multi- and trans-disciplinary sustainability expertise, experience of working in school communities, and experience in leveraging the engagement to provide authentic learning opportunities. Whereas schools typically seek external expertise on an as-needed, transactional basis; in the case of sustainability, a long-term partnership like the one we have with CIS has proven to be a far more fruitful approach.

Some generalised challenges and areas for further work:

- 1. Integration of the whole school approach (WSA) and the curriculum.** In our experience most schools are a long way from making the most of the rich learning potential of the whole-school approach to sustainability. The already-full curriculum is an oft-cited but too-easy target of blame, but what is really called for is the ability to

reframe the core curriculum through the lens of sustainability rather than finding ways to squeeze in additional content. We recommend the work of the Cloud Institute in this area.

2. **Envisioning the future sustainable school.** Yogi Berra's koan-like observation :“If you don't know where you're going you'll end up some place else” reminds us of the importance of engaging our imaginative capacities in the transition to a sustainable future. We find most students and staff struggle to imagine a sustainable future version of their school. Herein lies great potential.
3. **The role of school culture.** School culture is undoubtedly a key determinant of the success of the whole-school approach and not all cultures are fertile grounds for it. It would be interesting to investigate what characteristics of school cultures are most conducive to it
4. **Communication and tracking progress.** Communicating the school's sustainability journey is an under-valued element of a successful whole school approach. Few schools communicate their sustainability story well .Even those who are committed to sustainability and have implemented thoughtful programs, often fail to document how far they've come or establish and targets for future progress.
5. **Economic cost.** Measures associated with a whole-school approach to sustainability range from no-cost to high- cost.. While not all schools have the means to implement capital improvements in the name of reducing their carbon footprint, all schools should try to find ways to allocate more meaningful budgets for sustainability measures.



Finland • Terälahti a Nature-school holistic integrated approach

Special thanks to Jenni Skaffari and Katri Korpi For this contribution

The Finnish school system is a little different to many other European countries. Tax revenue pays for the tuition of all students, so compulsory schooling is in principle free of charge for pupils/students. There is no private school system in Finland, and the law prohibits the pursuit of financial gain through education. Students receive free food lunch every day at school, and travel to school and back home, books and other supplies are also free for the students. No school uniforms are used in Finland. School starts at the age of 6. School days are relatively short; per week the hours are 22-24. Each lesson lasts 45 minutes, followed by a 15-minute break students spend outdoors.

The concept of a "sustainable future" is mentioned 48 times in the Finnish curriculum. The ecosocial education is central to the value base of primary and secondary school curricula and early childhood education. *"The guiding principle of ecosocial civilisation is to create a way of life and a culture that cherishes the inviolability of human dignity, the diversity and resilience of ecosystems, and at the same time builds a knowledge base for a resource-based circular economy"*¹¹⁰. The Finnish curriculum therefore strongly requires that a sustainable future is considered in teaching. It also encourages the whole school approach, which ideally would be a learning process for everybody in the school building (or surroundings). An ecosocial approach should be included in all school subjects according to the curriculum.

What happens in Dytiscus marginalis life? Let's find out.



Educational professionals, e.g. the recruitment of teachers, can have a big impact on the functioning of sustainable education in schools. It is up to the teacher to put these values into practice. For example, school meals provide a great opportunity to discuss with students the importance of their own choices and food waste. It is also possible to get vegetarian food at the school. The autonomy provided by the curriculum to teach using different teaching methods and emphasise themes according to the teachers' own preferences, can cause dilemmas between curriculum and schoolwork. Among other things, this dilemma has been verified in Niina Mykra's dissertation¹¹¹. The teacher may not prioritise ecological sustainability themes in their teaching because the curriculum definitions are too broad.

Terälahti Primary School¹¹² • Terälahti School is a primary school in Tampere, located about 40 km from the city centre, surrounded by a lovely rural landscape with forests, fields and waterways. The school has about 75 students, aged 6-12. The same building also houses a kindergarten, library and the Nature School of Tampere, named Korento. There are about 14 adults working in the school building. The Terälahti school has been involved in the Green Flag program¹¹³ (Finnish version of an Eco-School program) since 2002. Many things have taken root over the years in the daily life of the school, so there is little need to pay attention to them. These include sorting and recycling rubbish, saving energy and water, using recycled materials in fine arts and crafts, and using nearby nature as a learning environment. The aim is to make purchases as sustainably as possible.

However, there are some challenges. The biggest challenge of everyday life is time. It is difficult for a teacher to be away from their own class to hold for example an Eco-School committee meeting, but students would not be very excited if the meetings were always at their break times. This is a problem that almost all schools are struggling with. Some have made bold decisions, such as the Rovastinkangas school in Orivesi, where joining the school's environmental council is one of the electives that students can choose from.

Each school class, each autumn, votes for two class representatives to be on the Eco-School committee. The task of the student representatives is to bring ideas and thoughts of other students to the attention of the adults

in the school. Together the committee try to grasp feasible ideas and solutions to the issues and improvements that get suggested. A joint event for the whole school also takes

Key WSA Principles in action at *Terälahti primary school*

Vision, Ethos, Leadership & Coordination

- As a nature-school a holistic integrated approach is central to the school's vision
- The school head teacher is hands on and support the teachers to meaningfully integrate sustainability into everyday school practice

Curriculum

- The national curriculum provides guidelines, but schools are independent in implementing the objectives of the curriculum through different teaching methods
- School arranges elective course for Eco-School pupil members
- Pupils have the opportunity to use their course time each week to work on individualised curriculums
- The sustainable future and eco-social education are cross-cutting values in Finland's curricula. Therefore, it is easy to organize such courses

Pedagogy & Learning

- The pedagogy of learning outdoors helps children to concretize challenges the world carries. In this way, students have better memories of learning and the connection between learning and their own lives
- One of the teachers dog acts as a school dog with pedagogical roles in the classroom

Institutional Practices

- Outdoor education is a central part of the school's everyday life
- Learning from nature is central to the school
- The Sustainability Education Development Project supports the change in the operating culture of education and training towards a more ecologically sustainable future
- Sorting garbage and saving energy is the minimum that all children and adults should be involved in

Community Connections

- A hut in Terälahti school field near to the river and an open shelter with fireplace can be found in the forest serve as meeting and relaxation places for nearby residents and pupils

Capacity building

- Many external actors provide training for educators and teachers online on SDG

place 2-3 times a school year, usually outdoors. As a small school, organising events is of great importance. Older students can work in more responsible roles because they have more experience with it. The smaller ones, on the other hand, take the model of the bigger ones, i.e. social skills are accumulated. Everyone learns to understand the difference and the good sides of each other and one another's strengths. They also learn how their own actions can influence the actions of the group. The head teacher also has a big impact on how a sustainable lifestyle is implemented in school. They can, for example, direct the teachers co-planning time to be for Eco-School planning or other sustainable education planning. It is important all adults at the school are involved in the planning, then the practices, etc., are transferred to the everyday life of the school.

The school administration can encourage a more ecological daily life, for example by pointing out the goals of global agreements to school plans. Guidance from the administration is often seen as a good incentive, but also too bureaucratic¹¹⁴.

The principal could emphasise the school's engagement with the SDG in a job interview by asking, for example, about enthusiasm and experience in sustainable education work. On the other hand, the principal can do nothing to the fact that one of the issues complicating the work is the turnover of staff. In many Finnish schools, the employment contract of many teachers is fixed-term and sometimes short-term. Getting a permanent job is often difficult to achieve. Correcting this would require broader policy instruments. If half of the adults are new every year, time must be spent learning the old practices instead of letting them develop and create new ones. In many cases, however, new adults bring with them ideas and skills that can be used directly.

In almost all municipalities in Finland, Eco-School participation fees are paid from the common budget for basic education, not directly from the budgets of the schools. This is a good incentive to participate in the Eco-School program. Teachers are however burdened by the fragmentation of work. Many may see environmental issues and sustainable development as just one additional obligation, among other things. This is what it feels like if the organiser of the teaching (the municipality) requires you to fill in forms and different plans. Another dilemma which is also pointed out in Mykräs dissertation (p. 205). While these dilemmas are apparent the school staff also emphasise that being one of the Eco-School it is worth it.

"We are certified with our great work, and we really want to show it to everyone. We know it means we must document our plans and to-dos. We also know that somebody actually reads them (FEE Finland) and want to encourage us to do

better. If schools can't get that kind of a feedback, they are often discouraged and see the "extra documents" as a burden. That is why sustainable development should also be the administrations business as well as the field workers" (Jenny Skaffari).

Nature-school of Tampere (named Korento) • Terälahti Primary School has a unique partner to work with. Korento Nature School is in the same building as Terälahti School. Nature schools are great examples of how basic education and early childhood education are supported in Finland in ESD. The nature school is part of the Tampere basic education. There are two environmental educators working at Nature-school. There are no full-time pupils/students at the nature school, but the nature-school operates as an additional service for Tampere schools and kindergartens. Especially in reinforcing the pedagogy of outdoor learning and ESD. Every day, the Nature School has different groups visiting Terälahti from Tampere schools and kindergarden/ preschools.

The pedagogy of learning outdoors has a strong connection to environmental education. In both, the emphasis is on strengthening the ecological dimension. The methods also emphasise experientiality and functionality. Students work hands-on. In fact, by searching, researching, and finding themselves students will have a better imprint on the theme of the day. At the same time, the relationship with nature is strengthening. Studies have also shown that learning in a green natural environment is more effective, whatever the subject is. (About Outdoor learning I). Teachers can also benefit from outdoor-teaching with students, e.g. because of the calming effect of nature and the effects on well-being.

The visiting group chooses a theme for themselves. The theme is implemented and considers the curriculum and subject objectives. The theme is addressed through the phenomenon. There are no separate subject lessons, but

"Be enthusiastic on whatever you find outdoors. You can combine that with every school subject of your choice. What is this leaf? From where did it appear? Why it is on the ground? What colour is it? What forms do you see in it? How many veins it has? Why is it build that way? Let the pupils ask questions, you discover that they see the world more diverse than you. Learn from them. Learn together."

Environmental educator, Jenni Skaffari

studying phenomenon brings for example, mathematics, environmental studies, exercise, cooperation skills and much more to the school day.

"The teacher who visits in the nature school with a class also get tips and enthusiasm for outdoor learning pedagogy. Learning is multidisciplinary, experiential and exploratory. The learning environment is almost always nature. Korento Nature School and Terälahti School are located next to a magnificent forest and a soothing river. "We have the opportunity to bring experiences for students and teachers that they may not notice them during the normal school day, such as silence. Becoming aware of silence, too, can be a wake-up call for some individual to want help build a sustainable future. They may realise that there is still wonderful nature left here, this is something to enjoy" (Jenny Skaffari).

Examples from Terälahti Primary School

One of the teacher's dog acts as a school dog with pedagogical roles in the classroom. The pupils think the dog is just a top thing, even if it does nothing. Also, the cat of the teacher living nearby will occasionally hang out in the school yard and let the students stroke him. That makes Terälahti unique compared to many schools. Students have a chance to relax next to a furry (little) friend during lessons.

How does a miniature world look through a lens? What do you see? / Tyyne, the furry friend to lean on to when one struggles, for example in math



“Terälahti school did a decaying test in autumn 2021. We buried various biowaste next to the school field. The aim was to find out how long it will take for even the smallest and most common biowaste to decay. We immediately noticed that nothing would disappear from nature in a couple of weeks. This was a surprise for many children, as well as for many adults. We also buried a mask and a tinfoil. It is no surprise to anyone that they are still there. This biowaste experiment also helped pupils understand that the amount of our food waste makes difference. We also discussed how these products of our choice have ended up as food for us. Terälahti is part of Tampere, the 3th largest city in Finland. However, Terälahti is located 40 kilometers from the city center, so we are in rural area. This has been an advantage for the Terälahti school when we have studied food production. In families of many pupils, cattle are raised or they cultivate. Food production is closer to their daily lives” (Katri Korpi, Terälahti primary school teacher).

There is a hut in Terälahti school's field near to the river. The open shelter with fireplace can be found in the middle of the forest. Both places serve as meeting and relaxation spots for nearby residents and pupils.

MAPPÄ .fi service • “Many Finnish schools’ educators and teachers use Mappa.fi-material service website. At MAPPÄ-material bank teachers can find more than a thousand materials and tools for outdoor learning, environmental education and teaching a sustainable lifestyle. The MAPPÄ.fi service is a versatile entity that looks at things from different perspectives, the contents of which do not follow only one specific ideology”¹¹⁵.

Multiple actors support basic education in Finland •

For ESD, Finnish schools are also helped by The Finnish Association of Nature and Environment Schools that organises and develops LYKE-network. “The network offers environmental education services for schools and kindergartens on local level”¹¹⁶. Nature School Korento is part of this network.

The goal of the LYKE-network is to promote sustainable lifestyles, environmental responsibility, and knowledge of nature, and to support outdoor teaching and functional learning. To achieve its purpose, the association coordinates and develops the national LYKE network, manages the MAPPÄ.fi service and acts as the coordinator and one organiser of the ULOS-UT-OUT major event. The activity is based on networking and the utilisation of group insights. As a result of the cooperation, impressive nationwide models will be created to increase the effectiveness of nature and environmental education. The 59 outlets of the LYKE network all over Finland have diverse communication channels for teachers and educators, and more than 200,000 children and young people and their teachers visit them every year.

Strengths/prospects

- The curriculum provides guidelines and encourages sustainability education. Teachers can decide the methods independently
- Students’ enthusiasm to study with diverse learning methods and in learning environment
- The power of cooperation. For example, when teachers truly have time to plan together, there is a better chance on success of actions
- The municipality allows for independent support. Sometimes financial support, e.g. Green Flag (Eco school) participation fee
- Wonderful nature surroundings near the school

Challenges

- Teachers are burdened by the fragmentation of work
- Schools need the feedback on what they do for ESD. Otherwise, they can think of it as a burden and extra work. That is why sustainable development should also include administration as well as the field workers
- Engaging everybody with ESD is a challenge
- There is no time resourcing in schools. It is the biggest challenge to the work of ESD
- There isn’t enough time to work with the subjects the teachers would rather work with

Nature or environmental school activities refer to program services provided to groups of children and young people with the aim of promoting an ecologically sustainable future. Programs last at least an hour, usually several hours at a time.

Many other NGO’s also work with schools. The Finnish United Nations¹¹⁷ organises supplement training for teachers in the SDG’s. Online and hybrid training can be arranged so that teachers can participate easily on them. Nature School in Terälahti co-operates with them. Nature Schools in Finland also regularly organise teacher training on various pedagogical themes in sustainable education or outdoor learning. Teachers can also train to be an environmental educator. The program is part of the training leading to a special vocational qualification in the field of environment. It takes place in the [Finnish Environmental College](#) (SYKLI)¹¹⁸, a nationwide vocational special education institution. Environmental training is suitable, for example, for those working in the field of education and counselling and training in the field of the environment.

Canada • Belfountain 'Learning for a Sustainable Future School'

A special thanks to Janice Haines, Pamela Gibson, and Learning for a Sustainable Future for this contribution

In Canada a charity, [Learning for a Sustainable Future](#) (LSF)¹¹⁹, has taken a lead role in promoting national support for climate change and sustainability education. This is no easy task as in Canada there is no national Department of Education. Instead, each of the 10 provinces and 3 territories have their own Departments of Education and their own curricula. While many include curriculum outcomes related to sustainable development and the environment, these vary widely from jurisdiction to jurisdiction. The pan-Canadian oversight for education is provided by The Council of Ministers of Education, Canada (CMEC), an intergovernmental body made up of the 13 Ministers of Education. It serves as a forum to discuss policy issues and undertake activities, projects, and initiatives in areas of mutual interest. CMEC is the

organisation responsible for coordinating Canada's response to SDG 4, including SDG 4.7: [Global Citizenship and Sustainable Development](#)¹²⁰. To date, they have not identified sustainable development as a priority area of mutual interest.

This lack of unified government action towards education for sustainability in Canada leaves non-government organisations like LSF to take the lead. Working with businesses, governments, school boards, universities, communities, educators, and youth across Canada, **LSF acts as a connector, a resource, and a facilitator for change**. With financial support from the Federal and Provincial governments, foundations, and corporations, LSF takes a holistic, vertical approach to integrating sustainability and climate change education in Canada's school system. This means working with all levels of

Grade 6 in the Credit river working with an initiative to repatriate salmon



stakeholders including ministries of education, school boards, schools, teachers, youth and the community.

LSF's work can be seen at Belfountain Public School, a semi-rural public primary school in southern Ontario of 15 staff and 185 students. Belfountain has been collaborating with LSF since 2006, engaging in teacher professional development workshops, participating in student programs, and benefiting from LSF's extensive collection of sustainability teaching resources. Belfountain's 15-year journey also exemplifies how a small group of committed teachers can be the driving force behind sustainability-oriented education and can grow their efforts into a whole-school approach that is now supported by the entire community.

Through the 1990's and into the early 2000's the staff at Belfountain Public School were looking for a way of moving forward in pedagogy and practice. They wanted to move towards a bigger vision of education, one that included

transformative teaching approaches such as inquiry-based, experiential, play and place-based, and problem-based learning, as well as integrated projects, a community lens, active citizenship, the arts, learning outdoors in nature and more. They began integrating elements of this vision into their practice with limited support from the administration and without a cohesive plan, but still had some encouraging success. In 2005, a group of parents approached Belfountain's principal with a simple request: "Please take our kids outside more." The principal brought the request to the superintendent of their school board and launched a pilot program where two teachers would bring their class outside for learning at least weekly. One of the teachers, Pamela Gibson, personally committed to taking the students out every day—and mostly succeeded!

Her colleague Janice Haines spent her maternity leave committed to finding like-minded organisations and individuals to help support the program. She found there were many amazing programs but few that focused on a

Key WSA Principles in action at *Belfountain primary school*

Capacity building

- Professional Development as well as both individual and collective coaching from an experienced teacher (provided by LSF through funders)
- Online capacity building tools created in partnership with LSF to support other schools to become 'Sustainable Future Schools', including 15minute presentations suitable for staff, administration, and parents, and a framework for schools to follow

Curriculum

- Following the LSF Sustainable Future School Framework which connects the curriculum to the SDG's, such as food drives and 'No Hunger', Food Waste, and Fast Fashion thematic topics
- Assessment: Strong focus on a broad range of assessment tools such as learning skills, anecdotal assessment, student questions, ideas and commitment, as well as more traditional forms of assessment

Community Connections

- Community integrated projects like the Garlic Mustard Festival, Fashion takes Action (kindergarten), and Just eat it Caledon - Food Waste Challenge (k-6)
- UN Goals Project -SDG 14 Life Below Water - with schools across the world. When making connections to organisations doing great things outside of the school all learning strategies work together to produce significant outcomes for students. For example, anti-Idling campaign, paint a rain barrel

Vision, Ethos, Leadership & Coordination

- An agreement has been signed by the school and LSF, with support from the Board, to commit to a whole school sustainability focus. This is supported by the staff and the school community who actively support the values and principles of the whole school sustainability approach

Pedagogy & Learning

- LSF, with annual support from funders, has created "Learning Inside Out" a weekly collection of easy-to-use learning activities for grades K-12, with themes focused on getting outside, and the SDGs (which cover everything from climate change to equity)
- Real World Connections: Outside on the school grounds and in the community as well as having community members come to the school

Institutional Practices

- 'Walking the talk' and change in practices has been a 15+ year journey and is still ongoing. This includes seasonally linked activities such as, garbage audits, composting and energy monitoring (lower heat sweater days etc)
- This work also links into the wider community with examples of the school effecting change within the community, like planting trees/shrubs for species of special concern, rewilding, stream restoration, signage and removing invasive species

whole school approach in a public-school setting. Pamela describes this pilot year as a turning point for the school, which since then has been heavily focused on outdoor learning, the environment, and the community:

"That year was transformational! We worked with caretaking staff and the superintendent of operations to make changes on the playground and shift the way kids used the property. It was not always easy. I like to say that there were many issues that we faced and worked through as a team. We measured our success by the empowerment of students, the satisfaction of parents, improved attendance, and a rise in provincial standardised testing scores (Education Quality and Accountability Office, EQAO). It was a year when students and teachers alike were happy to come to school and hated to miss it! It was clear to me (and always had been) that this was the way forward. At the end of the year staff, students, parents, and administration were in agreement to roll out this approach school-wide and so the Belfountain ECO focus (Environment, Community, Outdoors) began" (Pamela Gibson).

