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Integrating Education for Sustainable Development (ESD) in Teacher Education in South-East Asia

A Guide for Teacher Educators

Global Action Programme
on Education for Sustainable
Development

Education 2030

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United Nations
Educational, Scientific and
Cultural Organization

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Integrating Education for Sustainable Development (ESD) in Teacher Education in South-East Asia

A Guide for Teacher Educators

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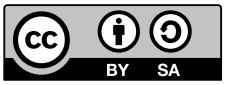

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Acronyms

ARIES	Australian Research Institute in Education for Sustainability
CNU	Cebu Normal University
CTU	Cebu Technological University
UNDESD	United Nations Decade of Education for Sustainable Development
DRR	Disaster Risk Reduction
EFS	Education for Sustainability
ESD	Education for Sustainable Development
IRRM	Indonesian River Restoration Movement
KTTC	Khangkhay Teacher Training College
LTTC	Luang Prabang Teacher Training College
MGIEP	MGIEP – Mahatma Gandhi Institute for Peace and Sustainable Development
NIE	National Institute of Education (Cambodia)
PAR	Participatory Action Research
PBL	Project-Based Learning
PNU	Philippine Normal University
RSM	River School Movement
SCP	Sustainable Consumption and Production
SDGs	Sustainable Development Goals
SEAMEO	Southeast Asian Ministers of Education Organization
TEI	Teacher Education Institution
TLSF	Teaching and Learning for a Sustainable Future
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
WCED	World Commission on Environment and Development
UGM	Universitas Gadjah Mada
USJ-R	University of San Jose-Recoletos

Foreword

Education is at the heart of creating a more sustainable future. A just and peaceful society cannot be attained without everyone learning to live together sustainably. By empowering all of us to change the way we think and act, Education for Sustainable Development (ESD) aims to transform society towards peace and sustainability through reorienting education and learning. As the UN General Assembly recognizes in its resolution **72/222** adopted in December 2017, ESD is 'a vital means of implementation for sustainable development' and 'a key enabler' of all the Sustainable Development Goals (SDGs).

The role of the teacher is crucial in fostering citizens who make informed and conscious decisions for a sustainable future. Teachers can act as key change agents in transforming education and society. By integrating ESD in teacher education, learning methods and content can be reoriented towards sustainability. It is in this context that building the capacities of teachers and educators has been identified as a priority action area by the **Global Action Programme (GAP) on ESD**, which provides the international framework for accelerating and scaling up ESD actions in countries around the world.[1]

As part of the GAP initiative, this publication, *Integrating Education for Sustainable Development (ESD) in Teacher Education in South-East Asia: A Guide for Teacher Educators*, was developed. It aims to support teacher educators in exploring their own methods of integrating ESD, thereby making education more relevant and responsive to the critical sustainability challenges of the local community, the country, the South-East Asia region and the world. We hope that this guide will be useful for all those seeking to incorporate sustainability concepts, principles and values in teaching and learning in order to contribute to a peaceful, prosperous and sustainable society.

Shigeru Aoyagi
Director
UNESCO Bangkok

1 To learn more about GAP, see UNESCO, 2018, UNESCO Global Action Programme on Education for Sustainable Development: Information Folder, Paris, UNESCO. Available at: http://unesdoc.unesco.org/images/0024/002462/246270e.pdf

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The development of this publication was led and coordinated by Ushio Miura of the Section for Educational Innovation and Skills Development, UNESCO Bangkok, in close collaboration with Ethel Agnes P. Valenzuela of the SEAMEO Secretariat. We would like to express our profound gratitude to the lead author of this guidebook Jose Roberto Guevara of RMIT University (Australia). We also thank Julie Harris, Environment Education Victoria (Australia), Fumiko Noguchi, RMIT University (Australia), Linsell Richards, University of Oslo (Norway) and Chariya Chiumkanokchai, UNESCO Bangkok, who provided research and writing support during this process.

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Last, but not least, we would like to express our deep gratitude to the Ministry of Education, Culture, Sports, Science and Technology (MEXT) of Japan for their financial support, which made this project possible.

PART I

ESD Integration in Teacher Education

1 Introduction

1.1 The ESD integration guidebook: what does it aim to achieve?

Integrating Education for Sustainable Development (ESD) in teacher education is both an opportunity and a challenge. Teachers can play a vital role in transforming society towards sustainability, and if they are to play this role effectively, the integration of ESD in teacher education is one of the most essential requirements. With this in mind, this guidebook aims to:

- **Develop the capacity of teacher educators to understand the concepts and practices of ESD integration;**
- **Develop the capacity of teacher educators to institutionalize ESD within teacher education institutions.**

An action research approach to ESD integration is at the core of this guidebook. It is not an ESD textbook. Neither is it a manual for teaching ESD. Nor does it provide a ready-made ESD curriculum. Specifically, it is a guide to help you create your own ESD integration journey through an action research approach. By so doing, this guidebook hopes to make a contribution to the global efforts to achieve the UN Sustainable Development Goals (SDGs).[2]

1.2 How to use the guidebook

The content and structure of this guidebook is informed by an ESD Integration Framework that recognizes the need for a holistic and integrated method for successful ESD integration. We offer the framework not as a top-down prescription, but as a guide for self-assessment, planning, action, evaluation and dissemination of ESD integration efforts. This guidebook takes readers through a step-by-step action research approach that is mapped to the ESD Integration Framework that can be applied to a wide range of teacher education programmes and practices.

ESD values active participation and engagement. We hope this guidebook will be used by individuals and groups involved in ESD in teacher education.

The guidebook can be a relevant resource for deans of education and any other course/curriculum developers working with teacher trainers/educators. We invite you to identify what is locally relevant and appropriate to your specific institution. This could be informed by your country's national development and policy context and your own local community and institutional situations.

The guidebook can also be adapted for use by teacher trainers/educators working directly with both pre-service and in-service teachers and by pre-service and in-service teachers themselves. Our hope is that you will develop an appreciation of the holistic nature of ESD, as an integrating framework that can provide relevance to teaching by continually being grounded in the realities of the students, the schools and communities that you will find yourselves engaged with.

2 To learn more about the SDGs, see United Nations, 2015, *Transforming Our World: The 2030 Agenda for Sustainable Development*, New York, United Nations. Available at: http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E

The guidebook builds on the recognition that there already exist various ESD resources and good practice stories for teacher educators to help teachers integrate ESD. The guidebook draws from and invites you to build on these rich resources and practices, while maintaining awareness of the diverse contexts of South-East Asia. When relevant, we invite you to access these resources, which will hopefully encourage you to expand the library of resources for you to adapt to your own context.

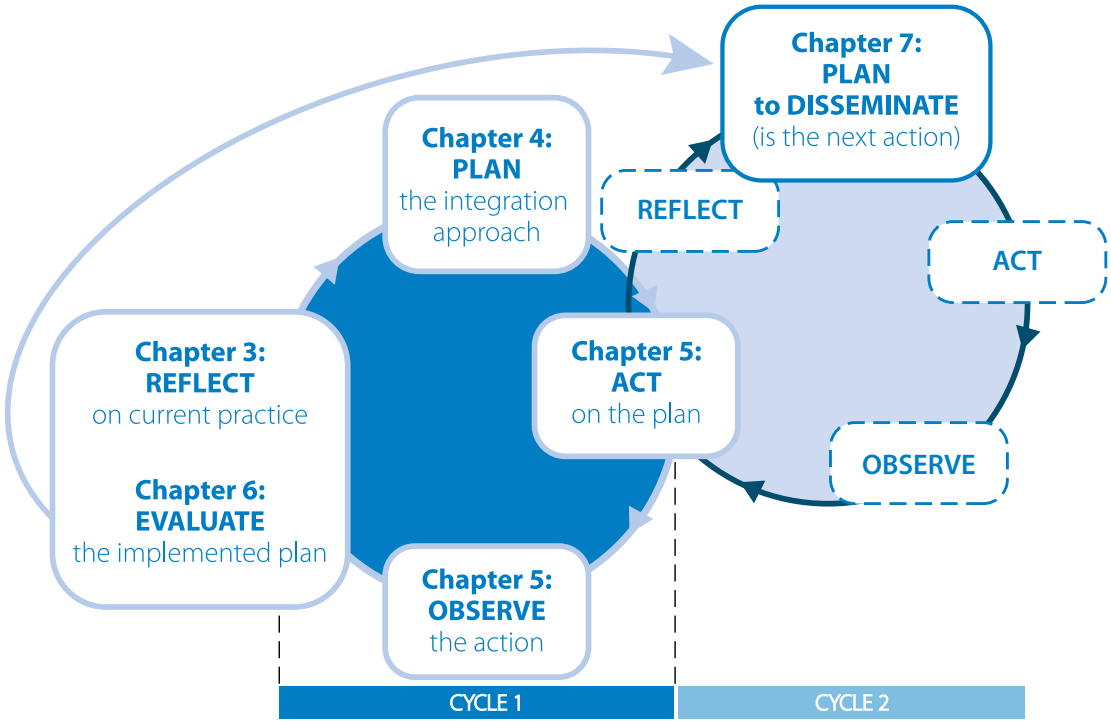
Our hope is that this guidebook will be planted like a seed in various places across South-East Asia, where the fertile soils can nurture the development of grounded and locally relevant ESD integration. We encourage you to share your stories of how you have overcome the challenges to achieve success. We await a richer harvest.

1.3 Structure and content: a preview

Part I of the guidebook provides the overview, with **Chapter 1** describing the purpose, structure, content and approach adopted by the guidebook.

Chapter 2 introduces the three key foundations of the guidebook, namely: the understanding of ESD as the **CONCEPTUAL** core; the appreciation of the holistic nature of ESD integration as the **FRAMEWORK** that guides the process; and the grasp of the **OPERATIONAL** approach guided by action research. Each of these key foundations is further expanded in succeeding chapters, which are structured based on the **ACTION RESEARCH** approach. This is best illustrated through the growing cycles of **REFLECT, PLAN, ACT** and **OBSERVE, REFLECT/EVALUATE** and **REVISE/PLAN/DISSEMINATE** of ESD integration. *(Figure 1)*

Figure 1: Mapping the chapters to the action research cycle[3]



3 Adapted from the 'ARIES action research cycles' in F. Steele, 2010, *Mainstreaming education for sustainability into pre-service teacher education in Australia: enablers and constraints*, Sydney, Australian Research Institute in Education for Sustainability (ARIES), p. 13. Available at: http://aries.mq.edu.au/projects/preservice3/Pre-Service_Teacher_Ed3.pdf

Successful ESD integration is essentially a merging of both concept and practice – often referred to as **PRAXIS**. Therefore, each chapter will weave both conceptual and practical elements within them. Each chapter will also include stories collected from various teacher education institutions across South-East Asia to help motivate and inspire you through seeing what others have achieved.

Part II describes in detail the operational steps involved in ESD Integration, guided by an action research approach.

Chapter 3 focuses on the need to **REFLECT** and recognize the urgency of integrating ESD in teacher education. This recognition needs to be grounded in the understanding of the concept of ESD through discovering the seeds of ESD in current teacher education practice. Therefore, we provide an overview of the concept of ESD as it relates to the growth of the vision of sustainable development. This understanding is then applied to a bottom-up approach that involves conducting your own situational analysis of the attempts, successes and challenges of ESD integration within your own institution.

Chapter 4 builds on the current situation that you discover as the foundation for the development of a **PLAN** for ESD Integration. This involves developing a shared vision together with relevant stakeholders who will take this ESD integration journey together with you.

Chapter 5 draws on the need to **ACT** with others and to **OBSERVE** as the plan is implemented. This chapter focuses on key principles identified from the experiences of educators in South-East Asia that will guide your ESD integration journey. These key actions are building capacity, crossing traditional disciplinary boundaries, engaging the whole institution and developing multi-stakeholder partnerships.

Chapter 6 formalizes the observation to **REFLECT/EVALUATE** on the process and outcomes of the plan as a basis for on-going improvement and learning. This chapter states the case that successful ESD integration requires both curriculum and institutional mainstreaming.

Chapter 7 challenges you to share and **DISSEMINATE** your new insights, skills and experience to other teacher-educators and institutions within your local area or networks.

At the end of this guidebook, we provide three **ANNEXES** of additional activities and resources. We encourage you to explore them. We also share a number of creative and participatory teaching and learning approaches developed specifically for this guidebook.

2 Education for Sustainable Development: An Overview

2.1 Understanding ESD

UNESCO's online tool ***Teaching and Learning for a Sustainable Future (TLSF)*** notes that the starting point of ESD is inextricably linked to the popularization of the term ***sustainable development***, especially by the 1987 report of the World Commission on Environment and Development (WCED) ***Our Common Future.***[4] It is useful to have an understanding of the birth of the concept of ESD and how the idea and practice of ESD continue to develop over time. By picking up, reading and implementing the contents of this guidebook you will be actively contributing to the growth and development of this critical element for achieving sustainable development.

2.1.1 What is sustainable development?[5]

TLSF argues that 'one of the most important outcomes of ***Our Common Future*** was the realization that environment and development issues are inextricably linked and therefore worrying about either environment or development on its own was inappropriate.'[6] The World Commission concluded that:

> Environment and development are not separate challenges. Development cannot subsist on a deteriorating environmental resource base; the environment cannot be protected when growth leaves out of account the costs of environmental destruction. These problems cannot be treated separately by fragmented institutions and policies. They are linked in a complex system of cause and effect.[7]

The WCED therefore argued for an approach to development that would take into account the relationship between ecological, economic, social and technological issues. The WCED called this 'sustainable development', defining it as: '…development that meets the needs of the present without compromising the ability of future generations to meet their own needs.'[8]

The ultimate goal of sustainable development is to improve the quality of life for all members of a community and, indeed, for all citizens of a nation and the world – while ensuring the integrity of the life support systems upon which all life, human and non-human, depends.

The next milestone in this ESD journey was the United Nations Conference on Environment and Development, also known as the Earth Summit, in Rio de Janeiro, Brazil, in June 1992. This event involved a gathering of 150 Heads of State who agreed to a global action plan for sustainable development called Agenda 21. In addition to Agenda 21, four new international treaties on climate change, biological diversity, desertification and high seas fishing were signed. The United Nations Commission on Sustainable Development was also established to monitor the implementation of these agreements and to act as a forum for the ongoing negotiation of international policies on environment and development.

4 TLSF is a significant educational resource. Although it is dated, having been developed for the Decade of ESD during the period of the Millennium Development Goals (MDGs), the content and overall approach is still informative. See UNESCO, 2010a, *Teaching and Learning for a Sustainable Future: a multimedia teacher education programme*. Paris, UNESCO. Available at: http://www.unesco.org/education/tlsf/

5 The text of section 2.1.1 is adapted from following section of UNESCO, 2010a, op. cit. Available at: http://www.unesco.org/education/tlsf/mods/theme_a/mod02.html

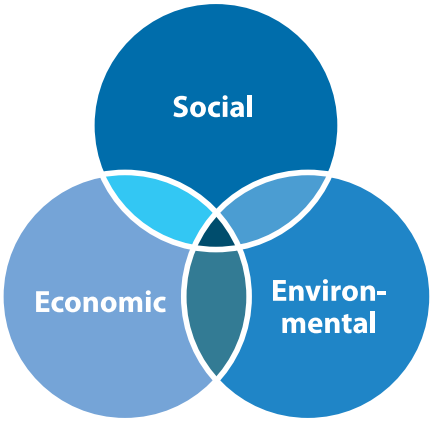
6 Ibid.

7 World Commission on Environment and Development (WCED), 1987, *Our Common Future*, Oxford, Oxford University Press. Available at: https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf p. 37.

8 Ibid., p. 43.

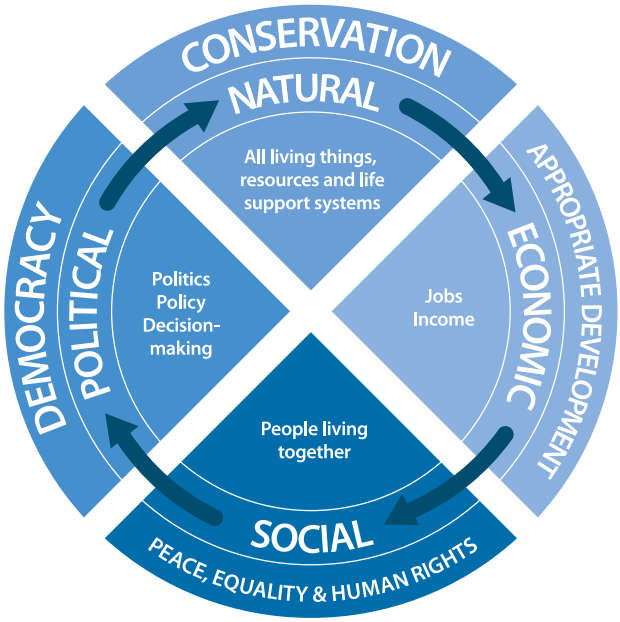
The special conceptual contribution of sustainable development is that it represents the balanced integration of social and environmental objectives with economic development. These three aspects of sustainable development – society, environment and economics – were cited as the three pillars of sustainable development (Figure 2) at the World Summit on Sustainable Development in Johannesburg in 2002.[9]

Figure 2: Three pillars of sustainable development



Furthermore, ESD does not view economic indicators as the sole measure of development. Political and cultural dimensions are also identified as key dimensions of sustainable development that influence the interactions of the three pillars. In TLSF, in particular, it is asserted that sustainable development requires simultaneous and balanced progress in four dimensions (social, economic, ecological and political) that are totally interdependent, as represented in Figure 3.

