

# GLOBAL SCHOOLS PROGRAM



Global Schools  
Program

## DRAFT REPORT

# THE OPPORTUNITIES AND CHALLENGES OF CURRICULUM LOCALIZATION FOR THE SUSTAINABLE DEVELOPMENT GOALS:



## SUMMARY RESULTS OF THE GLOBAL SCHOOLS PILOT IN GHANA, TURKEY, AND MOROCCO



Global Schools  
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SUSTAINABLE DEVELOPMENT  
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This report has been prepared with the extensive advice and consultation of the in-country research teams and the project advisors. Members of the Global Schools Leadership Team serve in their personal capacities, so the opinions expressed in this paper may not reflect the opinions of their respective organizations.

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## Acknowledgments

This evaluation report was prepared by the Global School Leadership Team. Lead writers are Amanda Abrom, Lian Sabella Castillo, Brenda García Millán, Mary-Margaret Gilliam, and Elizabeth Lerman, under the coordination of Amanda Abrom. The report details the methodology of the Global Schools Education for Sustainable Development (ESD) curriculum localization pilot projects in Ghana, Turkey, Morocco. This report evaluates the pilot methodology and the pilot process and offers suggestions for further development of the Global Schools ESD pilots.

This report was written by expert Global Schools Program Project Officers with extensive experience and background working in education and sustainability. This report was written independently of the in-country teams. The report was prepared for launch at the UNESCO World Conference on Education for Sustainable Development 2021 at the session *"Pathways to a Sustainable World: SDSN's Education Initiatives."* The final project outcomes and the findings were presented at the session and will be used to create a toolkit to localize sustainability education for national curricula. This report supplements three additional reports published by country team leads: the Research Director in Turkey, Dr. Mustafa Öztürk, the Research Director in Morocco, Dr. Abdelkrim Marzouk, and the Research Director in Ghana, Chief Nat Ebo Nsarko.

In particular, we would like to thank the Global Schools Program partners in this project: Hacettepe University (Turkey), University of Education (Ghana), Millennium Promise Alliance Inc. (Ghana), the Mohammed VI Foundation for the Protection of the Environment (Morocco), and Al Akhawayn University (Morocco). We would additionally like to thank the 60+ researchers that have analyzed national textbooks, curriculum, and policy to develop localized curriculum on sustainable development and global citizenship, as well as the 80 in-country partners that came together to propel a movement for sustainable development education across the three pilot countries. The Global Schools team is also grateful for the support of Dr. Alan Reid, Dr. Oren Pizmony-Levy, and Dr. Felisa Tibbitts for offering their input at various stages of the pilot project. Finally, we would like to thank the Global Schools Director, Sam Loni, for pioneering this project and the additional Global Schools Leadership Team members that contributed to this project at various stages, including Julia Guillemot and Aidi Bian.

The views expressed in this report do not reflect the views of any of the representative organizations or of the Global Schools Program leadership or members.

## U.N. Sustainable Development Solutions Network

The United Nations Sustainable Development Solutions Network was set up in 2012 under the auspices of the U.N. Secretary-General. SDSN mobilizes global scientific and technological expertise to promote practical solutions for sustainable development, including the implementation of the Sustainable Development Goals (SDGs) and the Paris Climate Agreement. SDSN works closely with United Nations agencies, multilateral financing institutions, the private sector, and civil society.

## Global Schools Program

The Global Schools Program is an initiative of the UN SDSN in support of UNESCO's Global Action Program on Education for Sustainable Development (ESD). Through research and advocacy, Global Schools develops the tools, resources, and programs to support schools and educators around the globe. The vision of the program is to create a world where every primary and secondary school student is being equipped with the knowledge, values, and skills necessary for effectively responding to the greatest challenges of this century and shaping a sustainable and prosperous world for all.

## Mission 4.7

Mission 4.7 is a high-level task force launched in December 2020 that will build and draw upon UNESCO's global leadership on Education for Sustainable Development (ESD) and Global Citizenship Education (GCED), as mandated by its Member States and the U.N. General Assembly, respectively, as well as on its responsibility for the monitoring of SDG Target 4.7. Mission 4.7 will ensure alignment with UNESCO's global frameworks and conceptualizations, and complement existing programs already underway in this context.

Mission 4.7 supports the implementation of Target 4.7. To achieve the SDGs, it is critical that every individual acquires the sustainable development knowledge, global citizenship values, and 21st-century skills necessary to tackle the greatest challenges of our time and shape a sustainable future. Target 4.7 of the 2030 Agenda states:

“by 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.”

In addition to advocating for the achievement of SDG Target 4.7 at global, national, and local levels, Mission 4.7 will also curate and create relevant educational resources, push countries for greater investments in quality education, and identify ways to train and support educators around the world.

## Project Advisors

The Global Schools pilot projects were supported by expert advisors that simultaneously serve on the High-Level Education Task Force of Mission 4.7. These expert advisers provided advice and consultations on the development of the project methodology and the implementation of the pilot project across the three country contexts.

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## Partner Institutions

To facilitate this project, the Global Schools Program partnered with five organizations in Ghana, Turkey, and Morocco. These include the Millennium Promise Alliance Inc. and the University of Education in Ghana, Hacettepe University in Turkey, and Al-Akhawayn University and the M6 Foundation for Environmental Protection in Morocco.

### Millennium Promise Alliance, Ghana

The mission of the Millennium Promise Alliance (MPA) is to advance the achievement of the Sustainable Development Goals (SDGs) on local and national levels across Sub-Saharan Africa using innovative solutions and scalable systems aimed at achieving the SDGs, including the end of extreme poverty. MPA works with governments and partners across Sub-Saharan Africa and beyond to tackle the root causes of extreme poverty. From 2005-15, Millennium Promise provided the operational platform and resource mobilization for the Millennium Villages Project, which deployed a holistic, science-based approach to accelerate progress on the Millennium Development Goals for more than 500,000 people across sub-Saharan Africa.

### University of Education, Ghana

The University of Education, Winneba (UEW) was established in September, 1992 as a University College under PNDC Law 322. On May 14th, 2004 the University of Education Act, Act 672 was enacted to upgrade the status of the University College of Education of Winneba to the status of a full University. The University College of Education of Winneba brought together seven diploma awarding colleges located in different towns under one umbrella institution. These Colleges were the Advanced Teacher Training College, the Specialist Training College and the National Academy of Music, all at Winneba; the School of Ghana Languages, Ajumako; the College of Special Education, Akwapim-Mampong; the Advanced Technical Training College, Kumasi; and the St. Andrews Agricultural Training College, Mampong-Ashanti. The University of Education (UEW) is located in Winneba, Central Region of Ghana. UEW has a Memorandum of Understanding (MoU) with the Millennium Promise Alliance (MPA) on the Sustainable Development Goals. The MoU will enable the university and the MPA to collaborate on policy study, review, and advocacy in the areas of sustainable development, leveraging both institutions' comparative strengths. The three sites in Winneba now referred to as the Winneba campus is the seat of the Vice-Chancellor with satellite campuses at Kumasi, Mampong and Ajumako.

## **Hacettepe University, Turkey**

Hacettepe University is a leading public university located in the Turkish capital city of Ankara. As a partnering institution, the university believes in its critical role in addressing the global challenges and achieving the SDGs and is amongst the first Turkish universities to commit to the achievement of the SDGs. Hacettepe University contributes to the SDGs through research projects, quality education, social responsibility projects, services, as well as actions and policies. The University has also undertaken initiatives to implement SDGs in training, learning, and research. In April 2019, a Working Committee was formed and on July 3rd, 2019, the University Senate unanimously adopted the decision to officially commit to the 2030 Agenda and raise awareness among all the members of the University. Recognizing its potential and responsibility, Hacettepe University aims to increase awareness about the SDGs, broaden its curricula and research to include critical analyses of the SDGs, and finally to cooperate with authorities and stakeholders to fulfill the necessities of the United Nations 2030 Sustainable Agenda.

## **Al Akhawayn University, Morocco**

Inaugurated in 1995 by His Majesty King Hassan II and Crown Prince Abdallah bin Abdel-Aziz of Saudi Arabia, Al Akhawayn University redefines the classic American liberal arts educational experience on an architecturally stunning modern campus amidst the beauty of Morocco's Middle Atlas Mountains. It boasts: a uniquely international common core program for all undergraduate students, providing the basis for a well-rounded global education; rich academics, in English, encouraging choice and experimentation, in all schools and programs of study; a comfortable, safe, exciting residential student life on campus, featuring hundreds of University student-run activities, with over 96 percent of undergraduates living on campus with roommates from around Morocco and the four corners of the world; the peace and pleasures of Ifrane, a center for the outdoor exploration of mountains, streams, lakes, and more, with many entertainment options and easy access to major cities such as Rabat, Casablanca, Fez, Meknes, and more.