For the next ten years, Pamela and Janice continued to drive the sustainability education focus at Belfountain in collaboration with fellow staff members and with support from LSF. There were ups and downs as not all staff members, administrators and parents were always

supportive. However, by working with LSF, Pamela and Janice were able to bring in professional development workshops showing educators how to effectively use transformative learning strategies that combined forms of inquiry-based and project-based learning with learning outdoors. Staff took advantage of LSF's wealth of curriculum-connected sustainability resources to begin connecting environmental issues to their subjects and grade levels. Support for sustainability education grew among the staff and spread to the wider school community and beyond.

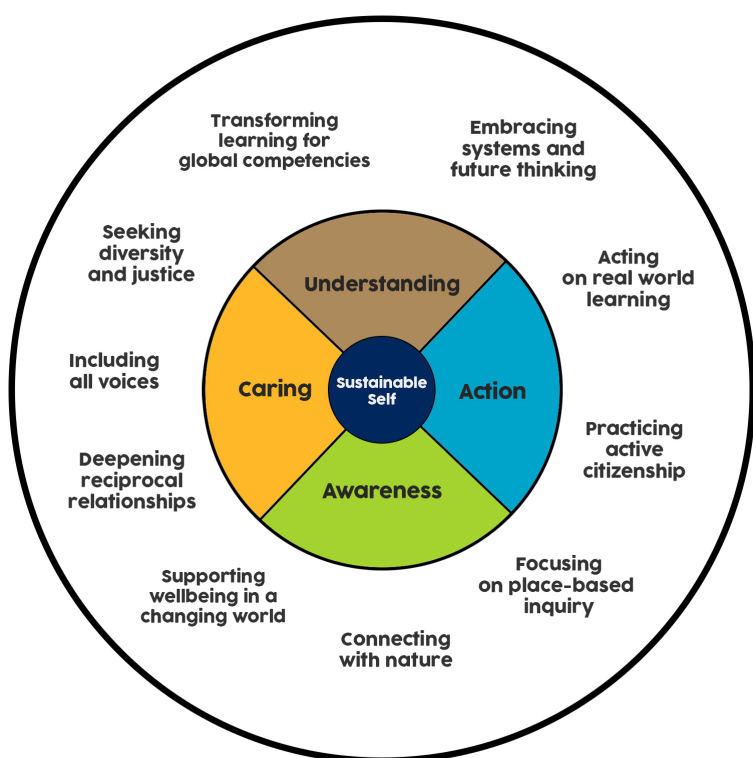
Eventually Pamela and Janice's passion for sustainability education led them beyond spearheading the efforts at Belfountain Public School to working part-time for LSF helping other educators across Canada start similar movements at their own schools.

In 2019, LSF and Belfountain Public School, with private funding support from a corporation [3M Canada](#), embarked on a new partnership to create the [Sustainable Future School](#)¹²¹, Canada's first whole-school approach to the UN's Sustainable Development Goals. With Lynn Bristoll as principal (and big supporter), Janice still teaching the students directly, motivating from within, and leading by example, and Pamela as mentor to support the staff, they began to reimagine curriculum through the lens of the SDGs. What has remained consistent is taking kids outside and developing relationships with community partners.

As the pilot Sustainable Future School, Belfountain dedicated a lot of time in the 2019/2020 school year to creating a shared vision that staff, administrators and the School Board would support. The SDG's aligned with the School Board's goals of equity, diversity and inclusion. The development and signing of an agreement between LSF and the School, with support from the School Board, acknowledged the importance of the sustainability approach and gave it new credibility for all staff members.

While COVID-19 and online learning brought on many challenges in 2020, it served to underscore the importance of learning outdoors for students' physical safety and mental health. The pandemic also brought home the interconnectedness of our global community and provided insight into what can be achieved when we work together. When staff and students returned to school, it was with a renewed commitment to their whole-school approach to the SDGs. As Pamela describes it:

"We returned to the 'Sustainable Future School' way of teaching and learning, getting kids outside for much of the day." Everyone supported the institution of a 'Showcase' of student learning every 6 weeks, where students tell the story of their learning through visuals, songs, skits, pictures, videos and more, making their learning visible. Pamela supported staff



LSF's Sustainable Future Schools Framework provides a circular structure allowing schools and classrooms to start anywhere

through mentoring, informal idea generation, and formal professional development integrated into staff meetings and tailored to needs and interests. Belfountain staff were invited and encouraged to participate in LSF's professional development webinars on topics like outdoor learning, teaching using the SDGs, and more" (Pamela Gibson).

Teachers have the freedom to incorporate different SDGs throughout the year depending on the grade level of their students and the curriculum they're investigating, but there is always an emphasis on connecting learning to the real world and having a positive impact through sustainability Action Projects. This can range from grappling with food waste through vermicomposting, using schoolyard erosion to learn about climate change adaptation, removing invasive species in the community, to saving energy at school and at home; Belfountain students' learning translates to tangible change.

Pamela and Janice's leadership, LSF's support, and the commitment from the school administration and the School Board to the whole-school approach have unified the school culture around sustainability.

"As a Sustainable Future School, we have found our purpose. Sustainability is where our heart is. Every part of the school community is involved—one parent became so interested in sustainability that she sourced a book on the topic from the UK, ordered copies for every class, and even arranged for the author to do a virtual reading for the students!" (Lynn Bristoll, former Principal, Belfountain Public School).

This school offers a wealth of practical examples of how a WSA can be established. A small, dedicated group of teachers was able to influence a greater focus on sustainability education at their school. And a dedicated, holistic approach with support from all levels of administration has fundamentally transformed their school culture. As an LSF Sustainable Future School, Belfountain also considers the SDGs throughout hiring practices, when possible, as well as through the school operations, facilities updates, and teaching and learning at every level.

Sustainable Future Schools Framework • At the heart of LSF's framework is the "Sustainable Self", meaning that every individual child in our care at school, the student's growth and well-being, is put at the centre of the learning community. Students build awareness, caring relationships with others and with nature, learn new skills and knowledge — all in support of taking action to better their lives and communities. The outer circle are the ten Elements of Practice that educators need for this 'Change in Approach'. More details are found in an [article by Susan Elliot](#)¹²² about a WSA to teaching the UN SDGs.

"We 'walk the talk' by bridging the all-too-common gap between pedagogy and practice. We just get outside and 'do it'!"

Whole school traction may be gradual, but it begins by walking outside the school door!" (Pamela Gibson).

The following examples from the school illustrate WSA principles in action:

1. Removing the invasive species garlic mustard on the school grounds with Grade four. The students spent time replanting native trees and shrubs in the local conservation area with the Credit Valley Conservation Authority¹²³. SDG Connection - #11, 13, 15, 17.
2. The kindergarten (grade 3) participating in a community Food Waste Challenge. They designed posters and created a video to help promote the challenge in their community. Students also grow food in Spring to experience the benefits and challenges and better relate to wasting food. (In partnership with Eco Caledon's 'Just Eat it' challenge¹²⁴) SDG Connection - #2, 3, 12.

Grade 4 removing invasive species / Grade 3 student poster who participated in community Food Waste Challenge



Grade 4 study the health of the river and local river habitat

3. The primary school (Grade 4) studied the health of the river and local river habitat. Through research and observation, they discovered that the river supports many different creatures and human activity poses problems for these creatures (e.g. litter, rising water temperatures, and pollution). They decided to raise salmon eggs and reintroduce them to the river to support native populations. (In partnership with Credit Valley Conservation Authority and Ontario Streams -led by Andrea Broersm).
4. Grade 6 class conducted studies in the Credit River to repatriate salmon together with the Ministry of Natural Resources Ontario and the Ontario Federation of Anglers and Hunters. SDG's Connection -#6,11,14,17.

Belfountain school provides a comprehensive example of how a WSA that utilises the context of the SDG's can provide a school, and their local community with meaningful action-oriented activities that combine multiple forms of learning and utilise the outdoors. Belfountain school also shows the power of a few dedicated and persistent individuals whose enthusiasm and resilience can become contagious and eventually sparks the many stakeholders in and around the school. Collaboration with a NGO, like LSF, also helped the school's progression towards a WSA by providing inspiring and practical resources for both teachers and students. Private sector funding also proved to be helpful. The case also shows the importance of starting learning for sustainability with very basic localized and existential questions like: "What's going on out here?" Think about curriculum, become aware and ask questions, look at issues and find community organizations involved in sustainable practices and partner with them on a community project. Connect everything to sustainability and the SDG's.

Kindergarten students planting food after learning about the food waste challenge and talking to a local farmer about the challenges of growing food

Strengths/prospects

- Individual educators are committed, a strong and committed parent community, administrators who support their staff and the school focus on sustainability
- Using a broad range of learning grounds, strategies, multiple intelligences and diverse perspectives to tap into student strengths and interests
- Partnering with community organisations with a sustainability focus makes learning authentic, rich, deep and meaningful

Challenges

- Changeovers in staff (due predominantly to hiring practices) challenge the cohesion of our staff, and our collective values, purpose and resolve
- More administrative and coordination support is needed
- Changes in the School Board personnel that occur challenge the focus and effectiveness of our school's direction
- This is a slow process

Kazakhstan • A Whole School commitment to sustainability - embracing the SDG's through stories

A special thanks to Astrid Jacoby, Sustainability Coordinator at Haileybury Almaty School, for contributing to this

Kazakhstan's education system is currently [undergoing reforms](#)¹²⁵, with the introduction of environmental education at primary level being one element of these. This example however, from Haileybury Almaty primary and secondary school, is a fee-paying not-for-profit international school with approximately 750 pupils. So, while based in Kazakhstan, this school is separate to Kazakhstan's mainstream national context as it follows the International [British curriculum](#)¹²⁶. However, the school still seeks to connect intimately with the local context of Kazakhstan e.g. hosting nationwide Olympiads or by inviting and supporting high achieving students from local schools to attend Haileybury's 'Scholars for Sustainability' program. This example highlights one school's effort in making the transition from a small, dedicated group of teachers pioneering Education for Sustainability (ESD) at the school, to a whole school effort. It is also a very honest account about the importance of honest and open communication about what does and does not work.

Contribution by Astrid Jacoby, Sustainability Coordinator at Haileybury Almaty International School (HAL):

The school is at a crossroad, HAL adopted 'Sustainability' as one of the school's six strategic goals in 2020. These goals have become an integral part of the school's development plan. Originally ESD initiatives were 'extra-curricular' through the Eco-School program and 'Scholars for Sustainability Program'. The link that was established between these two initiatives showed us how a holistic approach to sustainability-oriented education could be strengthened. HAL has also made the first strides to include this in curricular teaching as well, but capacity building and institutional practices are not yet given enough priority and require on-going efforts. Over the last 1½ years, awareness levels amongst teaching staff and pupils have risen remarkably. However, increased awareness and understanding come hand in hand with raised concerns and the risk is that if the current momentum is not harnessed in the right way, it could lead to rising levels of eco-anxiety, disengagement, and disillusionment.

In August 2020, HAL established a part time position of 'Sustainability Coordinator' for 1 day/week. HAL has also

been an Eco-School since 2018 and employs a teacher working as the Eco-School Coordinator. While discussions in Autumn 2020 led HAL to adopt sustainability as a school strategic goal, which was a significant step, it was not accompanied by the establishment of a common baseline understanding within the Leadership Team of what a 'Sustainable School' would look like, and in turn what priorities would need to be set. So while sustainability is one of the six strategic goals it has at times had to compete with other goals for leadership support, even when it was well supported from below.

The first year of implementation was also affected by the real challenges imposed by COVID over the day-to-day running of the school and the limited time to reflect and plan strategically for a detailed implementation and improved practice.

Common misconceptions and mis-definitions are barriers that need to be overcome to enable the school community to embrace engagement at a holistic level. However, progress is steadily being made, for example, by the summer term 2021, sustainability became part of the teacher annual appraisal system. Each Senior School department now elects a 'lead for sustainability', who become members of the Sustainability committee, to which representatives of operational departments (kitchen, maintenance, bursar, procurement, marketing) are also invited. The committee is officially made up of 19 members of staff including the Deputy Head Academic, a Head of Department, House Master, department leads, Eco School and Sustainability Coordinators, Head of Maintenance, Procurement Director, Marketing, Bursar, Kitchen representative etc.

Overall, elements of a patchwork approach still prevail at the school, yet the 'cultural tipping point' could well happen very quickly with the full commitment from senior leadership. Until then, the focus will be to increase the pressure from the bottom – to link up all departments and faculties in both the junior and senior school and to find ways to share responsibilities for the transition towards sustainable practices.

Since 2020, examples of a Whole school Approach being committed to at HAL includes a whole school CPD focus on ESD. While more is needed, last year a monthly full

hour 'sustainability/eco school' CPD was established for the entire school. Topics such as 'Science of Climate Change' 'Education for Sustainable Development' 'Defining Sustainability' etc. were addressed during this period. While pressures on the CPD schedule have reduced the frequency and length of sustainability related CPDs greatly during this academic year the need for ESD competency, both through peer to peer exchange and teachers going on external competency building courses, has been established. Another example is Year 12/13 pupils, concerned about mental health issues, initiating a whole school effort to introduce a mental health ambassador system for the younger students. The school facilitated external training for the year 12/13 pupils to become peer mentors at the secondary school. The aim was to build up a system where younger pupils have 'buddies' they can approach with worries and issues to talk through and receive peer support. This great initiative could be improved further by, for example, developing socio-emotional and behavioural competencies within the framework of ESD pedagogy. A particular focus should be to raise peer-mentors' awareness and understanding about the importance of pre-empting 'eco-anxiety' to ensure ongoing agency and hope among not just the younger generation. In parallel, there is a real need to equip teachers with the skills to engage in interactive teaching and learning about the Climate Crisis and Sustainability at an **age-appropriate** level to avoid unintended consequences.

The school's Sustainability Coordinator also attends relevant conferences e.g. **'Children and the Climate Crisis'** - Working with their Anxiety, Anger, Grief and Hope' organised by the [Climate Psychology Alliance](#)¹²⁷. From this, a special CPD in collaboration with the school counsellor on 'How to speak to children about difficult issues such as the Climate Crisis' is planned.

The following are a few other examples of initiatives started since the school adopted Sustainability as a strategic goal:

The SDGs in Stories programme was introduced in September 2020 to support the monthly introduction of one SDG to pupils and teachers. Throughout human history people have used stories to share their wisdom, morals and hopes and through stories pass on deep intuitive understandings of what is right and wrong. In this collaborative project traditional folktales from all over the world and many different cultures have been analysed and rewritten to help us connect to and embrace each of the 17 Sustainable Development Goals.

May anyone who reads them - ponder, discuss and retell - and come up with their own interpretation through creative problem solving and hands-on projects in all subjects!

"The green economy is one of the fastest growing sectors in the world, there are an ever increasing number of 'green jobs'"



'SDGs in Stories' project developed by [Little Hands Design](#)¹³⁵, in collaboration with [House of Bilimoria](#) and professional storytellers Marion Leeper & Tanya Batt

in law, engineering, medicine, IT and many other areas. Let our learning reflect and prepare us for this! We need the courage to get engaged and stay optimistic in spite of the complexities, to find creative solutions others have not, in our own environments as well as at national and global level Let the 17 SDGs be the guiding stars to our lives and that of future generations!" (Little Hands Design¹²⁸).

Key WSA Principles in action at **Haileybury Almaty primary and secondary school**

Vision, Ethos, Leadership & Coordination

- Sustainability as one of the schools strategic goals
- School board supporting the launch of the schools Climate Charter, Declaration of Climate Emergency
- Setting up a whole school Sustainability Committee that included teachers, leaders and other key support staff
- Eco-School Committee and Scholars of Sustainability initiative supports multiple active student engagement surrounding the schools sustainability issues

Pedagogy & Learning

- Project based learning is utilised in many subjects
- School uses the High Performance Learning framework
- Embedding Education for Sustainability pedagogy assisted by 'curriculum tracker' to share Good Practice

Capacity building

- Regular ESD staff Continued Professional Development
- Sustainability coordinator employed at the school

Institutional Practices

- Visual green nudges throughout the campus
- SDG stories – sustainability topics discussed in and beyond the classroom
- Sustainability changes being made to the school buildings
- Fortnightly walk-around to share Good Practice amongst teachers
- Eco-School committee supports student driven changes

Community Connections

- Longstanding links between 'Houses' with local charities e.g. Women's Shelter

Curriculum

- Embedding 17 SDGs into existing curriculum, however the British curriculum currently does explicitly support a holistic approach to ESD

Although a decision to embed the SDG in both the Junior and Senior School was taken, provisions for accountability were not put in place which led to bigger variation in implementation. Despite this, there is noticeable progress which has been enhanced by clear visual prompts throughout school, including the build-up of 17 posters of the 17 SDG stories on the main staircase.

As well as being an Eco-School, other initiatives the school is part of includes the Climate Action Project, a climate change awareness initiative that sets out to inspire kids to take on challenges that collectively can make a big difference to the health of our planet. It has been developed in collaboration with WWF, a world-renowned environmental organisation. Another recent whole school commitment is in response to COP26 and prompted by receiving a 'Climate Action School of Excellence' international award, Haileybury Almaty School officially declared 'Climate Emergency' with the formal adoption of the [Haileybury Climate Charter](#)¹²⁹.

During 2021 HAL's cohort of 'Scholars for Sustainability' (a project that unites internal and external scholarship pupils of Haileybury Almaty for one main goal - Sustainable Development) enthusiastically also acted as 'climate educators' and rolled out the [Climate Action Project](#)¹³⁰ (CAP) to the younger year groups in the Autumn term 2021. With awareness that short-term initiatives like this can result in 'Bolt-On' approaches to sustainability education, we did not want to restrict the CAP to individual classrooms and teachers, instead this was facilitated and presented in class by The Scholars to ensure maximum impact. This was a pilot and a chance for us to trial of a peer-mentor approach. The aim was to support our cohort of Year 12 and 13 'Scholars for Sustainability' to become educators (have a domino effect on teaching) for the younger year groups 7, 8 and 9, and were thus able to reach a much larger cohort of CAP participants. The CAP was run in IL (independent learning time), which meant that every pupil in year 7,8 and 9 was able to engage twice a week for 25 minutes over a whole term, and the Scholars had a 25-minute planning session per week with the Sustainability coordinator and Deputy Head Academic.

The next phase of the CAP project planning was linked to the Eco-School programme run at the school. Again, we wanted to interlink the sustainability initiatives already present at the school to be able fully embrace a whole school approach. Here, the groups would adopt existing initiatives instead of inventing new ideas. The plan was for them to run these with their younger groups in Spring term. However, for several reasons including the delayed start to term due to unrest and COVID, as well as Scholars' involvement in other activities and lack of strategic support from leadership, some groups were not able to meet deadlines and ran out of steam. However, 6 groups (from

“What inspired me most about the climate action project is the emphasis on the importance of planned and mindful projects and actions to succeed and make an impact. Being able to work with younger students to encourage them to do something that will make a real change is an amazing experience. They motivate us to continue working on our projects and pursuing something positive that others will be able to continue in the coming years”

Maiya, HAL Sustainability Scholar

12) are ready to present their ideas for fantastic ‘system changing’ proposals at the Dragon’s Den. They then made [videos online](#)¹³¹ which opened up to a popular vote to raise awareness.

Like many schools this case study represents a school that is at a crossroad and while committed to a whole school approach still is open about where they are in this process and how far they have to go. It is a reminder that becoming a sustainable school is not something to implement or achieve with a fixed end point, instead it is a continual process that takes time and dedication to commit to.

The excerpt that follows is taken from a [book](#)¹³² produced by an educational charity Astrid Jacoby founded over 20 years ago, *Little Hands Design*¹³³, and brings together knowledge gained working with schools on sustainability issues. Similar to Astrid’s current role as HAL’s Sustainability Coordinator, this handbook, and the charities focus, is supporting schools to engage with sustainability and creating space to re-think what this entails. The excerpt shared here is Astrid’s key, down to earth, advice to schools trying to ‘walk the talk’.