Figure 3: Four dimensions of sustainable development[10]



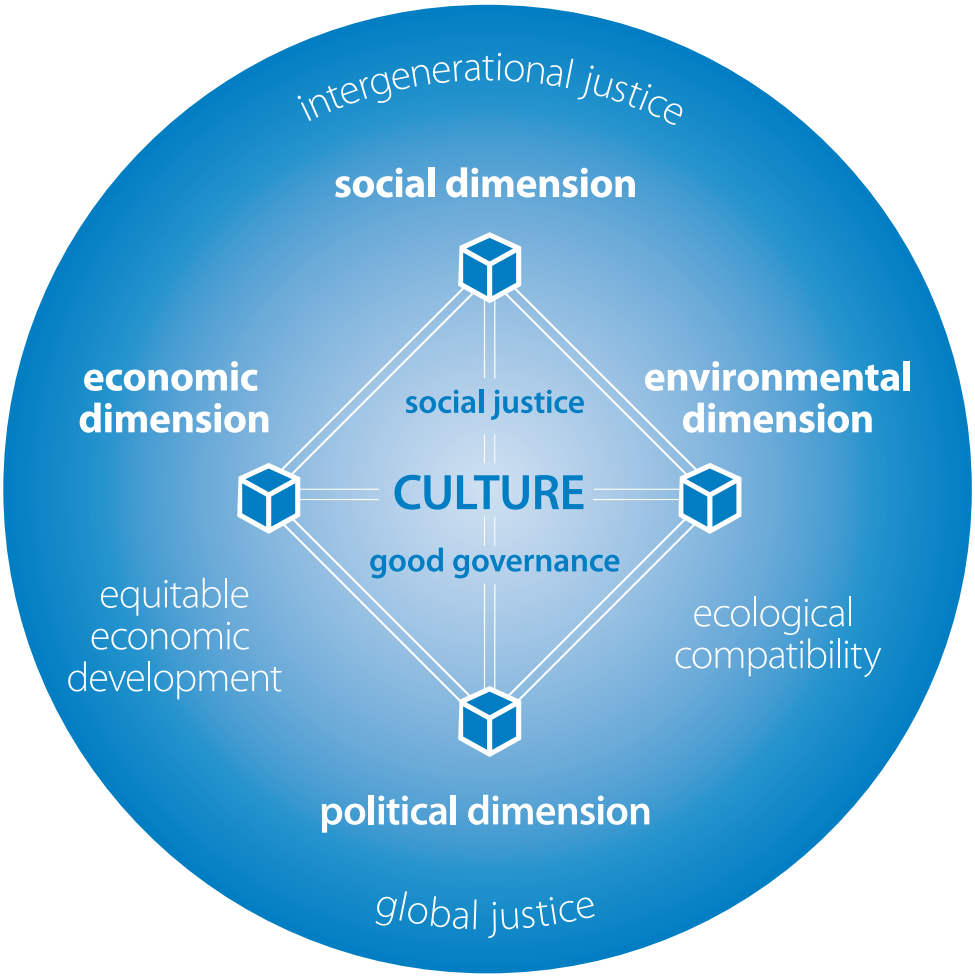
9 More information regarding the summit can be found at: https://earthsummit2002.org/

10 Adapted from UNESCO, 2010a, op. cit. Available at: http://www.unesco.org/education/tlsf/mods/theme_a/mod04.html

UNESCO identifies 'four dimensions to sustainable development – society, environment, culture and economy – which are intertwined, not separate' and note 'sustainability is a paradigm for thinking about the future in which environmental, societal and economic considerations are balanced in the pursuit of an improved quality of life.'[11] For many in South-East Asia, the cultural dimension is often invisible, yet ever-present. For example, while contemporary discussions about rice production will include discourse about high-yields; genetically modified rice varieties; the use of fertilizers and pesticides; the cost of these as they relate to the market price; and the export and import of rice across the region – the practice of planting rice will continue to be influenced by strong cultural beliefs and practices.

Recent publications also clearly identify the political dimension as a pillar of sustainable development, and, by extension, to ESD (see Figure 4). This isn't just about politics, which often equates to political parties and elections in the region, but it is a recognition of the value of good governance and the influence of power in decisions made about education, economic and social policies in a country.

Figure 4: Dimensions and main goals of sustainable development[12]

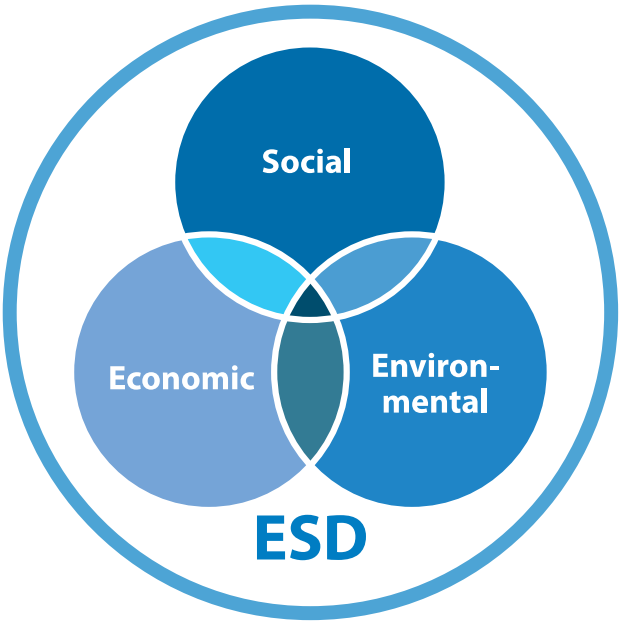


11 UNESCO. n.d.a. *Sustainable Development*. Available at: https://en.unesco.org/themes/education-sustainable-development/what-is-esd/sd

12 Adapted from J. R. Schreiber and H. Siege (eds), 2016, *Curriculum framework education for sustainable development*, p. 89, as cited in UNESCO MGIEP, 2017, *Textbooks for Sustainable Development: A Guide to Embedding*, New Delhi, UNESCO Mahatma Gandhi Institute of Education for Peace and Sustainable Development. Available at: http://unesdoc.unesco.org/images/0025/002599/259932e.pdf

This guidebook has adopted the most common representation of sustainable development that consists of the three pillars – social, economic and environmental. The centre of the ESD Integration Framework (Figure 5) is comprised of these three pillars, but it recognizes the important influence of both the cultural and political dimensions in achieving sustainable development. As highlighted in UNESCO's TLSF, 'The values, diversity, knowledge, languages and worldviews associated with culture and politics strongly influence the way issues of sustainable development are decided and, thus, provide it with local relevance.'[13]

Figure 5: Conceptual core of the ESD Integration Framework



A learning activity that helps to introduce the conceptual core of sustainable development entitled the 'ESD Straw and Recycling Bag Game,' has been included in ***Annex 1*** *as* ***Learning Activity 1****.*

2.1.2 What is ESD?

ESD is both a vision and a process for learning about our interconnected world. As a process, it motivates us to identify and act in ways that contribute towards achieving our own vision of a more sustainable future.

To achieve this, ESD requires that we act on three interrelated priority areas: (i) To improve basic education; (ii) To reorient education to address sustainability; (iii) To increase public awareness and the understanding of sustainability.[14]

The UNESCO website provides a useful definition of ESD as extracted in Box 1 and helps to establish the core elements shared across other definitions you might come across.

13 UNESCO, 2010a, *Teaching and Learning for a Sustainable Future: a multimedia teacher education programme*. Paris, UNESCO. Available at: http://www.unesco.org/education/tlsf/mods/theme_a/mod02.html

14 C. Hopkins and R. McKeown, 2002, Education for Sustainable Development: An International Perspective, in D. Tilbury, R.B. Stevenson, J. Fien and D. Schreuder (eds), *Environmental Education for Sustainability: Responding to the Global Challenge*, Gland, Switzerland and Cambridge, UK, IUCN Commission on Education and Communication.

A learning activity that helps to introduce ESD entitled 'ESD Puzzle' has been included in ***Annex 1*** *as* ***Learning Activity 2****.*

2.2 Integrating ESD in teacher education

2.2.1 What is ESD integration?

During the United Nations Decade of Education for Sustainable Development (DESD) of 2005-2014, Hopkins and Mckeown (2005) identified the need for a more holistic approach to integrating ESD into the curriculum.[15] When translated to practice, this holistic approach has tended to focus on the areas of knowledge, methods and curriculum change, usually manifesting itself either as the addition of a new ESD subject and/or the development of ESD as a cross-cutting curriculum topic. A truly holistic approach would embrace both curriculum and institutional change, as one would expect if one were contributing to the overall re-orientation of education towards sustainability.[16]

This observation is supported by an Australian study on mainstreaming ESD in pre-service teacher training which argued that 'EFS [Education for Sustainability] needs to be mainstreamed within pre-service teacher education and not just added on through the teaching of single units or marginalized content.'[17]

The report defined **MAINSTREAMING** as 'the inclusion of the content and practice of a particular idea (such as learning for sustainability) within an organization, institution or system (such as pre-service teacher education) to such an extent that it becomes embedded within its policies and activities.'[18]

In this guidebook, we decided to use ESD Integration as an all-embracing and systemic concept and objective, as described by Hopkins and Mckeown.[19] We use mainstreaming as a more focused activity within the specific areas of the curriculum and the institution (e.g. curriculum mainstreaming and institutional mainstreaming).

15 C. Hopkins and R. McKeown, 2005, *Guidelines and recommendations for reorienting Teacher Education (Technical Paper N° 2),* Paris, UNESCO, p.13. Available at: http://unesdoc.unesco.org/images/0014/001433/143370e.pdf

16 Ibid., p.13.

17 F. Steele, 2010, *Mainstreaming education for sustainability into pre-service teacher education in Australia: Enablers and Constraints*, Sydney, Australian Research Institute in Education for Sustainability (ARIES), p. 8. Available at: http://aries.mq.edu.au/projects/preservice3/Pre-Service_Teacher_Ed3.pdf

18 J. Ferreira, L. Ryan and D. Tilbury, 2006, *Whole-school approaches to sustainability: A review of models for professional development in pre-service teacher education*, Sydney, Australian Research Institute in Education for Sustainability, p. 99. Available at: http://aries.mq.edu.au/projects/preservice/files/TeacherEduDec06.pdf

19 Hopkins and Mckeown, op. cit., p. 13.

Box 1

What is ESD? [20]

ESD empowers learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society, for present and future generations, while respecting cultural diversity. It is about lifelong learning, and is an integral part of quality education. ESD is holistic and transformational education which addresses learning content and outcomes, pedagogy and the learning environment. It achieves its purpose by transforming society.

Learning content: Integrating critical issues, such as climate change, biodiversity, disaster risk reduction (DRR) and sustainable consumption and production (SCP), into the curriculum.

Pedagogy and learning environments: Designing teaching and learning in an interactive, learner-centred way that enables exploratory, action oriented and transformative learning. Rethinking learning environments – physical as well as virtual and online – to inspire learners to act for sustainability.

Societal transformation: Empowering learners of any age, in any education setting, to transform themselves and the society they live in:

- **Enabling a transition to greener economies and societies.**
  - Equipping learners with skills for 'green jobs'.
  - Motivating people to adopt sustainable lifestyles.
- **Empowering people to be 'global citizens' who engage and assume active roles, both locally and globally, to face and to resolve global challenges and ultimately to become proactive contributors to creating a more just, peaceful, tolerant, inclusive, secure and sustainable world.**

Learning outcomes: Stimulating learning and promoting core competencies, such as critical and systemic thinking, collaborative decision-making, and taking responsibility for present and future generations.

20 UNESCO, n.d.b, *What is ESD*, Available at: https://en.unesco.org/themes/education-sustainable-development/what-is-esd

The earlier attempts at integrating ESD in schools and educational institutions at all levels have mainly been through curriculum mainstreaming. Examples of current curriculum mainstreaming practices are:

- **Creating a standalone ESD-specific subject;**
- **Embedding ESD in existing subjects or across the curriculum;**
- **Adopting a thematic, issue or problem-based approach like climate change, air pollution, deforestation (etc.), based on the local realities;**
- **Incorporating the use of teaching and learning methodologies consistent with ESD principles of learner-centred and participatory approaches, such as field trips;**
- **Conducting ESD-based co-curricular or extra-curricular activities, such as the use of student clubs and associations and activities;**
- **Engaging with the local community, often through project-based learning opportunities.**

This is not meant to be a menu to select from, but it has been provided as an illustration of how these practices are possible entry points, or building blocks, for the holistic curriculum and whole-institution integration that ESD aims to achieve.

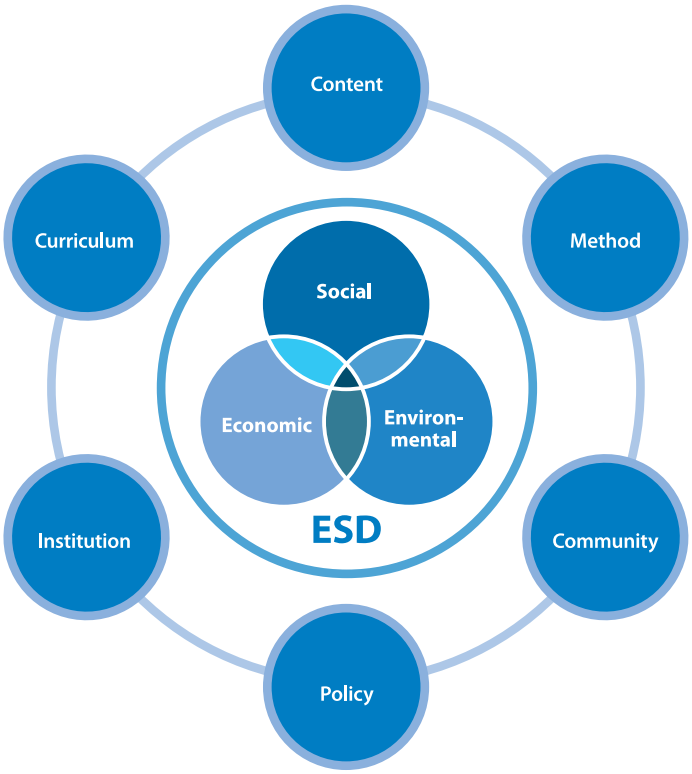
There are also numerous examples of successful ESD integration that are better described as institutional mainstreaming, in which a whole-of-school or whole-of-institution approach to ESD has been taken. These programmes include EcoSchools and Green Schools, which involve the development of school-level policies and the engagement of the local community.

2.2.2 ESD Integration Framework

The ESD Integration Framework (Figure 6) recognizes that at the core of any attempt at ESD integration is the basic understanding of ESD as a holistic and integrated vision of education that draws on the evolving concept of sustainable development. It acknowledges the interrelatedness of the social, economic and environmental dimensions, as illustrated. It also recognizes that these three dimensions are embedded in culture and are influenced by the prevailing political context.

These contextual realities are further informed and advanced by multi-disciplinary or cross-disciplinary thinking which recognizes that sustainability is by nature holistic and interconnected. This is what we have called the **CONCEPTUAL** dimension of ESD integration

Figure 6: ESD Integration Framework



The ESD Integration Framework is influenced by the following six interrelated elements that surround it: Content, Methods, Curriculum, Policy, Community and Institution.

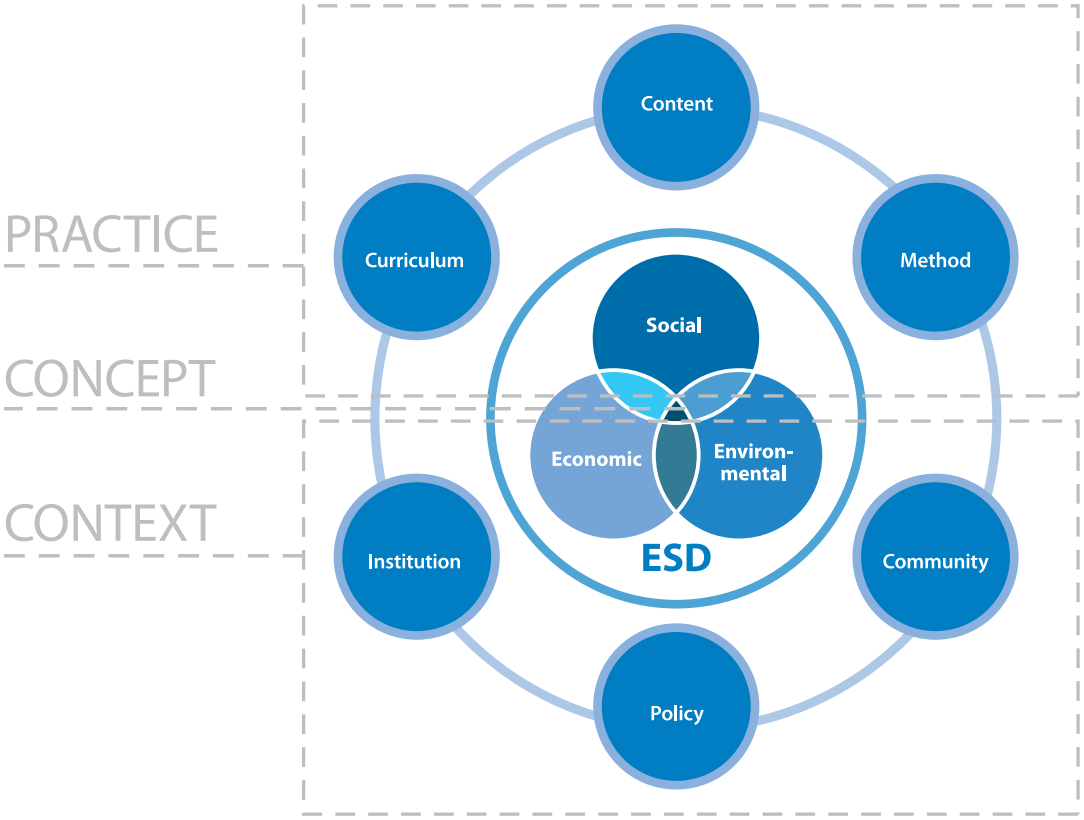
Table 1: ESD Integration Elements

		ELEMENTS
ESD PRACTICE	1	**CONTENT** This is the knowledge element which is often linked to specific issues and themes that identify the entry-points for learning about sustainable development.
	2	**METHODS** This is the teaching and learning approach element, often described as learner-centred and participatory methods.
	3	**CURRICULUM MAINSTREAMING** This is the element that identifies the teaching and learning practices (e.g. new subjects, cross-disciplinary teaching, project-based learning, etc.) applied by universities and teacher education institutions to integrate ESD within the larger aim of curriculum change.
ESD CONTEXTS	4	**POLICY** This element includes policies at all levels (global, national, ministry or department of education, and school-based policies)
	5	**COMMUNITY** This element includes local and community realities and the key stakeholders (e.g. students, teachers, parents, community, private sector, civil society and the local government) that shape and contribute to education and sustainability.
	6	**INSTITUTIONAL MAINSTREAMING** This is the element of transformative leadership that includes the development of policies, identification and wise use of resources and nurturing of partnerships that support ESD integration within the larger goal of institutional transformation.