## **Mohammed VI Foundation for Environmental Protection, Morocco**

The Mohammed VI Foundation for Environmental Protection was established in June 2001, at the initiative of His Majesty King Mohammed VI. Her Royal Highness Princess Lalla Hasnaa has been entrusted as the Chair from the beginning. The Foundation's fundamental mission is raise-awareness and education for sustainable development. In this mission, the Foundation is open to the entire public, from schoolchildren to political and economic decision makers, to the general public. The Foundation develops awareness of environmental issues, the right to a healthy environment and sustainable development, as enshrined in the Constitution of the Kingdom of Morocco. Through education and advocacy, the Foundation prepares future generations to take charge of preserving their living environment, and to engage themselves permanently in the path of sustainable development. In rolling out its action program, the Foundation refers to the commitments made by Morocco at the Rio summit in 1992 and 2012, and Johannesburg in 2002, which the Kingdom specified in its framework law, the Environmental and Sustainable Development Charter, and the national strategies that ensued.

## Research Directors

The Global Schools Pilot was supported by an international research director. Research directors for each country managed additional researchers to carry out the project and compile the final outcomes.

### Mr. Sam Loni

Sam Loni is a Program Director at the U.N. Sustainable Development Solutions Network (SDSN) - a research and policy organization, working under the auspices of the United Nations Secretary-General. He is also the founder and Director of Global Schools, a program that combines research and training to promote education for sustainable development around the world. Sam has an extensive background in sustainable development and works at the intersection of public policy, development economics, and environmental change. He has been recognized by Forbes Magazine as one of Asia's top under-30 social entrepreneurs, by the Nobel Peace Prize Forum as a young peacebuilder, and by the NAAEE as an environmental leader. He serves on several international boards and committees, including Mission 4.7, the Lancet COVID19 Commission, the SDSN Leadership Council, the Global Citizen Policy Committee, the UN-MGCY board of directors, and the UN-LEASH Innovation Labs. Sam is currently based at the University of Oxford, where he is conducting research on green economic recovery from COVID-19, and studying as part of the Oxford 1+1 Programme.

### Prof. Andrews Ofori-Birikorang, Research Director, Ghana

Prof. Andrews Ofori-Birikorang is the Pro-Vice-Chancellor of the University of Education, Winneba. Prior to this, he was the Dean of the Faculty of Foreign Languages Education and Communication. He concurrently serves on several high-ranking Boards and Committees of the same. He specializes in Communication and Media Studies, having several publications to his name. Prof. Andy Ofori-Birikorang is a member of several national and international institutions. He is the representative of the Journalism and Communication Training Institutions for the National Media Commission (NMC) in Ghana. He is also a current member of the Executive Committee of the Communicators Educators Association of Ghana (CEAG). Prof. Ofori-Birikorang obtained his M.A. and Ph.D. at Ohio University (O.U.) in Athens, Ohio. He is very passionate about teaching and sees his profession as a call to serve Ghana and mankind.

### Professor Mustafa Öztürk, Research Director, Turkey

Dr. Mustafa Öztürk is an instructor at Hacettepe University in Ankara, Turkey. Between 2015 and 2016, he conducted postdoctoral research on empowering sustainability competencies in teacher education at the Teachers College of Columbia University.

In 2018, he was awarded the Human Development Research Award by Koç University UNESCO Chair for his research initiatives on education for sustainability. Dr. Öztürk has worked in various E.U. projects on Sustainability, Environmental Education, Social Inclusion, Inclusive Education, and Special Education. He is actively engaged in designing, implementing, and evaluating ESD Training Programs for pre-service and in-service teachers in Turkey. Dr. Öztürk received an M.Sc. and a Ph.D. in Curriculum and Instruction from the Middle East Technical University in Ankara.

## **Professor Abdul-Kerim Marzouk, Research Director, Morocco**

Professor Abdul-Kerim Marzouk Abdelkrim Marzouk holds a Ph.D in Geography from the Graduate School of Geography at Clark University Worcester, Massachusetts, USA. He worked for Viewpoint GIS company in Boston and later for the Geospatial Technology Laboratory at Clark University, which is dedicated to the research and development of geospatial technologies for decision making for environmental management. From January to August 2005, he worked as a Research Assistant to the Editors of Geographical Review Journal, Clark University Worcester MA, USA. In September 2005, he joined Al Akhawayn University in Ifrane, Morocco. He lectures and researches in the field of geography, environmental management and geographic information system, and remote sensing. Since 2017, he is the Dean of the School of Humanities and Social Sciences.

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## Acronyms and Abbreviations

ESD	Education for Sustainable Development
GCE	Global Citizenship Education
NLO	National Learning Outcome
MDG	Millennium Development Goals
SDG	Sustainable Development Goals
SDSN	Sustainable Development Solutions Network
SV	Strategic Vision
UN	United Nations

## Introduction and Background

To build a more sustainable and prosperous society, individuals require the knowledge, skills, values, and attitudes to create long-lasting solutions to global problems. The Sustainable Development Goals (SDGs) are 17 goals set to improve the world by 2030. These goals were adopted from the United Nations (U.N.) General Assembly Resolution: *Transforming Our World: the 2030 Agenda for Sustainable Development*. This resolution was adopted by the General Assembly on September 25th, 2015, and consists of 17 goals with 169 targets and 232 measurable indicators that the world should work towards. The SDGs recognize economic well-being, social inclusion, and environmental protection as key elements at the heart of sustainable development and provide direction on governing bodies, organizations, and individuals, and the targets and indicators create concrete ways to measure progress.

The SDGs are built upon the Millennium Development Goals (MDGs) of 2000-2015, but provide a more comprehensive framework to address world issues, including poverty, education, and climate change. The SDGs were born at the 2012 Rio +20 Summit in Brazil, and over the next three years, public negotiations occurred with world leaders, along with governments, businesses, communities, universities, NGOs, and youth, to draft the new Agenda 2030. As a result, in 2015, all 193 countries of the United Nations signed on to the 17 SDGs, committing to achieve them by 2030.

From No Poverty (SDG 1) to Zero Hunger (SDG 2) to Good Health and Well-being (SDG 3), the SDGs address the most pressing issues facing the world and its inhabitants. SDG 4 (Quality Education) is essential to achieving all of the other goals in the agenda. The ongoing COVID-19 pandemic has brought to light many challenges facing education systems and caused a series of human, economic, and social crises reversing sustainable development efforts around the world. Most governments have temporarily closed educational institutions, affecting more than 1 billion learners globally. Therefore, any attempt of a post-COVID 19 economic recovery must be accompanied by increased efforts and investment to improve education and individuals skills. This can be achieved through Education for Sustainable Development (ESD).

## Education for Sustainable Development

Education for Sustainable Development (ESD) is a key instrument to facilitate the achievement of the Sustainable Development Goals (SDGs), as it aims to empower individuals to promote environmental protection, economic prosperity, and social justice for present and future generations. According to UNESCO, "Education for Sustainable Development (ESD) empowers people to change the way they think and work towards a sustainable future." ESD includes a wide range of sustainable development issues such as climate change, poverty, peace and justice, health, human rights, and culture into teaching and learning. However, ESD is not simply a knowledge area, and it encompasses instilling positive values and behaviors into students to take action for the benefit of their communities. This encompasses incorporating knowledge-based topics into curriculum, teacher pedagogy, the school culture, student assessment, and more.

Therefore, ESD is not a subject-area but an educational framework. The ESD approach targets all educational institutions, from preschool to tertiary education, including non-formal and informal education, and provides an education that is relevant to all learners in today's challenging world.

Various studies highlight the positive impact of ESD on the quality of education. Research done by O'Flaherty and Liddy (2017) of the University of Limerick observes the impact of ESD on education. They quote studies by Niens and Reilly (2012) and state that ESD has a positive impact on learners' conceptualizations of global citizenship, including an awareness of global issues, understandings of environmental interdependence, and global responsibility. An additional positive impact on learners includes reflection on cultural beliefs and values as well as greater media awareness.

Furthermore, 11 studies done on pre-service teacher education programs incorporating ESD also showed the following results (O'Flaherty & Liddy, 2017):

- Newfound interest in teaching on climate change (Paschall & Wuestenhagen, 2012; Hestness, 2011).
- Higher confidence in teaching global topics, and awareness of resources (Burmeister & Eilks 2012; Kennelly, 2012; McCormack & O'Flaherty, 2010; Nieslen, 2012)

Research also shows the impact of ESD on academic performance (Laurie, Nonoyama-Tarumi, Mckeown & Hopkins, 2016). Laurie et al., 2016 found that researchers in 8 countries confirmed increased academic performance in ESD schools, while researchers in 14 countries reported that students of ESD schools develop stronger critical thinking skills. Additionally, researchers in 4 countries reported increased student attendance, with researchers in 5 other countries identifying increased communication, writing, math, problem-solving, and debating skills.

ESD is recognized in Target 4.7 of the SDGs, which emphasizes global citizenship education (GCED) and the appreciation of cultural diversity as a contribution to sustainable development. To date, ESD has been integrated into various global agendas and conventions related to key areas of sustainable development, including Article 6 of the United Nations Framework Convention on Climate Change. ESD can contribute to tackling the challenges of the 21st century by developing cross-cutting sustainability competencies. Furthermore, ESD can equip learners with the specific cognitive, socio-emotional, and behavioral learning outcomes that enable them to deal with the particular challenges of each SDG.