Encouraging behavioural changes through [green nudges](#)¹³⁴ throughout the physical learning environment, along the wall scrolls with the 17 SDG stories

Strengths/prospects

- School investing by hiring in-house sustainability Education coordinator
- Sustainability is adopted as a strategic goal
- Good percentage of staff and pupils willing to engage through rising awareness of global pressures and as a result of regular program of sustainability CPDs
- Sustainability included in staff appraisal system
- International projects such as the Climate Action Project have been a source of inspiration for the students and Green nudges and signs around school
- Slowly more accountability is being built with binding commitments in place, for example HAL charter declaring a climate emergency and creating the [Haileybury Climate Charter](#)¹³⁶

Challenges

- Takes time – while there is a commitment to a WSA, there is still a long way to go
- International British curriculum does not explicitly support a WSA to ESD
- Varying levels of buy-in from senior leadership team
- Difficult to establish common baselines of what a ‘sustainable school’ means for teaching & learning and organisational practices
- Need to continue to prioritise ‘educating the educators’ as well as all non-teaching staff for unified approach – staff professional development is essential for sustainability literacy
- To be aware of the risk of ‘blind activism’ by doing less, but more strategic
- To adopt a proactive approach to pre-empt eco anxiety

The Scholars for Sustainability team with the Sustainability coordinator and the Deputy Head Academic





Excerpt from *Look and Feel Good without harming our World! Practical Handbook, Sustainability Education through Fashion and Textiles* (p. 10- 11), by Astrid Jacoby Founder and Trustee of Little Hands Design

There are concerning trends which have emerged, which result in serious barriers slowing down the urgent global strive to save our world.

Firstly, although the word 'sustainability' is almost overused these days, many people consider it a synonym for the word 'environmentalism'. This failure to embrace the complex and interconnected dynamics of human interactions with *each other* and with the natural world often leads to addressing the symptoms rather than developing the capacity for joined up thinking to explore causes. It is for that reason that the United Nations are campaigning for the 17 Sustainable Development Goals to provide the benchmark of everything we do.

Secondly, we hear time and time again that 'our hope is the younger generation'. Over the last 30 years the damage we have caused to the world we live in is far bigger than in all our previous history. We are now in a situation where the consequences of our actions are already being felt by many and the time frames have become so tight that it is no longer a matter of 'doing some good for after we are gone! We, who call ourselves adults, are to blame. We need to stand up to our responsibility, not seek comfort in denial by transferring that burden onto the shoulders of our children. Who are the adults in the room? How are we guiding our younger generation through leading by example? How are we developing hope, resilience and agency in our younger generation if we do not ourselves? The sustainability crisis is a mental health crisis!

Thirdly, we are clinging to the belief that we can solve our existential crisis by adding on sustainability considerations to 'business as usual'. In schools we form pupil led Eco groups; in companies we add a sustainability policy to our goals, as consumers we start using cloth bags and bamboo toothbrushes. The collapse of the Eastern Bloc and the resulting decades of unfettered capitalism have collectively closed mindsets to the possibility of a 'third way'. The biggest challenge of our times is to open our minds to question everything we do critically, to look at systems, business models and daily routines making up our lives, and to join up the dots between them.

Fourthly, more and more organisations, businesses and individuals have become concerned about how sustainable our practices are, resulting in a huge increase in demands for actions. Much progress has been the result of that ever-increasing engagement. However, this could also be called the era of 'blind activism' with much energy spent in a disjointed manner, duplications of already existing structures and even resulting in unintended consequences offsetting the intended benefits. Ironically, it seems that we need to slow down, to do less but better, to allow ourselves thinking and planning spaces. Actions should count louder than words but when action is primarily used towards addressing our anxieties and as a 'path of least resistance' it can become a barrier for effective and sustainable change.

Nepal • Rupantaran whole school community research and development partnership

A special thanks to Roshani Rajbanshi, Bal Chandra Luitel, Nisha Makhim Subba, Bhimsen Devkota, Tribhuvan University, NMBU and Kathmandu University for this contribution

Nepal, located in South Asia, has a population of just over 30 million. In order to move forward from theory-based learning, Nepal developed a National Curriculum Framework in 2018 which focused on developing an integrated curriculum from Grade 1 to 3. Education has been regarded as the foundation of all infrastructures in achieving the country's long-term vision "Prosperous Nepal, Happy Nepali" by 2043 (MOEST, 2019¹³⁷). Prosperous Nepal, Happy Nepali, is a motto put forward by then Nepali Prime Minister, KP Sharma Oli. Some of the indicators of the motto are based on improvement in human capital, enhancement of national income, and to provide dignified life. To achieve the objectives of this motto, education is the basic need. As part of this national focus the following contribution, a participatory collaboration between schools and universities, is unique in its focus on 'quality education' (SDG4), innovative teaching and community social enterprises.

Rupantaran research project • Rupantaran, meaning transformation, is a project funded by NORAD (Norwegian Agency for Development Cooperation). Tribhuvan University, Kathmandu University and Norwegian University

of Life Sciences have been working together since 2017 to bring changes in 9 schools by summer 2023, contributing new knowledge concerning innovative approaches to improve the quality of teaching and learning in resource-constrained research schools. While the other seven are reference schools, Shree Jana Jiwan Secondary School, based in Chitwan, and Shree Janahit Secondary School, based in Kavre, are the case study schools.

The Rupantaran school-university action research project currently conducts participatory action research in both secondary schools. The schoolteachers have shared ownership of the projects as co-researchers, which is another essence of participatory action research. Although it has been a journey to get to this point, today the teachers do not feel hesitation to collaborate with other teachers, researchers, or associated programs. This was not possible in the beginning and it took some time to build up this level of collaboration. Teachers now plan collaboratively, act collaboratively, observe individually, and reflect individually on any kind of intervention, and more key stakeholders are also involved. It was difficult at the start to bring all the stakeholders to a common understanding and to get them to participate, but after forming committees to overlook different components such as a school nutrition committee and a social entrepreneurship committee, the involvement of the stakeholders was increased. The committees were formed with the involvement of parents of the students

Students in the school garden / Each morning 10 minutes for meditation and yoga



at the school, teachers, school management committee representatives, community representatives and a representative from the local government/ ward office. Our own action research shows that the participatory approach is a way to let the participants gain ownership, actively involve, and sustain the project.

Key WSA Principles in action at Rupantaran

Capacity building

- Collaboration of three universities supporting teacher professional development, community partnerships and research
- Community related capacity building connected to school development

Vision, Ethos, Leadership & Coordination

- The case study school visions include a community vision, self-sufficiency and because of this micro-economy development
- Agriculture is part of the vision for the school as this is a big part of the community's identity

Curriculum

- Research informing practice supporting the development of a contextualised and integrated curriculum

Pedagogy & Learning

- Focus on developing Interdisciplinary and collaborative learning
- Place-based, art-based learning
- Co-developing innovative teaching and learning methods using 5 main components; ecological sanitation toilet; school garden; school nutrition; skills-based health education; and social entrepreneurship

Institutional Practices

- Outdoor classroom and kitchen garden
- Urine diversion toilets providing fertiliser for school garden
- Collaborative school meals to encourage healthy eating for the whole school
- 'Happy' Nepal institutional practices, including health and wellbeing aspects

Community Connections

- As well as the teachers, parents and community members also benefiting and learning from the professional development and projects (for example urine diversion fertiliser) Parents and community also supporting transformation at the schools – healthy school meals as an example

History of the case-study schools • Jana Jiwan

Secondary School (JJSS) was established in 1960, is a government funded community school, located in Khairahani Municipality, Ward No. 2, Chitwan. (2016 Bikram Sambat). More than two-thirds of the students (68%) are from underprivileged and marginalised caste groups like Adhibasi, Janajati and Dalit. Most of the students belong to working class families who work at the nearby brick kilns and farms (Upreti et. al., 2021¹³⁸). Since 2017, the project has been working together with the school in creating and implementing innovative teaching and learning method through integration of five major components; ecological sanitation toilet, school garden, school nutrition, skills-based health education, and social entrepreneurship. Each component is interconnected to create a contextualised innovative teaching and learning experience for the teachers and the students. The project also intends to replicate the learnings from school in the community around the school catchment area.

Janahit Secondary School (JSS) is a community school established in 1960 (2017 Bikram Sambat), and located in Namobuddha-7, Kavre. Though Kavre is a municipality, the school is in a rural setting rich in ethnic and socio-cultural diversity. Parbate community (Brahman, Chettri, and Dalit), Tamang community, and Newar community share the space, which adds challenges and/or opportunities for teaching, learning, and managing the school. As for religion, people are both Hindu and Buddhist. The main occupation of the people living in the community is agriculture, trade and tourism (Namobuddha, 2022)¹³⁹.

This school is working with many school developments connected to a WSA, such as performing a Ecological Sanitation assessment (Ecosan), continued teacher professional development, and developing a localised curriculum that is grounded in concrete local activities. These include mushroom cultivation, aquaculture, pig farming, and the use of hydroponics, as well as connecting these initiative to the national curriculum focusing on [Science, Technology, Engineering, Arts and Mathematics](#)¹⁴⁰ (STEAM). With these innovative approaches, policy changes are also advocated for which aim to bring transformation and thus improve teaching and learning.

Below, under the six WSA strands, researchers Roshani Rajbanshi and Nisha Makhim Subba share experiences that outline how the case-study schools have strengthened their understanding and approach to sustainability-oriented education:

Community connections • As a component of the Rupantaran project, the two case study schools were supported to build urine diversion toilets so that the urine could be used as fertiliser in the school garden (after dilution). However, during lockdown, urine collection

could not be done in the school in JSS, Kavre. So, the people at the community collected their urine in their homes and provided it to the school. Also, the members of different committees of the school have been able to take the knowledge they learned through the trainings and exposure visits to other model schools and apply it to their homes. So, not only school gets transformed, but also the community.

Vision, Ethos, Leadership & Coordination • As agriculture is a major occupation of the region, connecting this to the teaching/learning and makes it easy for students to relate to the content (what they are learning). Now, the school's ethos is "study and earn". The school has been growing seasonal vegetables and setting up micro-economies. The students can outdoor activities connected to their course work. Committees who are responsible for the school garden, and the mushroom farming, generate income by selling the products in the local market and the school canteen.

Institutional Practice • The Rupantaran project adopted a participatory approach to work in the schools. Researchers and co-researchers (school stakeholders) work together to improve the situation of the school with focus on sustainability-oriented education (see community connection example for a closed loop system in practice). One example at JJSS, is that the school has been providing mid-day meal for primary level students (grades 1-5) under the budgetary provision of the government. However, the budget was not enough to feed the upper primary level students (grade 6-8). So, the school along with the researcher and representative from the ward office, came up with an innovative idea i.e. 'collaborative school meal' for an initial tripartite arrangement between the Rupantaran project, the Local Government Office, and the parents to share the cost by one third each for each

student of upper primary level. The parents and the Local Government Office will share the cost 50:50 when the Rupantaran project end their funding. Another example is that the vegetables and mushrooms grown in the school garden are supplied in the school canteen for a lower price than in the market. This way the students can enjoy the organic grown vegetables while the committee looking after the garden and mushroom shed can sell their produce and receive earnings.

Capacity building • The teachers have taken part in workshops such as; Appreciative Inquiry, Active Teaching Learning; Teacher Professional Development on integrated curriculum; and Basic ICT training. Rupantaran has focus on project-based teaching and learning as an example of active teaching. Project-based teaching is then designed to integrate different subjects to create an integrated curriculum. Capacity building workshops for staff that focus on sensitisation and professionalism take place in both schools. Teachers have also been involved in conducting collaborative professional development through peer-to-peer workshops where teachers of the same school provide professional development to other teachers.

Curriculum • Findings from the Rupantaran research project have also been used as references in developing the integrated curriculum for Grade 1-3. The schoolteachers are involved in designing lessons in the form of project for project and inquiry-based learning. During lockdown, the teachers have also developed projects for their students relating to Ecosan, mushroom farming, and gardening to ensure two or more subjects or disciplines are intergrated.

Pedagogy & Learning • Rupantaran's central focus has been pedagogical innovations. Teachers have attended several professional development training sessions regarding teaching and learning. Thus, the teachers use;

A new school 'urine diversion' toilet block built after the Ecological Sanitation assessment / Research team with key stakeholders





Janahit Secondary School STEAM club members

project-based teaching & learning; inquiry-based teaching & learning; art-based teaching & learning; STEAM teaching & learning; and participatory school-based nutrition education relating it to Ecosan, gardening, mushroom farming integrating different subjects. Similarly, creating a healthy school environment is also a focus. The teachers and students have been able to use the school garden as a learning space as well as incorporate regular meditation and mindfulness activities into the classroom.

Strengths and Challenges • The infrastructure of the school is one of its advantages as it provided the space to create a school garden as well as mushroom shed for the purpose of learning while earning. Another strong point, and one of the most important attributes, is the feeling of a common goal and vision. Currently, their common goal is to establish the schools as model schools. Active engagement from the community and stakeholders has motivated the school to perform better to achieve their goal. To ensure cultural diversity, people from different ethnic backgrounds were included in the committee and every culture in the community are represented.

The main challenge is the sustainability of the partnership project itself, especially when school staff change. Soon, the school and committee are required to appoint new people in their leading positions, where the newly appointed person may or may not be on the same page as the existing members who had gone through various trainings and workshops. Lastly, following sustainability-oriented education will be challenging when the schools remain closed due to pandemics or other disasters, especially if national mandates stop students being on campus, even teaching outdoors.

Strengths/prospects

- A shared common vision and goal made with the schools' staff
- Pride that comes with becoming a 'leading' school in Nepal
- Different community members and cultures being represented in school development plans

Challenges

- National rules and regulations concerning home schooling during the pandemic making it hard to continue with school gardening and onsite developments
- Ensuring projects continue after initial funding runs out
- School staff changing after the university-school collaboration is finished

Norway • A university-school partnership on ESD in practice

Special thanks to Snorre Nordal, Berit Ørjasæter, Ingrid Eikeland & Hans Erik Lefdal for this contribution

Norway, a country with a strong tradition of environmental and nature-based education, offers up multiple examples of ESD in practice, yet many schools have not yet integrated ESD into their everyday practice (Andresen et. al., 2015)¹⁴¹. It is arguable that Norway's challenge for some time has been and still is to figure "[...] how education, schools and policymakers could go beyond successful pilot projects and create the necessary culture of legitimacy, the organisational framework, the competences and the financial mechanisms to ensure that pupils experienced effective ESD" (Sandås, 2018, p.89)¹⁴². However, today's national curriculum renewal aims to create space for; in-depth learning; promote interdisciplinary teaching; introduce students to prevailing societal challenges; foster critical thinking; and form stronger links between the subjects and the core curriculum¹⁴³ (UDIR 2020)¹⁴⁴. It appears to open up for and provide additional support for the mainstreaming of holistic ESD. While it is yet to see to what extent this renewal supports meaningful change and influences in practice, examples can be found of schools committed to working with a WSA to Sustainability. In Viken, a county based in the Southeast of Norway, there is a multistakeholder partnership which consists of four upper-secondary schools (Hvam, Ski, Frogn & Ås – a mixture of academic and vocational courses), the school owner (Viken

County) and the Norwegian University of Life Sciences (NMBU) Educational Science department. This partnership is a long-term commitment from all stakeholders to develop ways to meaningfully integrate a whole school approach to ESD. The partnership includes researchers and university staff, school owner (municipality), school leaders and teachers. Furthermore, school students and teacher students are involved in various specific projects. "In our work, we simultaneously support research, development and competency building" (Ingrid Eikeland, project coordinator). Of note is the funding behind this University-School partnership as it employs an overarching coordinator (50% position) and one teacher coordinator from each school (20% position).

"The teacher education department, school owners and schools work together on developing a practice. This provides necessary support for making changes on different levels of the educational system" (Ingrid Eikeland, project coordinator).

Funding to finance specific research and development projects, seminars and an external professor has also been made possible due to this partnership model. Because of this structure, the schools are supported both internally and externally to make connections and new partnerships (within the university, the municipality, local community and schools). Although funding plays a key role in executing this multistakeholder collaboration, it has been done in a way that can be replicable. The WSA has been an important aspect in the partnership to avoid a compartmentalised approach to ESD that focuses just on curriculum content. To integrate ESD meaningfully in the schools, the focus is to promote, develop and support integrating ESD into all aspects of the school, not just the classroom. This multistakeholder partnerships follows an established Norwegian model, Hans Erik, Leader of NMBU's Educational Science Department explains:

"In Norway, university-school collaborations have been established between schools, school owners and the university to develop both teacher education and schools from 2009. In connection with NMBU's establishment of university schools, we decided to establish a coordinating "third room" (Lejonberg et. al., 2017)¹⁴⁵ consisting of coordinators at the university and a coordinator at each of the four university schools. Our experience is that the coordinators have played a crucial role in bringing about coherent communication between the

WSA professional Development Workshop for School Leaders and teachers



various actors in the collaboration. The coordinators also play a crucial role in identifying, adjusting, checking out facilities, following up cases and the interaction between all actors in the collaboration (pupils, students, teachers, school leaders, school owners and employees at the university)" (Hans Erik).

The collaboration is longitudinal, so that ideas and experiences have room to develop over time, and investment is given to support multi-stakeholders co-developing WSA practices long-term. "Developing our sustainability thinking at Hvam is a time-consuming process. But I think it is important that it takes a long time, for a change to feel right for everyone. Ownership of a process is important for a successful implementation" (Berit Ørjasæter - department leader and university-school coordinator).

The four schools involved represent mainstream public schools in Norway that, as Sterling (2004)¹⁴⁶ explains, can best be described as approaching ESD somewhere in between the 'bolt on' to 'build in' stage of integrating sustainability education. For example, many sustainability-orientated education initiatives happening in all the schools, some of which have failed (and therefore a lot learned from!), could be described as 'bolt-on, or 'build-in' additions to the current curriculum. While ESD related initiatives have been present in the schools from before the University school partnership began, early on it became clear that these were most related to theoretically learning about ESD and little 'ESD' was experienced outside of the classroom. Also, Bjønness & Sinnes (2019)¹⁴⁷ discuss, while the awareness and desire were there for ESD to be experienced in practice, multiple barriers existed, such as all the schools outsource the management of school canteens, the buildings and school grounds to sub-contractors (common in Norwegian secondary schools). These are long term agreements organised by Viken County, making it difficult to fully develop student-led institutional practices due to lack of ownership over how the practical aspect of the school runs. However, this is being addressed, for example, teacher and university school coordinator at Ski upper secondary school, describes:

"This year we are taking over the school cafeteria (has been run by an external commercial organisation which hindered our ability to 'walk the talk' in terms of institutional practices), and with guidance from Matvalget and the RØRE project our aim is for the canteen to be a major sustainability hub at our school" (Snorre Nordal).