ESD integration has often focused on the inclusion of relevant content and the use of appropriate teaching and learning methods, within the curriculum, or what we have called curriculum mainstreaming. This corresponds to the three circles in the upper half of the framework (Figure 7) – Content, Method and Curriculum Mainstreaming – or what we refer to as ESD **PRACTICE.**

More recently, as the framework illustrates, there has been recognition that successful integration requires institutionalization, or what we describe as institutional mainstreaming. This is further informed by relevant policy frameworks and contextual realities. This corresponds to the three circles in the lower half of the framework (Figure 7) – institutional mainstreaming, policy and community, or what we refer to as the ESD **CONTEXT.**

Figure 7: ESD Integration Framework with surrounding elements



A learning activity that helps to introduce the ESD Integration Framework entitled 'Contextualizing the ESD Integration Framework' has been included in ***Annex 1*** *as* ***Learning Activity 3****.*

2.3 Action research approach to ESD integration

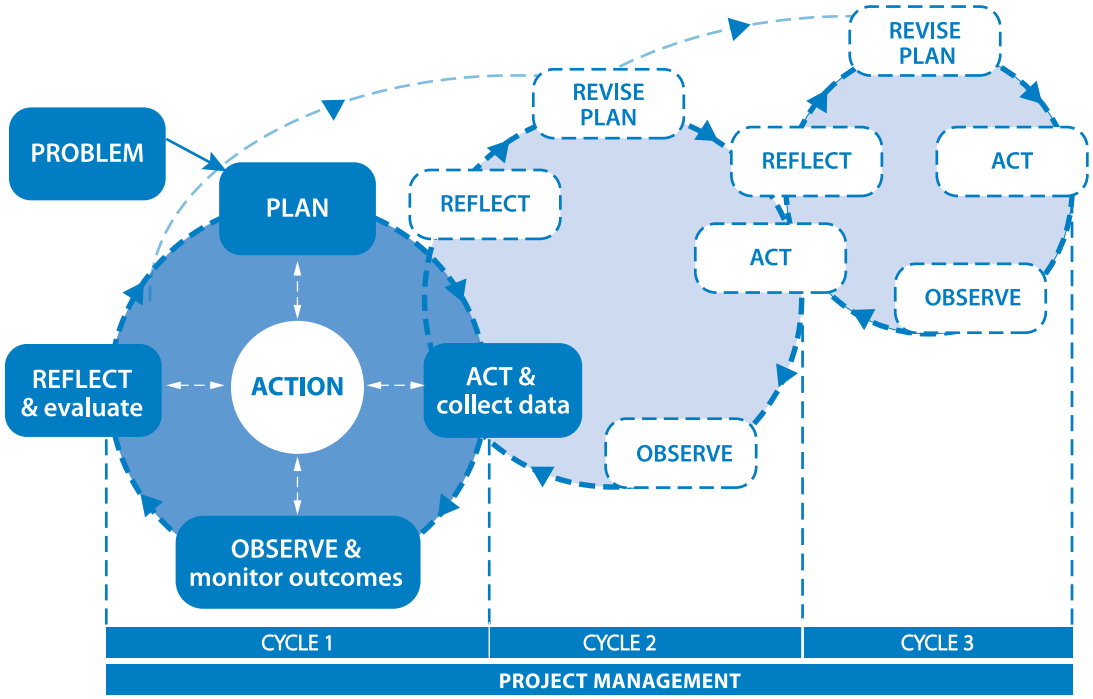
The guidebook has adopted an action research approach for ESD integration in teacher education institutions. Action research is an iterative process where each cycle of **PLAN, ACT, OBSERVE** and **REFLECT** is repeated and links to the next cycle. Steele (2010) has described it as a process whereby 'Participants define a problem, plan and evaluate action, then reflect on the action. A second or third cycle of action may then be initiated, incorporating the learning from previous action/ reflection cycles. Action research is collaborative, social and reflexive.'[21]

21 See Steele (2010), p. 13, drawing on Kemmis and McTaggart, (2005).

Adopting an action research approach for this guidebook is based on the successes and lessons learned from earlier attempts by both UNESCO and SEAMEO in the mid-1990s. An example is the ***Learning for a Sustainable Environment – Innovations in Teacher Education Project***, where a participatory action research and networking approach was utilized for the preparation of localized modules development and for ongoing professional development.

More recently, a similar model of action research was described in a report prepared by Steele (2010) entitled ***Mainstreaming Education for Sustainability in Pre-Service Teacher Education: Enablers and Constraints*** (Figure 8). This report was prepared by the Australian Research Institute in Education for Sustainability (ARIES) for the Department of Environment, Water, Heritage and the Arts of Australia.

Figure 8: ARIES action research cycle[22]



In addition to the aforementioned experiences, the decision to adopt action research as the overarching approach for this guidebook is based on a number of key arguments linked to the historical development of the concept and practice of ESD integration in teacher education.

At a conceptual level ESD, as defined by UNESCO, 'empowers learners to take informed decisions and responsible actions.'[23] An action research approach positions both leaders and teachers as co-learners, while taking action for transformation of society towards sustainable development. Therefore, there is conceptual alignment between ESD and action research.

22 F. Steele, 2010, p. 13. Available at: http://aries.mq.edu.au/projects/preservice3/Pre-Service_Teacher_Ed3.pdf

23 UNESCO, n.d.b, *What is ESD*, Available at: https://en.unesco.org/themes/education-sustainable-development/what-is-esd

However, as we have argued earlier, **PRAXIS** recognizes that concept cannot be isolated from practice. Therefore, two additional interrelated reasons stand out for adopting an action research approach to ESD integration. First is the need for greater ownership by teachers and teacher educators, through their own participation. Second is to increase the emphasis on institutional mainstreaming to balance the current emphasis on curriculum mainstreaming.

The first reason is supported by the argument that the limited success of ESD integration can be partly attributed to the need for educators to 'be more than instruments of delivery for the ESD message. They must be centrally involved in developing the concepts, content, pedagogy, evaluation and research that will support the creation of ESD.'[24]

This observation can be addressed by taking an action research approach, in particular the strand known as Participatory Action Research (PAR). PAR is fundamentally committed to the participants' ownership of the problem being addressed. This is a key reason why instead of beginning the action research cycle with **PLAN,** the guidebook begins with **REFLECT**. This is to ensure that the leaders and teachers within the institution have greater ownership, not only of the process of change, but the factors behind the need for change.

The second reason is based on a key observation included in the final report of the United Nations Decade of Education for Sustainable Development (DESD), which acknowledges that despite the proliferation of ESD integration modules in teacher education, there has been limited success. The report argues that there has been a huge gap in the ability of these modules to address the challenge of 'institutionalizing ESD – to ensure strong political support to implement ESD on a systemic level.'[25]

Therefore, the action research process recognizes that successful integration will require a more systemic approach to change. Action research is committed to recognizing and addressing not just the identified problem, but equally the various elements and factors that contribute to the problem and therefore what needs to be transformed – institutional policies and practices, as well as the leaders of the respective institutions. This is why there is emphasis in Part II for taking a whole-of-institution perspective that aligns with the principles of good action research practice.

In addition to being guided by the rationale for adapting an action research approach, the specific action research steps identified in this guidebook are based on the experience of the *Sustainability Begins with Teachers in South-East Asia* project conducted from March 2017 to August 2018. This action research approach was informed by the same steps as identified in Figure 8 above and was conducted in three cycles as outlined below.

- **Cycle 1: Workshop-training of deans and lead teachers from 10 lead universities and teacher education institutions (TEIs) in South-East Asia.**
- **Cycle 2: Institution-based ESD integration within each of the identified lead universities and TEIs. Five of these institutions have shared their own ESD integration stories in this guidebook.**
- **Cycle 3: Each of the lead institutions conducted an ESD integration workshop for local university/TEI deans and lead teachers. Some of these universities have also shared their own ESD integration stories in this guidebook.**

24 C. Hopkins and R. McKeown, 2002, Education for Sustainable Development: An International Perspective, in D. Tilbury, R.B. Stevenson, J. Fien and D. Schreuder (eds), *Environmental Education for Sustainability: Responding to the Global Challenge*, Gland, Switzerland and Cambridge, UK, IUCN Commission on Education and Communication, p. 23.

25 UNESCO, 2014, *Shaping the Future We Want: UN Decade of Education for Sustainable Development (2005-2014) Final Report*. Paris, UNESCO, p. 11. Available at: http://unesdoc.unesco.org/images/0023/002303/230302e.pdf

Part II of this guidebook distils the essence of the lessons learned from the three cycles. Each chapter describes each key step, beginning with **REFLECT** and followed by **PLAN**, then **ACT/ OBSERVE** and once more **REFLECT/EVALUATE**, prior to **RE-PLANNING** and **DISSEMINATE** for the next cycle. Short case stories collected from the *Sustainability Begins with Teachers in South-East Asia* project are provided in the box sections to both illustrate and motivate you, the reader.

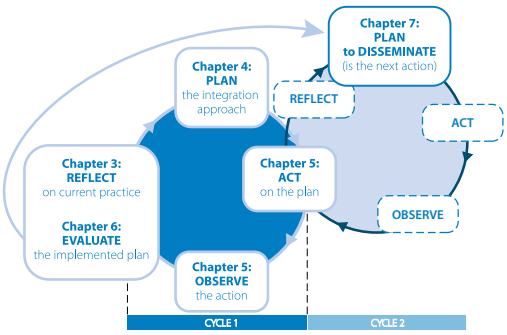
In other words, the aim of this guide is not to be a top-down guide to achieve a prescribed 'best-practice', but is to guide you in identifying your own most appropriate practice. In addition, key tools developed and adapted from existing ESD tools are also included to assist the reader. **This guidebook challenges teacher educators to facilitate a change process within their own institutions, as well as to motivate other institutions in their own countries to initiate an ESD Integration process. We believe that such a process is required if we are to truly achieve sustainable development across the South-East Asia region.**

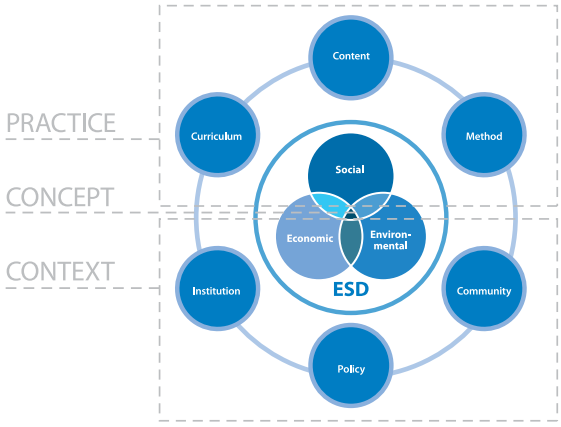
PART II

Guide to an Action Research Approach to ESD Integration

Part II is the practical and applicable part of this guide. It is designed to accompany readers on the journey to achieving ESD integration in teacher education. There are two guiding lights embedded within this guidebook. The first is the action research approach (Figure 1) of **REFLECT, PLAN, ACT, OBSERVE, EVALUATE** and **RE-PLAN/DISSEMINATE** to progress ESD integration efforts in teacher education. The second is the ESD Integration Framework (Figure 7) that identifies the different elements involved and the inherently interrelated nature of these elements.

Two Guiding Lights for ESD Integration in Teacher Education





See Figure 1: Action Research Approach

See Figure 7: ESD Integration Framework

The **ACTION RESEARCH APPROACH** is outlined in the following chapters and it begins with an invitation to **REFLECT** on your current ESD practice, or what can also be described as conducting a *situational analysis*. This stage includes the recognition of current ESD practice and the identification of the key stakeholders who are, or still need to be, engaged in your own respective institution. The situational analysis will assist in developing the **PLAN** or the most appropriate response. To **ACT** on the plan and **OBSERVE** the process, and its results, is the next step in the action research process.

While we value action, it should be accompanied by a level of awareness of what you are doing and how these actions are impacting on others. These observations are then shared and critically examined in order to **REFLECT** on and **EVALUATE** the process *and* the outcomes of the plan, before beginning a second cycle of action research.

This approach is consistent with the commitment for ESD to develop ownership of the problem, the process and the outcomes through the active participation of the individuals and institutions that have responsibility for ESD integration in teacher education.

This step-by-step process is accompanied by examples called ***Lessons from Practice*** which are stories shared by teachers and leaders from institutions who have attempted to transform their own teacher education practice to better integrate ESD. Each of these examples is then examined using the ESD Integration Framework to identify which of the framework's elements feature most and therefore identify potential entry points for change. The framework also helps to remind us of the holistic and integrated nature of effective ESD integration, as well as to identify areas where further work is necessary.

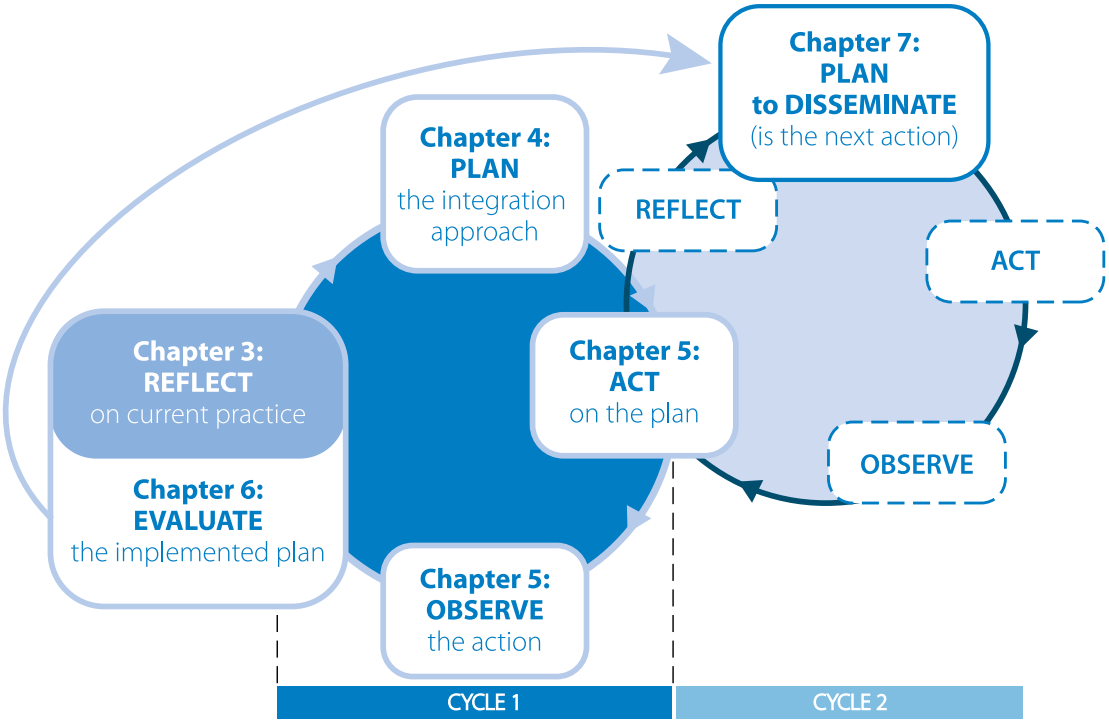
Finally, it is important to not only identify the strengths and the integrated nature of ESD integration, but it is even more important to recognize the need for change at the individual and institutional levels if we are to effectively contribute to sustainable development. We hope that you too will share your ESD integration practices and your own stories of change with us in the future.

3 Reflect

The **REFLECT** stage aims to establish the current situation in order to identify the starting point for ESD integration, as a process of change, in your TEI.

The guiding question of the **REFLECT** stage is: *what are the current activities being conducted within my institution that align with the elements of the ESD Integration Framework?*

Figure 9: The REFLECT stage



3.1 Conducting a baseline survey

This is the first step in order to establish the starting point of your own ESD integration journey. A self-assessment tool called the ***ESD Teacher Education Mainstreaming Survey*** has been designed to help you and your institution reflect on the current extent of ESD Integration **(See Annex 2 – ESD Tool 1)**.[26] The survey has been adapted to align with the ESD Integration Framework. It can be conducted as a paper or an online survey, or be used to design interviews and focus group discussions with your colleagues. Feel free to add to, delete from and/or otherwise modify the survey to suit your specific institutional context.

26 Adapted from 'ESD Lens Review Tool 13' in UNESCO, 2010b, *Education for Sustainable Development Lens: A Policy and Practice Review Tool*, Paris, UNESCO, p. 90. Available at: http://unesdoc.unesco.org/images/0019/001908/190898e.pdf

Encouraging your colleagues to provide thoughtful responses to the survey will help you and your institution identify and design the most appropriate strategies for ESD integration.

3.2 Engaging your colleagues

Utilize the data collection and analysis processes to begin to engage and motivate other colleagues to take an interest in the project.

Present the data to your other colleagues to confirm your findings about the status of ESD integration in your institution. Reflecting and evaluating together helps to develop a sense of ownership of the findings.

During the presentation, introduce ESD and the ESD Integration Framework as a tool to identify what exists, as well as to highlight existing gaps.

3.3 Celebrating existing knowledge and practice

Start by recognizing (and celebrating) the knowledge and skills that exist within your own institution. This can serve as a solid foundation that you can build on to attain what you want to achieve. This is in contrast to the usual approach of focusing on what is missing (or a deficit approach), which can be de-motivating for both staff and students.

It is critical that there is an agreement that, based on the results of the initial situational analysis, ***ESD integration in your institution can be improved***. More specifically, the results of the survey will hopefully recognize that you and your institution are not starting from scratch (another symptom of a deficit approach), but that you are recognizing what has already been done/is being done, which is a more appreciative approach.

*See **Box 2** for the key features of the Appreciative Inquiry – a useful way to enhance the Reflect stage.*

*A learning activity that helps to introduce Appreciative Inquiry has been included in **Annex 1** as **Learning Activity 4**.*

3.4 Lessons from practice

Our experiences in conducting the preliminary situational analysis have revealed that ESD is often not *explicitly* mentioned in any specific university/college policies; not *explicitly* stated in any curriculum objective; nor *explicitly* mentioned in any university/college activity. The following are three examples of the most common starting points identified from current practice that may be relevant to your situation.

Have you considered looking at your institution's vision and mission statement? From experience, most vision and mission statements will reveal a commitment to learning that is transformative of the lives of your students, the community and the country, as a whole. One cannot find a better starting point for this change process than the core values of your

Box 2

Using Appreciative Inquiry for the REFLECT stage[27]

At the heart of Appreciative Inquiry is a commitment to keeping a positive focus during the inquiry process. Cooperrider (2012), one of the most often cited sources in regards to Appreciative Inquiry, defines it as 'a radical departure from the traditional deficit-based change to a positive, strengths-based change approach. […] Appreciative Inquiry focuses on leveraging an organization's "positive core" strengths to design and redesign the systems within an organization to achieve a more effective and sustainable future.'[28]

Three key areas of alignment that make Appreciative Inquiry ideal for any ESD-related initiative are:

- **Transformation and change: equipping people with skills, capacity and motivation to plan and manage change;**
- **Envisioning a better future: engaging people in developing and working to achieve a shared vision;**
- **Critical thinking and reflection: reflecting on and challenging personal views and worldviews.**

27 Adapted from K. Shields and L. Hoggard, 2013, *Sustainability for Educators: A Toolkit of Learning Activities and Resources*, NSW, Byron Region Community College, pp.93-95.

28 See D. Cooperrider, 2012, *What is Appreciative Inquiry*, Retrieved from: http://www.davidcooperrider.com/ai-process/

Box 3

Vision and Mission as an entry point for ESD[29]

The mission statement of Cebu Normal University (CNU) is comprised of three reinforcing strands: transformative education; high impact research that contributes to improving communities; and strong partnerships that address the development gaps of the community. While these three elements of the mission statement do not explicitly mention ESD Integration, they clearly provide an institution-wide rationale for ESD integration.

Furthermore, they are supported by a Commission of Higher Education (CHED) Memorandum Order 37s. 2005 entitled 'Strengthening the SUC's/ HEI's in technology commercialization for poverty alleviation, employment generation, food production and sustainable development', which supports Higher Education Institutions (HEIs) in becoming centres of research and development and extension services working towards sustainable development. These national policies complement university-based policies and the tri-focal commitment of the university to instruction, research and community extension.