## Policy Challenge

One of the biggest challenges of implementing ESD and Global Citizenship Education around the world has been the process of localization. Every education system around the world is different - in terms of standards, laws, priorities, content and curriculum, delivery model, and degree of flexibility. As such, localizing a universal and global concept like ESD can often be challenging. Localizing ESD curriculum requires knowledge, decision-making, and examinations of local cultures. More specifically, to create ESD lesson plans, educational communities need to identify locally relevant issues, perspectives, skills, values, and behaviors central to sustainable development in each of its components: environment, economy, and society.

Another significant point is that much of the ESD curriculum used in classrooms around the world is not being evaluated, especially in the long run. To put it another way, it is unclear if ESD is affecting student behaviors, attitudes, skills, and so on. Furthermore, ESD (i.e., Target 4.7) is currently not being comprehensively measured in K-12 education, especially in developing countries.

To address the above-mentioned challenges, the Global Schools Program ran a pilot in three countries: Ghana, Turkey, and Morocco. In each country, Global Schools partnered with eminent research teams and advocacy institutions (country teams) with expertise and practice in education.

The pilot centered on two core objectives: (1) Localizing the core ESD competencies, as defined by UNESCO, in the pilot country; and (2) Documenting the localization process in each pilot country and developing a localization toolkit that other Ministries of Education can use to localize ESD in their respective countries.

The country teams conducted a series of processes to map UNESCO's core competencies and the SDGs against each country's K-12 curriculum and education policies. Such procedures were possible through the collaboration of researchers and experts who established a roadmap for the effective implementation of ESD and Global Citizenship Education across the entire K-12 education system.

This evaluation report will detail the methodology of this research pilot, discuss the project outcomes, and offer lessons learned and key recommendations for future research and integration of ESD in national curriculum. The research obtained through the pilot studies in Ghana, Turkey, and Morocco will be used to create a curriculum localization toolkit for national Ministries of Education to be launched in late 2021.

## The Global Schools Pilot Project: Methodology

The Global Schools pilot project was carried out in six phases. The methodology was developed in collaboration with the project advisors, who are experts in the education field. These phases include:

1. Team Formation
2. Curriculum Mapping
3. Committee Formation
4. Adaptation and Content Creation
5. Testing and Evaluation
6. Implementation Roadmap

These six phases encompass the entire project methodology and have two core objectives.

- 1. Localize the core Education for Sustainable Development (ESD) competencies, as defined by UNESCO, in the pilot country. This includes:**
  - a. Map the ESD core competencies against the country's current education laws, standards, and curriculum for k-12 education.
  - b. Set up a local expert committee to create a model for the effective adaptation of the global curriculum to the local context based on synergies and gaps identified in the mapping exercise.
  - c. Create a limited series of lesson plans, based on the model created by the expert committee, to be tested and piloted in a few classrooms.
  - d. Work with the committee to establish a roadmap for scaling and the rapid implementation of the localized curriculum across the entire K-12 education system.
  
- 2. Document the process of localization in each pilot country, and create a toolkit for localization that can be used by other Ministries of Education in localizing ESD within their respective countries (at the national and sub-national levels). This includes:**
  - a. Document and standardize key outputs, such as the mapping reports, the composition of the expert committees, the adaptation model/guidelines, and the implementation roadmaps.
  - b. Conduct regular surveys and interviews with pilot leads and other relevant stakeholders to document the process of localization and implementation within schools, including key challenges, opportunities, and lessons learned.
  - c. Compare results between the three pilots to identify common challenges, distinct and country-specific circumstances, and solutions deployed by the local team to overcome challenges.

At the beginning of each phase, documents with detailed instructions were shared with country teams. Additionally, a call was hosted at the beginning of each phase to facilitate cross-communication and knowledge-sharing between the research teams. In order to embrace a more collaborative and localized approach, country teams were given the ability to make comments on the methodology documents for each phase, and they were encouraged to share their feedback in the calls. This was completed in order to take into account each country's individual context.

To promote accountability and continuous feedback, Global Schools sent a survey to all of the researchers at the end of each phase. Researchers were able to offer detailed comments on their experiences in the research process and provide their thoughts for future adaptations to the methodology. These feedback surveys were reviewed by the research director, and challenges were addressed accordingly.

The following sections review the methodology for each phase in greater detail.

## Timeline

The Global Schools pilot project was launched at the Vatican Youth Symposium in 2019. The original goal of the project was to run for ten months and conclude in September 2020. However, the COVID-19 pandemic led to re-prioritization of national education systems and difficulty of evaluating the localized curriculum for students within classrooms. This pushed back the timeline of the project to a total of 18-months. The final country reports were launched at the UNESCO World Conference on Education for Sustainable Development on May 17th, 2021. Beyond this, the country research teams will be developing a national implementation strategy and receiving further support from the Global Schools team based on their individual country recommendations and project outcomes.

## **Phase 1.0 Team Formation**

The first phase of the project was Team Formation. In this stage, the Research Director for each country was identified, inducted, onboarded, and supported by the Global Schools Leadership Team. An introductory call was held to introduce the project and explain the background and context of the project. Details such as administration and planning were also discussed.

## **Phase 2.0 Curriculum Mapping Exercise**

### **A. Overview:**

The overall mission of the Global Schools pilot was to develop a standardized curriculum with localized core ESD and Global Citizenship Education (GCE) competencies. This process was to be documented and transformed into a toolkit for localization used by other Ministries of Education. The focus of Phase 2.0 was for each country to conduct an initial curriculum mapping analysis for educational policies, laws, standards, and subject-based curriculum in preparation for the next phase of integrating the Education 2030 frameworks (ESD and GCE) into existing curricula.

Curriculum mapping is the process of indexing a curriculum to identify and address academic gaps, redundancies, and misalignments in accordance with academic expectations, which in this case were set out by UNESCO, by reviewing assessments, textbooks, assignments, lessons, and instructional techniques. This exercise culminated in a final report.

### **B. Curriculum Mapping:**

The curriculum mapping process began with each Research Director mapping sustainable development competencies against the country's basic education laws, curriculum framework, and subject-specific curriculum for K-12 education. The purpose of this exercise was to produce three reports of about 20-30 pages each, to map the concepts of sustainable development, global citizenship, and 21st-century skills (see Table 1) and ESD competencies (see Table 2) against national policies and laws, and analyze their importance/relevance within the overall national policy architecture.

**Table 1:** The definitions of sustainable development, global citizenship, and 21st-century skills.

Sustainable development	Sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
Global citizenship	Global citizenship is recognizing the interconnectedness of life, respecting cultural diversity and human rights, advocating for global social justice, empathizing with suffering people around the world, seeing the world as others see it, and feeling a sense of moral responsibility for planet Earth.
21st-century skills	21st-century skills refer to a broad set of knowledge, skills, work habits, and character traits that are believed—by educators, school reformers, college professors, employers, and others—to be critically important to success in today’s world.

**Table 2:** The Education for Sustainable Development Competencies

Overarching Competency	Description
Systems thinking	the abilities to recognize and understand relationships; to analyze complex systems; to think of how systems are embedded within different domains and different scales, and to deal with uncertainty.
Anticipatory	the abilities to understand and evaluate multiple futures – possible, probable, and desirable; to create one’s own visions for the future; to apply the precautionary principle; to assess the consequences of actions; and to deal with risks and changes.
Normative	the abilities to understand and reflect on the norms and values that underlie one’s actions; and to negotiate sustainability values, principles, goals, and targets, in a context of conflicts of interests and trade-offs, uncertain knowledge, and contradictions.
Strategic	the abilities to collectively develop and implement innovative actions that further sustainability at the local level and further afield.
Collaboration	the abilities to learn from others; to understand and respect the needs, perspectives, and actions of others (empathy); to understand, relate to, and be sensitive to others (empathic leadership); to deal with conflicts in a group; and to facilitate collaborative and participatory problem-solving.
Critical thinking	the ability to question norms, practices, and opinions; to reflect on one’s values, perceptions, and actions; and to take a position in the sustainability discourse.
Self-awareness	the ability to reflect on one’s own role in the local community and (global) society; to continually evaluate and further motivate one’s actions; and to deal with one’s feelings and desires.
Integrated problem-solving	the overarching ability to apply different problem-solving frameworks to complex sustainability problems and develop viable, inclusive, and equitable solution options that promote sustainable development, integrating the above-mentioned competencies.

**Source:** UNESCO - *Education for Sustainable Development Goals: Learning Objectives*

## Ghana

The Phase 2.0 output provided a situational analysis of Ghana's educational policies, legal documents, and K-12 curriculum. The research highlighted the gaps in such documents and explored the linkages, synergies, and relationships between the Education 2030 learning outcomes and the national education curriculum (K-12). In this report, 255 learning objectives were used as indicators to measure the degree of salience and pervasiveness of the SDGs in Ghana's basic education curriculum.