This marks a major shift in top-down support for these types of structural and organisational changes and it looks like there are multiple reasons for this; the national curriculum renewal; specific school leaders taking the lead; and the local government, as part of their wider

sustainability strategies committing to making structural sustainability-oriented changes in the schools they own. Snorre Nordal gives an example of this shift, from Ski upper secondary school:

"We started out in 2017 working with ESD as three science teachers that invited our respective language and social science teachers to co-develop a five-eight week long cross-curricular ESD project related to life cycle analysis of consumer goods (inspired by Globala Gymnasiet in Stockholm). However, after this experience we decided (based on teacher feedback), that each class and teacher should have the autonomy to develop their own cross-curricular/ interdisciplinary teaching initiatives to enhance ownership and creativity. The original project tended to be regarded as embedded only in the department of natural sciences where a select few 'pioneer' teachers had ownership. Whereas now we aim for all departments to be involved in the planning and feel ownership. Our headmaster is very dedicated to this. She has for instance initiated a school development project group, and a sustainable cafeteria project group. She is very careful to involve the staff in necessary processes, but not afraid of making top-down decisions when the time is ripe. She is visionary, but with a pragmatic approach to change"

Snorre Nordal

Hvam upper secondary school, an agricultural college, also offers insight into how the institutional strand of a WSA can be strengthened by making clear links between theory and practice. "The school's location, with all its teaching arenas, facilitates the ability to use what is taught in theory also in practice. The environment at the school facilitates the students in learning through exploration as we have many teaching arenas that are designed for this; greenhouses, stables, barns, workshops and other outdoor areas" (Berit Ørjasæter - department leader and university-school coordinator). Hvam's focus is now to utilise these learning areas in an even more holistic and interconnected way. For example, they will be transitioning to more organic production (currently one of the two farms is organic), and creating better communication streams between the

Key WSA Principles in action at *Ski and Hvam upper secondary***Capacity building**

- ESD competencies at multiple levels (pupils, students, teachers, school leaders, school owners and other university employees) through research and development projects, seminars, meetings, field trips and professional development-courses
- Ongoing CPD national remits such as [DEKOMP](#), [University Schools](#), and NMBU's pre-existing teacher training courses, for example their [school garden](#) courses are utilised by all schools in this partnership that support different aspects of a WSA
- Researchers, teachers, and school leaders are together co-designing how the WSA can be utilised as a thinking tool to support both teaching and school development
- Research at the schools is being disseminated both within the schools, and further afield, locally and nationally

Vision, Ethos, Leadership & Coordination

- Schools are committed to utilising the WSA as a thinking tool and strategy for school development
- Government funding supports ESD coordinators and provides money to support this partnership in various ways

Pedagogy & Learning

- Developing interdisciplinary teaching practices is a focus of these four schools with many lessons learned of what hinders and promotes this approach. The outcome of this is key strategies are being developed as to how teachers can be better supported to work in this way

Curriculum

- National curriculum renewal gives space for holistic ESD practices to be developed, however at this stage ESD is still very teacher led and it is not yet clear if the exams will fully reflect the curriculum renewal changes

Institutional Practices

- Each school has the autonomy to choose their specific focus, for example by creating more sustainable [Organic canteens](#),/cafeteria supported by [Matvalget](#) and the [RØRE project](#)
- Hvam Agricultural school provides practical examples of how the schools' on-site greenhouses, stables, barns, workshops and other outdoor areas can be used as sustainable education learning arenas
- Energy efficient buildings (new builds and retrofitting)
- National certifications such as [Miljøfyrtårn](#), are ways the schools are utilising the campus as a learning arena and learning slowly how they can 'walk the talk'
- National clothes swapping day arranged by students and staff
- Learning about composting and soil health is established at multiple schools a starting point for sustainability education

Community Connections

- Multiple examples of community connections exist throughout each school. For example, students work with and visit local recycling and renewable energy businesses, local assisted living homes, local NGO's and local parks and museums. However, this is the WSA strand that so far is least developed

different parts of the farm to ensure more opportunities to experience 'sustainability' in practice that helps to connect what is taught in theory to practices throughout the farm. For example, investing their own pasteurising machine so the milk they produce at the farm can be used directly at the school. They have also set up a colleague exchange system whereby teachers from all departments will have time available to learn from each other to strengthen interdisciplinary teaching at the school.

While these school engagements with ESD continue to strengthen and move from the 'bolt-on' or 'build-in' approaches toward a whole system 'WSA' to sustainability, it is clear this is a change process that takes time as numerous barriers still need to be addressed in order to fully make this transition. However, clear signs of a

commitment to embrace a WSA are present, such as Ski School seeing "a shift from a three-teacher initiative to an organizational development process" (Snorre Nordal). Finding a balance between bottom up and top-down engagement is also seen as an essential part of engaging with a WSA. Today the university-school partnership sees commitment to work with sustainability-oriented education in a holistic integrated way present on many levels in all four school: From the school leaders, to engaged teachers, and other key committed staff (such as the schools social workers and school nurse), all of which have the capacity to facilitate interconnections needed between the curriculum and institutional practices that are necessary to fully embrace a WSA. The key here, as Hvam's university school coordinator describes, is that ownership of these institutional changes can be felt by all staff:

"We are in the process of developing a WSA further by increasing communication and awareness of a WSA across all departments. Our vision is to work more interdisciplinary, not only pedagogically, but also in the operation of the school. In our case, the focus now is on improving communication and utilising the resources we already have at Hvam" (Berit Ørjasæter).

Research collaborations also take place between the university-schools and NMBU. For example, at science teacher from Hvam, together with a PhD researcher developed an interdisciplinary inquiry project about sustainable water management. The project sought to make better use of alternative water resources at the school and included visits to water and wastewater

treatment plants, as well as to the school's own greenhouses. The participating students also contacted different actors along the way, from caretakers at the school to the Norwegian food safety authority. Other PhD research projects include; inquiry and technology education through a ESD perspective, exploring how students develop and express critical thinking in the process of handling renewable energy-technology; exploring whole school student influence and democratic participation at the four university Schools; and multi-stakeholder participatory research (including researchers, leaders and teachers) that co-explores how a WSA can be utilised as a thinking tool for continued professional development and strengthening institutional change processes.

Ski School – The Solidox student group investigating hidden ingredients in toothpaste



This type of collaborative partnership between a municipality (school owner), local schools and a university teacher education department may not yet be an example of a fully embedded WSA, however, it acts as inspiration and provides a structure of how long-term multistakeholder partnerships can be established. It is also an example of how a WSA can be utilised as a thinking tool for educational innovation on multiple levels. These schools also offer examples of how developments of WSA-practices are being impacted by research and practice involving different institutions and multi-stakeholders. On reflection communication and coordination seem to be key to why a WSA have been embraced by all the stakeholders in these university-schools. As & Sinnes (2019) discuss multiple barriers were identified and slowly but surely these barriers are being addressed. There is much to learn from partnerships like these; it is evident that for a WSA to be fully realised, schools need both the financial and structural support, and that different actors, with the same vision, benefit from standing together towards an integrated ESD-practice. Time is also a major factor as making the long-lasting institutional changes that a WSA calls for takes time, and while time pressures will always remain a factor, if a WSA to sustainability-oriented education is fully committed to, and structures for multistakeholder engagements and multiple voices to be heard are built up, collective ownership and commitments to a WSA is increased.



Hvam School – A new pasteurising machine so they can use their own milk direct from the school farm – finding closed loop system changes

Strengths/prospects

- The collaboration is longitudinal, so that ideas and experiences have room to develop over time
- Funding for coordinators is a vital part of this multi-stakeholder partnership
- Top-down (regional and national) and bottom-up commitment to long-term developments
- Solid connections to NMBU, including embedded researchers and students on teacher training
- Collegial partnerships and support between the four NMBU university schools
- Professional mentoring from external actors. For example, for Ski School has had support for the cafeteria project from specialists about sustainable food - [Matvalget](#), and health - [RØRE](#)
- National curriculum renewal (2020), and other national initiatives, like Eco Lighthouse certification and Climate Prize, make room for a WSA to be developed

Challenges

- Takes time – while there is a commitment to a WSA, there is still a long way to go to embed a WSA in the whole organisation involving all staff and all student
- Challenging to develop ownership among all departments at the school, including non-teaching staff members
- Establishing authentic collaborations between the university and schools based on different needs and interests
- Funding and human resources - easier to get funds for (and dedicated people to) starting ESD initiatives than for running them long-term
- Exams and curriculum mismatch – alternative forms of assessment still holding back ESD being fully embedded
- Inconsistencies are still present in terms of sustainable 'actions' and policies not always matching up with what is being taught
- A bolt-on approach is still an issue in teaching and sustainability-based projects. For example, admin duties and one-off projects connected to external actor collaborations take time away from creating internal long-term initiatives and changes
- Necessary to enhance the teachers' mentoring capacity, and challenging to find good and rational evaluation methods for interdisciplinary projects

Mongolia • A Nation's response to mainstreaming ESD practices utilising a WSA

Special thanks to Mita Nangia Goswami, Shinetsetseg Erdenebayar, the Information and Training Center for Nature and Environment, and the Swiss Agency for Cooperation and Development for this contribution

In Mongolia exists a partnership, funded by the [Swiss Agency for Cooperation and Development](#)¹⁴⁸ (SDC), together with the Mongolian Ministry of Education and the Ministry of Environment and Tourism (MET) has spearheaded bringing Education for Sustainable Development (ESD) into all spheres of Mongolian education. This is a long term ESD project that started in 2015 and is now in phase 2. Some [key results in Phase 1](#) are outlined below:

- Strengthened media and its capacity by focusing on building a common understanding on ESD.
- Created a [web-based platform](#)¹⁴⁹ for teachers and practitioners for sharing the best practices and information on latest development and application of ESD.
- ESD mainstreamed in curricula of secondary education schools in Mongolia reaching out to over 500,000 students and 26,000 teachers.
- The school text textbooks and examination formats adjusted and aligned to ESD principles
- A selective course on gender developed, based on ESD principles, and given the weightage of two credit points by MNUE.
- Mongolia became the first country to develop a policy framework for ESD and integrate and implement ESD in all schools of basic education nationwide.
- The National Programme on ESD 2018-2022, developed under the leadership of MET disseminated ESD across multiple sectors to ensure a multi-stakeholder participatory approach was taken for its implementation.
- The legal framework towards a more sustainable Mongolia strengthened by providing technical support to the Action Plan for Implementation of the Green Development Policy.
- Support extended to 7 out of 21 provinces (aimags) for the establishment of their Green Development (GD) Strategic Plans.

In 2019, Phase 2 of this partnership commenced and is an example of a cross -sectoral approach and pilot that supports the mainstreaming of ESD. The pilot includes 30 schools situated in six provinces and two districts in



Students working in the Healthy Food – Peace - Life school garden

Ulaanbaatar. 75% (21) of the selected schools are upper secondary schools, 7% (2) are lower secondary schools, 14% (4) are comprehensive schools, 4% (1) are specialised upper secondary schools. Out of the 30 schools involved in this pilot, 27 are now [Eco-schools](#)¹⁵⁰. The ultimate objective of phase 2 is to eventually upscale this to all the schools in the country. They envision achieving this by further strengthening and deepening the engagement with key agents for change in this process. Mongolia will create its own unique context-rich ESD programme anchored by robust institutional and organisational framework. 30 “ESD model schools are identified and supported to further integrate ESD effectively by adopting a whole school approach” (SDC, 2019).

“A holistic approach has been ushered in by bringing in a whole school approach, moving beyond doing environmental projects only. Project based learning focusing on local issues and involving the local community and authorities has been another significant achievement” (Mita Nangia Goswami, SDC’s Back stopper for the ESD Phase 2 project).

The schools are situated in urban (4), semi-urban (13) and rural (10) communities. 30-40% of the students are from nomadic herder-families located in 5 different provinces of the country.

These Mongolian examples of a WSA in action, and insights from the lessons learned during this project, give valuable insight in how a WSA framework is being utilised to create a “unique context rich ESD programme” (SDC, 2019).

“By further strengthening and deepening its engagement with key agents for change in this process, Mongolia will create its own unique context-rich ESD programme anchored by robust institutional and organisational frameworks”

Swiss Agency for Development and Cooperation in Mongolia

Generally, the pilot, despite covid setbacks, has continued. Small Grants have been provided to schools to work on local issues with the help of the local authorities and communities after they identified relevant issues and wrote proposals seeking funding. A funding of 450 million Tugriks (15800 USD) was provided for the 30 projects, which was equally shared by SDC and the local province (aimag) authorities. Another 17500 USD was given by parents and private entities to support these projects. These projects are led by students and explore issues that are context rich and include topics such as food, local art and culture, school campus and building, green house for horticulture, waste management and eco-tourism. At the start of the pilot, all 30 schools conducted a self-assessment encompassing the 6 strands of a WSA. This was used to build school-specific action plans.

These self-assessments have also been compiled into a report offering valuable insights and a baseline of the schools' current ESD capacity. Inevitably this contributes to understanding how to better support the schools, and how the project outcome can be achieved, that “the necessary competences are embedded within the Mongolian education system, both at central level, among policy makers, and at local level, among teachers, practitioners and local authorities, to ensure sustainable application of ESD” (SDC Factsheet 2019). Each school's action plan resulted in a unique entry point to embedding a WSA.

The following example is from Temuujin Secondary School, one of the pilot schools involved in the Phase 2 project. The school is located in Khentii soum, Khentii, a province founded in 1962 and has 2001 students studying in 58 classes of grades from 1 to 12. Total number of teachers is 122 teachers.

Contribution by, Shinetsetseg Erdenebayar executive director at the Information and Training Center for Nature and Environment (FEE Mongolia¹⁵¹), and head teacher of Temuujin Complex School, Zolzaya.M:

Our school vision is “Temuujin Complex School is a House of Happiness Shining with Love” and the school's mission is “To grow boys and girls with skills to learn, to lead others with knowledge and culture to love life and to change the school into a lifelong learning community”.

In 2020, with the support of this phase 2 partnership, based on the “growth model” of organisation development, the WSA was introduced to school management and a WSA to ESD was evaluated by the school self-assessment checklist. Based on the result of our self-assessment the school decided to work in waste management, and addressed our attention to these components. In the frame of this, a more detailed analysis of school waste management found that mishandling of products and plastic packaging which led us to question the impact of our school's actions on both people and planet. Therefore, the “Healthy Food – Peace – Life” project was implemented. This central school project aims to reduce the carbon footprint in the school environment by supporting teachers and students to learn how to live a healthy and environmentally friendly life through both development of curricula and supporting skills to implement them.

Within the frame of this project, we have developed 12 training programs of 40 hours on ‘Choosing the right food and learning the right habits’. We are implementing them in grades 1 to 12 in line with learning objectives. For the curricula of primary education, they have been implemented in the following subjects; Mongolian customs and upbringing; relationship of human being; nature and relationship of human being and society. For the curricula of secondary education, the subjects are; health; technology; biology; chemistry; geography; foreign languages; mathematics; physical education; and civic ethics.

In addition, within the training programs, we organise an e-training course for families once a month to teach new ideas and practices that can be used by families. Observations and research are also used to evaluate students' based on multiple factors such as, choice of lunch, height, weight, learning activities, family decisions, impressions, and influences.

In terms of new learning processes, a small project was implemented as a result of the self-assessment based on a WSA to ESD. As part of the project, we have established a “Teacher Development E-centre” to organise a “combined training” to increase the participation of

students, parents and teachers. This has financial support from the local development fund to implement the newly developed school curriculum.

The role of Self-Assessment and Reflection at our school

To make changes in our "School Management", the progress and failure of school development has been compared annually for the last 3 years and classify the work performance as sufficient, average and insufficient. In this context, each subject team conducts its own assessment and makes conclusions by identifying areas for further improvement. Based on this, suggestions for new and further improvements for the next school year are received from the subject teams or teachers and staff. We are starting to accustom school improvements by introducing planning in line with development goals stated in the school strategic plan. Specifically:

- Organisation of meetings and discussions with students and parents.
- Receiving parents' advice, proposals and feedback in electronic form.
- Giving more emphasis on obtaining student feedback in the form of a written report to produce more efficient, feasible, and practical planning based on students' needs.

We have achieved the results by applying the following methods to make our decision-making more democratic. The first step we feel is to make the school management more democratic and open and to ensure that when the head teacher makes final decisions, these decisions are based on the findings of the teachers' council and school community dialogue. School community meetings and inputs provided through the school website are two examples of how the community are involved in decision making for important areas in school management. Some of these areas include teacher and child development plans, also, improvement of the learning environment and budgetary allocations.

Due to the COVID circumstances, more than 40 percent of these project activities, such as lessons, trainings, and activities, were organised online. All school activities were focused on the principle of connecting life and learning, improving reading, listening and research skills, is increasing practices to implement things that were heard. In doing so, the knowledge and skills of students and teachers were important to support real action. School students, parents, teachers, and school staff have jointly identified the issues that should be addressed to improve the implementation of a WSA to ESD. Identification of these issues emphasises the importance of increasing community participation in school management to improve school goals, outcomes, and accessibility to small projects supported by the ESD phase 2 project.

Key WSA Principles in action at *Temuujin Secondary School*

Capacity building

- Nationwide support for ESD based networking
- Teachers have learnt to work more collaboratively and developed cross-curricular content
- Peer-to-peer capacity building - A web-based collaborative platform www.esd.mn developed for teachers and practitioners for sharing the best practices and information on latest development and application of ESD

Vision, Ethos, Leadership & Coordination

- Government led leadership and vision for embracing a WSA to ESD

Curriculum

- ESD mainstreamed in curricula of secondary education schools in Mongolia reaching out to over 500,000 students and 26,000 teachers
- School text textbooks and examination formats adjusted and aligned to ESD principles

Pedagogy & Learning

- Community-oriented projects provide practical examples of how a ESD engagement can involve the wider community and alternative learning arenas and methods

Institutional Practices

- Sustainable solutions and improvements have been made at the schools, for example with waste segregation and waste management. A focus has also been on improving air quality in the urban schools
- In one school a ger, which is a sustainable housing practice with a low carbon footprint (tent made of animal hide) was installed by students (conserving indigenous culture)

Community Connections

- Small grants have been used to seed fund community-based projects connected to various topics such as food, local art and culture, school campus and building, green house for horticulture, waste management and eco-tourism

Since 2017, institutional practice changes have also taken place. The school has been participating in the "International Eco-School Program" and changes have been made to the school environment and buildings. Again school assessment has played a central role with regular assessment of the school environment taking place 8 times since the project started in collaboration with

*Healthy food – Peace – Life project*

teachers, students, staff, parents and public organisations. To implement school environment improvements, we used the “Citizens’ Voice” method to raise donations and support from parents and public organisations, and received investments the equivalent of well over 300.000 US \$ from the state budget. The external and internal school environment was then improved using the private and government funds raised. As a result and through further school environment assessments (both qualitative and quantitative data is collected) we have measured the quality of the internal environment has improved from 63.8% to 87%, and the quality of the external environment has improved from 47% to 82%. Now, the school also uses an area of 372,5 m² for 2 greenhouses and open fields to plant potatoes and vegetables. We use these fields not only for training our community how to grow food, but also to ensure the school community is consuming healthy food. Community satisfaction reported also shows that training on healthy lifestyle has a positive effect on productivity of school staff.

Over the last 3 years, 4 different studies have been conducted to reduce the carbon footprint in the school environment. These calculations are done based on the training content provided to Eco-Schools. We are pleased to be able to contribute to reduce global warming by saving energy by almost 55.000 kg (CO₂ avoided) and reducing water use by 7730,56 kg (CO₂ avoided), air pollution by 5925 kg (CO₂ avoided), and waste by 8489.41kg (CO₂ avoided).

The main purpose of our involvement in the ESD Phase 2 project was to lead the local community by school knowledge, skills, attitudes and culture and introduce

concept, content and methodology of Sustainable Development to citizens, communities and families through school activities, lessons and trainings. The “Healthy Food – Peace - Life” project also connects with “Healthy lifestyle” topic which was implemented to achieve this goal. This is based on the WSA self-assessment results, under the frame of the relevant research, school mission, and Eco-School program. Through the project-based school curriculum, we worked with students, faculty, staff, their families, parents, community members, and public organisations. Specifically developed training curricula for kindergartens no. 1, 4 and 9, the province’s Governor’s Office, Education Department, Department of Environment and Tourism, Specialised Inspection Agency, the Kherlen River Basin Administration, World Vision, KHENNES non-government organisation and the Life-long learning Centre, “Numrug Altai” Company. We also organised trainings on healthy eating habits, knowledge, skills and culture, and opened a model cafeteria with a hall for organising trainings and exhibitions. A lot of these activities stimulated the process of introducing a WSA, improved our schools projects outcomes, and helped us to share knowledge about healthy eating. These activities were the most influential in building habits to make right choice of food and its consumption among parents and their children. The implementation of this project in the whole school has also given us valuable experience and knowledge needed to continue further with the project development long term.

Under the frame of the ESD Phase 2 project, capacity building has also been strengthened, as a school team of 30 people, including school administration, teachers, students, staff, parents and community representatives was established. The team received e-learning, and

*Eco-committee students*

combined trainings were provided in stages with the methodological support of the Environmental Information and Training Centre. This training cooperation not only improved the capacity of the school team and provided training for children's volunteer organisations and participation groups, subject teams - teachers, and parents-community representatives, but it also expanded their participation. All of our schoolteachers were also involved in trainings on concept, content and methodology of Sustainable Development.

Based on the WSA school self-assessment results, and the development needs of the teaching staff identified on the basis of their own and external evaluations of teachers' performance, we also now have a "Calendar plan to support teacher professional development". The focus is on moving to more project-based learning methods and participatory pedagogy. This is being developed and implemented in accordance with the requirements and the "Skilled Teacher" program implemented by the Government of Mongolia.

Due to COVID and its consequences, methodological trainings and discussions were organised through e-learning. These trainings for teachers aided them in addressing fears of overuse and other risks that the internet brings, improving child protection, and providing psychological services to the students. Moreover, with the support of the ESD Phase 2 project, employing educational psychologists in schools is a measure which was timely, and it is now being implemented as a service that meets the priorities of teachers, parents and students.