Similarly, at Chulalongkorn University in Thailand, current ESD courses align with the institution's strategies for 2017-2020, devised to fulfil the university's mission, including:

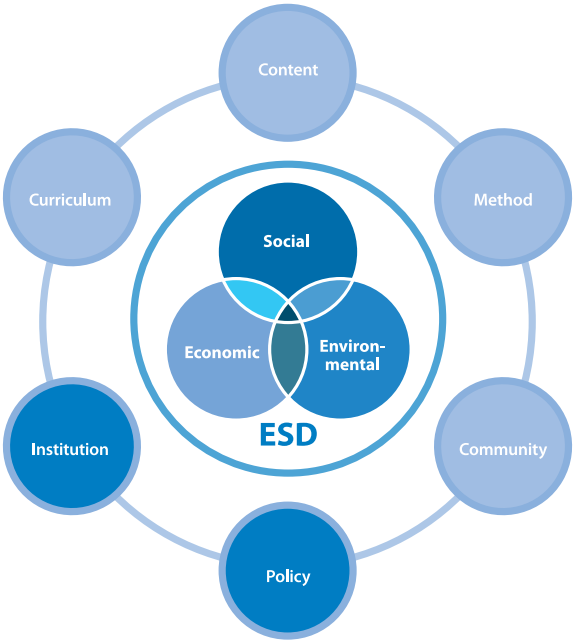
- **Develop graduates that have academic ability, the latest skills, public consciousness and leadership;**
- **Pioneer and integrate knowledge, create teaching and learning and research innovation;**
- **Produce local and international academic research;**
- **Exploit knowledge for the sustainable development of the country and society.**

29 Based on E. Abao and J. Paño, 2017, *Education for Sustainable Development in Cebu Normal University*, (unpublished manuscript), and F. Preededilok, 2017, *ESD in the Faculty of Education*, CU, (unpublished manuscript).

institution found in these vision and mission statements. Applying the ESD Integration Framework to this example helps to identify that the entry point is the **POLICY** element, within the **INSTITUTION,** as it links to the **CORE CONCEPT** of ESD as represented by the darker-shaded elements in Figure 10. The challenge is to increase the number of darker-shaded elements by identifying how the other elements of the ESD Integration Framework can be included.

*See **Box 3** for an example of how an institution's vision and mission statement can be a valuable entry point for ESD integration.*

Figure 10: The ESD Integration Framework with the institutional mission statement as the entry point.



In addition, various institutional initiatives around waste management are often already in place – as it is the most common entry point for ESD integration. When the ESD Integration Framework is applied to this example, it becomes clear that waste management can be linked to the **CONTENT** element, within the **INSTITUTION**, as it links to the **CORE CONCEPT** of ESD – represented by the darker-shaded elements in Figure 11. As with the previous example, the challenge is to increase the number of darker-shaded framework elements.

*See **Box 4** for an example of how a waste management project can be a strong starting point for ESD integration.*

Box 4

Waste management as an entry point for ESD[30]

The University of San Jose-Recoletos (USJ-R), being a Christian-oriented institution, continues to fulfil its mission of being stewards of God's creation, fully engaging the community in resource conservation, ecological care and protection and a waste management way of life. Being a recognized 'Win on Waste' institution, USJ-R had its share of issues concerning the proper management of waste, specifically of paper waste that piled up in many offices, or were thrown in big refuse pits, that contributed to the growing waste management problem in Cebu City.

In support of the Government of the Philippines Republic Act, no. 9003 'Ecological Solid Waste Management Act', the university created the 'Win on Waste' programme, bringing the mission of empowering the university community to protect, conserve and manage waste. The aim was for zero-waste. USJ-R used the '5Rs process', namely: Reusing, Reducing, Recycling, Restoring and Replenishing. This simple but thorough process had identified areas where waste was present, namely in the maintenance area, shop, grounds, canteen, laboratories, offices, classrooms, clinics and comfort rooms.

The different types of waste produced were identified as either biodegradable or non-biodegradable waste. After sorting, the different types of waste were either sold at market, for example, scrap iron, such as used nails, empty cans etc., or they were placed in the Materials Recovery Facility (MRF). This latter facility transforms waste products into valuable and useful materials such as paper, charcoal, accessories, ropes and other products and these recycled items are sold.

USJ-R College of Education, being the Centre of Excellence in Teacher Education, supports the enhancement and sustainability of the 'Win on Waste' programme and has as a result integrated environmental protection and conservation into the curriculum.

A three-unit ESD course was added to the new 2018 curriculum of the College of Education, following approval by the board of the university. This course will enable pre-service teachers to design programmes and projects intended for environmental preservation and protection aligned to the mission of the 'Win on Waste' programme, as well as other community programmes that will help build education for sustainable development.

In addition to the single course, project-based learning (PBL) was integrated into the 'Assessment for Student Learning 2' course. This resulted in pre-service teachers designing, planning, monitoring and evaluating authentic community projects focused on environmental protection and preservation for sustainable development. Through these initiatives, students gain knowledge about the concepts of sustainability, educational development and associated topics, and develop civic literacy, community involvement and 21st century skills so they can be effective agents of change.

30 Adapted from J. P. Babia, 2018, *Compelling ESD Change Stories: Winning on Waste – The USJ-R Waste Reduction and Conservation Experience*, (unpublished manuscript).

Box 5

Community outreach as an entry point for ESD[31]

Cebu Technological University (CTU) is committed to its four functions of instruction, research, extension and production. The extension services of CTU aims to provide small and marginalized communities in the province of Cebu with the opportunity to acquire knowledge and skills for sustained productivity, profitability and well-being. To contribute to the achievement of these aims, the CTU Argao Campus College of Education has designed an extension programme dubbed PAGLAUM (Hope) which is comprised of the following three components.

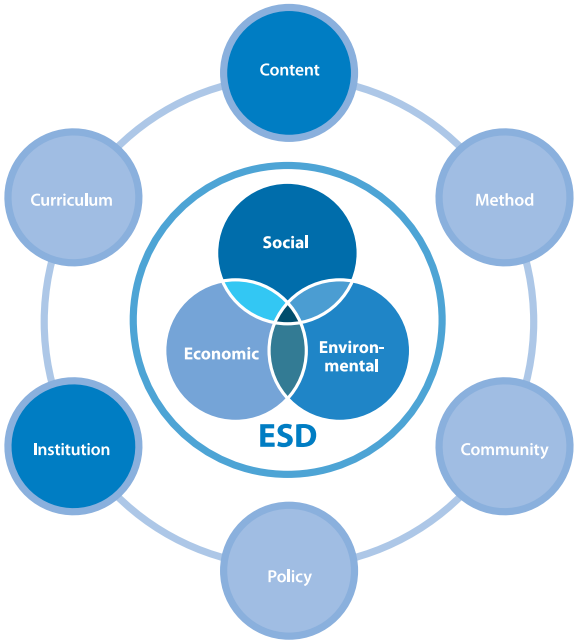
- **LAMDAG (Light or Shine) – this adopt-a-school programme involves intervention programmes aimed at improving student results, increasing the numbers of books donated, the establishment of a community library, provision of instructional materials, story-telling activities and conducting school feeding programmes.**
- **LAMBO (Development) – this livelihood programme provides skills training and community building relevant to the needs of local communities.**
- **LAMESA (Table) – this food security programme conducts food technology skills training, such as commercial cooking and baking.**

As a consequence of CTU's participation in the ESD Integration Workshop, conducted in Cebu City in 2017, PAGLAUM has been extended to include two additional components that embrace the integrated and holistic concept of ESD. These two new projects are LIMPYO (cleanse), an environmental protection, beautification and preservation project and LINDOG (warp), an extension livelihood programme that designs and develops products using recyclable materials.

PAGLAUM has now become a university-wide programme for all campuses, based on the CTU Argao, College of Education model. Through these extension projects, ESD has gradually become embedded in the subjects of technology and livelihood education, art in daily living, retail and merchandising, business and entrepreneurship. This is a clear demonstration of how extension projects have become an entry point into mainstreaming ESD in the curriculum and the institution as a whole.

31 Adapted from L. M. S. Camello, 2018, *PAGLAUM: A Community Extension Program of the Cebu Technological University, Argao, Cebu Campus*, (unpublished manuscript).

Figure 11: The ESD Integration Framework with an institutional waste management project as the entry point.



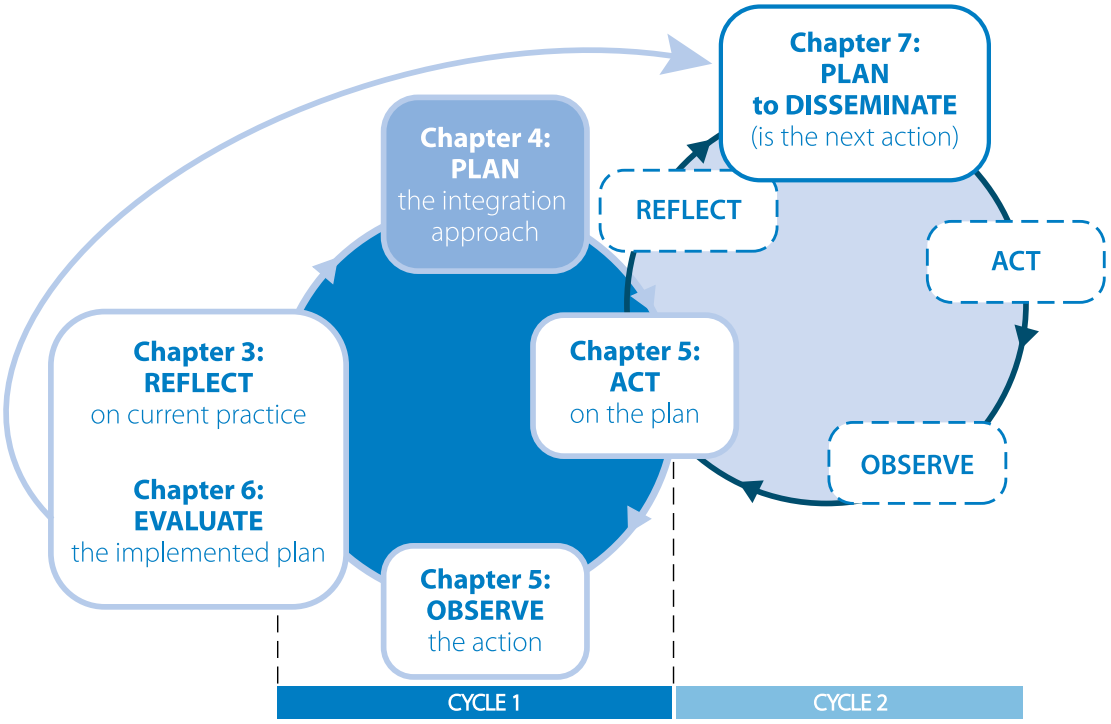
Also, common to institutions are various community-based activities providing for a range of needs such as food, clothing, shelter or some kind of education and training. These are often viewed as acts of charity, but are potentially strong entry points for engaging both staff and students in understanding the integrated and holistic nature of sustainable development. Which elements of the ESD Integration Framework would these types of initiatives cover? How can they be expanded to encompass the other elements of the framework?

*See **Box 5** for an example of how a community outreach activity can be an effective entry point for ESD integration.*

Do any of these example entry points resonate with your own institution? There will usually be more than one possible entry point. Use the ESD Integration Framework to help you identify how best to identify the one with the most potential, or how to combine the different entry points.

4 Plan

Figure 12: The PLAN stage



As you conclude the **REFLECT** stage, you and your colleagues would have identified a specific entry point for ESD integration, based on the situational analysis conducted.

The aim of the **PLAN** stage is to assist you in taking a positive approach to identifying what you are currently doing and developing an awareness of how your current practice can be further improved, specifically in terms of integrating ESD within your respective institutions.

4.1 Developing a shared vision

Having conducted situational analysis and identified gaps or starting points for engaging staff in an ESD integration process, it is now suggested you invite your colleagues to take a leap into the future and establish a shared vision linked to the identified gap or starting point. For example, we asked participants to imagine what their institution and their local community would look like in five years if they had implemented a number of successful ESD initiatives.

This vision, together with the current situation, would then help to provide the starting and end-points for the **PLAN**.

*An activity that helps to develop a vision using Appreciative Inquiry has been included in **Annex 1** as **Learning Activity 4**..*

Box 6

Capacity building as a foundation for ESD integration[32]

To respond to the challenge of ensuring teacher education contributes to a more sustainable world, the Philippine Normal University (PNU), the national centre for teacher education, strategically repositioned its campuses as hubs of specialized fields to help address sustainability issues and promote sustainable development in education. In 2012, PNU–Visayas was selected to be the 'Environment and Green Technology Education Hub', with a commitment to prepare teachers who not only have expertise in pedagogy and their subject specializations, but who are also champions and advocates of environmental sustainability.

Since 2012, PNU has conducted activities to meet the four core functions of curriculum and instruction, research, extension and production – not just to include environmental education concepts, but to also transform the university into an institution geared towards sustainable development.

Since its participation in the ESD Integration Workshop in Cebu City in 2017, PNU-Visayas has focused on developing the capacity of the staff to deliver the renewed commitment. This has included the following activities: an 'ESD Integration and Syllabi Making Write-Shop' aimed at integrating the seven Environmental Principles and other environmental values; an orientation seminar on ESD integration in the OBTEC (Outcome-Based Teacher Education Curriculum) and a workshop on 'Strengthening ESD in Teacher Education' as a preliminary activity in the crafting of the PNU-Visayas 'Green Teacher Education Curriculum'.

In addition, discussions have explored ESD integration through the realignment of the OBCuP (Outcome-Based Co-Curricular Programmes) with the Director of the Office of Students Services and leaders of campus-based organizations and other interest clubs. Capacity building activities were not just limited to the the *Sanguniang Panlalawigan* (provincial council) members and the city's Vice-Mayor.

All of these capacity building efforts were based on the recognition that only through raising our awareness about the totality of educational change that is required, can we really begin to do something about it.

32 Adapted from A. L. Santillana, 2018, *PNU Visayas: ESD – A Quantum Leap*, (unpublished manuscript).

4.2 Stakeholder mapping

Who else needs to be engaged? Having conducted situational analysis, identified the gaps or the entry points for change, and developed a vision of the future, it is now time to expand the individuals and groups you need to work with as your co-change agents. These are more commonly referred to as your stakeholders. While it is not realistic to engage all key stakeholders from the start, it is important that you and your immediate team are aware of who your stakeholders are. Once you have identified the key stakeholders, it is now essential to prioritize who to engage first and when it will be necessary to engage each of the stakeholders in the integration process.

*Two activities that help to identify the key stakeholders have been included in **Annex 2** as **ESD Tool 3** and **ESD Tool 4**.*

4.3 Action planning

It is important that the action plan recognizes the different levels of action that need to occur for successful ESD integration. At the individual level, each staff member can be asked to identify an action plan within the scope of their respective work. For example, a science teacher can identify topics in the current syllabus where ESD can be integrated. It is also necessary to develop an action plan for the department and/or the whole institution. However, recalling the commitment of ESD to ownership and participation, it is important to ensure that plans are being developed together with the individuals and groups who will be responsible for implementing these planned activities, in other words, the stakeholders you identified above.

*An activity that helps to develop an Action Plan guided by Appreciative Inquiry has been included in **Annex 2** as **ESD Tool 2**.*

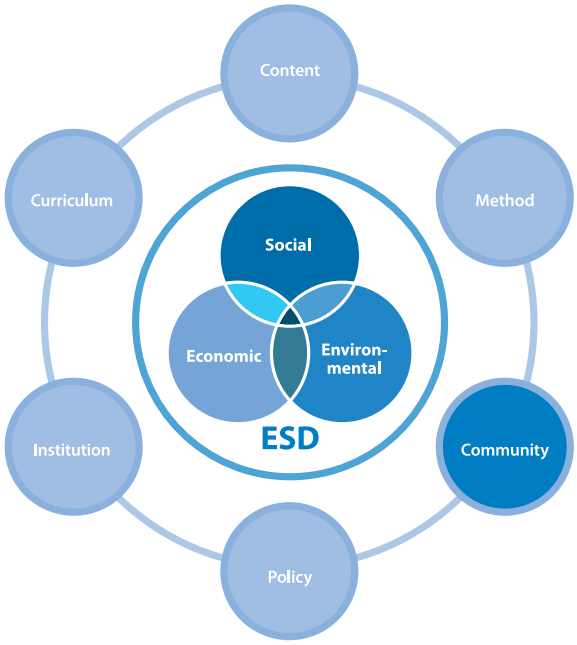
4.4 Lessons from practice

One of the most common outcomes of the situational analysis, in addition to discovering a number of ESD-related initiatives, is the identification of a gap in the knowledge of faculty members about ESD. Therefore, most, if not all, will **PLAN** a professional development or capacity building activity. These capacity building activities can involve asking staff to conduct a literature review about a specific local development issue, or engaging a staff member to discuss an environment and development issue relevant to the local community. Notice that both capacity building activities suggested

do not focus only on understanding the concept of ESD, but also on understanding ESD in context, by focusing on local issues that are particularly relevant to your institution and your community as outlined in Figure 13.

*See **Box 6** for an example of how a capacity building activity helped to establish the foundations for ESD integration.*

Figure 13: The ESD Integration Framework with capacity building focused on understanding the ESD concept in the context of the community.



The other common experience shared in the **PLAN** stage is the need to access resources for identified ESD integration initiatives – given the limited resources often found within our own institutions. A knee-jerk response may be to engage local businesses in the community to secure funding. However, from experience, while this often might work, it is important to see local businesses not just as a source of funds, but also as a co-agent of change. Local businesses can be invited to share their knowledge about the economic dimensions of sustainable development. They can also become partners in both institutional and community ESD-related activities, such as encouraging them to stop using plastic bags, or to source more local community produce.

*See **Box 7** for an example of how a partnership between local hotels and a community organic farm that hosts student visits has helped the local economy in Luang Prabang, Lao Peoples Democratic Republic (Lao PDR).*

Box 7

Stakeholder partnerships as a foundation for ESD integration[33]

During a workshop in Luang Prabang, Lao PDR, held under the project *Sustainability Begins with Teachers in South-East Asia*, the participants visited Living Land, an organic farm managed as a community enterprise by a local team for the benefit of local people.

The farm produces organic vegetables, salad greens, herbs and rice and it supplies leading restaurants and hotels in the tourist enclave of Luang Prabang, a city with a well-established hospitality industry.

In addition, Living Land welcomes visitors who are interested in learning about rice production and experiencing the life of a typical Lao farmer. The funds raised from the visits and the sale of agricultural products help support children from poor families with their education and medical needs.

The day after the farm visit – while discussing the value of the farm visit for learning about ESD – faculty members from some of the universities and teacher education institutions concluded that while a farm visit would benefit students from urban environments, the same cannot be said for students from farming communities.

However, faculty members from Khangkhay Teacher Training College (KTTC) and Luang Prabang Teacher Training College (LTTC) said they would be very interested in their students listening to the experience of how Living Land managed to broker an on-going relationship between the farm and the tourism industry.