The first part of the research focused on **policy analysis**. Ghana's educational system is broken down into three parts: Basic Education (Kindergarten, Primary School, and Junior High School), Secondary Education (Senior High School, Technical and Vocational Education), and Tertiary Education (Universities, Polytechnics, and Colleges of Education). The Ministry of Education (MoE) manages the administration and coordination of the educational system. The policy analysis was centered around the following documents: (i) The Education Act 778 (2008), Education Strategic Plan 2018-2030 (2018) (ii), ICT for Accelerated Development (ICT4AD) (2003) (iii), Inclusive Education Policy (IEP) (2015) (iv), National Teacher Education Curriculum Framework (2018) (v), National Science, Technology and Innovation Policy (2017-2020) (vi) and National Pre-Tertiary Curriculum Framework (2018) (vii). The team reviewed and coded the policy documents in relation to the ESD indicators (see Table 1 and Table 2) using keywords that emerged from the data (see Table 3) as well as others provided in the GSPP Worksheet.

**Table 3:** Education for Sustainable Development (ESD) Indicators and Selected Keywords

Indicators	Key words
<b>Concepts</b>	
Sustainable Development	Sustainable, development, 2030 agenda etc
Global Citizenship	Interconnectedness, social justice, cultural diversity etc
21 <sup>st</sup> Century Skills	Contemporary, technology, skills etc
<b>Competencies</b>	
Systems thinking	Uncertainty, structures, complexity etc
Anticipatory	Future, opportunity, vision etc
Normative	Sustainability, norms, values etc
Strategic	Innovation, collaboration, sustainability etc
Collaboration	Empathy, inclusion, teamwork etc
Critical thinking	Analytical, reflection, critical etc
Self-Awareness	Humanity, purpose, awareness etc
Integrated problem-solving	Complexity, solution problem etc

The second part focused on **curriculum mapping**. Ghana enforces a centralized curriculum regime for its basic education. Consequently, at the K-12 level of education, a uniform curriculum is developed by the National Council for Curriculum and Assessment (NaCCA) and is implemented in basic schools across the country. In this phase, Ghana's K-12 curriculum was assessed against the SDG learning objectives. While the focus of this research was originally intended to be on the K-12 curriculum, the Ghana team limited the analysis to the K-6 curriculum because the NaCCA is currently reviewing the grade 7-12 curriculum. 20 K-6 curriculum documents were used for the research. Two of the documents focused on curriculum for Kindergarten (K1 and K2), whereas the other 18 documents were on 11 subject areas for primary schools, spanning computing, creative arts, English, French, Ghanaian language, History, Mathematics, our-world-our-people, physical education, religious and moral education, science and kindergarten.

Following the same review of policy documents and coding processes, the team also mapped the contents of each subject/level curriculum to the 2030 Education Learning Objectives. The first part focused on weighing each policy document based on the ESD/GCE indicators to determine key references to the learning objectives based on the GSPP Worksheet provided by the Secretariat. The team coded X for explicit references, N for non-explicit, and blank for non-reference, along with 1 if the reference is 'for' and 2 if the reference is 'through.' Explicit references imply that the documents made adequate and direct references to the key Education 2030 concepts and competencies using the keywords; non-explicit reference implies that the concept of sustainable development was not explicitly captured, but there was a reference to related topics; and non-reference implies there was no mention at all in any of the subjects. The rating of 'for/through' was used to capture the modality of the reference, to determine whether the reference was 'for', which refers to a competency-based keyword appearing as a target, or 'through,' which refers to a competency-based keyword appearing.

The overall aim of this research is to determine the prevalence of ESD/GCE indicators as well as the 2030 SDG Learning Objectives in Ghana's Education Policy Documents and curriculum, respectively. Subsequently, it was identified that an important standard for determining the prevalence of the ESD/GCE indicators and learning objectives in the documents was to measure the degree of *salience* and *pervasiveness*. Therefore, a formula was developed to determine the degree of pervasiveness and a model to show the degree of salience using the weighting guides indicated in the GSPP Worksheet with an additional third weighting code of N.M. to represent non-mention.

*Pervasiveness:*

$$x \text{ (Education Policy Document)} \\ = \text{Observed Concept/Competency (100)} \div \text{Total Concepts/Competencies}$$

This formula applied to determine the degree of pervasiveness of the learning objectives in each subject/grade curriculum, 'x' was instead the subject/grade and 'objective' replaced the word 'concept' and 'competency'.

The **second** part of this analysis focuses on the ESD/GCE learning objectives and how they reflect the seventeen SDGs. As indicated in the methodology, the teams took each SDG (1-17) and content and analyzed its level of salience and degree of pervasiveness in the 12 subjects of the K-6 curriculum. The grades were collapsed into one group that covered one subject, and the mapping and analysis were completed per subject for level of salience and degree of pervasiveness. For example, for a subject like English, the team collapsed the entire K-6 grades into one group and mapped the 15 Learning Objectives of each SDG to that subject as a group of levels. This approach eased analysis, saved time, and provided an excellent bird's eye view of the ESD/GCE Learning Objectives. In this section, more emphasis was placed on the N.M. (Non-Mention) as a category of weighting since the level of salience seemed to characterize almost all the K-6 subjects under study.

## Turkey

In Turkey, two types of analyses were performed as part of Phase 2.0.

The first focused on **policy analysis** which was executed on five policy documents: Basic Law of National Education, National Education Quality Framework, Turkey's Education Vision 2023, Strategic Plan for 2019-2023, and Performance Program for 2020. This analysis was conducted on the basis of key competencies of ESD. The first step started with the identification of a list of conceptual keywords in relation to three key concepts: sustainable development, global citizenship, and 21st-century skills, such as "economic aspect," "global goals," and "skill-based education." In the second step, another list of competency-based keywords related to UNESCO's (2017) key competencies were identified, such as "systematic approach to education." Each document was scanned, analyzed, and coded one by one by using those identified keywords. At this stage, explicit "X" or implicit "N" references to the identified keywords were detected in each document, and a further step was taken to determine whether the reference was 'for' or 'through.' Therefore, the keywords were coded as "X1" or "N1" when the reference was "for" and "X2" or "N2" when the reference was "through."

The second part of analysis was **curriculum mapping**, which was executed on 23 subject-specific and one skill-based curriculum document with respect to the global learning objectives of ESD. 255 keywords were identified in the Turkish language on the basis of the 17 SDGs and corresponding learning objectives of ESD. Then, the national learning outcomes (NLOs) in each curriculum document were scanned, analyzed, and coded one by one by using those identified keywords. At this stage, explicit or implicit references to the identified keywords were detected in the NLOs. When a national learning outcome (NLO) including any of the identified keywords was thematically matched with a specific SDG, the SDG number was coded in the first column. When the NLO had a direct congruence with a specific learning objective within the scope of that SDG, the NLO was given the same code as the specific learning objective provided by UNESCO (2017). When the NLO was not directly congruent with any of the learning objectives, the next step was categorizing the NLO based on the learning domain that it indicated, such as '1-C' for the cognitive domain within SDG1. The last step was to indicate the grade level in the NLO and indicate implicit or explicit references the same way, as noted earlier.

## Morocco

Phase 2.0 was conducted to measure the presence of SDGs in the Moroccan curriculum. To define 21st-century skills, the Morocco team identified three different families of skills: foundational literacies, competencies, and character qualities, which are further divided into 16 areas ranging from literacy to social and cultural awareness. Specifically, SDG4, SDG8, and SDG9 can be used to measure the presence of 21st-century skills because these SDGs include elements of lifelong learning. For example, SDG8 includes issues related to the workplace, and SDG nine includes elements linked to industrial development. This study used four Moroccan policy and legal documents as well as books used in K-12 Moroccan education for their analysis of GCED, ESD, and 21st-century skills incorporation. These four documents are: (i) The MoE Charter, Morocco's fundamental education policy framework 1999, (ii) The Strategic Vision of Higher Council for Education, Training and Scientific Research: For a School of Equity, Quality and Promotion: A Strategic Vision (S.V.) of Reform 2015-2030, (iii) The Framework Law (Lois Cadre) 51.17 relative to the Strategic Vision of Higher Council for Education, Training and Scientific Research: For a School of Equity, Quality and Promotion: A Strategic Vision (S.V.) of Reform 2015-2030 and (iv) Legislative outcome of the House of Councilors 2017-2018. In addition, the team added an additional layer of analysis by examining 300 books within the Moroccan K-12 educational grades.

Morocco underwent two separate analyses. The first included the **policy analysis** where the four documents mentioned above were reviewed and deconstructed for content by a team of professors at Al Akhawayn University to see whether they reflect the key Education 2030 concepts and competencies.

The second step focused on **curriculum analysis**, and given that Morocco uses a single national curriculum, it was possible to use teachers and educational inspectors from various parts of the country. Having a research team from more than one region (region 1: Rabat-Sale- Kénitra for primary school and region 2: Fez-Meknes for Middle and High school) helped diversify perspectives. The curriculum was further divided by grade, with K-6 (Primary Education) being analyzed by a team based in the Rabat-Sale-Kenitra region, composed of 17 teachers and educational inspectors, and the books for grades 7-12 (Middle School and High School) being analyzed by 17 teachers and educational inspectors from the Fes-Meknes region. A kickoff meeting was held in Rabat and attended by all the local partners, where a sample mapping exercise was conducted to train the teachers and inspectors in the mapping method.