Lastly, in order to increase our achievements and implement our objectives it will be important to identify the causes of our problems and correct them. We aim to plan well, carry out what we have planned, monitor what we have done, and follow up to see what has been improved. This is a continual cyclical process and through this approach aim for activities and changes made at the school to be done well, and in a way that creates motivation to further sustainable school development.

Strengths/prospects

- The parental community in the schools is very supportive and collaborates with the schools on a regular basis
- The local authorities are another strength as they are actively involved with the schools and give support both in terms of resources, funding and expertise
- The Government of Mongolia (Ministries of Education and Environment & Tourism) has been partnering with [Swiss Agency for Cooperation and Development](#)¹⁵² since 2015 to bring in the ESD approach into all spheres of Mongolian education. A cross-sectoral approach has been upheld by the partnership between the two ministries and provide support to schools on multiple levels

Challenges

- Teachers need more support and capacity building in order to be able to develop cross-curricular, learner centered pedagogy
- A common understanding about the WSA needs to percolate to all the stakeholders for its scaling up to the national level
- Resource constraints once projects and funding streams finish is a challenge

Türkiye • A Green Flag Eco-School's Journey towards ESD Practices

Special thanks to Güliz Karaarslan Semiz, Pınar Doğru Atay and Fulda Bol for this contribution

Türkiye's unique geographic location and variable climate conditions have shaped its fauna and flora and human relationship with the nature. It is a country with a long history in terms of environmental issues, such as increasing forested areas around the country since 1920s (Dinçel, 2019¹⁵³), and this history is reflected in education. In the last three decades, many efforts have been made to address environmental problems and to incorporate a sustainability vision in different sectors and fields. In 1992, following to Rio Summit, Türkiye has included sustainable development policies in its National Development Plans and has adopted a green growth perspective according to the National Sustainable Development Report (RTMD, 2016¹⁵⁴). In terms of education, Türkiye's Sustainable Development Report (2012)¹⁵⁵ addressed the necessity of integrating sustainable development into the Turkish education system. It is suggested that national curriculum should emphasise sustainable production and consumption concepts to develop students' awareness on sustainability issues. In parallel with these developments, and through the curriculum changes in 2013 and 2018, Turkish primary and secondary school science curriculum incorporated sustainable development into its vision and goals. However, this led to sustainable development being included in the curriculum as a standalone subject, mostly linked to the themes of recycling and the efficient use of resources (see MoNE, 2018a¹⁵⁶). In addition, the social science curriculum included specific objectives that refer to developing students' environmental awareness and sustainability consciousness and incorporated sustainability related subjects such as human rights, equality, cultural heritage and global connections (MoNE 2018b¹⁵⁷). Despite this, in terms of formal education, Türkiye does not yet have an evident education policy related to ESD. However, more recently, there have been several attempts to integrate sustainable development into the curriculum. For example, there are a lot of initiatives promoting environmental management and sustainability in all sectors including education. Such as, the national "Zero Waste Project" launched in 2019. The aim of the project is to carry out zero waste actions in all public and private institutions including schools and universities, to reduce all types of wastes and separate wastes at the source (Atik, 2021¹⁵⁸). Schools are attending in the [Zero Waste Project](#)¹⁵⁹ through

various implementations such as collecting waste materials and building school library equipment via this 'upcycling' approach (MoNE 2022¹⁶⁰).

Moreover, following big wildfires in the forests of Türkiye last summer (2021), the country accelerated its work on climate change in all sectors, including education and saw the Ministry of National Education declaring a 'short notice' related to creating "environment and climate friendly schools". Based on this notice, an "environment and climate change" course will be taught at all secondary schools starting from the academic year 2022-2023, to raise awareness of climate change amongst younger generations. For the first time climate change will have a wider place in the national curriculum. The Ministry of National Education also emphasized that in line with initiating the "Clean Schools, Clean Energy Project", schools will become more nature friendly areas and the "Zero Waste Project" will spread to all schools to increase students' environmental awareness (MoNE, 2022¹⁶¹).

In Türkiye, green flag Eco-Schools mostly support environment and sustainability-oriented education. TÜRÇEV (Environmental Education Foundation of Türkiye) runs three environmental education programs which are Learning about Forest (LEAF), Young Reporters for Environment (YRE) and Eco-Schools (Okkullar, 2021¹⁶²). Among these programs, LEAF and Eco-School require the schools to link their plans adapted to the curriculum from branches at all levels related to the chosen theme. Since the 1990s, over a 1000 private and public schools enrolled in Eco-Schools program in Türkiye (Taşar, 2020¹⁶³). These plans combine to form the annual action plan and provides opportunity for interdisciplinary work to be developed in the schools. While it is evident that there has been a lot of effort regarding implementation of ESD in Türkiye's formal education system, there is still a need for additional support to promote ESD in an interdisciplinary way in the curriculum, as well as developing a holistic way of teaching ESD. Here, well established 'green schools' have an important role to highlight how implementing ESD in an integrative and transformative way can be realised. The following example is from such a school that shares experience learned after being an Eco-School since 2010.



Student participating in activities related to eco-school programme

Eco-Schools Program: ODTÜ GV 'green school' Journey •

ODTÜ GV School is a private not for profit foundation school that started in 1989. It is located on the Campus of Middle East Technical University in Ankara. The school caters for students from kindergarten upper secondary, ranging from 4 to 18 year-olds. As well as being an Eco School for over a decade the school has attained the ISO 45001 occupational health and safety management certification because of its profile as a safer place for its employees and students. Eco-School Coordinator Fulda Bol shares the significance of this. "Increasing the overall culture of health and safety serves to also increase the culture of health and safety from a Whole School Approach to Sustainability point of view. Getting this standard is not easy as it has gone through a series of checks to get it. It is prestigious for our school to have this certification". In Parallel with national developments in Turkish Education Policy, the school participates in the "Zero Waste Project" to reduce the amount of waste generated, establish an effective collection system, and contribute to recycling in the school.

"Our school aims to carry out joint projects with all our stakeholders, to develop environmentally sensitive projects, and to train our students as Environmental Leaders who will set an example for the society and the world. We encourage our students to participate by following projects that will raise awareness on environmental issues in our country and on international platforms. In addition, we are committed to complying with the current standards related to legal regulations and zero waste, to keep the "Zero Waste Golden Rules" of our School accessible to all relevant parties and to adopt them to all our employees and students, to implement and constantly improve the zero-waste management system we have established" (Science Coordinator- Pınar Doğru Atay).

Through the Eco-Schools programme environmental education and sustainable development goals are becoming a part of the school culture step by step:

"The Eco-Schools program is not just about learning and collecting recycling materials and sa-ving energy. Over the years, this content has been planned based on the fact that it should re-flect the philosophy of sustainability in education and should be a way of life. For students to be raised as sensitive citizens of the future, they discuss how human beings affect the natural environment and lives of other living things. They are expected to implement what they learn in the decisions they will make in their future lives"

(Eco-School Coordinator –Fulda Bol)

Over the years, Eco-Schools overarching principles have increasingly been embedded in the curricula at ODTÜ GV School. In recent years, subjects related to environmental education and UN sustainable development goals have been more reflected in different subject courses, even though they are not part of the Eco-School action plan. This sustainability-oriented transformation is seen not only in students, teachers and school staff, but also reflected at an institutional level. Less energy consuming LED lamps and energy efficient products were fitted throughout the school. Recycling bins were placed on every floor of the school building, and in the garden. While implementing these school practices, students always play a leading role in informing about why, and encouraging others to engage in these sustainability efforts.

Although ODTÜ GV school does not mention the whole school approach framework in their vision, their approach and practices closely align with the principles of WSA. In particular they describe that mainstreaming sustainability-

oriented education throughout the whole school is made possible with the implementation of the Eco-Schools program. They also encourage parent involvement through announcing their events on social media and on the school website and [school blog](#)¹⁶⁴, where they share events related to environment and sustainability. Moreover, the school encourages students to actively engage in Eco-School activities. Students' opinions are asked for and they are given responsibility to improve their learning. All the staff in the school participate in environment and sustainability related events. For example, while designing school permaculture garden the school building chief and school staff participate took part. many staff also contribute by offering training to students about specific

gardening activities or skills. Voluntary participation in environmental activities and events beyond the classroom has become part of the school culture. All subject teachers, students and school administration actively participate in these activities. The school administration facilitates these processes and creates opportunities for teachers and students and make arrangements to achieve the sustainability related goals. In terms of organisational aspects, there is an active, sustainable leadership to promote sustainability in the ODTÜ GV school. School leaders play an important role for initiation and sustaining ESD program at schools (Bennell, 2015; Carr, 2016¹⁶⁵). Active, supportive and long-term leadership is important to promote sustainability activities at schools.

Key WSA Principles in action at *ODTÜ GV school*

Capacity building

- School, administrators, teachers and staff are open to innovations and excited about increasing educational opportunities
- Experienced teachers always inform new teachers and give them opportunity to participate in sustainability-oriented programs at school
- Once a month teachers attend several online webinars related to environmental education organised by International Environmental Education Organization

Curriculum

- Teachers integrate sustainability related subjects into the existing curriculum with an implicit curriculum. This is possible with the implementation of environmental programs that are also accepted by the school administration
- Eco-school and LEAF programs provide a common framework for all subject teachers to use the most suitable sustainability-oriented elements in their curriculum as educational materials
- With the Eco-Schools report created at the end of each year, good examples and difficulties connected to curriculum implementation are shared with all teachers at school

Community Connections

- The school has developed community links with parents, non-governmental organizations and local administration surrounding sustainability actions
- School administration invites experts from different organisations to give seminars to students and teachers. For example, tree planting, and birdwatching activities are organized

Vision, Ethos, Leadership & Coordination

- All school staff, including all administrators, alongside the students, are committed to support sustainability activities
- School vision includes creating a peaceful and environmental school culture

Pedagogy & Learning

- In the lessons both discussion and problem-solving activities are implemented. Students deal with the present and possible problems of humanity in the future. They handle discussions at both individual and societal levels and work together to produce solutions
- School buildings, environment and school resources have been created and adapted in accordance with environmental and sustainability education practices
- Extra curricula studies are designed based on the wishes of the students. Students engage in some activities such as seed recognition, orienteering, educational outdoor games, mandala and forest walk
- A democratic environment is created in the school with the aim to take every idea into account
- Students are encouraged to hold meetings on their own and taught how to express their ideas easily and respect other ideas

Institutional Practices

- Practices include reduction water and energy consumption, reduction of waste production and increase of recycling facilities by putting bins on every floor at school
- Permaculture gardening activities are carried out in an area of approximately 70 square meters
- Efforts continue to establish and maintain a system that will reduce the amount of waste and use resources more efficiently in the whole school



School garden – soil protection and water conservation

Lastly, the Eco-Schools coordinator and teachers describe their permaculture garden project as an example of a vital resource and alternative learning environment that can be established easily and relatively low cost. Through utilising compost to enrich the soil the school have made an ecological and biologically garden that is a great teaching resource.

School staff took an active role in the processes of soil preparation, composting, planting seeds and planting in the establishment of a plant garden at school. Teachers from various year groups with their students guidance also made their plans for how to use this area in their lessons. Students also actively participate in gardening activities. Each year they sow seeds and take care of them themselves until they are ready for planting. They also use the garden for observing the interaction plants have with themselves, and with other living and non-living things. In addition, young people learn how to grow their own food and become more aware of healthy and sustainable food production.

Even though the school is labelled as a green flag Eco-School, different environmental programs are also implemented by teachers, such as, [Young Reporters for the Environment](#)¹⁶⁶ and environmental programs developed by TEMA (a local environmental foundation).

This is an example of one Eco-School's journey in Türkiye, where the whole school has been committed to environment and sustainability education for a long time, so much so these commitments have become a part of the school culture. However, while they have come a long way with integrating a WSA to ESD, and interdisciplinary work continually takes place by committed teachers and administrative staff to work in this way, there are still barriers to becoming fully committed to a WSA. Such as, the pressure of national exams, and not embedding ESD in the national curriculum. Time and an intense curriculum are

also major barriers to establishing a WSA to ESD at schools in Türkiye. Therefore, WSA practices are usually realised by a collection of dedicated teachers and school leaders. In order to reduce these barriers, to move towards a holistic and transformative ESD practice, and fully achieve a WSA at schools, a national educational policy, alongside financial and structural support, is needed.

Strengths/prospects

- All subject teachers contributing to sustainability-oriented programs
- Active student engagement and student led learning happens throughout the school
- Active and supportive administrators who facilitate the programs
- Parents are an important part of school culture
- Interdisciplinary teaching supports the integration of environmental and sustainability themes into all subject areas
- "Walking the talk" continually practices to make the school environment more sustainable and reduce ecological footprint

Challenges

- National curriculum does not incorporate ESD in an integrative way as sustainable development concept is placed as a standalone subject
- Limited support for integrative and holistic approaches to ESD in national curriculum
- National exams, intense curriculum hinders ESD and teachers' report a lack of time to maintain sustainability projects
- Limited community connections to disseminate these studies to outside the school
- Limited collaboration with other schools in the local area. Schools could collaborate more to work on sustainability issues in the local community

Northern Ireland, UK • School - Community Partnerships in action

A special thanks to Sandra Patterson and Eco-Schools Northern Ireland for this contribution

Northern Ireland's Curriculum (introduced in 2007) covers 12 years of compulsory education. As the Council for the Curriculum, Examinations & Assessment (CCEA) describe:

"It's a curriculum that focuses on the learning process and learners' needs, as well as their knowledge, understanding and skills. [...] This guidance expands upon the Education (Curriculum Minimum Content) Order (2007 No. 46), by setting out the minimum requirements of the Northern Ireland Curriculum that should be taught at Key Stage 3, with examples, and supplements it by providing a detailed rationale to guide its interpretation. It represents the final approved outcomes of a series of proposals and consultations which informed revisions to the Northern Ireland Curriculum (2006)². As a result of these each school now has additional flexibility to make decisions about how best to interpret and combine minimum requirements so as to provide a broad and balanced curriculum that will prepare each young person for a rapidly changing world." (CEA, 2022¹⁶⁷).

The following contribution highlights one upper-secondary school's efforts to integrate sustainability throughout the school. Department Head and Eco-School Coordinator Sandra Patterson also shares with us her vision of a more centralised approach to environmental education to reduce the inconsistency of approaches and levels of understanding between schools:

"The government needs a centralised approach to environmental education with set requirements for each educational provider this would reduce inconsistency of approach and levels of understanding between schools. A centralised approach would also give environmental education the respect that it deserves"

Sandra Patterson

Our school, [Ulidia Integrated College](#), is situated in Carrickfergus along the rural urban fringe of Belfast. It is an Integrated School, meaning that we educate together students from Protestant, Catholic other and nonreligious



Students at Ulidia Integrated College were inspired by their environmental work to undertake an environmental theme while studying A Level Photography. This photo was designed and taken by Karl as part of his A2 Photography course

backgrounds. The school has been engaged with sustainability related education since 2007 when the school first engaged with the Eco Schools programme. The Eco Schools¹⁶⁸ framework provides a structure that supports or decision making and our planning.

The school has engaged in a range of projects to enhance environmental education and whole school sustainability. This range has been decided by national focus areas of Eco Schools and by student interest as time has evolved. Students decide areas of focus in our committee meetings. Our school has identified the following vision statement 'Highest standards of global education for all to create tomorrow's sustainable society'. This vision has informed

planning and decision making throughout the whole school. Environmental education is integrated into whole school curriculum and is regularly audited to measure coverage. The school also works with other community organisations and other schools to increase engagement and interactions. The vision gives us focus for our actions and to identify our desired outcome. This vision is reaffirmed every year within the eco-team and displayed prominently in the school.

Some examples of a WSA in action include our annual Green Day event organised by year 8 students. This is a whole school day of activities to promote care for our environment on a local, national and global scale. During the day we collapse the timetable for all of year 8 and we invite local primary schools as well as local organisations to the school to participate in a whole day of environmental action. This involves taking part in a special timetable of events including workshops, school-based actions, and community based actions. The year group is divided into groups to mix classes and let students work with students that they might not usually be in class with and experience the workshops in a carousel type manner. The highlight of the day is always the wellington boot competition for me however, for the students the highlight is always named as the bird of prey display in the afternoon. This is when we all come together on the grass banks at the front of the school or if weather forces us, the hall, to enjoy a bird of prey display where students get to handle the birds and learn about them.

The birds of prey illustrate an important part of environmental education, students need to love nature and see the benefit of natural environments in order to want to protect it. Over the day students use and further develop numeracy, literacy, creative skills while also building Technology, Science, Geography and Citizenship knowledge through a fun cross curricular day of activities. This event has been successful as it has enabled us to build relationships with local primary schools, as well as with local organisations including the National Trust, Triocre, Ulster wildlife, Starbucks and the local council. Within the day we also have competitions running and gifts for all participants to take home – usually a packet of seeds, so the Green Day ends up being about a lot more than just one day.

One great starting point for us has been the Eco Mentor Programme. Within our whole school mentor programme, we created a sub group of Eco Mentors who are students in Sixth form that have displayed commitment to the Eco Team/committee and who want to gain vital experience in working with young people to support their applications to further education. This has been low cost to establish. The Eco Mentors work with staff from both our school and our neighbouring primary schools to develop an action plan,

this involves planning eco activities for class 5 to participate in each Friday afternoon for two academic terms. Starting in October and finishing at Easter. Students then visit the local primary school and work with a class and their teacher to support and lead environmental projects in the primary school. This programme has been very useful for both

Key WSA Principles in action at *Ulidia Integrated College (upper-secondary school)*

Vision, Ethos, Leadership & Coordination

- Whole school community are part of forming and signing the schools eco-code which is update on a regular basis

Curriculum

- ESD mainstreamed in curricula of secondary education schools in Mongolia reaching out to over 500.000 students and 26.000 teachers
- School text textbooks and examination formats adjusted and aligned to ESD principles

Pedagogy & Learning

- Environmental education has been built into the whole curriculum (teacher lead not national curriculum)
- Cross Curricular engagement with environmental education

Institutional Practices

- Reducing waste and energy consumption has been a big focus of the school
- Sustainable transport is also a key focus which it taught throughout the curriculum and links to community events
- Whole school engagements with Eco Code

Community Connections

- Costal surveys connected to the local landscape (Carrickfergus Castle) giving the students em-pathy for the local land, wildlife and coastline
- Eco-Mentoring programme connects the school's sustainability efforts and students to multiple community organisations and other local schools
- National teacher networks used to share ideas
- International networks used to develop school pairing projects

Capacity building

- [Eco-Schools Northern Ireland](#) are a major support
- Training is available from multiple providers including Eco Schools NI
- Grants are available from multiple providers including Keep NI Beautiful



Eco-committee celebrating their green flag award - Ulidia Integrated College currently holds six Green Flag Awards

schools involved. Primary school students gain a role model sixth form student who they can learn from concerning environmental and social themes, this is beneficial also for the sixth form students as they gain various skills in this role-model position. Also, the primary school gets help with eco projects and to work towards a green flag application. The post primary school makes and maintains links with our neighbouring primary school and our students gain valuable experience and references that support their application to further education. The mentor programme was built upon to include visits by the primary school class to our school to take part in a lesson with a Y8 class with their mentor present as well as the link between the two classes.

This project also builds links between two integrated schools in our community. Another low cost example is the school adopting (becoming guardians of this wildlife area) a coastal area around Carrickfergus Castle. Through this initiative the school arranges beach cleaning events there, this encourages both caring for the local wildlife, and regular visits to the sea. Also, via network links developed through other projects such as the Green Day event, other schools and the wider Carrickfergus community are also included in these beach cleaning days. Sometimes the weather is less than kind to us, but the students and the community are engaged which in turn creates a positive impact on the local area.

At Ulidia we take a Whole School Approach to environmental education and we learn by making 'real-life' changes. To date having an environmental focus has been very successful for the school as it has lowered our energy

costs, reduced waste, which in turn has reduced waste management costs and has also brought the school lots of positive publicity, as well as created and developed links with organizations and the wider community. For example, we are the first and still the only secondary school to run with zero waste into landfill in Northern Ireland. Changes like this means the schools management board are fully supportive of having an environmentally focused school. As the Eco-School coordinator each year I devise a development plan, and this is linked to whole school development. The plan is evaluated regularly and amended as I would do in my curriculum planning. As like all areas of school life I plan an engaging approach which is child centred and have systems in place to support its implementation. To enable the programme to run efficiently I have also established systems which have been in place for many years now. I have put in place a hierarchy of action to enable leadership to be built into the programme such as the Eco team and an eco-committee. The committee is where the planning is completed and this includes a parent representative, and a student leader. Within the committee we have student leadership which comprises of a student elected representative from the sixth form members of the group who have usually been in the committee/team for their school lifetime. This gives the students in the group something to aspire to and provides an opportunity for the elected sixth former to gain skills and experience for UCAS. As well as giving a committed student recognition for their service. The eco-team is where the day to day activities take place. The eco-team meet each week and implement the plans made by the committee, all the committee members are also part of the team. I oversee all actions and ensure that all activities

are risk assessed with a team of school staff who are also involved in a supporting capacity. I have also found that over the years students' and teachers are very keen to be a supporting part as well and this gives them the opportunity to build skills to take with them to future posts.