This, they argued, would be of great interest and benefit to their students in rural areas who tend to aspire to leave their farming communities given the lack of opportunities available. Developing this awareness and an understanding of the possible links between the tourism industry and sustainable agriculture – more specifically the partnership between farmers and hotel operators – for these faculty members was a clear and relevant application of the concept and practice of ESD for their students.

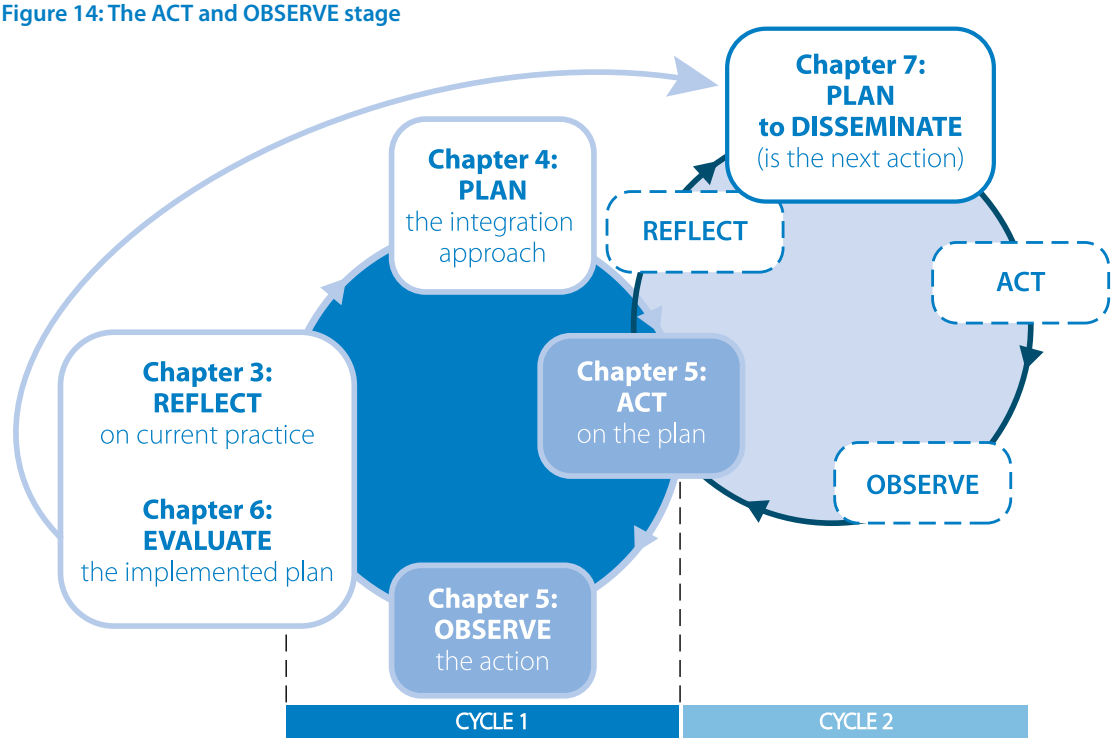
Which elements of the ESD Integration Framework does this initiative cover? How can this initiative be expanded to encompass the other elements of the framework within the institution that hosts visits to the community organic farm?

33 Based on the 'Workshop on Education for Sustainable Development for Lao Teacher Education Institutions', held at Souphanouvong University, Luang Prabang, Lao PDR from 18 to 20 December 2017.

Finally, while the change process of curriculum and institutional mainstreaming of ESD will happen primarily within your own institution, remember that your institution cannot be an island of sustainability surrounded by a sea of unsustainable practices. It is important to recognize this insight, to motivate you to engage both inside and outside stakeholders – if your **PLAN** is to succeed in contributing to sustainable development.

5 Act and Observe

Figure 14: The ACT and OBSERVE stage



Now that you have completed the situational analysis and identified the possible entry points for ESD integration and engaged stakeholders, the next stage is to **ACT** and harness these elements for change. It is essential to emphasize that the heart of the ESD Integration Framework is both individual and institutional change. It is not about conducting a one-time activity, but ensuring that there is an ongoing commitment to learning and change that contributes to sustainable development. As it is ongoing, it is important to be able to **OBSERVE** the change. This chapter combines the action research stages of **ACT** and **OBSERVE** involved in this change.

5.1 Identifying and overcoming blocks to change

Implementing the **PLAN** will require recognizing that no change process is easy. Shields and Hoggard (2013) identify three key stages in the change process (Table 2) which help identify the potential obstacles to change.

Table 2: Stages of organizational change process.[34]

Stages	Description
Unfreezing (melting the culture)	Creating the climate for change and encouraging workers to move through pre-contemplation/contemplation as preparation for change.
Changing (building the culture)	Engaging and enabling the organization – the action stage.
Confirming/supporting (re-freezing the culture)	Implementing and sustaining the change – this is focused on consolidation, maintenance, and building on success and it is a critical stage that is often poorly managed. You need to constantly make an effort to keep the urgency high and consistently show proof that the new way is working. Otherwise, the culture is likely to drift back to the 'business as usual' mind-set.

To support this change process, Shields and Hoggard (2013) identified four key tools that can be used to support and guide the change.[35] We have adapted these as tools to help us **ACT** on the **PLAN.**

The **first tool** is to engage relevant colleagues and stakeholders as co-agents of change (see discussion in previous chapters pertaining to the earlier stages of action research and **Tool 3** and **Tool 4** in Annex 2, for more on how to map and identify these key stakeholders). Achieving this level of engagement requires keeping your co-agents of change motivated *and* informed.

The **second tool** is the use of effective communication strategies. Social media platforms have become an accessible means to achieve this.

*See **Box 8** that outlines how ESD colleagues from Universitas Gadjah Mada (UGM) in Yogyakarta, Indonesia have effectively used social media to sustain the engagement of both the local community and university staff and students.*

The **third tool** is to embed opportunities for participation in decision-making. This corresponds to a challenge of ESD integration – the need for teachers to 'be more than instruments of delivery for the ESD message. They must be centrally involved in developing the concepts, content, pedagogy, evaluation and research that will support the creation of ESD.'[36] Involvement in decision-making helps to develop a sense of ownership of the process and the outcomes. This can be achieved by establishing both structures (e.g. committees or working groups) and processes (e.g. brainstorming and sharing tasks and responsibilities).

34 Adapted from K. Shields and L. Hoggard, 2013, *Sustainability for Educators: A Toolkit of Learning Activities and Resources*. NSW, ByroRegion Community College, p. 149.

35 Shields and Hoggard, ibid., p. 149.

36 C. Hopkins and R. McKeown, 2002, Education for sustainable development: An international perspective, in D. Tilbury, R.B. Stevenson, J. Fien and D. Schreuder (eds), *Environmental Education for Sustainability: Responding to the Global Challenge*, United Kingdom, IUCN Commission on Education and Communication, p. 23.

Box 8

Social media and sustaining stakeholders engagement for ESD integration[37]

Indonesia has a large number of rivers scattered across its archipelago and most of these rivers suffer from environmental pollution. In 2015, the Indonesian River Restoration Movement (IRRM) was initiated through the efforts of Universitas Gadjah Mada (UGM) in Yogyakarta as a collaborative network between academics and the river community itself. However, as more than just a university-community collaboration, IRRM recognized the need to engage and work in partnership with a wide array of stakeholders including relevant government agencies, NGOs, expert associations, the private sector and the media.

At the local level, coordination and management was conducted through meetings, especially when it involved external stakeholders. The main internal communication and coordination was accomplished through a social networking mobile phone application as those involved found this to be more efficient and effective. This practice of using e-communication is particularly significant to the IRRM context because of the vast archipelagic nature of Indonesia, which makes it challenging to connect with other communities.

37 Adapted from A. Maryono, 2016, *Indonesian River Restoration Movement (IRRM) toward Education for Sustainable Development (ESD)*, available at: https://www.slideshare.net/HannaStahlberg/indonesian-river-restoration-movement-2016-irrm-yogyakarta

Box 9

Cross-curriculum example of ESD integration[38]

Examples of Learning for a Sustainable Future in Existing Subjects

The National Institute of Education, Cambodia

1 Agricultural Studies
Agricultural education provides an excellent opportunity to teach about a number of very serious sustainability issues and problems, including food safety, nutrition and health, as well as groundwater contamination from agricultural chemicals, accelerated soil erosion, threatened and endangered plant and wildlife species, energy shortages and soil and water conservation. Many opportunities are available for students to have direct experiences in dealing with these problems.

2 The Arts
The visual and performing arts can develop an aesthetic awareness and sensitivity to both natural and built environments. Artistic programmes should incorporate elements of both natural and built environments into learning experiences offered to students. The role of art as a means of communicating messages about a sustainable future to others should also be included. The arts are a powerful medium through which ideas and feelings about sustainability can be expressed and art can be a medium through which bonds among people and with the Earth can be strengthened.

3 Commerce and Business Studies
Commerce provides opportunities for investigating the relationships between business, industry and sustainability. It can also help students learn how to manage resources carefully, to plan for the future and to apply ethical criteria in financial decision-making.

4 First Language Studies
All aspects of language arts have an important role to play in Education for Sustainable Development. Many elements of sustainable futures can serve as excellent topics for creative writing. There is also a wealth of national literature – poetry, prose, drama and so on – which deals with people's relationships with other cultures and with the planet in a variety of interesting, sensitive and thought-provoking ways.

5 Second Language Studies
Programmes in second language learning provide excellent opportunities to develop a global orientation to studies of sustainability. This is particularly true at higher-grade levels when current publications in the second language can be used as source material.

6 Health and Physical Education
Health education is one of the most important subject areas to deal with various aspects of sustainability. Both physical and mental health is dependent upon high quality natural and built environments. Topics such as hazardous chemicals in the home and the workplace, air and water pollution, the need for healthy recreation activities in both indoor and outdoor settings and the relationship between noise and health are important to consider when planning a health education curriculum.

The development of recreational skills has become an important part of the physical education curriculum in recent years. Included in this emphasis are canoeing, backpacking, camping, fishing and other outdoor activities. Physical education programmes have become a means to deal with topics such as outdoor ethics, the pros and cons of hunting, consumptive versus non-consumptive outdoor activities and the relationship of a quality environment to physical and mental health.

7 Home Economics
Home economics affords an opportunity to examine such issues as energy use and conservation, excess packaging and solid waste disposal, recycling, chemical food additives, hazardous chemicals in the home and other lifestyle-related topics.

8 Mathematics
The resolution of sustainability issues is often dependent on the collection and analysis of data and the communication of results. Mathematics is an important tool for this. Many mathematical concepts can be illustrated by experiences and examples from the natural, social, economic and political environments.

9 Manual Arts and Technology
Education for Sustainable Development is concerned with exploring the consequences of the interactions between technology and resources. It is also involved with exploring issues surrounding the application of new technology.

10 Religious Education
Education for Sustainable Development provides opportunities for exploring the spiritual connections between people and nature. It is also concerned with the religious, moral and ethical implications of decisions affecting sustainability.

11 Science
The study of science presents numerous opportunities to deal with sustainability topics. An important part of the content of Education for Sustainable Development involves sciences. For example, the emphasis on the development of problem solving skills and the study of the relationships between science, technology and society are very important. However, it would be wrong to equate Education for Sustainable Development with science as the humanities, social sciences and the arts, as well as other aspects of the curriculum also have key roles to play.

12 Social Studies
Since policy decisions at the local, state, national, and global levels are made within the contexts of social institutions and human values, the various social studies or social sciences (such as geography, history, political science, anthropology, sociology, psychology, etc.) can contribute greatly to the study of how alternative plans and actions can affect a sustainable future.

38 Adapted from S. Mao, 2018, *ESD-Integrated Syllabus For Upper Secondary School Teacher Training (Bachelor + 1)*, at National Institute of Education (NIE), Cambodia, (unpublished manuscript).

Facilitating participation in decision-making is essential to overcome another invisible block to ESD integration – the challenge of ensuring participation and engagement across traditional disciplinary boundaries within our institutions. ESD is often strongly associated with environmental issues, and therefore ESD content is often developed within the realm of the natural sciences. However, if one truly understands the holistic and integrated nature of ESD at the centre of the Integration Framework, it is necessary to sensitively and effectively traverse disciplinary boundaries and create links between environmental issues and the social and economic dimensions of sustainable development.

Figure 15: The ESD Integration Framework identifies the challenges of working across different disciplines to implement cross-curriculum change.

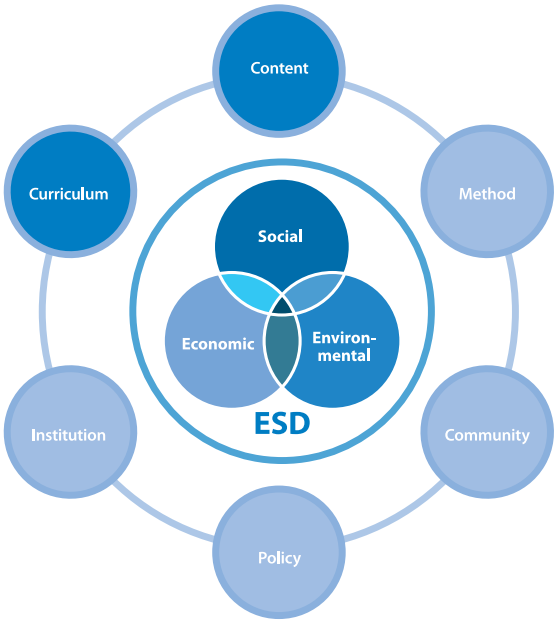


Figure 15 reminds us of the challenge of overcoming rigid curriculum structures. This challenge can be addressed through a more holistic understanding of ESD and ensuring that individuals from across different disciplines participate in decision-making in the change process.

Box 9 *illustrates cross-curricular lesson plans developed by colleagues in the National Institute of Education in Cambodia.*

Finally, the **fourth tool** is to ensure that resources are available to support the change process. We often think of resources in terms of funding. It is essential that the situational analysis inform us of the currently available and potentially accessible resources – both financial *and* human. While funding is important, it is essential that we learn to apply the principle of sustainability to ensure that resources are available to use for the long-term to benefit not just the present but also the future generations.

All four tools need to be working together if we are to ensure that we are able to **ACT** on the planned process of change. In fact, not only do these tools need to work together, but we all need to work together. This is more than just about stakeholder engagement in planning and decision-making. This is about a whole-of-institution commitment to ESD integration. Many of our previous examples have focused on teacher education institutions as the site of change. One of the most inspiring examples witnessed by the participants in the course of the project *Sustainability Begins with Teachers in South-East Asia* was a primary school in northern Thailand that has been successful in embracing this commitment to whole-of-institution change for sustainability.

Box 10

Whole-of-institution and community example of ESD integration[39]

Bansankong School, Chiang Rai, Thailand

Bansankong School took a whole-of-school approach to ESD integration. They applied a 7-step problem-based learning in every classroom activity. This helped promote professional development and a child-centred learning approach. Moreover, an integrated local curriculum was developed by school staff and students, with local community issues as learning resources. The following is a brief account of the project produced by the Ministry of Education of Thailand.

> 'The Participatory Learning Leading to Integrated Community Development Project: A Case Study of Bansankong School' is a pilot project of learning reform in a whole-school approach. Teacher guidelines will be developed specifically for Bansankong School and will be used in developing an integrated curriculum, as well as to promote child-centred teaching-learning methods, using the community as a resource for learning.
>
> The guidelines consist of seven steps in a case study approach:
>
> 1. **Students collect information from the community;**
> 2. **Students choose a problem to study in depth;**
> 3. **Students present findings to stakeholders;**
> 4. **Community members and students consider various alternatives and choose one;**
> 5. **Community members plan a project along with teachers and students;**
> 6. **Villagers implement the project with teacher and student involvement; and**
> 7. **Students work with teachers and community members in evaluating the outcomes of the project and report their findings to the community.**
>
> The learning strategies will be introduced into classrooms, ranging from kindergarten to Grade 6. The school has 25 teachers and more than 650 students representing five hill tribe villages. It is also expected that there will be about 2,000 community members involved in this learning process.
>
> The project activities will include workshops to develop the teacher guidelines, teacher workshops both in large and small groups at the school site, follow-up by implementation staff and educational service area staff, and self-reflection and assessment by school staff. The project serves a dual simultaneous purpose: localization of curricula to support sustainable development and experiential learning promotion.'[40]

39 We encourage you to read the full story in order to appreciate the different elements, individuals and institutions that contributed to the success of ESD integration in Bansankong School. See P. V. Vachatimanont, 2012, *A Recipe for Success: A Story of Bansankong School for Tales*, in J. R. Guevara, N. Yoshiyuki, S. Tomoko (eds), Tales of Hope III: EFA-ESD Linkages and Synergies, Tokyo, Asia Pacific Cultural Centre for UNESCO (ACCU). Available at: http://www.accu.or.jp/esd/hope/pdf/tales_of_Hope3.pdf

40 Bureau for Innovative Development in Education (BIDE), The Office of the Basic Education Commission (OBEC), Thailand Ministry of Education (MoE), n.d., *Participatory Learning Leading to Integrated Community Development: A Case Study of Bansankong School* [Executive Summary of the Project]. Available at: http://www.accu.or.jp/esd/projects/ip/ip01_thailand.shtml

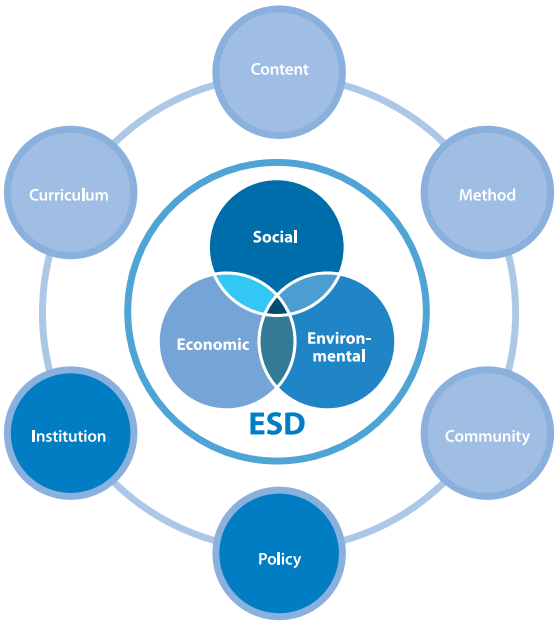
*See **Box 10** for a brief description of the achievements of Bansankong School in Chiang Rai, Thailand in integrating ESD across the curriculum, the whole school and the surrounding local community, starting from building the capacity of teachers in a learning method called the '7-step approach of problem-based learning.'*

5.2 Observing the change process

To **ACT** is the key to change. However, action that we do not **OBSERVE** and **REFLECT** on may become a short-term achievement that, while still worth celebrating, will struggle to embed the deep roots of change within the institution. Therefore, to **OBSERVE** and identify valuable lessons is a key ingredient of an action research approach. This is more than just a casual process of observing and documenting the process and the outcomes.