In addition to Arabic, primary level grade books (K-6) included French, Islamic Studies, Plastic Arts, Scientific Activities, and Mathematics. For Middle School, the analysis was based on the following disciplines: philosophy, Islamic education, French, English, History, Geography, Math, Physics and Chemistry, Spanish, Technology, and Civic Education. Lastly, in high school, the analysis is based on the following disciplines: Arabic, Philosophy, Economy, Islamic Education, English, History, Geography, Earth Science, Math, Physics and Chemistry, Civic Education, and Spanish.

## **D. Identifying Curriculum Gaps:**

The mapping culminated in the teams identifying and analyzing the correlations and gaps in the curriculum compared to the Education 2030 competencies within specific grades and subject areas. In order to identify the gaps, keywords were identified to support creating links to the relevant Education 2030 learning objectives.

## **Phase 3.0 Committee Formation**

### **A. Overview**

This phase focused on addressing and solving the issues/limitations identified in the previous phase. After identifying the gaps and overlaps between the 2030 Learning Objectives and K-12 national curriculum, each country team was tasked with setting up a National Committee in order to:

1. Provide feedback on the pilot research outcomes and applications;
2. Advise on priorities and strategies to implement Education 2030 at the national level;
3. Monitor and advocate for the effective implementation of Education 2030 in their respective regions by integrating the appropriate stakeholders, policymakers, educators, parents, and other decision-makers into the design and delivery process.

### **B. Forming the National Committee**

Table 4 illustrates the composition which was used to structure the respective National Committees and helped finalize the Terms of Reference (ToRs).

Using the Committee Composition (see table 4) and the Nomination Criteria provided by the Secretariat, the teams conducted research on potential members and shortlisted the top candidates, taking the Committee Composition and Nomination Criteria into careful consideration. Once all members were confirmed, the finalized member database was submitted to the Secretariat as one of the final deliverables.

In preparation for the opening meeting on a date prior to May 15th, 2020, teams planned and organized the agenda and logistics. Invitees were provided the (i) ToRs, (ii) agenda, (iii) report from Phase 2.0, and other supplementary materials.

**Table 4: Committee Composition**

Sector / Segment	Number of Representatives	Description/Breakdown
Practice	At least four members	The National Committee should aim to have at least four members from the "practice" sector. This refers to teachers, level coordinators, and principals. There are several considerations to take into account, including private vs. public school, STEM vs. humanities, primary vs. secondary, principal vs. teacher/level coordinator, low-performance school vs. high-performance school, etc. While the country team has some flexibility in determining the final composition, it is important that at least 50% of the "practice" segment be classroom teachers, and with at least one teaching STEM and one teaching humanities.
Government	At least three members	The National Committee should aim to have at least two members from the "government" sector. This refers to researchers, department secretaries, managers, and/or ministers. While the country team has some flexibility in determining the final composition, it is important that at least one individual represent the Ministry of Education. We also encourage the country teams to recruit at least one member from the Ministry of the Environment (or its national equivalent). However, you can also take into consideration other relevant agencies and ministries, including energy, youth & sports, planning, foreign affairs, etc. You may also consider members of national parliamentary committees on education or the environment. Please see an example from Ghana.
Civil Society	At least two members	The National Committee should aim to have at least three members from the "civil society" sector. This refers to leaders of NGOs, teacher/school associations, and unions. While the country team has some flexibility in determining the final composition, it is important that at least one individual represent the environmental NGO sector, especially if they are working with schools and teachers, and at least one person represents a teacher/school association/union.
Others	At least four members	The country team has quite some flexibility in determining the composition for the "others" segment of the National Committee, especially in comparison to previous segments. Here, you may choose to invite student leaders, parents, local government representatives, sustainability/education philanthropists and foundations, directors of pre-service teacher training centers, managers of digital education platforms, etc. A possible breakdown could be one student leader, one foundation/philanthropist, one parent, and one Director of a pre-service teacher training center.
Academia & Management	At least three members	<b>Management:</b> The country teams must decide who chairs the National Committee and who administers it. A possible breakdown would be for the

		<p>country team chair or research manager to serve as the chair of the National Committee, with one of the country team members serving as the administrator.</p> <p>The chair will determine the agenda and manage the meetings, while the administrator will be in charge of all operations and management of processes associated with the National Committee, including regular communications, engagement, invitations, minutes, reporting, etc.</p> <p>The other researchers/members of the country team may also be involved with the National Committee and participate in meetings, but more so as observers/advisors. They should/could also assist and support the National Committee administrator with their duties.</p> <p><b>Academia:</b> The National Committee should also aim to have at least two additional members from the "academia" sector who are not based at the country team's host institution.</p> <p>This refers to professors, deans, researchers from other universities, think tanks, and knowledge institutions. While the country team has some flexibility in determining the final composition, it is important that at least one person represent education/curriculum research, and at least one person represent environmental/sustainability research. Please note that if the country team has researchers/academics that are not part of the country team's host institution, they could also be asked to fulfill this role.</p>
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**Ghana**

In composing the committee, the team followed the guidelines provided by the Secretariat to create a defining criterion for selection and selected candidates for the categories of Practice, Government, Civil Society, Academia & Management.

In composing this national committee, the Ghana team remained conscious of ongoing education and curricular reforms and saw the potential to make a greater impact if key government persons involved in the reform were made part of the national committee. Thus, the Minister of Education, the Director-General of the Ghana Education Service, and the Executive Secretary of the National Council for Curriculum and Assessment were shortlisted. Unfortunately, the timing was not very conducive as Ghana underwent an election during this time, and the three key individuals could not be part of the national committee.

It is important to stress that the political situation in Ghana is fragile, and to have a greater influence in policy and curricular decisions, there is the need to get key government officials involved. The Ghana team, therefore, placed a lot of focus on getting these key government officials or their representatives to join the national committee, and as they were unable to bring them on, it was for this reason that they could not proceed beyond this stage of the project.

Following the procedures described, the team was able to compose a national committee of eighteen members when forming the national committee, where incoming potential members were still accounted for, albeit unconfirmed (see Table 5).

**Table 5:** Demographic characteristics of national committee members

Category	Gender		Total
	Male	Female	
Academic & Management	2	2	4
Civil Society	5	1	6
Government	2	2	4
Practice	0	4	4
Awaiting (Government)	(3)		
Total	9 (11)	9	18(21)

## Turkey

In this phase, three different national committees were formed by the country chair in order to perform the planned activities within the scope of the project:

1. **Research Committee.** This committee consisted of five researchers who were responsible for curriculum mapping and one research manager who was leading all research activities.
2. **Advisory Committee.** This committee consisted of 22 members with diverse backgrounds as academics, educational experts, ministry officials, NGO representatives, school counselors, school principals, teachers, and parents.
3. **Executive Committee.** This committee consisted of 25 practicing teachers who were ESD-competent educators having completed certified training on ESD previously.

## Morocco

Morocco completed Phase 3.0 by forming a National Committee that functioned as an advisory body composed of up to 20 members with a balance of representation in geography, gender, age, sector, language, and thematic expertise. In order to familiarize all members of the National Committee with their mission and responsibilities, a model Terms of Reference was adapted to the national context. An opening meeting was organized, with the aim of presenting the pilot project and results of Phase 2.0 to the National Committee. It was established that responsible parties were to attend and contribute to meetings held virtually two to three times over a 12-month period.

## **C. Objectives**

The main objective of the committee formation was to mobilize the leading voices in the field of education and sustainable development to advance the implementation of Education 2030 and SDG 4.7 in K-12 education across the national education system.

The National Committees involved a cross-sectorial body of members drawn from academia, civil society, and government, including eminent advocates, experts, and policymakers, with an extensive background in the field of education and/or sustainable development.

## **Phase 4.0 Localization and Adaptation**

### **A. Overview**

It has been recognized that the specific goals will be different for each country; however, the overarching objective for each team was to incorporate as many of the Education 2030 competencies as possible and their respective SDG learning objectives into the national curriculum.

Phase 4.0 had two main focuses for the country teams:

1. Creating a model and guidelines for the implementation of the content based on the results of the mapping exercise, guided by the global curriculum provided by the Secretariat and in consultation with the National Committee members
2. Creating a series of localized/adapted sample lesson plans based on the insights gained from the model/guidelines identified and the feedback received from the National Committee on structure and content in preparation for the next phase.

### **B. Designing the Implementation Plan**

The teams began by reviewing the strategies available (see Table 6) in order to build the country plan around one of the options. After discussion with all team members in order to assess the pros and cons of each path and building out a clear approach, the National Committee was required to support the engagement methodology.