The student body of the school have devised their Eco Code, this gives students ownership of their code and enables them to have a say on key priorities. We regularly hold a whole school competition with fair trade chocolate as a prize (we are also certified as a Fairtrade school). This is held often as we regularly review the code to ensure that it reflects current student opinions and priorities. We use the lines of the school name to devise this and give the students the opportunity to write a line each. This gives the maximum number of children the opportunity to contribute and when judging the entries we always ensure that a range of year groups are included within the winners, again maximising the contributions.

Each year at the start of the academic year we reaffirm the code and reinforce the importance of environmental commitment by giving every person in and associated with the school the opportunity to 'sign up' to the code. A copy signed by all staff including teachers, support staff. Lsa's, cleaners, dinner staff is on display for all to see in the main entrance to the school. I feel that it is important that all members of the school staff team are included in this

together and that students can see a visible document to show a united staff team.

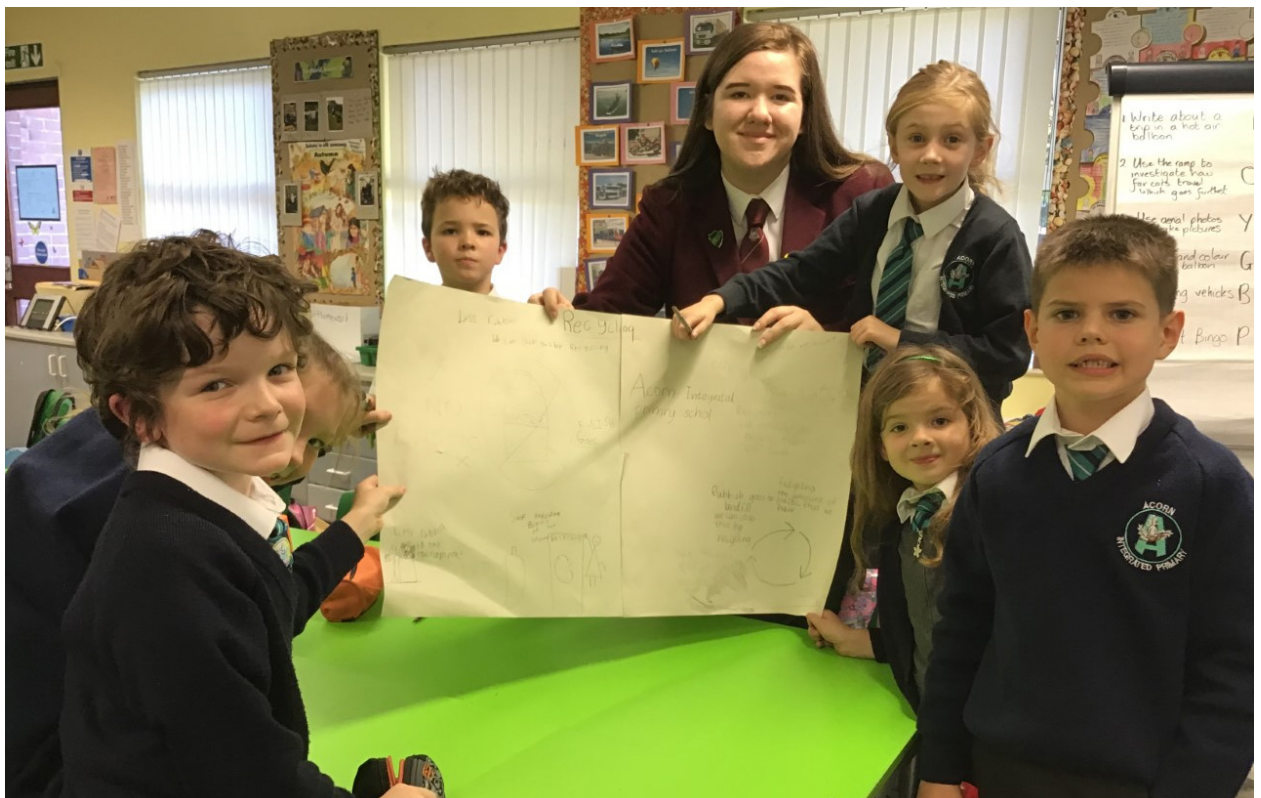
Parents and governors are given access to a digital copy of the code and can sign up digitally. We involved parents, so that they can support from home and to encourage families to also make changes following the schools lead. The school governors kept informed, and we ensure they have the opportunity to give support and get involved.

Students are given the chance to sign up in their form groups and their signed copy is on display in every form room in the school. **The physical signing gives all the school stakeholders the opportunity to make a physical promise to uphold the code and brings together all of our school community.**

It is also important to us as an integrated school that the code is displayed in a multilingual fashion to give all students in our school ownership and a sense of belonging to the code.

Institutional Practice • The College has worked hard to embed zero waste to landfill as a whole school area of focus. This has been invested in financially by the school has led to large reductions in carbon footprints and has seen the college be the first in Northern Ireland to achieve Zero waste to landfill status.

Sixth form Students work with local primary school pupils on environmentally focussed project work





Students, staff and parents all are given the opportunity to sign the revised school eco-code each year

Our school has embedded Sustainable transport throughout the school curriculum and pastoral care policies, along with creating leadership roles for senior pupils. This: [Translink 25th Anniversary - YouTube](#)¹⁶⁹. Whilst undertaking the challenge each year the college has also saw a number of other benefits to whole school life, including having the challenge embedded within the pastoral programme in Year 9.

The college has been actively engaged with Translink for 10 years now through the annual [Translink Travel Challenge](#)¹⁷⁰. This engagement has brought about many marked advantages for the College. Firstly, publicity. The college has raised awareness of itself within the community through news coverage of the challenge each year. We have also found that awareness has increased of sustainable transportation and the impact that this has on our personal carbon footprints. Staff have noticed that students are bringing this into classroom conversation when studying carbon footprints when they are further up the school journey. This has given us confidence that the challenge in Year 9 is having an impact of student choices long term. This increase in awareness of how transport choices impact carbon footprint is important and has an impact on tomorrow's sustainable society, which was one of our original aims.

Another positive outcome from the challenge has been the links that we have established with Translink through the challenge. Over the years these have grown with the foresight of Miss McKee to now include regular visits from the safety bus and Translink attending our open evening events. The impact from this is that students are more informed when choosing school travel and students are

given the opportunity to learn about safe sustainable travel. The safety bus visits to the school are a real highlight as the students really enjoy the visits from Sue and learn in a fun practical way from her lessons. It is our hope that the lessons that they learn about safety will help students to make safer decisions and habits which will stay with them beyond their school journey.

Whole school carbon footprint has been reduced. During the challenge we can take a snapshot of miles travelled in a sustainable manner and we can measure this reduction over the cycle. The measurement over the snapshot is logged within the Eco Schools.

Data zone as a short-term snap of reduction. However, what we have seen is that beyond the cycle challenge students are changing their actions, for example, choosing to walk to school more with their friends, or to lift share more, and to take train or bus more often. These actions are not measured every day but show that the carbon footprint of school travel is being reduced in the long term by taking these small actions over long term across the school. Leanne has told us about how her actions have changed for the 5 years in Ulidia after taking part in the challenge in Year 9, this is multiplied by 10 years of year groups where some students will be inspired to change actions and creates a large reduction in carbon over this long term engagement with the challenge.

As an Eco School we found that the challenge gave us the opportunity to 'bank' data evidence which was counted towards our bi-annual Green Flag applications. This data and participation in the challenge counted as a 'major' topic area within the application process. The Challenge gave us a framework to collect this data and have it recorded securely in the data zone of our Eco Schools portal.

Environmental education is fully integrated into whole school curriculum. However, this is spearheaded by the school not through the national curriculum requirements. We have organised this by Mapping curriculum links against the Eco Schools areas of focus and then using this to identify any areas of weakness that need to be addressed. This was completed collaboratively as a whole school.

In terms of professional development, we take advantage of any training available. Staff have undertaken UN Climate Change teacher training to gain UNCCT status, [Global Learning Programme](#)¹⁷¹ training, and we have taken advantage of carbon literacy training with Eco Schools NI. Staff work collaboratively both in the training times and also during planning time.

Advice for other schools • The Vision is important, it is really central to planning that a vision is clear and shared

with stakeholders. The process of defining the vision was central to identifying what we wanted to achieve and why. The vision also helped us to identify key actions and not go on too many tangents. Build your own community. This was very important. The team that we have built have been sources of inspiration, opportunity and sounding boards. The network built has been through attending events, training and simply keeping an ear to the ground. The team have opened doors and opportunities in many ways. My advice would be to take opportunities to talk to people and always exchange contact details. Building a community network has been one of the most important things I have done as an Eco-Coordinator and has helped me to support others.

Lead with passion and confidence, I have found that it is important to lead while being unashamedly passionate about my ethos. Students feel that it is ok to care if they see adults caring from the front. Leadership is important. Don't be afraid to be publicly passionate about the area of leadership. I am a keen environmentalist and I shout this

from the rooftops as I believe in the importance of our environment. In turn the students have been confident to also allow their passions to be visible and stand up for what they believe.

Expect the unexpected and be open to opportunities as they come along. I have built banks of resources, paperwork files such as risk assessments that have been built over time and are returned to in order to inform future plans. It is important to be prepared for literally anything that can happen, a bank of resources has also been made for go to activities if speakers cancel at the last moment, or if there is a weather emergency during a planned activity.

Be open to opportunities as they arise. Opportunities to learn more, opportunities to work with others and opportunities to develop have all been taken advantage of, sometimes you have to be the nippy one who gets in there and claims the opportunity. And if you can't find one, make one.



Mrs Sandra Patterson, Head of Geography and Eco-School Coordinator at Ulidia Integrated College attending the [COP26 teacher event](#)¹²² by OCCE in Glasgow to share her experiences.

Strengths/prospects

- ESD at the school is supported by teachers and governors as well as teaching staff. This enabled a holistic approach to be taken
- Eco Schools NI have been a tower of strength and provided excellent resources and advice over the years, giving many opportunities for developing and expanding ESD
- Having local 'sister schools' makes inspiring collaboration opportunities
- Not being afraid to lead with passion!

Challenges

- A centralised government approach to ESD is lacking and not supportive of a WSA, so top down support from the curriculum is needed
- There are always some students who doesn't want to be involved, this is a challenge but shouldn't be a discouragement
- There will always be a shortage of time
- Financial resources

III Synthesis & Closing remarks

Synthesis

In synthesising the exemplary school cases highlighting a WSA to Sustainable Development, we can ask some critical questions:

- **How do we ensure a WSA is inclusive and not off-putting in its scale, while still instilling the complexity of moving towards a 'whole system re-design'?**
- **What can we learn from different schools' experiences with engaging in holistic integrated sustainability-education?**
- **While a lot remains contextual, what similarities/trends can we see emerging and how can this influence shifts in top-down school policy?**
- **How can the wider policy contexts and frameworks in which the cases are nested support a WSA?**

The exemplary cases reveal some striking similarities as well as noticeable differences with regards to these questions. The similarities lie in the commitment of staff in providing education that is relevant to the students and today's challenges, but also in practising education that is responsible in its aim to contribute towards a more caring, healthier and sustainable world. Such education typically implies boundary crossing between disciplines, school and community, perspectives, timescales (past-present-future), and spatial scales (local-regional-global). All schools emphasise the importance of students' agency, their ability to make change, and of their participation in decision-making. Many of the schools also mention benefiting from some kind of supporting framework and/or network like Eco-Schools.

There are also differences. Some of these are a result of the context in which schools are nested, which varies; from more rural to heavily urbanised; from more privately funded to more publicly funded; from being nested in a healthy policy-environment conducive to a WSA; to being deprived from any policy-support, some are even hindered by educational policies. Instead, they are working on their own, with the support from NGO's, networks and others, relying heavily on internal assistance and the support of the local community. Other schools work on a small scale from the ground up, while others work on a much bigger scale

nested in a long school tradition that create both top-down accountability and bottom-up commitment.

In this closing section we will first distil some key overarching 'lessons learned' and touch stones for each of the six strands of the WSA flower, as depicted in the introduction of this report.

Vision, Ethos, Leadership & Coordination • In firmly established schools, introspection and recognising that it is important to become 'unstuck' and to 'unlearn,' are important steps in realising a transition in the school. This allows for new forms of teaching and learning, and a regeneration of school-community relations. Continuous or frequent dialogue between different stakeholders (students, teachers, managers, parents, local organisations, etc.) needs to take place in regard to what is important, how people can contribute, obstacles, what can be done to overcome challenges, etc. Having systems in place that provide some continuity, for example monthly professional development meetings, regular dialogue meetings, local community stakeholder meetings and even networking events, is vital to counteract issues that arise. Creating space for dialogue also implies that teachers' daily schedules need to provide time for this.

Active and interested parents, along with a nurturing local and or regional government seeking to realise its own policy objectives in relation to health, citizenship, climate action, etc., can create a healthy environment for a WSA to sustainability. An ethos that allows for strong school-parent relations is important to this. Some of the schools also have a school ethos and vision deeply rooted not just in the community's day to day life, but also in culture and history.

It is evident that for a WSA to be fully realised, schools need both the financial and structural support, and that different actors, with a similar vision, benefit from working and co-supporting each other. School leadership must recognise that working in more open, localised, place-based, interdisciplinary, and action-oriented ways is often new and intensive and there is always a risk of teacher and staff burn-out. Inspirational, visionary, caring and nurturing leadership can be one key success factor in realising a WSA to sustainability. In addition, providing support by means of a school sustainability coordinator who can provide extra support is crucial.

Curriculum • Connecting the curriculum to the UN SDGs, not only provides legitimacy, but also offers an opportunity for inquiry-based learning, systems thinking, making connections between local and global issues, and for studying contradictions, tensions and ambiguities. The SDGs can also act as a catalyst for inter and transdisciplinary work where the different subject areas need to be connected. Finally, the SDGs can provide a school and their local community with meaningful action-oriented activities that combine multiple forms of learning and utilise the outdoors. At the same time, we also see schools do this without using the SDGs in an explicit way.

Some schools successfully focus on circularity, closing cycles, and creating very practical local 'micro economies' that generate funding for future sustainability efforts. Harnessing and harmonising with the local ecology, cultures and history can help reveal and acknowledge both negative and positive practices and approaches to help create a more sustainable and community orientated curriculum that meets the needs of both the people and planet.

While sustainability can be embedded in different courses, many schools also opt for the organisation of highly visible special curriculum activities – like a sustainability project week – that include all teachers and all students, but also invite outside experts and stakeholders from the local community. Many schools engage in, what might be called, a holistic integral curriculum design that involves the land and place in which a school is situated, bringing in craft work and arts-based approaches, and utilising sustainably sourced and local materials where possible. This encourages situated and embodied learning for the whole human being and the whole community.

It must be recognised that the establishment of a more localised curriculum, as well as the introduction of new forms of teaching and learning (see next section), is often unfamiliar to most new students. It takes time to build agency, confidence and trust in these new approaches, also among the parents. Often, the more open and localised curriculum can also be frightening for teachers who like to maintain control and want to know exactly in advance what will happen and what is learnt. They will need to have more faith in the abilities of their students, the power of 'letting go' and providing space for emergence. Here also lies a challenge for teacher training and professional development.

Pedagogy & Learning • A common thread is that schools highlighting a WSA tend to use a broad range of learning grounds, strategies, multiple intelligences and diverse perspectives to tap into student strengths and interests. Schools point out that a shifting from being a "teacher of content" to being a "facilitator of learning" changes

engrained power dynamics with students, as well as approaches to lesson planning: Students' voices need to be taken more seriously and the design of a lesson, activity or project, needs to allow for surprise and deviation. One way some schools do this is to start learning for sustainability with very basic localised and existential questions like: "What's going on out here?" They think about the curriculum together, become aware of every-day issues, some explicitly present, others more implicitly, ask questions including uncomfortable ones, find community organisations involved in sustainable practices and partner with them in a concrete project that is co-shaped by the students.

Vocational schools have a lot of experience with embodied, hands-on, activity-oriented forms of learning that utilise the local environment and require working with local stakeholders. Non-vocational schools can benefit from the way these schools work.

Many schools combine multiple forms of learning (inquiry-based, action-oriented, investigative, etc.), utilising the outdoors or the out-of-school environment as a living laboratory where students can experiment with making change and trying to have a positive impact. Essentially, a WSA opens the possibility of the world becoming our teacher, where the craft process can reveal and meet both our challenges and potentials through an active dialogue between individual and world. Some schools provide time and space for mindfulness, yoga and meditation as critical for achieving, what might be referred to as, 'inner sustainability'.

Many schools point at the importance of giving students a voice and listen carefully and attentively to their needs; what they want to change, how they envision their school and their community in the framework of sustainability. It must be recognised, however, that students often enter the school with years of training in a more traditional "banking" model¹⁷³, where they are not required to participate, and where test grades are the primary measurement of success. As a result, it will often take time to cultivate another mindset in relation to education and learning.

Some schools point at the mismatch between what national exams ask for and what students need. As a result, space for innovation in pedagogy and learning but also in developing alternative forms of assessment, is limited. Alternative forms of monitoring, research and evaluation, e.g. action-oriented research projects that seek to address the policy-practice contradiction that exists between school commitments and regional and national curriculum requirements, are highly necessary in many cases.

Community Links • Partnering with community organisations with a sustainability focus makes learning

authentic, rich, deep and meaningful. It helps when the local community fully supports the school's WSA to sustainability. In making community connections, developing new forms of learning, using the school and the community as a resource for teaching and learning, collaboration with an NGO with expertise in, for instance ESD and the WSA, can be instrumental. Many schools featured in this report, have the benefit of working closely with a network and framework such as EcoSchools. Some schools have identified learning places and spaces as well as local organisations that together create alternative learning environments for students. There are various places in the community where students can learn beyond the framework of the school. This is very important so that the school does not have to take on everything. Collaborating with the local community and various stakeholders, including those representing the private sector, is vital in both its implementation and impact. Peer-learning and establishing networks of collaboration between neighbouring schools strengthen the idea behind WSA. It can increase the motivation and joint learning between schools needed to root and strengthen a WSA to sustainability. Collaboration with local or regional universities, especially with teacher education and educational design research programs, can support such partnerships.

Capacity Building • Transitioning to a whole-school, project-based learning model can be difficult and time-consuming for teachers and staff. It is important for teachers to feel that they are not obliged to implement sustainability or ESD. They must be self-motivated in order to engage actively. Supporting them in this direction is a critical factor for their empowerment and motivation. The unpredictability of a project-based environment can be unsettling and physically draining for unaccustomed teachers. It is essential to build in supports such as mentoring sessions, extra planning time, and ongoing professional development.

Working in partnership with other schools in the region to allow for peer-to-peer inter-school learning between teachers but also between school leaders is vital. Peer-learning and establishment networks of collaboration between neighbouring schools strengthen the idea behind WSA, which sees schools as an open community of sustainability-oriented learning. Providing a structure for long-term multistakeholder partnerships locally and or regionally which support a WSA can deepen and broaden its impact.

Institutional Practices • Most schools featured in this report have been operating for many years, and therefore it can be a challenge to alter deeply ingrained and resilient patterns, structures and routines. In turn, the new or recently established schools have the luxury of starting

from scratch, with a high level of freedom and ample opportunity to bring in multiple voices in the design of the school and the shaping of its practices.

Scale also makes a difference. A smaller school can be more agile and responsive as lines are short and relationships can be established more easily. Bigger schools place high demands on organisation, structure and management, and therefore the question is posed: How to create intimacy, distributed leadership, and ownership in bigger schools? In bigger schools, some form of coordination through an eco-committee or an ESD-focal group can help in realising this. Commitment from school management is critical, especially for giving change agents – like passionate teachers or students – the freedom to initiate and experiment. In experimenting with a WSA, failure is bound to happen, in that not all the changes made will succeed, so there needs to be a culture which responds positively to failure.