We usually observe the outcomes or achievements of an ESD initiative. For example, a reduction in the use of plastic bags instigated by a university-based environmental initiative is a visible and often measurable ESD achievement. Using the ESD Integration Framework, we can **OBSERVE** how this initiative is achieved through institutional policy change that physically bans plastic bags on campus, as illustrated in Figure 16.

Figure 16: The ESD Integration Framework identifies the contribution of a university plastic bag ban initiative.

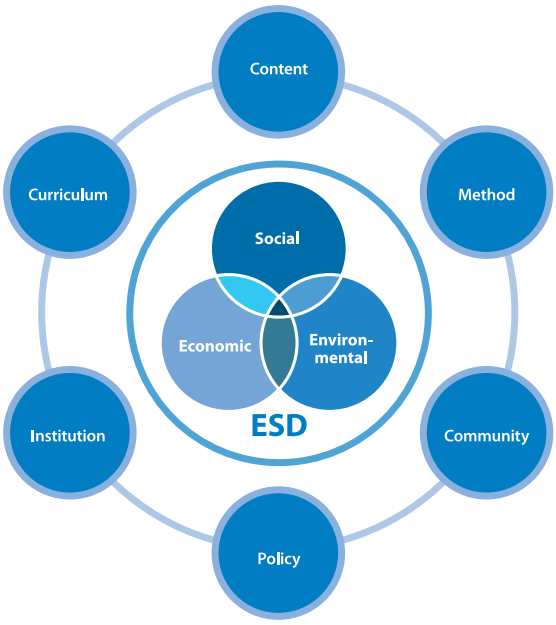


However, it is essential not to just **OBSERVE** the outcome. It is also critically important to **OBSERVE** the *process*. This is a purposeful process of observing how the plan is being implemented and received by the different stakeholders and is called 'process observation'.

Continuing with the above example, observing the process of change in plastic bag use reveals that one cannot fully solve this problem without engaging market vendors outside the university where students buy their snacks. The alternative is to expand the scope of the policy change sought – to advocate to local government to ban plastic bags. This is possible but most probably a more long-term goal.

Linking the desired behaviour change of re-usable bag use among students to a co-curricular activity is another proven strategy to expand the impact and encompass curriculum change. Taken together, these two examples demonstrate how the initial scope of activity can be expanded to involve multiple elements of the ESD Integration Framework (see Figure 17).

Figure 17: The ESD Integration Framework expanding the impact of a university plastic bag ban, together with a co-curricular student activity that also engaged the community.



*See **Box 11** for a description of how students in Souphanouvong University in Lao PDR have successfully reduced plastic bag use through a co-curricular activity that involved not just policy change, but also engaging the local market vendors in the change process.*

Box 11

Co-curricular activity as an entry point for ESD integration[41]

At Souphanouvong University in Luang Prabang, Lao PDR, the 'Green Campus Project' was launched to raise awareness, to educate and inspire Faculty of Education staff, students and teachers, along with the broader community, about how and why they should take care of our natural environment. The project had three objectives: (1) to reduce plastic bag use on campus; (2) to educate and encourage students to recycle and compost; and (3) to develop sustainable campus gardening practices and inspire environmental leadership.

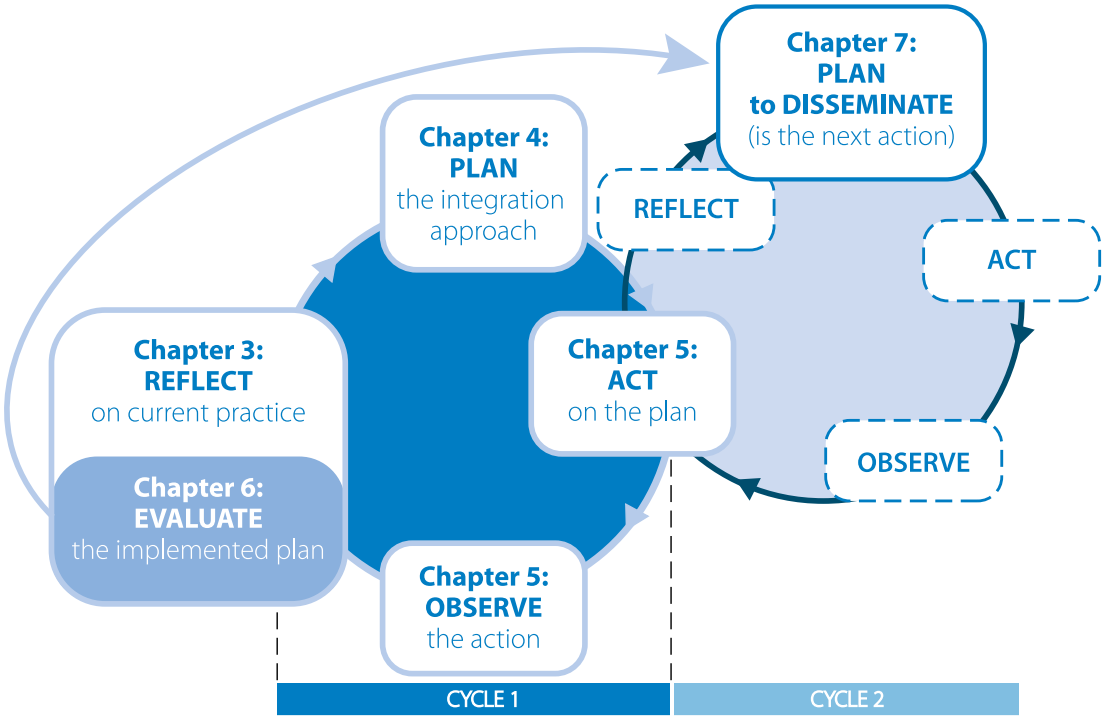
The project was conducted through the participation of student volunteers who helped to make posters and stickers to remind their classmates to 'Say NO to Plastic Bags'. They also distributed re-usable bags to students living in dormitories and reminded them to bring these bags to the market. In addition, staff from both the Faculty of Agriculture and Faculty of Education engaged staff in recycling and composting workshops and helped to create composting facilities on campus.

This project was designed to directly address the observed problem of littering and plastic bag consumption in Luang Prabang. However, the Faculty of Education has been clear that the broader aim is to educate future teachers about environmental stewardship.

41 Adapted from S. San and T. Vathanavong, 2018, *Change Process Documentation Souphanouvong University Faculty of Education*, (unpublished manuscript).

6 Evaluate

Figure 18: The EVALUATE stage

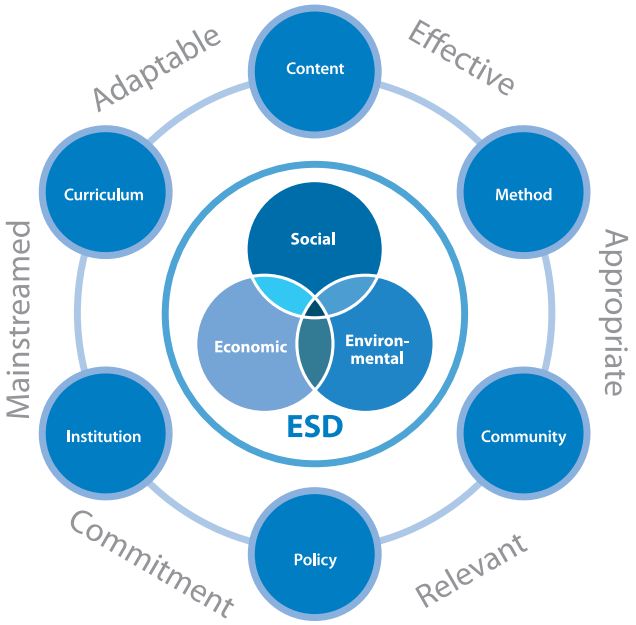


As we progress though the action research cycle, we arrive again at the **REFLECT** stage whereby instead of examining the current situation, we will **EVALUATE** the impact, or contribution, of the ESD integration initiative to generate change. As you will note, the **OBSERVE** stage, if done well, helps with conducting this evaluation. The ESD Integration Framework has been applied across the different stages: in conducting the ESD Situational Analysis; in planning and observing the ESD Integration initiative; and it will now be used as an evaluative tool. Two examples are provided where the framework can be used to evaluate ESD integration initiatives and to assess the ESD competencies of teachers.

6.1 Evaluating ESD integration in institutions

The framework sets the standards that ESD integration aims to achieve, while recognizing the inherent interrelatedness of these six elements.

Figure 19: Evaluating the implementation of the ESD Integration Framework



ESD Integration needs to be **EFFECTIVE** through identifying content that develops knowledge, skills and attitudes, via teaching and learning approaches that are **APPROPRIATE** for the specific learners and their local contexts and **RELEVANT** to current policy frameworks.

These ESD integration efforts need to be **MAINSTREAMED** within both the institution demonstrating a **COMMITMENT** to transformation, and a curriculum that continues to be **ADAPTABLE** to the dynamic context of change.

6.1.1 ESD Integration framework for evaluation

The following is a quick evaluation tool that has been developed, based on the elements of the ESD Integration Framework. As with the other tools in this guidebook, feel free to adapt this to your own local context.

Table 3: ESD integration evaluation checklist

Characteristics of ESD Integration	Yes/No	Cite specific evidence
EFFECTIVE Do teachers develop an understanding of the concept and practice of ESD through the identified content areas in the curriculum?		
APPROPRIATE Are the teaching and learning approaches used appropriate for the level and experience of the students/teachers?		
RELEVANT Is the curriculum (content and method) relevant to the local context? Is the curriculum relevant to current policy frameworks?		
COMMITMENT Is there evidence of institutional leadership and commitment to ESD integration?		
ADAPTABLE Are there processes to ensure that curriculum structure and content remain adaptable to the dynamic context of change?		
MAINSTREAMED Overall, is there sufficient evidence of ESD being mainstreamed in the curriculum and in the institution?		

6.1.2 Institution/School and Community Evaluation Tool[42]

This tool focuses on a whole system approach to ESD. It has been designed for students and teachers to identify key areas of ESD – including policy and infrastructure, curriculum, cultural, environmental and economic aspects. This can help students and teachers gain a better understanding and appreciation of the role of context in integrating ESD in their teaching and learning practice.

*The complete Evaluation Tool has been included in **Annex 2** as **ESD Tool 5**.*

6.2 Evaluating Teacher ESD Competencies[43]

Despite obvious progress in the implementation of ESD in schools, the UN Decade of ESD Final Report observed the 'absence of clearly articulated ESD strategies and policies and the **lack of ESD educator competencies**' to enable effective capacity-building of teachers and school leaders who are key actors in this re-orientation of education to address sustainability.[44]

Guided by the ESD Integration Framework, we have adapted the **ESD Lens Review Tool** 13 to help identify and evaluate ESD educator competencies.

*The complete ESD Educator Competencies Evaluation Tool has been included in **Annex 2** as **ESD Tool 6**.*

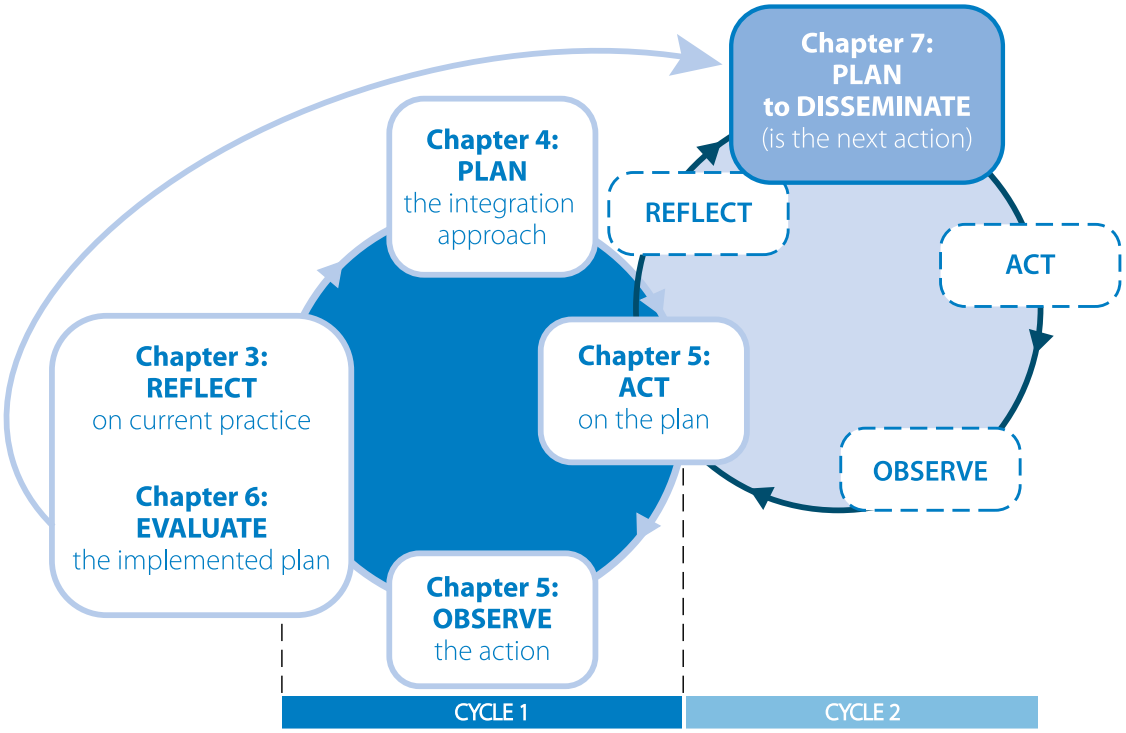
42 Adapted from 'ESD Lens Tool 12' in UNESCO, 2010b, *Education for Sustainable Development Lens: A Policy and Practice Review Tool,* Paris, UNESCO, pp. 82-86. Available at: http://unesdoc.unesco.org/images/0019/001908/190898e.pdf

43 Adapted from 'ESD Lens Review Tool 13', ibid., p. 91.

44 UNESCO, 2014, *Shaping the Future We Want: UN Decade of Education for Sustainable Development (2005-2014) Final Report*, Paris, UNESCO. Available at: http://unesdoc.unesco.org/images/0023/002303/230302e.pdf (Emphasis added).

7 Disseminate

Figure 20: The PLAN/DISSEMINATE stage



Guided by the action research approach and the ESD Integration Framework, the key to curriculum and institutional change is the actual facilitation of the change process. The first cycle has identified the critical stages involved in conducting the process within your own institution.

The second cycle, which applies lessons learned from the first cycle, will help continue the process of ESD integration within your respective institutions. As mentioned earlier, a single institution that successfully integrates ESD is in itself an achievement. However, the impact of this achievement can be enhanced by sharing the experience with other institutions and communities. The **DISSEMINATE** stage has been added to encourage broader change that is consistent with the aim of ESD to reorient the whole education system towards sustainability.

7.1 Outreach ESD Integration Workshops

The following is a basic outline of a possible introductory ESD integration workshop, which draws from the experiences of the series of workshops conducted under the project *Sustainability Beings with Teachers in South-East Asia*.

The workshop design in Table 4 provides a guide and not a prescription. We have referred to specific sections of the present Guide to provide you with both suggested content and processes. Feel free to adapt this based on the results of your own situational analysis. This workshop can be conducted for your respective institutions and also adapted to outreach workshops for other universities and teacher education institutions.

Table 4: Suggested ESD integration workshop design

Topics	Activity and Tools	Learning Objectives/ Expected Outcome
	(link to Sections of the Guide)	
Invitation to participate in an ESD integration process.	1 / 3.2	Establish institutional support and form a core group of staff who are interested in contributing to the ESD integration process.
Understanding ESD and ESD integration.	2.1 / 2.2	Capacity building of interested staff members to understand ESD and the ESD Integration Framework.
Adapting an action research approach to ESD integration.	2.3	Capacity building of interested staff members to understand the action research approach to ESD integration as a change process.
REFLECT Situational analysis of ESD integration.	3	Identify current ESD-related activities and opportunities for strengthening ESD integration.
PLAN Identify entry points for ESD integration.	4	Identify plans and key stakeholders for ESD integration as co-agents of change.
ACT/OBSERVE Implementing ESD integration initiatives	5	Conduct and observe the change process for ESD integration.
EVALUATE Evaluating ESD integration outcomes.	6	Identify the outcomes and impacts of the ESD integration change process.
DISSEMINATE The challenge to continue to share the experience.	7	Share the lessons learned about ESD integration as a change process.

7.2 Building a movement for change

Believing in change will often result in a desire to share the experience with others in order to motivate them to also become part of the change and to contribute to achieving sustainable development at the global level. The action research approach has emphasized the need to identify and engage key stakeholders in the change process for respective institutions. Conducting outreach ESD Integration workshops, as outlined above, helps to disseminate and share the process of change. However, as valuable as each small initiative is, it is important to remind ourselves that the scale of the sustainability problem is greater than what a few teacher education institutions can address.

Like ripples in a pond, as teachers we can have a long-lasting effect on our students, their families and their communities. However, what we need is a broader base for change, or building what can be described as, not just a network, but ***a movement for change***.

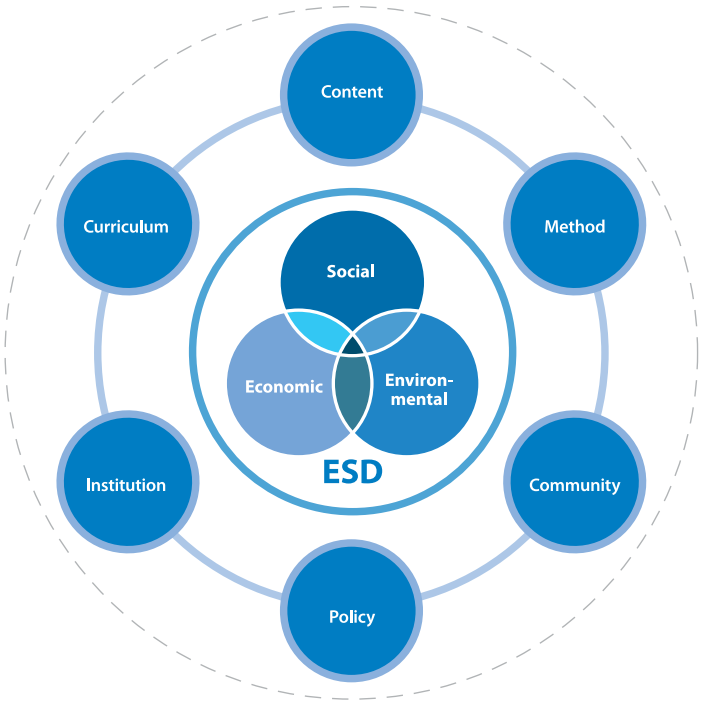
7.3 Lessons from practice

Universitas Gadjah Mada (UGM) in Yogyakarta, Indonesia developed an ESD initiative that began as the Student Community Services (KKN) programme. Within this programme, groups of five to seven students spend two months in a local village and get three university credits for that particular semester. The aim is to develop the skills of students for research and problem solving based on the real needs of the local community, with guidance from lecturers.