**Table 6: Strategy Matrix**

National Strategy	Description and Considerations
<p><b>Strategy A</b> Extracurricular</p>	<ul style="list-style-type: none"> <li>● Country team creates a set of 60 lesson plans based on the Global Schools Reimers model.</li> <li>●</li> <li>● Country team then creates and coordinates a national campaign - with the support of the National Committee - to convince schools to commit to using the lesson plans and engaging with the material.</li> <li>●</li> <li>● The 60 lesson plans will be mapped to the curriculum and localized, which means the schools will be much more likely to use them.</li> </ul> <p>This approach is the easiest and fastest option, but its impact will also be limited. For example, this approach may lead to a very limited number of schools committing to the “extracurricular” curriculum. Most of these will likely be private as opposed to public schools as they have more flexibility. This risks leaving out an entire section of the student population out of this education. Furthermore, without systematic integration at the national level, it is likely that even the schools that “commit” to this curriculum will not implement these lesson plans at scale and continuously. Moreover, 60 lessons may not be sufficient to cover all matches and/or SDG learning objectives. Here, the country team and the National Committee may have to select the top matches, as opposed to all. Finally, the success of this campaign will depend on an effective national mobilization and coordination, which will need careful planning and execution and the support of several stakeholders. <b>In summary, the successful implementation of this strategy will be relatively straightforward, but the impact and scale will be limited.</b></p>
<p><b>Strategy B</b> Incremental</p>	<ul style="list-style-type: none"> <li>● The country team partners with the Ministry of Education and other relevant stakeholders to build hundreds of lesson plans based on all the matches in the curriculum analysis. In other words, not just 60 lesson plans, but rather a very comprehensive set of lessons that will cover all learning areas, not just a limited set of matches.</li> <li>●</li> <li>● These lessons would not be integrated into the formal curriculum, but rather integrated into teacher support materials and textbooks with the support of the Ministry.</li> <li>●</li> <li>● Country team will support the Ministry in the creation of this content, but it will be a joint effort, with the Ministry and other stakeholders also contributing resources and personnel for this project.</li> <li>●</li> </ul> <p>There are a few issues to consider with this model. The incremental strategy is more comprehensive, much greater in scale, and systematically embedded. However, this model will not be possible without some form of direct support from the Ministry of Education. While this strategy will have its advantages (ability to scale, access to more expertise and information, additional resources, etc.), it will also be more complicated. Firstly, getting the Ministry on board for such a reform might take time, especially if done at scale. Secondly, the process of creating several hundred lesson plans will require additional resources. Finally, the involvement of the Ministry may mean a slower process altogether. <b>In summary, the successful implementation of this strategy will be relatively difficult and complicated, but the impact and scale will be significant.</b></p>
<p><b>Strategy C</b> Transformational</p>	<ul style="list-style-type: none"> <li>● The country team partners with the Ministry of Education and other relevant stakeholders to transform the curriculum by integrating all SDG learning objectives into the curriculum (regardless of matches with the current content) or creating a separate subject for</li> </ul>

	<p>sustainable development/global citizenship.</p> <ul style="list-style-type: none"> <li>• This process would be led by the Ministry, with the country team and National Committee advising the process and providing guidance.</li> </ul> <p>This strategy is without question the ideal model for this project’s overarching objective (incorporate all - or as many as possible - Education 2030 competencies and SDG learning objectives into the national curriculum). However, there are some matters that need serious consideration before this strategy is adopted. Firstly, the process of curriculum transformation is long, difficult, sensitive, highly political, and will require significant resources. For example, the process of creating a new subject or reforming the entire curriculum may take several years. Furthermore, such an effort will typically need a political commitment, not only from the Ministry but also from the wider government system. The process also needs to address issues such as teacher training (existing and pre-service), university curriculum, textbook reform, subject reform, etc. <b>In summary, the successful implementation of this strategy will be long, difficult, and complex, but the impact will be immense and systematic.</b></p>
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### C. Lesson Plan Creation and Adaptation

Each team began with completing background research to build a baseline in creating the lesson plans. Once country teams completed the readings, they identified areas in the curriculum that would be the focus for adaptation from Phase 2.0. Four areas in the national curriculum where overlaps existed with the 2030 learning objectives were highlighted, which included implicit or explicit matches. Defined, a **match** refers to the specific learning objective/standard in the national curriculum which matches (either explicitly or implicitly) with one or more of the SDG learning objectives as defined by UNESCO.

Teams aimed to select at least two matches from the primary school curriculum [one from a STEM subject and the other from a Humanities subject], and at least two matches from the secondary school curriculum [one from a STEM subject and the other from a Humanities]. They worked closely to analyze the selected material and draft a series of sample lesson plans following a set of defined guidelines, with at least two lesson plans for each match. Initial feedback from researchers and team members was incorporated in order to present the National Committee with a second draft which could have been undertaken using a few different methods.

Upon receipt of feedback from the National Committee, country teams reformed the content accordingly and drafted reflections on the national strategy and feedback on the lesson plans. The current phase did not require country teams to create and adapt an entire set of 60 lesson plans, but rather a few samples for the National Committee to take into consideration. These sample lessons will serve as a framework for creating a more complete set-in future phases but will undergo classroom testing as part of Phase 5.0.

## Ghana

As a result of a few localized challenges, including the global pandemic, timeline constraints, logistical setbacks, and administrative bureaucratic setbacks, the Ghana team was unable to complete Phase 4.0 within the set timeframe.

## Turkey

Considering the limitations due to time, energy, and budget issues, it was not possible to create and construct completely new lesson plans in the Turkish language. Instead, a more practical and convenient way was adopted at this phase where the existing 60 lesson plans of the Global Schools Program were adapted into Turkish. Therefore, the Turkish translations of the existing lesson plans were reviewed and evaluated by various practicing teachers to determine whether they fit their national curriculum and conform with their education policies.

## Morocco

The country team agreed to divide primary and secondary levels into two pilot regions across Scientific and Literary courses to guarantee a higher quality of work and assessment. For this purpose, an expert commission composed of Inspectors and Educators from the K-12 levels was set up by the national team in each pilot region, in order to ensure the adaptation of the results obtained during the analysis and mapping exercise, as well as the creation of content in terms of the key 2030 Education concepts. While preparing the model worksheet, the national team took into consideration the Ministry of Education's review for strengthening the primary school curriculum in terms of implementation of the SDGs in 2015, which allowed for a foundational start to the project. As part of the execution of this exercise, a National Training Workshop on the Global Schools Program for the Inspectors and Educators of the Expert Commission was organized, focusing on the creation of sample courses adapted to the content resulting from Phase 2.0.

## Phase 5.0 Testing and Evaluation

### A. Overview

Phase 5.0 focused on testing and evaluating the sample localized lessons that were created in the previous phase in a classroom setting. This included the careful monitoring and evaluation of educators and students in their engagement with the lesson plans through a series of specialized tests, quizzes, and surveys in order to collect data and evaluate across four key areas (see below), culminating in a short report which illustrates all findings.

The purpose was to evaluate the impact of the localized lesson plans along with a comparison to

the global lesson plans across the four key areas (i) student engagement, (ii) student learning, (iii) student behavior, and (iv) teacher satisfaction. The initial hypothesis was that the localized lesson plans would be more effective compared to national curriculum lessons and the Global Lesson plans.

## **B. Tools for Evaluation**

In this phase, country teams used three surveys to evaluate the effectiveness of lesson plans across the four areas of interest.

### **Post-Lesson Teacher Survey**

The post-lesson survey was filled out by every teacher who delivered a lesson plan - whether a localized/adapted lesson plan or a global lesson plan to evaluate across two areas (i) student behavior, engagement, and learning as observed by the teacher throughout the lesson, and (ii) teacher satisfaction and feedback as self-reported by the teachers.

### **Pre- and post-lesson Student Surveys**

The pre- and post-lesson student survey was filled out by every student before and after they received a lesson - whether it was the localized/adapted lesson plan or an existing Global Schools lesson plan to evaluate their feedback across two areas (i) student actions for sustainable development, as self-reported by the student; (ii) student knowledge/learning, as self-reported by the student.

## **C. Evaluation Process**

The evaluation process began with each country selecting at least three of the adapted lesson plans for evaluation. The selection of lesson plans was to be balanced across the various dimensions of education, including STEM vs. Humanities, primary vs. secondary. Each selected lesson was to be implemented and evaluated in a minimum of two classrooms from the same school in order to allow for effective comparison. In addition to localized/adapted lesson plans, country teams had the option of additionally implementing and evaluating the global lesson plans as part of their evaluation process or sending researchers to some of the classrooms to carry out observations, which allowed an additional layer of analysis and comparison. Following the evaluation process and data collection, country teams had to analyze the data, evaluate results, and draft a short report outlining the main findings and conclusions.

## **Ghana**

As a result of a few localized challenges, including the global pandemic, timeline constraints, logistical setbacks, and administrative, bureaucratic setbacks, the Ghana team was unable to complete Phase 4.0 within the set timeframe.

## Turkey

In this phase, the sixty lesson plans of the Global Schools Program were reviewed and evaluated based on the Global Schools Program Piloting Project Lesson Plan Evaluation Checklist. The reviews and evaluations were performed by ESD-competent teachers from diverse educational settings. Due to the school closures caused by Covid-19 lockdowns and measures, which resulted in over one year of disruption to face-to-face education in Turkey, learners were not included in the evaluation phase; only teachers, who are considered as one of the most powerful stakeholders in promoting the vision of Global Schools, were consulted for their opinions.