It helps when budget and other resources are allocated for the professional development of staff, greening the school building and school grounds, and for community engagement and outreach. It is through the local surroundings becoming an extension of the traditional classroom that a WSA, especially 'walking the talk' comes alive. In addition, time, patience and perseverance are other important factors. In all the featured cases, there is commitment to a WSA, but often there is still a long way to go to embed a WSA in the whole organisation involving all staff and students. Making progress visible – for instance, by looking back every-now-and-then and having a monitoring system in place – can help keep energy levels and motivation high.

All schools seem to highlight the 'walking the talk' component of a WSA to SD. Many examples are provided of schools working on energy, food, health, greening, inclusivity, democracy, creating outdoor classrooms, school gardens, and much more.

Some schools have a participatory approach in deciding what to focus on and how by encouraging students' active engagement in the developing of a school action plan. It's important to give them a voice and listen carefully to their needs, what they want to change, how they envision their school and their community in the framework of sustainability. It is crucial for schools not to just develop and implement a school action plan, but also to identify measures that will sustain the actions and that will provide feedback, also in terms of what successes are achieved.

Still, it is noted that inconsistencies remain present in terms of sustainable 'actions' and policies not always matching up with what is being taught.

Creating Healthy Policy-Environments for a WSA to SD

Perhaps a missing strand in the WSA flower is one that refers to the policy environment in which a school is nested. This policy-environment can be a barrier or a lever in creating sustainable schools. Efforts can be seen throughout the world in curriculum reforms and school policy changes supporting a WSA. Terms like a Whole Government Approach to Sustainable Development are found beyond education institutions, such as The European Commission's 2019-2024 policy for the 2030 SDG agenda¹⁷⁴. However, many schools highlight the constraining effects of a national curriculum, where the focus is on testing and measurement of mainly cognitively oriented learning goals, a culture of accountability, lack of time for experimenting and doing research, to name a few. The schools featured in this report have either found ways to overcome such constraints, or they have the fortune of being in a policy environment that encourages multiple forms of learning, engagement in community, doing research as a part of professional development and creating a more localised curriculum.

In figure 2 below we have added this policy-environment as a wider circle in which a WSA is nested, highlighting some of the key points the exemplary cases reveal.

Closing remarks

What is striking and encouraging is that the cases presented are only a small selection out of a range of other examples. The response to the rather short call for exemplary practices (there was only about two weeks to respond) was overwhelming and a more systematic call using even more well-established networks would undoubtedly have yielded more cases. The WSA seems to be moving from the margins to the mainstream of education. These cases represent niches that, when combined, can become a movement which can transform the wider education system. There might be a tipping point where the ways these schools live and breathe sustainability, while maintaining a critical and flexible mind, becomes the new normal in our schools.

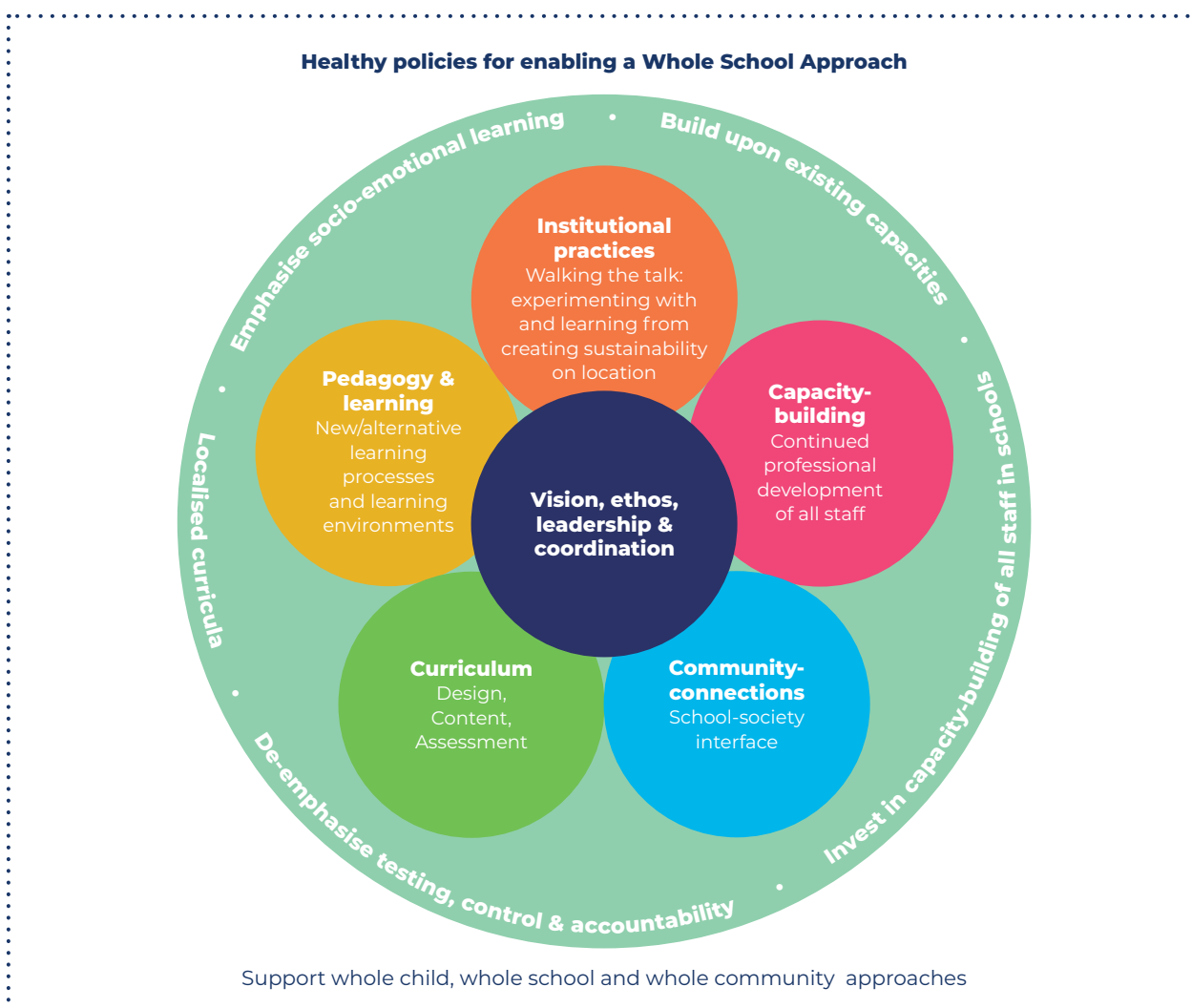


Figure 2: Healthy policies for enabling a Whole School Approach, adapted from Wals & Mathie (2022)

IV Appendix

Endnotes

- 1: Gough, A. (2020). Transforming education through schools: Trials, tribulations and tensions. In A. Gough, J. Lee, & E. Tsang (Eds.), *Green schools globally: Stories of impact on education for sustainable development* (pp. 412–438). Springer
- 2: Gough, A. (2020). Transforming education through green schools: Trials, tribulations and tensions. In A. Gough, J. Lee, & E. Tsang (Eds.), *Green schools globally: Stories of impact on education for sustainable development* (pp. 412–438). Springer.
- 3: Tannock, S. (2021). Curriculum Struggles: Knowledge, Truth ... Action? In *Educating for Radical Social Transformation in the Climate Crisis* (pp. 19–53). Cham: Springer International Publishing. p.32–33.
- 4: Wals, A.E.J & Mathie, R.G. (2022). Whole school responses to climate urgency and related sustainability challenges: A perspective from northern Europe. In: M. Peters & R. Heraud (Eds.), *Encyclopedia of educational innovation* (pp.). Springer. <https://doi.org/10.1007/978-981-13-2262-5>
- 5: See also; Sterling, S. (2004). Higher Education, Sustainability, and the Role of Systemic Learning. In P. B. Corcoran & A. E. J. Wals (Eds.), *Higher Education and the Challenge of Sustainability: Problematics, Promise, and Practice* (pp. 49–70). Dordrecht: Springer. And; Van Mierlo, Barbara & Halbe, Johannes & Beers, Pieter & Scholz, Geeske & Vinke-de Kruijf, Joanne. (2020). Learning about learning in sustainability transitions. *Environmental Innovation and Societal Transitions*. 34. 10.1016/j.eist.2019.11.001.
- 6: UNECE. (2021). Paper no. 6: Pre-final draft concept note for the post-2019 implementation framework: Strategic Document on ESD for the UNECE Region 2021-2030. Economic Commission for Europe Committee on Environmental Policy United Nations Economic Commission for Europe Steering Committee on Education for Sustainable Development Sixteenth meeting Geneva, 10–11th May 2021. Retrieved from: <https://unece.org/environment/documents/2021/05/working-documents/information-paper-no-6-pre-final-draft-concept-note>
- 7: UNESCO. (2021). Berlin Declaration on Education for Sustainable Development. UNESCO World Conference on Education for Sustainable Development. Retrieved from: <https://en.unesco.org/sites/default/files/esdfor2030-berlin-declaration-en.pdf>
- 8: European Commission (2022a). Proposal for a Council Recommendation on learning for environmental sustainability. 13 January 2022. European Commission, Directorate-General for Education, Youth, Sport and Culture. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=COM:2022:11:FIN&id=61842>; European Commission (2022b). Commission Staff Working Document Accompanying the document Proposal for a Council Recommendation on learning for environmental sustainability. European Commission. Retrieved from <https://education.ec.europa.eu/document/commission-staff-working-document-accompanying-the-document-proposal-for-a-council-recommendation-on-learning-for-environmental-sustainability>
- 9: Henderson, K., & Tilbury, D. (2006). Whole-school approaches to sustainability: An international review of sustainable school programs. *Australian Research Institute in Education for Sustainability: Australian Government*.
- 10: UNESCO. (2020). Education for sustainable development: a roadmap. Paris, France, UNESCO publishing.
- 11: Tilbury & Galvin (2022a). European Commission Input Paper: A Whole School Approach to Learning for Environmental Sustainability. Expert briefing paper in support of the first meeting of the EU Working Group Schools: Learning for Sustainability. European Commission. Retrieved from <https://education.ec.europa.eu/document/input-paper-a-whole-school-approach-to-learning-for-environmental-sustainability>. p. 11.
- 12: Henderson, K., & Tilbury, D. (2006). Whole-school approaches to sustainability: An international review of sustainable school programs. *Australian Research Institute in Education for Sustainability: Australian Government*.
- 13: Tilbury & Galvin (2022b). European Commission Input Paper: A Whole School Approach to Learning for Environmental Sustainability. Expert briefing paper in support of the first meeting of the EU Working Group Schools: Learning for Sustainability. European Commission. Retrieved from <https://education.ec.europa.eu/document/input-paper-a-whole-school-approach-to-learning-for-environmental-sustainability> p. 23.
- 14: Ed.Scotland. (2020). Whole school and community approach to learning for sustainability (Lfs) Self-evaluation and improvement framework. Retrieved from <https://education.gov.scot/improvement/self-evaluation/whole-school-and-community-approach-to-learning-for-sustainability-lfs-self-evaluation-and-improvement-framework/>
- 15: UNESCO. (2017). Education for sustainable development goals: Learning objectives, UNESCO Publishing.
- 16: COE. (2018). *Reference Framework of Competences for Democratic Culture – Volume 3. Guidance for implementation: Whole- school approach* (Vol. 3): Council of Europe
- 17: UNGEI. (2018). School-Related Gender-Based Violence (SRGBV): *A Whole School Approach to Prevent School-Related Gender-Based Violence - Minimum Standards and Monitoring Framework*. Retrieved from New York
- 18: Chopin, N., Hargis, K., & McKenzie, M. (2018). Building Climate-Ready Schools in Canada: Towards Identifying Good Practices in Climate Change Education. In: Sustainability and Education Policy Network, University of Saskatchewan.
- 19: Mogren, A., Gericke, N., & Scherp, H.-Å. (2019). Whole school approaches to education for sustainable development: A model that links to school improvement. *Environmental Education Research*, 25(4), 508–531.
- 20: Rowe, F., Stewart, D., . (2011). Promoting connectedness through whole-school approaches: Key elements and pathways of influence. *Health Education*, 111, 49–65. doi:10.1108/09654281111094973
- 21: Scott, B. (2005). Getting to the Heart of the Matter: Examining the Efficacy of a Whole-School Approach to Behaviour Management. *Kairaranga*, 6(1), 29–34.
- 22: Shallcross, T., Robinson, J., Pace, P. and Wals, A.E.J. (Eds.) (2006). *Creating Sustainable Environments in our Schools*. Stoke On Trent: Trentham Publishers, 205 p.
- 23: Shallcross, T., & Robinson, J. (2008). Sustainability education, whole school approaches, and communities of action. In *Participation and Learning* (pp. 299–320): Springer.
- 24: Mathar R. (2015) A Whole School Approach to Sustainable Development: Elements of Education for Sustainable Development and Students' Competencies for Sustainable Development. In: Jucker R., Mathar R. (eds) *Schooling for Sustainable Development in Europe*. Schooling for Sustainable Development, vol 6. Springer, Cham. https://doi.org/10.1007/978-3-319-09549-3_2
- 25: Mathar, R. (2016). Chapter 5. Global Development Education/ ESD - a task for the whole school. In T. Stukenberg (Ed.), *Curriculum Framework, Education for Sustainable Development - A contribution to the Global Action Programme. Education for Sustainable Development (Translation of German edition)* (pp. (pp. 401–419). Germany: Bonn: Engagement Global gGmbH.
- 26: Hunt, F., King, R. P. (2015). Supporting whole school approaches to global learning: focusing learning and mapping impact.
- 27: Bosevska, J., & Kriewaldt, J. (2020). Fostering a whole-school approach to sustainability: learning from one school's journey towards sustainable education. *International Research in Geographical and Environmental Education*, 29(1), 55–73. doi:10.1080/10382046.2019.1661127
- 28: The Whole School Approach Flower Model with its 6 key components (adapted from Wals and Mathie, 2022)

- 29: Sterling, S. (2004). Higher Education, Sustainability, and the Role of Systemic Learning. In P. B. Corcoran & A. E. J. Wals (Eds.), *Higher Education and the Challenge of Sustainability: Problematics, Promise, and Practice* (pp. 49-70). Dordrecht: Springer Netherlands.
- 30: Scientix Ambassador. <http://www.scientix.eu/>
- 31: See also – Global School Program article on Activity book on sustainable Development goals for kids. <https://www.globalschoolsprogram.org/post/activity-book-on-sustainable-development-goals-sdgs-for-kids>
- 32: NGO Tagma - <https://somostagma.com/>
- 33: ASP net schools (By Ministry of Education, Culture, Sports, Science and Technology) <https://www.mext.go.jp/en/unesco/title04/detail04/1373243.htm>
- 34: UNESCO World Conference on Education for Sustainable Development <https://www.city.okayama.jp/kurashi/0000005287.html>
- 35: Okayama Prefecture UNESCO Associated High Schools Network <http://www.okayama-tbox.jp/esd/pages/10369>
- 36: Yakage High School HP. <http://www.yakage.okayama-c.ed.jp/index.php>
- 37: Van Poeck, K, König, A. Wals, A.E.J. (2018) Environmental and sustainability education in the Benelux countries: research, policy and practices at the intersection of education and societal transformation, *Environmental Education Research* 24 (9), 1234-1249.
- 38: SME-Advies. <https://sme.nl/> Also. SME Eco-Schools <https://eco-schools.nl/begeleidersoverzicht/sme>
- 39: Leren Voor Morgen. Whole School Approach to Sustainable Development. <https://wholeschoolapproach.lerenvoormorgen.org/en/>
- 40: Eco-Schools Global. <https://www.ecoschools.global/>
- 41: Eco-Schools Seven steps how it works. <https://eco-schools.nl/en/about-eco-schools/how-it-works>
- 42: Eco-Schools Netherlands. <https://eco-schools.nl/en/about-eco-schools/international>
- 43: Zone College. <https://zonecollege.nl/over-zone-college/> and Zone college website – about (in English) <https://zonecollege.nl/over-zone-college/#international>
- 44: South Africa Curriculum Assessment Policy Statements. [https://www.education.gov.za/Curriculum/CurriculumAssessmentPolicyStatements\(CAPS\).aspx#:~:text=A%20National%20Curriculum%20and%20Assessment%20Policy%20Statement%20is%20a%20single,Curriculum%20Statement%20Grades%20R%20%2D%2012](https://www.education.gov.za/Curriculum/CurriculumAssessmentPolicyStatements(CAPS).aspx#:~:text=A%20National%20Curriculum%20and%20Assessment%20Policy%20Statement%20is%20a%20single,Curriculum%20Statement%20Grades%20R%20%2D%2012)
- 45: Lotz-Sisitka, H. (2011). Teacher professional development with an Education for Sustainable Development focus in South Africa: Development of a network, curriculum framework and resources for teacher education. *Southern African Journal of Environmental Education*, 28, 30-71. P. 31 & 35.
- 46: The Wildlife and Environment Society of South Africa website. <https://wessa.org.za/>
- 47: Eco-Schools Programme South Africa. <https://wessa.org.za/our-work/schools-programme/wessa-eco-schools/>
- 48: Amanzimtoti primary school website, about Eco-Schools <http://amanzimtotiprimary.co.za/eco-school-programme/>
- 49: Eco-School Policy. <https://www.pitlochrys.co.za/eco-policy.html>
- 50: Amanzimtoti Primary School – Eco-School programme. <http://amanzimtotiprimary.co.za/eco-school-programme/>
- 51: One Planet Network. <https://www.oneplanetnetwork.org/about/the-one-planet-network>
- 52: Eco-Schools South Africa WESSA. <https://wessa.org.za/our-work/schools-programme/wessa-eco-schools/>
- 53: Mpact recycling company <https://www.mpact.co.za/about-us>
- 54: Indwe Learning Centre <https://www.backabuddy.co.za/charity/profile/indwe-learning-centre>
- 55: Permaculture Principle. <https://www.permaculture.org.uk/knowledge-base/basics>
- 56: Jojo water tank system <https://www.jojo.co.za/>
- 57: MiniSASS assessment tool for river monitoring. <http://www.minisass.org/en/>
- 58: Ecobrick Alliance. <https://ecobricks.org/en/welcome.php>
- 59: Clean Surf Project Instagram information page. <https://www.instagram.com/cleansurfproject/>
- 60: WESSA Twin-Streams environmental education training centre. <http://www.wessabookings.co.za/>
- 61: CCSSI. (2022). Home | Common Core State Standards Initiative. <http://www.corestandards.org/>
- 62: Feinstein, N. W., & Kirchgasser, K. L. (2015). Sustainability in Science Education? How the Next Generation Science Standards Approach Sustainability, and Why It Matters. *Science Education*, 99(1), 121–144. <https://doi.org/10.1002/sce.21137>
- 63: Feinstein, N. W., & Carlton, G. (2013). Education for Sustainability in the K-12 Educational System of the United States. In R. McKeown & V. Nolet (Eds.), *Schooling for Sustainable Development in Canada and the United States* (pp. 37–49). Springer International Publishing. http://link.springer.com/chapter/10.1007/978-94-007-4273-4_3 p. 121.
- 64: Niche. (2022). 2022 Most Diverse Private High Schools in Illinois. Retrieved February 22, 2022, from <https://www.niche.com/k12/search/most-diverse-private-high-schools/s/illinois/>
- 65: Sterling, S. (2013). The Future Fit Framework: An Introductory Guide to Teaching and Learning for Sustainability in HE (Guide). *Journal of Education for Sustainable Development*, 7(1), 134–135. <https://doi.org/10.1177/0973408213495614b>
- 66: P21 (2009). *P21 Framework. Partnership for 21st Century Skills*. <https://files-eric-ed.gov/fulltext/ED519462.pdf>
- 67: World Economic Forum (2015). *New Vision for Education Unlocking the Potential of Technology*. World Economic Forum. https://www3.weforum.org/docs/WEFUSA_NewVisionforEducation_Report2015.pdf
- 68: Freire, P. (2018). Pedagogy of the oppressed. (M. B. Ramos, Trans.) (50th anniversary). Bloomsbury Academic.
- 69: Cyprus Pedagogical Institute (CPI). (2012). “*Οδηγός Εφαρμογής Προγράμματος Σπουδών Περιβαλλοντικής Εκπαίδευσης/Εκπαίδευσης για την Αειφόρο Ανάπτυξη για τους Εκπαιδευτικούς της Δημοτικής Εκπαίδευσης*” [Guide for primary teachers for implementing the curriculum for environmental education/education for sustainable development]. Nicosia: MoEC/CPI/CDU.
- 70: Ministry of Education and Culture (MoEC) (2016). “ESD Indicators for primary education curricula”, Retrieved from: http://www.moec.gov.cy/dkpe/synedria_seminaria/2018_diktyo_diefthynton_eparchias_lefkosias/final_deiktos_epitixias_kai_eparkeias_analytikou_perivallontikis_aeiforou.pdf
- 71: Cyprus Pedagogical Institute (CPI). (2012). “*Εφαρμογή του Προγράμματος Σπουδών Περιβαλλοντικής Εκπαίδευσης/Εκπαίδευσης για την Αειφόρο Ανάπτυξη για τους Εκπαιδευτικούς της Δημοτικής Εκπαίδευσης*». [Guide for primary teachers for implementing the curriculum for environmental education/education for sustainable development], Nicosia: MoEC/CPI/CDU.
- 72: Zachariou, A. (2012). “*Basic steps for implementing the curriculum of environmental education/ education for sustainable development. Paper presented in inspectors training courses for New National Curriculum*”. Nicosia.
- 73: Zachariou, A. (2013). “*Teacher education for sustainable development: Cyprus example*”. Retrieved from: http://www.unece.org/fileadmin/DAM/env/esd/8thMeetSC/Presentations/Cyprus_teacher_education.pdf
- 74: See also *Cyprus National Report on implementation of the UNECE Strategy for Education for Sustainable Development 2017-2019*, Available at: https://unece.org/DAM/env/esd/Implementation/NIR_2018/Final_Cyprus_3rd_evaluation_Cycle_2017-2019_.pdf (p. 47-51)
- 75: Specialist Independent Education. <https://www.rmt.org/course-subjects/>
- 76: Image: Tutor and student working collaboratively in the forge - <https://www.rmt.org/our-method/>
- 77: RMT (2022). Our curriculum and method: Practical Skills Therapeutic Education and Seven Fields of Practice. <https://www.rmt.org/our-method/>
- 78: Gordon, A et al. (2012). Reimagining Potential the Development and Validation of Practical Skills Therapeutic Education: A collaborative Action Inquiry. R.S.U.C. Rudolf Steiner University College Masters Programme Educational Action Research: Oslo.
- 79: Cox. L. (Eds) (2021). The Field Centre Journal of Research and Practice journal 5, Summer/Autumn issue. Online open access: <https://www.thefieldcentre.org.uk/journal> (100pages). Image credit, p.49.
- 80: Cox. L. (Eds) (2021). The Field Centre Journal of Research and Practice journal 5, Summer/Autumn issue. Online open access: <https://www.thefieldcentre.org.uk/journal> (100pages). Image credit, p.49.
- 81: Briggs, M. (2014) *What are the therapeutic and Pedagogical Benefits of Craft for Impulse Control related Disorders within the SEN Further Education Sector*. MSc Dissertation. UWE University, UK
- 82: NITI Aayog. <http://www.niti.gov.in/>