The programme is based on actual mainstreaming of the links between local issues to global frameworks such as ESD and the SDGs. Applying the ESD Integration Framework helps to illustrate how this programme encompasses the different elements of the framework. It has a curriculum mainstreaming element that links the content of water pollution to the methods of immersion within the local community. The fact that this has institutional support and obtains university credits is a further demonstration of institutional mainstreaming.

*See **Box 12** to learn more about how UGM's Indonesian River Restoration Movement and the River School Movement have lived up to their reputations of being movements for change beyond the boundaries of their local university and community.*

Figure 21: The ESD Integration Framework is fully embraced by the UGM KKN programme of curriculum and institutional mainstreaming.



Box 12

Building a movement for change[45]

UGM is widely recognized for the Indonesian River Restoration Movement (IRRM) and the River School Movement (RSM). These movements are the result of a noticeable decline in the health of rivers across Indonesia due to waterways becoming convenient places to dispose of both household and industrial waste. The massive amount of pollution entering rivers has been exacerbated by increased human settlements along riverbanks and this has resulted in the narrowing of rivers and flood plains and has turned many into mere canals that are easily clogged by waste.

Both IRRM and RSM's approach is based on the principle that 'the spirit of movement is to learn, to act and to solve the problem right now.' Both movements are committed to restoring the life of rivers through an approach informed by the SDGs; that is systemic, involves all stakeholders and embraces all knowledge(s); is built on networking between different river groups across the archipelago who are connected through e-communication; that takes a knowledge-based approach; and is community-based.

45 Adapted from A. Maryono, 2016, *Indonesian River Restoration Movement (IRRM) toward Education for Sustainable Development* (ESD), available at: https://www.slideshare.net/HannaStahlberg/indonesian-river-restoration-movement-2016-irrm-yogyakarta

ANNEX 1
Sample learning activities

Sample Learning Activity 1: ESD Straw and Recycling Bag Game[46]

Purpose

This activity aims to help participants understand the concept of sustainable development, sustainable resource management and consumption pattern impacts on the environment and humans, between generations.

Instructions

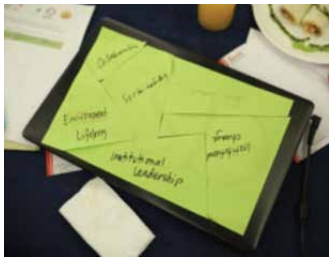
1. Participants sit in a circle of 6-10 people.
2. The facilitator introduces key materials: a bag that contains a mix of red and blue pieces of straw and a basket that contains only red pieces of straw outside the bag. Blue straw represents 'product' and red straw represents 'waste'. The red straw in the basket is for 'recycling'.
3. Ask a person to take a handful of straw from the black bag.
4. Count the number of blue pieces of straw taken. If there is no blue straw, then the person is deemed unable to survive and is considered dead. In the bag, blue straw is a representative of a 'product', while red straw is waste from production and is a recycling item. If there are any pieces of blue straw, then take the same number of red pieces of straw from the recycling basket and put the blue and red straw together into the black bag.
5. Ask another person to take a handful of straw from the black bag, then continue until everyone has taken straw from the black bag. Count the number of those unable to survive.
6. Discuss the changes in the number of red straw in the basket and the blue and red straw in the bag and the impact of one's consumption on others.
7. Ask the group to discuss how to divide the blue and red straw and put them in the black bag and the basket in order to start the game again.
8. The facilitator informs the group that a timeframe of 30 years has since passed and a second generation has grown up – who face a limit in their recycling capacity. In the second round, we have to take two pieces of red straw from the recycling basket for each piece of blue straw taken from the black bag.
9. Discuss the impact the previous generation's consumption has had on the present generation.
10. The facilitator informs the group that another 30 years has since passed and a third generation has grown up. They face even more limitations in their recycling capacity. We now need to take three pieces of red straw from the recycling basket for each piece of blue straw from the black bag.
11. Ask the group to discuss how to manage this situation. Then start the third round.
12. Discuss the impacts of one's consumption on others intra-generationally and inter-generationally.

46 Adapted from A. Anunthavorasakul, 2018, *Straw and Recycling Bag Game,* (unpublished manuscript).

Sample Learning Activity 2: ESD Puzzle[47]

Purpose

This activity intends to help participants review the basic concepts of ESD.



ESD Watermark

Instructions

1. **Give each group the pieces of the puzzle in an envelope. (Note: make sure the shapes and sizes of the pieces vary.)**
2. **Upon receipt of the envelope, each member takes one or two pieces and writes an(y) important word(s) they know/ remember about ESD.**
3. **Within five minutes, they have to put the pieces together to form a whole picture.**
   (Note: The page has 'ESD' written in watermark although this is not visible enough to guide them in forming the picture.)
4. **They will present/publish their work. This can be done either by reading each word they have written, or by showing everyone their work through a 'Gallery Walk'.**

Background to the design of the activity

The following features of the activity are worth remembering when conducting the debriefing.

1. **The sizes of the pieces vary.**
2. **As participants form the picture there must be no gaps in between.**
   Clear connections lessen the gap. Conversations between stakeholders must be had to close the gaps.
3. **There is an ESD watermark.**
   Without exerting an effort to study the pieces, the group members may find it hard to form the ESD picture. The watermark (intentionally printed very light) reminds them that ESD has been in the school system for quite some time, but they do not recognize it as such. They just have to highlight its importance and value.
4. **Putting together the pieces is a communal effort.**
   For ESD integration to be successful, the concerted effort of everyone is of paramount importance. Senior management, school leaders, academy members and community representatives play a key role in the entire process.
5. **Know where to start.**
   Each unit/school/department has to clearly identify their entry point. Conduct needs assessment and a search for clues (in this case the ESD mark) and to build on this entry point.

47 Adapted from R. C. Bacus, 2018, *ESD Puzzle*, (unpublished manuscript).

Sample Learning Activity 3: Contextualizing the ESD Integration Framework[48]

Purpose

The ESD Integration Framework was developed to assist in the analysis, evaluation and planning for improving current practice by identifying the key elements of the process and how these elements are related to each other. To better understand the ESD Integration framework in practice and contextualize it in regards to local situations, we designed an activity that employs a ball of string to visualize the interrelationships between the elements of the framework. This is adapted from the very popular web-of-life activity often used to illustrate interrelationships between different parts of our environment.

Instructions

1. **Sit the participants in a circle.**
2. **Give each participant a blank piece of paper and a marking pen.**
3. **Go through each of the elements but only mention the specific example required.** *For example, ask what three environmental or development issues are most important to your community. Then ask three of them – preferably from different parts of the circle – to write each of the issues down.*
4. **Go through all the elements until all participants have written something down on their blank sheet of paper. Ask them to stick the sheet of paper on their chest.**
5. **Introduce the ball of string and start with one of the persons with the name of the local community. Ask them to pass the string to any of the other participants based on the example written on their piece of paper. Ask them to clearly identify and describe the relationship they think exists. Remind them that not all relationships are positive.**
6. **The next person then passes the string to another participant, based on the example written on their piece of paper, and to identify the relationship.**
7. **This continues until everyone has passed the string. To facilitate this, ask them to look around the circle to see who has not received the string before they pass it on. Additionally, encourage them to pass across the circle rather than to their immediate left or right to ensure a better web.**
8. **When all the participants are holding the string, ask them to observe what they see. A web or a network might be the response.**
9. **Now, place the ESD plus Social, Economic and Environmental pieces of paper in the middle of the web. Then ask what the web represents now. One response may be the interrelationships between these different parts of the system needed for ESD to succeed and to be integrated into the education system. Ask participants to keep this idea in mind as you will revisit this activity later.**
10. **Next, ask one of the participants to carefully let go of the string. Give one or two examples: What would happen if the teaching colleges did not teach ESD? Or what would happen if there was no policy to support the teaching of ESD? Or that the methods were**

48 Adapted from J. R. Guevara, 2018, *Contextualizing the ESD Integration Framework*, (unpublished manuscript).

not appropriate to engage students to learn about the issues? Pick one or two examples and see how the tight web of relationships becomes loose – maybe even making the ESD label fall to the ground.

11. You can also ask participants to suggest examples that illustrate letting go of the string from their own understanding. This also helps to make it more real for them.
12. Once you have explored the different meanings of the web and what could break the web as it relates to local ESD examples, ask participants to gently set the string down and stick their piece of paper to the string because you may want to revisit the relationships for the next part of the activity.

Processing the web activity

1. Stick the different examples on the board, or wall and identify the six elements of the ESD Integration Framework. I normally would stick the related pieces of paper together with the specific element.

Table 5: Using the elements to present the ESD Integration Framework

Elements identified in the Web Activity	Elements Matched to ESD Integration Framework
	

2. Using the layout of the ESD Integration Framework (Figure 6) helps to link the concept to the lived experience of the local context.

Background to the design of the activity

This activity is best conducted after participants have:

- Conducted a self-introduction so we have a better sense of who is in the room, what institutions they represent and their role in these institutions.
- Identified the local environment or development situation. It helps to have a sense of key ESD (or even environmental issues) that are familiar to the participants.
- Been introduced to the concepts of sustainable development and ESD, in particular the complex interrelationships between the social, economic and environmental dimensions.

Prior to the activity, you will need the following.

- **Marking pens.**
- **Sticky tape.**
- **Ball of string.**
- **Four pieces of paper with 'ESD', 'Social', 'Economic', 'Environmental' written on each one. Stick the papers together with ESD in the middle surrounded by the other three.**
- **A blank piece of paper or card (A4 size) for each participant.**
- **You need to have at least one example for each element of the framework. You also need enough of each element to enable the activity to result in an interesting set of local examples and a tight 'web' between these examples. The suggested elements and numbers are identified in the box below for a group of 15-20 participants.**

Table 6: Matching local examples with elements of ESD Integration Framework

Elements	Local example
CONTENT	Environmental or development issues a community is experiencing (two to three examples).
METHODS	Favourite methods to teaching that have been used (two to three examples).
CURRICULUM MAINSTREAMING	Subjects in their university, college or school where these environmental or development issues are discussed (two to three examples).
POLICY	The titles of national laws or education policies that are relevant to ESD (one to two examples).
COMMUNITY	The names of local communities (one to three examples).
INSTITUTIONAL MAINSTREAMING	The names of local universities or colleges (two to three examples).

Sample Learning Activity 4: Understanding Appreciative Inquiry[49]

Purpose

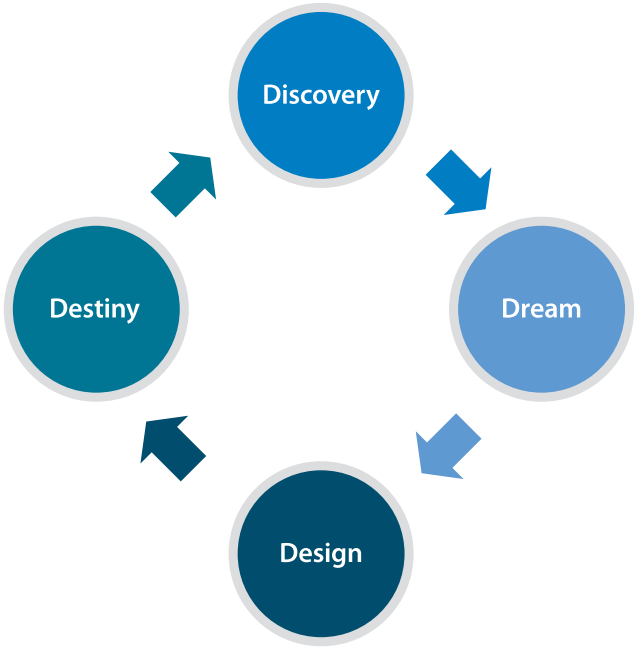
- **To provide participants with an overview of the definition and processes involved in Appreciative Inquiry that will complement the action research approach suggested by this guidebook.**
- **To encourage participants to deepen their understanding of appreciative inquiry by identifying current ESD practices within their own institutions.**

Preliminary activity

1. **Show a series of photographs of environmental problems that are familiar to the participants and based on the local context.**
2. **Ask the participants to find something positive in the photographs.**
3. **Link their responses to the following definition of Appreciative Inquiry.**

Appreciative Inquiry is guided by the 4-D Cycle methodology involving the following steps: Discovery, Dream, Design and Destiny, as represented in Figure 22.

Figure 22: 4-Ds of Appreciative Inquiry Process[50]



49 Activity by E. Abao, 2017, *Appreciative Inquiry to Envisage New EfS Education/Training Practices*, (unpublished manuscript), adapted from K. Shields and L. Hoggard, 2013, *Sustainability for Educators: A Toolkit of Learning Activities and Resources*, NSW, Byron Region Community College, pp.93-95.

50 Adapted from D. Cooperrider, n.d., *What is Appreciative Inquiry*. Available at: http://www.davidcooperrider.com/ai-process/

While this may appear as a process involving a series of steps, there is general agreement that one should not simply employ them mechanically as a series of techniques. Each of these steps is expanded upon in Table 7.

Table 7: The Appreciative Inquiry 4-D Cycle[51]

4-D Cycle Steps	Description	Guide to how it works
Discovery	***'What gives life?'*** The best of what is. Appreciating.	• Appreciating what is. • Identifying existing skills and attributes.
Dream	***'What might be?'*** Envisioning Results/Impact	• Envisage what might be. • Visions of a bold future.
Design	***'What should be the ideal?'*** Co-constructing	• Co-constructing what should be (prioritizing options). • Identifying existing skills and attributes.
Destiny	***'How to empower, learn and improve?'*** Sustaining	• Innovation to sustain what will be. • How to achieve and sustain dreams and designed goals.

Main activities

1. **After presenting a brief overview of the definition and processes of Appreciative Inquiry, introduce the participants to the focus topic for the activity: 'Improving the capacity of teachers (and co-teachers) to implement sustainability in their learning programmes'.**
2. **Prior to responding to the questions below, suggest that they think of:**
   a. **An example of a successful implementation of sustainable practice within their institution. Why was it successful?**
   b. **What factors could motivate your staff/colleagues to upgrade their skills in sustainability knowledge and practices?**
3. **Present each of the steps of the 4-D Cycle and the guide questions as outlined in Table 7 below. It is suggested that you present each step and maybe get a quick example from the participants.**
4. **After presenting all of the steps and the guide questions, allow participants sufficient time to work in groups before they present their responses.**
5. **It is important to highlight the key principles of Appreciative Inquiry during the presentations. This will help participants understand the concept and apply it in practice when they return to their own institutions.**

51 Adapted from Shields and Hoggard, op. cit., pp. 93-95.

Table 8: The Appreciative Inquiry 4-D Cycle Steps [52]

4-D Cycle Steps	Description	Guide to how it works
Discovery	Identify the positive core: assets, capacities, capabilities, resources, and strengths – 'What is?'	• Why are our teachers interested in engaging in capacity building for sustainability? • What skills and knowledge do they possess? • What resources can we currently access to build capacity and capabilities? • What favourable conditions exist within our institution that will help to implement sustainability practices?
Dream	Envision a bold future and imagine what could be achieved – 'What could be?'	• In 10 years' time, how will sustainability skills be incorporated into education and training within your own institutions? • What will we be doing better or differently? • What would you like to achieve with staff capability and capacity in relation to sustainability?
Design	Design possible improvements to our work to assist the implementation of our dreams – 'What should be?'	• What elements within your current organization, if ideally designed, could allow for continuous improvement in the provision of education and training about sustainability? • It might help to consider current job descriptions, rewards systems, communication systems, professional development opportunities and knowledge sharing. • What partnerships could enhance sustainable practices and content in our education and training?
Destiny	Identify how the dreams and design will be implemented and sustained over time. 'What can be?'	• What 'inspired actions' could we implement to give our teachers the capacity to incorporate sustainability into their learning programmes? • How and when will we implement these actions?

To conclude, ask the participants to revisit the definition of Appreciative Inquiry and the description of the 4-D methodology. Can they see the alignment between the aims, principles and methods of Appreciative Inquiry with the aims, principles and methods involved in ESD?

52 Adapted from Shields and Hoggard, op. cit., pp. 93-95.

ANNEX 2
ESD integration tools

ESD Tool 1: ESD and Teacher Education Mainstreaming Survey[53]

Objectives

To review the extent to which ESD is integrated into teacher education practices within teacher education institutions (TEIs).

Who should be involved in this review?

Teacher educators and TEI leaders/administrators/managers.

The review process

The following has been designed to be used at a teacher education institution level (i.e. in a college or university). Use the following guiding questions to describe the existing practice related to ESD in teacher education programmes, and the ESD teacher capabilities being developed. While the questions are answerable by 'yes' or 'no', optimize the opportunity to seek more details about current practices and the opportunities (or barriers) for possible change initiatives. Responses collected can inform wider, macro-review processes.

This tool can also be used at a macro-review level, i.e. to start a more in-depth review of a country's teacher education system and policies. If used at this level, it will need to be complemented with more in-depth research and review processes.

53 Text adapted from 'Review Question How does ESD influence teacher education?' in UNESCO, 2010b, pp. 87-89. Retrieved from: http://unesdoc.unesco.org/images/0019/001908/190898e.pdf

ESD and Teacher Education Mainstreaming Survey[54]

Adapted for use by: teacher educators and TEI leaders/administrators/managers.

Table 9: ESD and Teacher Education Mainstreaming Survey

Teacher Education	If 'YES', briefly describe existing practice	If 'NO', briefly describe any barriers and opportunities for possible change initiatives
1 Are all student-teachers exposed to the importance of ESD?		
2 Is ESD seen as a whole-of-curriculum priority by the institution?		
3 Are cross-curricular and thematic possibilities developed at a policy, institutional and/or programmatic level in teacher education?		
4 Is ESD infused into all core courses in teacher education programmes (e.g. in studies in education; curriculum theory; curriculum planning; applied curriculum studies for teaching different subjects)?		
5 Is ESD infused into the range of elective courses in teacher education programmes so that student-teachers can develop advanced understanding of aspects of ESD and skills if they wish?		
6 Are continuous professional development programmes in ESD available for teacher educators to build their commitment and capabilities to implement and develop ESD?		

54 Adapted from 'ESD Lens Review Tool 13' in UNESCO, 2010b, *Education for Sustainable Development Lens: A Policy and Practice Review Tool*, Paris, UNESCO, p. 90. Available at: http://unesdoc.unesco.org/images/0019/001908/190898e.pdf

ESD Tool 2: ESD and Action Planning for Change[55] Tools

Purpose

- To help systematize this plan, in order to make it easier for you to share and motivate others to work with you to achieve this aim.
- To motivate participants to identify the end and starting point of the plan, guided by the principles of Appreciative Inquiry.