All of the teachers included in this phase had previously completed certified training on ESD. The teachers were selected purposefully to ensure that each level of education would have the same number of teachers (eight teachers from each level - elementary, middle, and high school levels). Each teacher was sent an evaluation checklist along with five to ten lesson plans designed specifically for the grade and level that they have taught and were required to go through each lesson plan, respond to the items provided in the evaluation checklist, and provide their opinions as a practicing teacher.

## Morocco

In Morocco, phase 5.0 of the Global Schools project focused on testing and evaluating the 12 courses developed in the previous phase, led by experts in the domain of education. Each developed course was tested in two classes. To guarantee the success of this phase, the team held a meeting with the regional coordinators, ministry representatives, and education experts. The purpose of the meeting was to adapt the three surveys sent by the Secretariat to the national context of Morocco. The team agreed to administer three questionnaires related to the national context and developed an optional survey to bring a more neutral perspective on the pilot lessons.

## Phase 6.0 Implementation Roadmap

In this phase, the respective national committee in each country will reflect on the results of the lesson plan evaluations, and in consultation and close coordination with the Ministry of Education and/or other Ministries, will design a roadmap for the full-scale implementation of ESD across the entire K-12 education system, as determined by the findings of the pilot.

At the time of writing, the country teams that have completed Phase 5.0 are about to enter into discussions for Phase 6.0. The Research Directors and the Global School Leadership Team will have substantial discussions with each in-country representative to discuss a full-scale implementation strategy that is localized and culturally relevant. The process of creating and implementing this roadmap will continue into late 2021. Further reports will be published on the outcomes of this final phase.

## Summary of Project Outcomes

The final section will summarize each country's process and project outcomes. It will offer lessons learned and recommended pathways forward for each country based on their national findings. Finally, concluding suggestions will be made so that the Global School team and Mission 4.7 can continue to take the pilot strategy forward.

### Ghana

Researchers from Ghana conducted a situational analysis to determine the connectedness of Ghana's educational policies, legal documents, and curriculum to Agenda 2030. Following a research framework and instruments provided by the Global Schools Pilot Project's Secretariat, seven Ghanaian educational policy documents together with twenty K-6 curriculum documents were analyzed to highlight gaps and explore synergies between the content of these documents and the Agenda 2030 Education learning outcomes.

For their analysis, the researchers purposely selected the seven most relevant current key education policies, planning documents, and laws in Ghana. Analysis was delimited to the K-6 curriculum as the national council for curriculum assessment (NaCCA) has yet to finish reviewing the curriculum for grades 7-12. Policy documents were reviewed and coded relative to the ESD indicators using keywords that emerged from the data.

The researchers contended that the important standard for determining the prevalence of ESD indicators is to measure the degree of salience and pervasiveness. They developed a formula to determine the degree of the pervasiveness of indicators (Concept and Competency) in each policy document and Learning Objective in the Curriculum.

The results from the analysis led to a recommendation for a review of documents by the Ministry of Education and all other relevant agencies. Specifically, it was recommended to conduct a revision of the Education Act (Act 778), the Inclusive Education Policy, ICT for Accelerated Development, and National Science Technology and Innovation Policy to make them more responsive towards the SDGs.

Ghana's policies have gone through high-level quantitative analysis pertaining to processing national documents with explicit mention of sustainable development concepts. In the future, it might be the case that specific insights are needed, such as (i) qualitative data, (ii) what particular facets of learning are effective, and (iii) what specific indicators/SDGs have the most exposure and why.

Their policy papers went through natural language processing, but this methodology could have overlooked some concepts and interpretations that are not recognized by a machine. It could be improved with anecdotal information and qualitative analysis to properly interpret the numbers gathered and processed based on saliency and pervasiveness. While the methodology accurately maps out the keywords in all the documents, their context and usage were not taken into account.

Subsequent analysis based on the implementation of these policies would provide better insights on how to further integrate sustainable development concepts in the curriculum.

By Phase III, the team had mobilized to establish the national committee. Member candidacy was assessed based on the following criteria:

- Experience with Education 2030 or associated issues
- Network potential of the candidate
- Influence of the candidate on their network
- Willingness and availability to support the cause
- Contribution to committee's diversity

All potential candidates were classified for each category, evaluated individually, and points were awarded for each of the criteria. The candidates with the most points were chosen. A committee was formed and well represented with a 1:1 male to female ratio pulled from Academe, Civil Society, Government, and Practice.

The case of Ghana has massive potential but was hindered as a result of a sudden outbreak. Winneba, the town where the University of Education is located, was observed to have erratic connectivity, and the project was put on hold. The progress has been nonetheless commendable, and it is recommended that the team continue with the next phases for integrating sustainability concepts in their national curriculum.

## Turkey

Turkey's research team led by Dr. Mustafa Öztürk completed three studies addressing the following questions:

1. How do global perspectives of ESD and GCE find a way into the local policies in Turkey?
2. How well does the Turkish national curriculum prepare generations for global citizenship and a sustainable future; and
3. How would the Global Schools Program fit in the Turkish national curriculum and educational goals from the perspectives of practicing teachers?

Drawing from the policy analysis on national education laws, the country team found that the concepts of sustainable development and 21st-century skills play an important role in Turkey's policies, while global citizenship does not show the same level of presence. The research also revealed that UNESCO competencies like collaboration, critical thinking, and self-awareness had more direct references in Turkey's education policies than other competencies that were only implicitly mentioned.

Regarding the national curriculum analysis, data revealed that the Science Curriculum followed by Social Studies and Geography Curriculum placed a greater emphasis on the SDGs. Out of the 17 goals, the top three SDGs explicitly mentioned in NLOs were (1) SDG 11: *Sustainable Cities*

*and Communities*; (2) *SDG 3: Good Health and Well-being*, and (3) *SDG 12: Responsible Consumption and Production*. This finding suggests that the Turkish K-12 curriculum places high importance on key areas of sustainable development including:

- i. Healthy lives and well-being for all ages;
- ii. Inclusive, safe, resilient, and sustainable cities and human settlements; and
- iii. Sustainable and responsible consumption and production patterns.

Another significant point is that, when comparing the various education levels, Turkey's country team found that middle school learning outcomes had the most references to the SDGs, followed by high school and then elementary school levels.

On the other hand, the curriculum review provided insights into the weaknesses and gaps in the localization of the SDGs. For instance, despite its notable references to the SDGs, Turkey's national curriculum falls short in promoting *SDG 14 Life Below Water*, *SDG 4 Quality Education*, and *SDG 6 Clean Water and Sanitation*, meaning that NLOs might be overlooking significant targets such as the conservation of oceans, clean water accessibility, and the advancement of equitable education. Additionally, the curriculum analysis shed light on the goals that need to be emphasized even further, such as *SDG 5 Gender Equality* and *SDG 13 Climate Action*, which are two of the biggest priorities throughout education policies and international organizations around the world.

Finally, during the testing and evaluation phase, teachers estimated that 61.2% of the Global Schools Program lesson plans could be adopted and introduced in their current form, while the remaining 38.8% could be changed or enhanced to make the lesson plans more local. Teachers also reported that while certain lesson plans could be improved for Turkish schools, none of the lesson plans were reported as unsuitable or inappropriate for implementation in local schools. This positive feedback suggests that the Global Schools Program has a strong potential to complement Turkey's national curriculum; however, student input will be needed to determine the best way to incorporate Global Schools Program lesson plans into Turkish education.

Altogether, the Global Schools Pilot in Turkey revealed that both the Turkish National Curriculum and Education Policies have taken significant steps to implement the concepts of ESD and support the SDGs. In particular, the teachers' evaluation outcomes illustrate the significance of the Global Schools Program, which can be a valuable tool to empower teachers to advance the SDGs at the local level. However, significant gaps do exist, posing a challenge to SDG localization efforts, especially in the advancement of gender equality and climate action- both of which are crucial benchmarks of SDG Target 4.7.

## Morocco

The country team from Morocco conducted a literature review and sampled sixteen articles to understand how the term “21st-century skills” was defined before designing the curriculum and implementing their pilot study. They found most of the conversations around these skills to be centered in the Western and in post-colonial educational systems. Therefore, the most fruitful discussion was around the practical adaptability towards the ongoing global changes and how they can be recognized by each region within Morocco.

To address the specific curricular challenges of Morocco and to begin the pilot process, the team held a national training meeting both face-to-face and with additional streaming online due to the pandemic. The training group was composed of representatives from the Global Schools Project, the Ministry of National Education, Vocational Training, Higher Education and Scientific Research, deputy directors of student services, inspectors, regional coordinators, provincial coordinators, researchers, and educators from the Rabat Salé Kenitra and the Fès Meknes regions.

Prior to this session, representatives were divided into two working groups by region and schooling track: Primary School—Rabat Salé Kenitra region, Secondary School—Fès Meknes region. Each group followed guidelines from the International Secretariat of SDSN, the framework grid of the 17 Sustainable Development Goals (SDGs) and targets, and the UNESCO publication on Education for Sustainable Development’s learning objectives while designing the pilot. Representatives in each working group discussed the four flagship concepts of the pilot project: Education 2030, 21<sup>st</sup> Century Skills, the SDGs, and Global Citizenship. They mapped results from Phase 2 and began working on the framework for implementation.