- 83: India's Central Board of Secondary Education. <https://www.cbse.gov.in/>
- 84: Center for Environment Education (CEE). <https://www.ceeindia.org/>
- 85: ASN Sr. Secondary School WSA report. <https://www.asnschool.org/asn-sr.sec/pdf/WSAreport-SDG.pdf>
- 86: Delhi Public School, Nadergul and Sustainable Development Goal 4- Quality Education for All report. <https://www.dpsnadergul.in/wp-content/uploads/2022/03/SDG4-4-1.pdf>
- 87: Fairtrade Schools – Fair Aware Award <https://schools.fairtrade.org.uk/fairtrade-schools-awards/how-to/>
- 88: Eco-School India. <https://www.ecoschools.in/>
- 89: National Geographic Learning. <https://eltngl.com/>
- 90: Independent Schools Act. Ministry of education and Research. <https://lovdata.no/dokument/NLE/lov/2003-07-04-84>
- 91: Montessori Norway 2030 agenda. <https://montessori2030.org/drobak-montessori-ungdomsskole-powerhouse/>
- 92: Montessori Norway 2030 website. <https://montessori2030.org>
- 93: Ingrid Stange and Nina Johansen presentation. *Implementing the UN Sustainable Development Goals in Montessori Settings - Montessori 2030*. Montessori Europe's Sustainability Day held in 27-02-2021: https://www.youtube.com/watch?v=g_loQqHZOQs
- 94: School gardening continued education course. <https://montessorinorge.no/gronn-etterutdanning/>
- 95: UN Norway. <https://www.fn.no/>
- 96: School Vision Drøbak Montessori Secondary school. <https://drobakmontessori.no/in-english/#1593664973014-608d4d91-1f71>
- 97: Montessori Model United Nations. <https://montessori-mun.org/>
- 98: Mervi Flugsrud translated from Norwegian. <https://montessori2030.org/drobak-montessori-ungdomsskole-powerhouse/>
- 99: Montessori cosmic education curriculum, in English. <https://www.montessoricurriculum.org.au/cosmic-education>
- 100: Eco-Schools Norway. <https://grontflagg.fee.no/>
- 101: The Natural School-bag. <https://www.natursekken.no/>
- 102: Hong Kong Education Bureau Environmental Reports. https://www.edb.gov.hk/attachment/en/about-edb/publications-stat/environmental-report/Environmental%20Report%202020_EN_final.pdf
- 103: Hong Kong Environmental Bureau. <https://www.enb.gov.hk/en/susdev/public/sop.htm>
- 104: Hong Kong Government Programs for Environmental Education and Awareness in Hong Kong. https://www.epd.gov.hk/epd/english/envir_education/enviredu_aware/overview.html
- 105: Metanoia's website. <http://www.metanoia-eco.com/>
- 106: Metanoia's School Sustainability Assessment Tool. <https://bit.ly/34psi27>
- 107: Chinese International School Website. <https://www.cis.edu.hk/>
- 108: The Alliance for Sustainable Schools. <https://www.dropbox.com/s/us0in531x50v8ig/2022.02%20General%20-%20TASS%20Infodeck.pdf?dl=0>
- 109: International Baccalaureate website. <https://www.ibo.org/>
- 110: Finnish curriculum, ePerusteet. Retrieved from: <https://eperusteet.opintopolku.fi/#/fi/perusopetus/419550/tekstikappale/426523>
- 111: Mykrä, Niina. (2021). p.327, chapter 6. *Basic education building sustainable future – challenges and possibilities Dissertation*. (Abstract in English page 11) Retrieved from: 978-952-03-1878-9.pdf (tuni.fi)
- 112: Nature School of Tampere, KORENTO. www.tampere.fi/luontokoulu
- 113: Green flag (Eco-Schools) Foundation for Environmental Education, Finland. <https://feesuomi.fi/>
- 114: Also discussed in. Mykrä, Niina. (2021). p.322, chapter 6. *Basic education building sustainable future – challenges and possibilities Dissertation*. Retrieved from: 978-952-03-1878-9.pdf (tuni.fi)
- 115: MAPPA-material bank. Retrieved from www.mappa.fi
- 116: LYKKY /LYKE-network. Retrieved from: What is LYKE-network? - LYKE-verkosto (luontokoulut.fi)
- 117: Finnish UN. <https://www.ykliitto.fi/kasvattajille/yk-osaksi-opetusta/kestava-kehitys-haltuun-verkkokurssi>
- 118: SYKLI Environmental School of Finland, Sustainable skills. <https://sykli.fi/sykli-creating-environmental-experts/>
- 119: Learning for a Sustainable Future framework. <https://lsf-ist.ca/about/>
- 120: The Council of Ministers of Education (2020). Ensuring inclusive and equitable quality education: Sustainable Development Goal 4 in Canada. p.40-41. <https://www.cmec.ca/Publications/Lists/Publications/Attachments/407/Sustainable%20Development%20Goal%204%20in%20Canada%20EN.pdf>
- 121: Sustainable Future school. <https://lsf-ist.ca/>
- 122: Susan Elliot (2021). A Whole School Approach to teaching the UN Sustainable Development Goals. Retrieved from <https://www.edcan.ca/articles/a-whole-school-approach-to-teaching-the-un-sustainable-development-goals/>
- 123: Credit Valley Conservation Authority. <https://cvc.ca/>
- 124: Eco Caledon's 'Just Eat it' <https://ecocalledon.org/just-eat-it-caledon-food-waste-challenge/>
- 125: Kazakhstan National Curriculum Reform. https://www.inform.kz/en/kazakhstan-launches-environmental-education-project_a3657454
- 126: International British curriculum website. <https://world-schools.com/the-british-curriculum-guide/#:~:text=The%20British%20Curriculum%20is%20a%20rigorous%20program%20of%20study%20that,their%20learning%20and%20life%20skills>
- 127: Climate Psychology Alliance <https://www.climatepsychologyalliance.org/>
- 128: Anon, (n.d.). *Little Hands Design 20th Birthday Book- "Looking Good without Harming our World"* | *Little Hands Design Sewing and Crafts Classes London*. [online] Available at: <https://littlehandsdesign.com/product/lhd-book-2/>
- 129: Haileybury Almaty School website. <https://www.haileybury.kz/en/almaty/sustainability>
- 130: Climate Action Project: <http://www.climate-action.info/about/>
- 131: Scholars for Sustainability' Climate Action Project videos. <https://www.haileybury.kz/en/almaty/climate-action-projects-by-haileybury-almaty-scholars>
- 132: Little Hands Design website – <https://littlehandsdesign.com/>
- 133: Anon, (n.d.). *Little Hands Design 20th Birthday Book- "Looking Good without Harming our World"* | *Little Hands Design Sewing and Crafts Classes London*. [online] Available at: <https://littlehandsdesign.com/product/lhd-book-2/>
- 134: UNEP Green nudges website. <https://www.unep.org/explore-topics/education-environment/what-we-do/little-book-green-nudges#:~:text=What%20is%20the%20Little%20Book,concise%20and%20user%2Dfriendly%20publication>
- 135: Anon, (n.d.). *Little Hands Design 20th Birthday Book- "Looking Good without Harming our World"* | *Little Hands Design Sewing and Crafts Classes London*. [online] Available at: <https://littlehandsdesign.com/product/lhd-book-2/>
- 136: Haileybury Climate Charter. https://www.haileybury.kz/storage/uploaded/236031909662304a357adc12.64634241_Haileybury%20Climate%20Charter.pdf
- 137: MOEST. 2019. Sustainable Development Goal 4: Education 2030. Nepal National Framework. [https://moe.gov.np/assets/uploads/files/SDG_4_Nepal_National_Framework_\(Final_Print_Ready_Copy\)_July_2020.pdf](https://moe.gov.np/assets/uploads/files/SDG_4_Nepal_National_Framework_(Final_Print_Ready_Copy)_July_2020.pdf)
- 138: Upreti, Y. R., Bastien, S., Bjønness, B., & Devkota, B. (2021). The socio-ecological model as a framework for understanding junk food consumption among schoolchildren in Nepal. *Nutrition and Health*, 27(3), 337-346.
- 139: Namobuddha Municipality. (2022). Namobuddha Municipality "Agriculture, Trade and Tourism: Our Strong Campaign". Retrieved on February 19, 2022 from <https://namobuddhamun.gov.np/en/node/4>
- 140: Science, Technology, Engineering, the Arts and Mathematics (STEAM). <https://artsintegration.com/what-is-steam-education-in-k-12-schools/>
- 141: Andresen, M. U., Høgmo, N., & Sandås, A. (2015). Learning from ESD projects during the UN Decade in Norway. In *Schooling for Sustainable Development in Europe* (pp. 241-255): Springer.
- 142: Sandås, A. (2018). The story of ENSI in Norway and its impact on the Norwegian strategy for ESD. In C. Affolter & A. Varga (Eds.) *Environment and School Initiatives: Lessons from the ENSI Network-Past, Present and Future* (pp. 88-97). Budapest Environment and School Initiatives ENSI. P.89
- 143: Core curriculum – values and principles for primary and secondary education. Retrieved from <https://www.udir.no/lk20/overordnet-del/?lang=eng>
- 144: UDIR. (2020). Core curriculum: Interdisciplinary topics Retrieved from <https://www.udir.no/lk20/overordnet-del/prinsipper-for-laring-utvikling-og-danning/tverrfaglige-temaer/?lang=eng>
- 145: Lejonberg, E., Elstad, E., & Hunskaar, T. S. (2017). Behov for å utvikle "det tredje rom" i relasjonen mellom universitet og praksisskoler. *Uniped*, 40(1), 68-85.
- 146: Sterling, S. (2004). Higher Education, Sustainability, and the Role of Systemic Learning. In P. B. Corcoran & A. E. J. Wals (Eds.), *Higher Education and*

- the Challenge of Sustainability: Problematics, Promise, and Practice* (pp. 49-70).
- 147: Bjønness, B., Sinnes, A. T., (2019). Hva hemmer og fremmer arbeidet med Utdanning for Bærekraftig Utvikling i videregående skole? *Acta Didactica Norge*, 13(2), 4-20 sider.
- 148: Swiss Agency for Cooperation and Development website. <https://www.eda.admin.ch/countries/mongolia/en/home/representations/cooperation-office.html>
- 149: ESD web-based platform for teachers in Mongolia. <http://www.esd.mn/>
- 150: Eco-Schools www.ecoschools.mn
- 151: See also - FEE Mongolia - <https://www.feemongolia.mn/>
- 152: Swiss Agency for Cooperation and Development 2019 fact sheet. <https://www.eda.admin.ch/countries/mongolia/en/home/international-cooperation/projects.html/content/dezaprojects/SDC/en/2013/7F08784/phase2.html?oldPagePath=/content/countries/mongolia/en/home/internationale-zusammenarbeit/projekte.html>
- 153: Dinçel, D. (2019). *Türkiye’de sivil toplum kuruluşlarının çevre ideolojileri ve çevre eğitimleri [Environmental ideologies and environmental education programs of non-governmental organizations in Turkey]*. Unpublished dissertation. Ankara University.
- 154: Republic of Türkiye, Ministry of Development [RTMD]. (2016). Report on Türkiye’s initial steps towards the implementation of the 2030 agenda for sustainable development. Ankara: Ministry of Development.
- 155: Republic of Türkiye, Ministry of Development [RTMD]. (2012). Türkiye’s sustainable development report: Claiming the future. Ankara: Ministry of Development.
- 156: Ministry of National Education (MoNE) (2018a). Fen bilimleri dersi öğretim programı (3-8. sınıflar) [Science course curriculum (grades 3-8)]. Retrieved from <http://mufredat.meb.gov.tr/ProgramDetay.aspx?PID=325>
- 157: Ministry of National Education (MoNE) (2018b). Sosyal bilgiler dersi öğretim programı (4-7. Sınıflar) [Social science course curriculum (grades 4-7)]. Retrieved from <http://mufredat.meb.gov.tr/ProgramDetay.aspx?PID=354>
- 158: Sıfır Atık [Zero Waste] (2021). Sıfır atık nedir? [What is zero waste?] Retrieved from <https://sifiratik.gov.tr>
- 159: Zero Waste Project. <http://zerowaste.gov.tr/>
- 160: Ministry of National Education [MoNE] (2022). Çevre ve iklim dostu okullar politikası. [Environment and climate friendly schools policy]. Retrieved from <https://www.meb.gov.tr/yuz-yuze-egitime-gecis-surecindeki-projeler-yuz-yuze-egitime-donuste-180-gun-adiyla-kitaplastirildi/haber/25297/tr>
- 161: Ministry of National Education [MoNE] (2022). Çevre ve iklim dostu okullar politikası. [Environment and climate friendly schools policy]. Retrieved from <https://www.meb.gov.tr/yuz-yuze-egitime-gecis-surecindeki-projeler-yuz-yuze-egitime-donuste-180-gun-adiyla-kitaplastirildi/haber/25297/tr>
- 162: Türkiye Çevre Eğitimi Vakfı [TÜRÇEV] (2021). Eko-Okullar [Eco-Schools]. Retrieved from <http://www.turcev.org.tr/V2/Default.aspx>
- 163: Taşar, M. F. (2020). Impact of the eco-schools program on Education for Sustainable Development in Turkey. In A. Gough, J. C.-K. Lee, & E. P. K. Tsang (Eds.), *Green schools globally: Stories of impact on education for sustainable development*. Cham: Springer.
- 164: ODTÜ GV school blog. <https://cevreciogvo.wordpress.com/>
- 165: Bennell, S. J. (2015). Education for sustainable development and global citizenship: Leadership, collaboration, and networking in primary schools. *International Journal of Development Education and Global Learning*, 7(1), 5–32 and; Carr, K. (2016). Leading sustainability in schools. *Management in Education*, 30(3), 126-130. <https://doi.org/10.1177/0892020616653177>
- 166: Young Reporters for the Environment. <https://www.yre.global/>
- 167: CEA (2022). Northern Ireland Statutory curriculum. retrieved from. <https://ccea.org.uk/learning-resources/statutory-curriculum-key-stage-3>
- 168: Eco-Schools Northern Ireland. <https://www.eco-schoolsni.org>
- 169: Translink 25th Anniversary Eco-Schools webinar presentation. Retrieved from. <https://www.youtube.com/watch?v=v0inE10pCSI>
- 170: Translink Case study <https://www.eco-schoolsni.org/eco-schoolsni/documents/006834.pdf>
- 171: Global Learning case study <https://www.globalllearningni.com/case-studies/ulidia-integrated-college>
- 172: CO26 Teacher event report https://drive.google.com/file/d/19al18uYUsar3CqZIJOT_YqAdEy5YPo-/view
- 173: Freire, P. (2018). *Pedagogy of the oppressed*. (M. B. Ramos, Trans.) (50th anniversary). Bloomsbury Academic.
- 174: European Commission Whole Government Approach to Sustainable Development. Retrieved from: https://ec.europa.eu/info/strategy/international-strategies/sustainable-development-goals/eu-holistic-approach-sustainable-development_en

Report contributors portraits

A big thank you to all the contributors!

The faces behind the names:

(from the top left to bottom right)

Cecilie Fosseidbråten, Norway
 Sasha Manu, Hong Kong
 Jenni Skaffari, Finland
 Hiroko Shibakawa, Japan
 Kiran Kanna, India
 B. Rakesh, India
 Chetna Bhardwaj, India
 Ingrid Eikeland, Norway
 Henning Johannessen, Norway
 Guliz K. Semiz, Türkiye
 Aaron Moring-D'angier, USA
 Janice Haines, Canada
 Khushbu Shah, India
 Matt Briggs, UK
 Mita Goswami, Mongolia
 Jun Takagi, Japan
 Arefa Haffeejee, South Africa
 Aravella Zachariou, Cyprus
 Aonghus Gordon, UK
 Nisha M Subba, Nepal
 Nomfundo Ndlovu, South Africa
 Sean Lynch, Hong Kong
 Pinar D. Atay, Türkiye
 Renuka Rawat, India
 Astrid Jacoby Kazakhstan
 Bal C Luitel, Nepal
 Berit Ørjasæter, Norway
 Roshani Rajbanshi, Nepal
 Victoria Astle, Hong Kong
 Shinetsetseg Erdenebayar, Mongolia
 Snorre Nordal, Norway
 Stephanie Leite, USA
 Bimsen Devkota Nepal
 Çelebi Kalkan, Türkiye
 Cindy-Lee Cloete, South Africa
 Swarnima Luthra, India
 Teena Shilpakar, Nepal
 Vasilis Papastavrou, Cyprus
 Mansi Shah, India
 Zolzaya. M, Mongolia
 Padma Jyothi Turaga, India
 Diamando Georgiou, Cyprus
 Diego Posada, Uruguay
 Caitlin Shem, Hong Kong
 Sandra Patterson, Northern Ireland
 Pamela Gibson, Canada
 Vivian Siebering, The Netherlands
 Anthony Dixon, Hong Kong
 Fulda Bol, Türkiye
 Katri Korpi, Finland
 Keith Griffiths, UK
 Nina Johansen, Norway
 Siri Dybdal, Norway
 Nicolette Tauocchio, The Netherlands
 Rosalie Mathie, Norway
 Arjen Wals, The Netherlands