Instructions

- Ask the participants to describe or draw the current situation, or what we have called DISCOVERY, or the Situational Analysis. We have identified tools (ESD Tool 1) and guide questions (Table 9) to help you with this step.
- Similarly, ask the participants to describe or draw their DREAM of the future, based on the guide questions (Learning Activity 4). It is advisable to have a specific timeframe, which for the purposes of the workshops conducted under the project *Sustainability Begins with Teachers in South-East Asia* was 2030, as identified in the slide below. This end-date of 2030 is significant as it aligns with the end of the commitment period of the current UN Sustainable Development Goals (SDGs).
- Long-range planning steps have been identified in the slide below, which asks the participants to first envision situations at key points by backcasting from 2030 to the present, for example the situation in 2025, in a year and next month.
- These situations, when transformed into objectives, will then help to identify specific activities or what needs to be done to contribute to achieving these objectives, for example by next month, in a year, by 2025 and finally by 2030. As with previous activities, feel free to adapt the key dates.
- Table 9 can be used to present the series of activities that have been identified to contribute to achieving the long-term, medium-term and short-term objectives. The table also helps to assist the participants to identify resources required and the individuals or groups that they may wish to involve.
- Table 10 is a more detailed action-planning tool specific to one activity.

55 Activity from U. Miura, 2018. *Action Planning*, (unpublished manuscript).

Figure 23: Action Planning

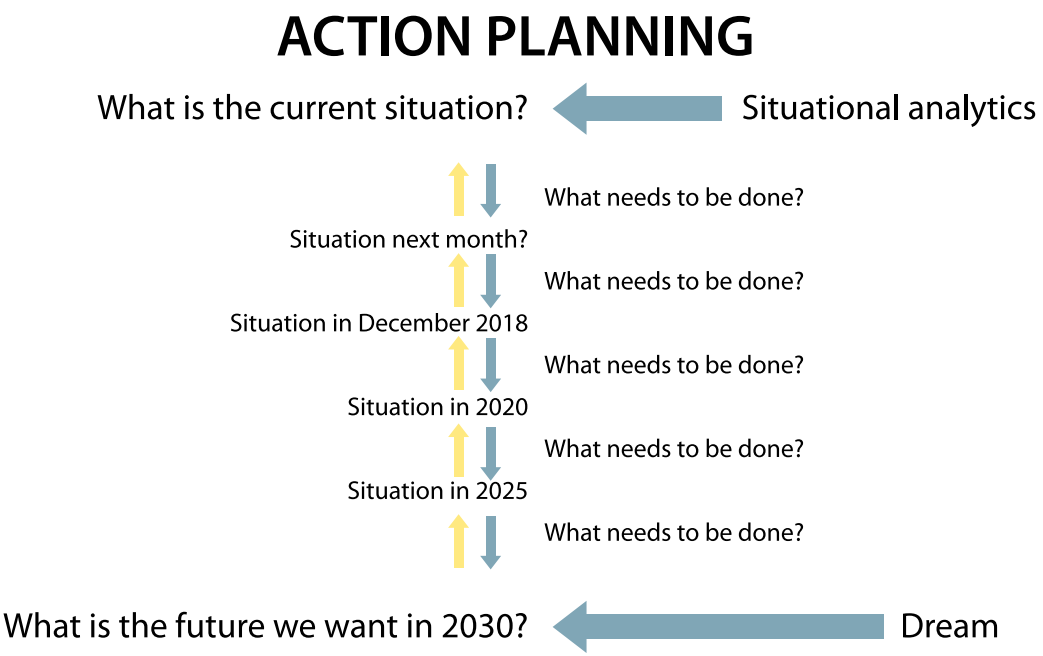


Table 10: Example of a General Plan of Action

General Plan of Action			
Name of teacher education university/college:			
Prepared by:			
Overall objective:			
Major activities that contribute to the objective	With whom, or, Who to involve?	Support or resources needed	When?

Table 11: Example of a Detailed Plan of Action Table

Detailed Plan of Action Table	
Name of teacher education university/college:	
Prepared by:	
Category	**Details and Description**
Title of activity	
Objectives and expected output	
Methodology and timing	
Potential risks/challenges	
Funding requirements and partners	
Follow-up activities and next steps	

ESD Tool 3: Stakeholder Mapping Activity 1

All these key tools are utilized to ensure on-going participation and engagement of your colleagues as co-change agents with varying roles and responsibilities. A critical step as part of developing any action plan will involve the identification of these co-change agents, often called stakeholders.

The following table can be utilized to help to identify these key stakeholders.

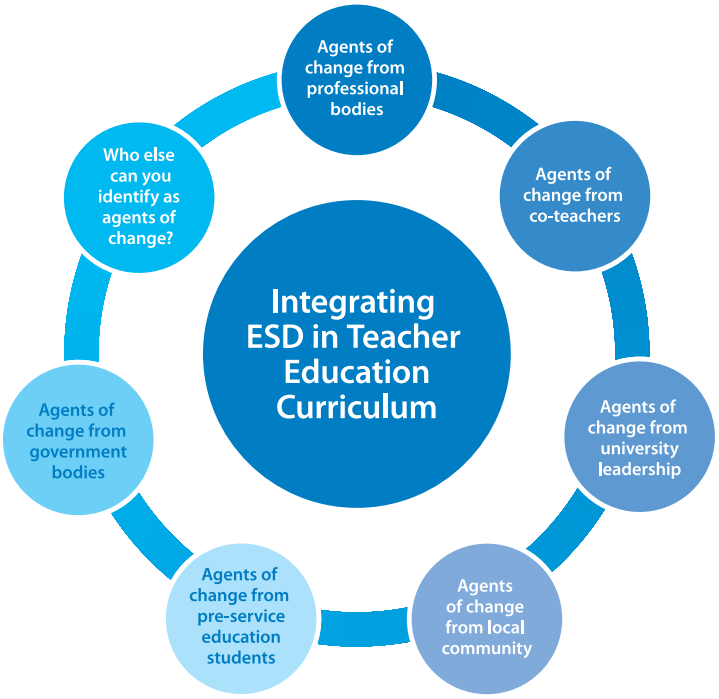
Table: 12: Stakeholder Analysis

	Internal stakeholders (within your institution)	External stakeholders (outside your institution)
Recall your previous initiatives that illustrate certain elements of ESD.		
List the individuals you have worked with who have contributed to your ESD-related initiatives.		
List the groups you have worked with who have contributed to your ESD-related initiatives.		
Reflect on the current situation, informed by your situational analysis.		
List the individuals who have an influence in decisions made about your curriculum.		
List the institutions who have an influence in decisions made about your curriculum.		
Moving forward		
From the lists above, who are the individuals who can be your co-agents of change to mainstream ESD within the curriculum? How do you engage them?		
From the list above, which groups can be your co-agents of change to mainstream ESD within your institution? How do you engage with them?		

ESD Tool 4: Stakeholder Mapping Activity 2

Another way to identify individuals and group stakeholders is to visually map these co-agents of change into the action research process for integrating ESD in the pre-service education curriculum. This is an example that has been adapted from the Education for Sustainability initiative conducted in Queensland, Australia.[56]

Figure 24: Stakeholder mapping as co-agents of change[57]



56 Adapted from F. Steele, 2010, *Mainstreaming education for sustainability into pre-service teacher education in Australia: Enablers and Constraints*, Sydney, Australian Research Institute in Education for Sustainability (ARIES), p. 12. Available at: http://aries.mq.edu.au/projects/preservice3/Pre-Service_Teacher_Ed3.pdf (page 12).

57 Adapted from ibid., p.12

ESD Tool 5: School and Community Evaluation Tool[58]

	The Formal Curriculum	Excellent 4	Good 3	Fair 2	Getting started 1
1	There is a written policy that clearly states the aims and objectives of ESD in our school.				
2	There is effective co-ordination of ESD as a cross-curricular theme.				
3	We take every opportunity to introduce issues of sustainable development into all subjects.				
4	We have a good supply of teaching materials on issues of sustainable development for all grades.				
5	We regularly evaluate the effectiveness of our teaching about sustainable development.				
	Formal Curriculum Sub-Score				

	Socio-political Dimensions of Sustainability	Excellent 4	Good 3	Fair 2	Getting started 1
6	The prevailing ethos of the school and the curriculum is sensitive to issues of gender equity.				
7	Students are given opportunities and taught skills to participate constructively in helping to solve local community problems.				
8	The prevailing ethos of the school and the curriculum adequately prepares students for life as citizens of a global community.				
9	The special needs of all students, especially those with physical or learning disabilities are catered for.				
10	All staff are skilled in conflict resolution strategies as a support for positive student behaviour.				
	Social Dimension Sub-Score				

58 Adapted from the 'Sustainable Schools Audit: ESD Lens Tool 12' in UNESCO, 2010b, *Education for Sustainable Development Lens: A Policy and Practice Review Tool*, Paris, UNESCO, pp. 82-86. Available at: http://unesdoc.unesco.org/images/0019/001908/190898e.pdf

	Ecological Dimensions of Sustainability	Excellent 4	Good 3	Fair 2	Getting started 1
11	The school uses recycled materials whenever possible and has an active and comprehensive recycling policy.				
12	The school actively promotes and practices energy efficiency.				
13	The school purchases and uses resources with a view to minimizing harm to the planet.				
14	School buildings and surroundings provide an aesthetically pleasing environment in which to live and learn.				
15	The school actively promotes attitudes of care and responsibilities for nature.				
	Ecological Dimension Sub-Score				

	Economic Dimensions of Sustainability	Excellent 4	Good 3	Fair 2	Getting started 1
16	A spirit of co-operation and sharing – not competition – is modelled in the allocation of resources in the school.				
17	Students learn small business skills through opportunities to organize school and community projects.				
18	Students have opportunities to participate in decisions about how resources are allocated in the school.				
19	A culture of maintenance ensures that all school buildings and equipment are kept in good repair and maintained in a good condition.				
20	The school's fund-raising activities reflect ethical principles.				
	Economic Dimension Sub-Score				

	Cultural Dimensions of Sustainability	Excellent 4	Good 3	Fair 2	Getting started 1
21	The school ethos fosters self-esteem, mutual regard and humane social relationships.				
22	The prevailing ethos of the school and the curriculum adequately prepares students for life in a multicultural society.				
23	The school plays an active role in building support for cultural diversity, both within the school and its wider community.				
24	The school plays an active role in the community and the community in the school.				
25	The prevailing ethos of the school demonstrates that people matter and that everyone has a contribution to make to sustainable development.				
	Cultural Dimension Sub-Score				

Transfer five sub-scores to the table below and calculate a total score out of 100. The higher the score, the better the school's orientation towards ESD. Lower scores indicate what changes can be made and these will inform future action plans and priorities.

The Formal Curriculum	
Socio-Political Dimensions	
Economic Dimension	
Ecological Dimension	
Cultural Dimension	
TOTAL	

ESD Tool 6: Evaluating Teacher ESD Competencies[59]

Table 13: Evaluating ESD Competencies

	ESD Competencies	Existing practice	Possible initiatives/ changes
1	**ESD CONCEPT** Are teachers developing an understanding of the philosophy, objectives and characteristics of ESD?		
2	**ESD CONTENT** Are teachers developing their knowledge to understand and explain these local and global issues that impact on achieving sustainable development?		
3	**ESD METHODS** Are teachers developing the skills to use a variety of effective teaching and learning approaches to achieve the wide range of ESD objectives?		
4	**ESD CURRICULUM MAINSTREAMING** Are teachers developing an understanding of how to implement ESD as a cross-curricular theme and how ESD can enrich subject teaching?		
5	**ESD POLICIES** Are teachers developing an appreciation of the relevance of ESD and an awareness of the current policies and initiatives aligning ESD to national development and education goals, specifically in terms of quality education?		
6	**ESD and COMMUNITY** Are teachers developing appropriate strategies for identifying and engaging with communities and local issues in relation to global issues?		
7	**ESD INSTITUTIONAL MAINSTREAMING** Are teachers developing an awareness of the institutional structures and processes that are crucial for successfully integrating ESD?		

59 Adapted from 'ESD Lens Review Tool 13' in UNESCO, 2010b, *Education for Sustainable Development Lens: A Policy and Practice Review Tool*, Paris, UNESCO, p. 91. Available at: http://unesdoc.unesco.org/images/0019/001908/190898e.pdf

ANNEX 3
Online ESD resources for further reading

Reorienting teacher education to address sustainable development guidelines and tools series:

Baker, S. 2010. *Reorienting Teacher Education to Address Sustainable Development Guidelines and Tools: HIV/AIDS*. Bangkok, Thailand, UNESCO Bangkok. Available at: http://unesdoc.unesco.org/images/0018/001890/189053E.pdf

deLeo, J. 2010. *Reorienting Teacher Education to Address Sustainable Development Guidelines and Tools: Education for Intercultural Understanding*. Bangkok, Thailand, UNESCO Bangkok. Available at: http://unesdoc.unesco.org/images/0018/001890/189051E.pdf

Gregario, L. 2010. *Reorienting Teacher Education to Address Sustainable Development Guidelines and Tools: Scientific Literacy and Natural Disaster Preparedness*. Bangkok, Thailand, UNESCO Bangkok. Available at: http://unesdoc.unesco.org/images/0018/001890/189050e.pdf

Heng, Chan Lean. 2010. *Reorienting Teacher Education to Address Sustainable Development Guidelines and Tools: Gender Sensitizing. Bangkok,* Thailand, UNESCO Bangkok. Available at: http://unesdoc.unesco.org/images/0018/001890/189054E.pdf

Steele, R. 2010. *Reorienting Teacher Education to Address Sustainable Development: Guidelines and Tools: Environmental Protection*. Bangkok, Thailand, UNESCO Bangkok. Available at: http://unesdoc.unesco.org/images/0018/001890/189062E.pdf

Education for sustainable development in action: learning and training tools series:

UNESCO Education Sector. 2006. *Education for Sustainable Development in Action: Learning & Training Tools N°1, Education for Sustainable Development Toolkit*. Paris, France, UNESCO. Available at: http://unesdoc.unesco.org/images/0015/001524/152453eo.pdf

UNESCO Education Sector. 2010. *Education for Sustainable Development in Action Learning & Training Tools N° 2, Education for Sustainable Development Lens: A Policy and Practice Review Tool*. Paris, France, UNESCO. Available at: http://unesdoc.unesco.org/images/0019/001908/190898e.pdf

UNESCO Education Sector. 2012a. *Education for Sustainable Development in Action: Learning & Training Tools N°3: Exploring Sustainable Development: A Multiple-Perspective Approach*. Paris, France, UNESCO. Available at: http://unesdoc.unesco.org/images/0021/002154/215431E.pdf

UNESCO Education Sector. 2012b. *Education for Sustainable Development in Action, Learning and Training Tools N°4: Education for Sustainable Development Source Book*. Paris, France, UNESCO. Available at: http://unesdoc.unesco.org/images/0021/002163/216383e.pdf

Education for sustainable development in action good practices series:

UNESCO. 2007a. *Education for Sustainable Development in Action Good Practices N°1: Good Practices in Education for Sustainable Development Teacher Education Institutions*. Paris, France, UNESCO. Available at: http://unesdoc.unesco.org/images/0015/001524/152452eo.pdf

UNESCO. 2007b. *Education for Sustainable Development in Action Good Practices N°2: Good Practices in the UNECE region*. Paris, France, UNESCO. Available at: http://unesdoc.unesco.org/images/0015/001533/153319e.pdf

UNESCO. 2007c. *Education for Sustainable Development in Action Good Practices N°3: Good Practices in Education for Sustainable Development Using the Earth Charter*. Paris, France, UNESCO. Available at: http://unesdoc.unesco.org/images/0021/002178/217854e.pdf

UNESCO. 2012a. *Education for Sustainable Development in Action Good Practices N°4: Education for Sustainable Development Good Practices in Early Childhood*. Paris, France, UNESCO. Available at: http://unesdoc.unesco.org/images/0021/002174/217413e.pdf

UNESCO. 2012b. *Education for Sustainable Development in Action Good Practices N°5: Education for Sustainable Development Good Practices in Addressing Climate Change*. Paris, France, UNESCO. Available at: http://unesdoc.unesco.org/images/0022/002203/220304e.pdf

UNESCO. 2012c. *Education for Sustainable Development in Action Good Practices N°6: Education for Sustainable Development Good Practices in Addressing Biodiversity*. Paris, France, UNESCO. Available at: http://unesdoc.unesco.org/images/0022/002203/220307e.pdf

UNESCO associated schools good practices for quality education series:

UNESCO. 2008. *First Collection of Good Practices for Quality Education UNESCO Associated Schools.* Paris, France, UNESCO. Available at: http://unesdoc.unesco.org/images/0016/001627/162766e.pdf

UNESCO. 2009. ***S**econd Collection of Good Practices Education for Sustainable Development: UNESCO Associated Schools*. Paris, France, UNESCO. Available at: http://unesdoc.unesco.org/images/0018/001812/181270e.pdf

Other ESD guides and modules:

Hopkins, C. and McKeown, R. 2005. *Guidelines and Recommendations for Reorienting Teacher Education (Technical Paper N° 2).* Paris, France UNESCO. Available at: http://unesdoc.unesco.org/images/0014/001433/143370e.pdf

KNCU. 2009. ***U**NESCO Associated Schools: Regional Collection of Good Practice: Millennium Development Goals & Education for Sustainable Development in Asia and the Pacific Region*. Seoul, Korea, Korean National Commission for UNESCO (KNCU). Available at: http://unesdoc.unesco.org/images/0018/001873/187337e.pdf

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Teacher Education for Equity and Sustainability Network. 2014. ***E**ducation for Sustainable Development and Global Citizenship: Good Practice Case Studies in Teacher Education.* York, UK, the Higher Education Academy. Available at: https://www.heacademy.ac.uk/system/files/resources/esdgc_casestudiesinteachereducation.pdf

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UNESCO. 2010. *Teaching and Learning for a Sustainable Future: a multimedia teacher education programme*. Paris, UNESCO. Available at: http://www.unesco.org/education/tlsf/

UNESCO. 2016. *Getting Climate Ready: a Guide for Schools for Climate Action*. Paris, France, UNESCO. Available at: http://unesdoc.unesco.org/images/0024/002467/246740e.pdf

UNESCO. 2016. *Schools in Action Global Citizens for Sustainable Development: A Guide Book for Teachers***.** Paris, France, UNESCO. Available at: http://unesdoc.unesco.org/images/0024/002468/246888e.pdf

UNESCO. 2017. Education for Sustainable Development Goals: Learning Objectives. Paris, UNESCO. Available at: http://unesdoc.unesco.org/images/0024/002474/247444e.pdf

UNESCO. n.d. *Training Guideline on Incorporating Education for Sustainable Development (ESD) into the Curriculum*. Paris, France, UNESCO. Available at: http://www.ibe.unesco.org/sites/default/files/ESD_training_guidelines_-3.pdf

UNESCO MGIEP. 2017. ***T****exbooks for Dustainable Development: a Guide to Embedding*. New Delhi, India, UNESCO MGIEP. Avaialble at: http://unesdoc.unesco.org/images/0025/002599/259932e.pdf

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