Morocco's quantitative curriculum analysis revealed that SDG references vary depending on the discipline. As a major point, the country team discovered that the science primary education textbooks contained more SDG-related content than any other book category at that level. Another significant finding showed that SDGs content varied depending on the language. For instance, the French language books studied place a strong emphasis on SDG 4 *Quality Education*, whereas Arabic books focused on SDG 3 *Good Health and Well-being*.

Regarding the policy analysis, Morocco’s country team found parallels between the tone and aims of the SDGs and pre-existing Moroccan policy papers. Specifically, researchers observed a strong link between GCED and national goals. Indeed, the National Charter for Education and Training prioritizes sustainable development as a national priority. Also, chapter four of the Constitution recognizes human rights and fundamental freedoms, human dignity, inclusiveness, and non-discrimination as fundamental national values and principles of governance.

The Morocco team also tested and evaluated 12 courses that were developed by the in-country team. These courses were meant to be locally relevant materials on the SDGs, ESD, and GCE. The team selected 12 schools (4 at each of the primary, middle school, and high school levels) in which they administered lesson plans from these courses. Students and facilitators were given pre-and post-tests to evaluate the lesson plans.

At the primary school level, 107 students (50% females) were administered the locally relevant lesson plans designed by the Morocco team. The pre-lesson evaluation for 1st through 6th grade assessed students' knowledge, interests, and awareness of the SDGs. After taking the lesson, 95.3% of students agreed on the post-test that they "got to know new SDGs"; 95.3% of students agreed that the "new lessons presented a new definition of SDGs"; 93.4% of students agreed that the "new concepts presented were easy and simple". 25% of the instructors noticed an increase in students' participation.

At the middle and high school level, 312 students participated in the intervention. After taking the lesson, Students reported that they acquired new behavioral competencies (61%), social competencies (45.5%), and cognitive competencies (50%). Moreover, 80% of the students confirmed that they liked the lesson, and 72% said it was more interesting than the regular one. Finally, 73% of students confirmed that the lesson changed their vision about SDGs. Further data analysis on students' engagement with the SDGs and their actions for the future well-being of the planet is detailed in the Morocco country report.

Overall, Morocco's final report provided important information on the incorporation of GCE, 21-st century skills, and sustainable development. It shows that the three concepts and the 17 SDGs are present at different levels of the education system and at different variations across disciplines. The report also suggests that further work is to evaluate students' learning as well as the internalization of the SDGs on the part of both students and teachers.

## Lessons Learned and Way Forward

### Ghana

The work done in Ghana is still in its early phases with national policy revisions. It is commendable how cooperative administrations and policymakers are in sustainability initiatives. However, due to the pandemic, further observations on classroom effectiveness have yet to be conducted. Longitudinal studies could be considered to be able to follow through on the effects of localized curriculum and understand how to further increase the effectiveness of relaying ESD concepts (sustainability education).

Further efforts were made by the third phase; however, the Ghana team encountered bureaucratic hindrances. The timing itself was not very conducive for recruitment due to national elections being held. This delayed the phase completion for longer. The team had to wait for appointments in leadership before proceeding with the deliberation. Moreover, the pandemic obstructed succeeding face-to-face meetings. This problem was exacerbated as team members were not able to conduct virtual meetings because of the lack of connectivity in their respective residences. On top of this, the University Administration involved in the research direction of the pilot had pivoted their priorities towards transitioning academic work virtually.

Despite logistical difficulties and elapsed timelines, the country team stands firm and expresses a strong desire to continue with the initiative and end goal of changing their educational policy and curriculum. The team found that publicity of SDGs is low and would require some time before convincing decision-makers for the desired changes. It is therefore strongly recommended to have available funding in order to organize symposia, workshops, and sensitization drives to realize the prominence of SDG and ESD in their policies and curricula.

### Turkey

Lessons learned from Turkey's final report show that some countries may require additional support to implement a more holistic vision of ESD and the 2030 Agenda in their national curriculum. For example, while Turkey's curriculum places a high emphasis on global issues, targets like Gender Equality and Climate Action don't appear to be prioritized enough in NLOs. This could be attributed to a lack of awareness among those responsible for curriculum development as well as the instructors teaching this curriculum. For instance, regarding the localization of Climate Action in Turkey's curriculum, Dr. Ozturk comments:

*"I think the main obstacle could be the awareness of the people who design the curriculum. As far as I see, they pay sufficient attention to global issues, but if they had more knowledge and more sensitivity about certain issues like climate change, they would definitely incorporate it into the curriculum more. On the other hand, it really depends on how proactive a teacher is about covering sustainability issues in class."*

On the other hand, logistical difficulties related to COVID-19 pandemic disruptions kept Turkey's country team from including students in the Global Schools Program Pilot evaluation phase. Such disruptions limited the assessment of the main goal of the Global Schools Program, which is to equip students with the knowledge, values, and skills necessary for effectively responding to the greatest challenges of this century.

Despite the shortcomings listed above, it is possible to conclude that Turkey has a constructive attitude toward incorporating the principles of sustainable development and 21st-century skills into its K-12 education system. To accelerate this process, the Global Schools Program should be promoted in schools as a support program rather than as an alternative program. This will ensure that Turkey's highly centralized education system integrates relevant themes into its existing curriculum. Another step forward will be to increase teachers' capacity by assisting them in incorporating ESD as a method of pedagogy rather than using it as a concept. By establishing ESD as a pedagogy, teachers may be able to elevate specific SDGs as crucial learning objectives in the classroom. For example, teachers could implement ESD as a pedagogy method to raise awareness on the importance of action against climate change in Turkey.

As a final point, future assessments must ensure that students can engage in Global Schools Program testing and evaluation procedures. Student engagement will offer a deeper understanding of the SDG localization efforts in Turkey while also allowing young people to communicate their needs as they become engaged global citizens.

## **Morocco**

In Morocco, the team faced similar challenges due to the disturbances of COVID-19, which hindered their ability to meet in person. COVID-19 also produces substantial delays and uncertainties for their country team. COVID-19 also had an impact on the individual team and their abilities to contribute to the project, as they all were faced with exceptional conditions and constraints.

Lessons learned point to the difficulties in engaging in the pilot process in a context where the team has to work in a multilingual environment. The team expressed challenges in being solely responsible for all translations across Arabic, French, and English. The team was responsible for translating all surveys, completing data analysis, and writing all outcome reports. In the future, providing additional support to teams working in multilingual environments needs to be taken into consideration. This includes providing additional time for report writing and data analysis, as well as ample resources for countries with similar situations in future pilots.

Despite these challenges, the Morocco team successfully carried out evaluations of the 12 courses they produced for over 400 students. This data collected provides an incredible opportunity to create even more evidence-informed resources for the classroom. Additionally, the multi-region focus of the Moroccan team's work provides additional insights into how the national curriculum can be adopted going forward.

The Moroccan team believes there could be an opportunity to endorse Global Schools as a supplemental program in school communities. Additionally, they can open up discussions with the Moroccan Ministry of Education to discuss addressing the SDGs, ESD, and GCE in future curriculum reforms. They assert the importance of teaching students about the SDGs to make learning relevant, show them how to make a difference in the world, and prepare students to tackle global issues. This can only be accomplished through dynamic and well-designed courses. The lesson plans designed by the team are commendable examples of resources that address the SDGs in the Moroccan context.

## **Conclusion**

The Global Schools pilot project focusing on the localization of ESD curriculum in Ghana, Turkey, and Morocco provides many challenges and opportunities. Going forward, the Global Schools leadership team will be working with each country's research director individually to determine a national implementation roadmap and strategy alongside the national committees that they have established. Additionally, Global Schools will be pursuing more advocacy and projects related to the promotion of ESD and Education 2030 learning objectives in school curricula. Global Schools commits to:

- Continuing to advocate for the integration of the SDGs in curricula at the local, state, and national levels. Global Schools will work closely with Mission 4.7 to advocate for increased funding to implement Target 4.7, and facilitate country-led integration of ESD and GCE into national curriculum frameworks.
- Continuing to publish scientifically-backed advocacy publications that address the importance of including the SDGs in classrooms and schools. Global Schools will work to gather data and evidence that supports holistic learning outcomes on Education 2030 and link these outcomes to student achievement. Global Schools will also support the country teams in the publication of their research outcomes in prestigious education and sustainability policy journals.
- Synthesizing the three country case studies to develop a toolkit for Ministries of Education and School Leadership to localize ESD in curricula. This toolkit will be launched in conjunction with Mission 4.7.
- Supporting other national and local governments through the six phases of the pilot process.

The launch of these pilot programs was one of the first major steps towards a global shift in mentality, and the main objective was reached - bring the SDGs and ESD to the forefront of conversations and stressing the importance of adaptation. As Global Schools closes off the chapter to the pilot programs, the team is only opening many more doors and opportunities to learn, absorb, and take action. Once the COVID-19 pandemic is under control, we Global Schools will need to take a more comprehensive look at the global progress on Target 4.7 through the lens of Mission 4.7, ensuring that all learners acquire the right knowledge and skills to advance sustainable development in their communities.

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