# ENVIRONMENTAL LITERACY EDUCATION CONTENT IN THE COMMONWEALTH CURRICULUM FRAMEWORK FOR SUSTAINABLE DEVELOPMENT GOALS: INFERENCES FROM SUB-SAHARAN/ RURAL AFRICAN STUDIES

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**Abstract**
*The United Nations General Assembly adopted 17 Sustainable Development Goals (SDGs) in 2015 to foster humanity's survival through appropriate response, based primarily on relevant education Agenda, against daunting systemic challenges to various developmental pursuits. Following this adoption, the Commonwealth Secretariat produced in 2017 a Curriculum Framework for the achievement of the SDGs. Environmental Literacy was proclaimed as being at the heart of the SDGs. The Curriculum Framework clearly declares its flexibility and openness, as a guide, towards inclusion of additional competencies (knowledges, skills, and values) considered necessary for sustainable development in differing circumstances/contexts. The purpose of this paper is to expatiate the necessity of incorporating relevant competencies from Environmental Literacy Education with those in the Curriculum Framework in order to address peculiar circumstances and issues within regional and local contexts for the achievement of desired SDGs. With reference to related accomplished research studies by the author, particularly on Sub-Saharan/Rural Africa, the paper concludes that there is great need to enhance environmental literacy education content in the Curriculum Framework for the SDGs. The modalities for effecting the necessary enhancement are also clearly specified in the paper.*

**Keywords:** *Enhancement, Environmental Literacy Education Content, Commonwealth Curriculum Framework, Sustainable Development Goals, Sub-Saharan/Rural Africa*

## Introduction: United Nations' Sustainable Development Goals: Purpose and Expected Outcomes

On 25th September 2015, the United Nations (UN) General Assembly adopted a fifteen-year Agenda to redirect humanity towards a sustainable path of development to be realized by 2030. The Agenda was succinctly capsulized in 17 Sustainable Development Goals (SDGs) which address key systemic barriers to sustainable development, posing global challenges for the survival of humanity. Among the identified barriers are poverty, non-inclusive education, unsustainable consumption patterns, climate change and environmental degradation. The goals further set environmental limits and critical thresholds for the use of natural resources. In all, education was seen as the instrument *par excellence* for achieving the goals. Specifically, the SDGs are summarized by UN (2015) as shown in *Table 1* below.

**Table 1: The 17 Sustainable Development Goals (SDGs)**

| SDG | Focus/Target |
| --- | --- |
| 1 | *No Poverty:* End poverty in all its forms everywhere |
| 2. | *Zero Hunger:* End hunger, achieve food security and improved nutrition and promote sustainable agriculture. |
| 3. | *Good Health and Well Being:* Ensure healthy lives and promote well-being for all at all ages. |
| 4. | *Quality Education:* Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. |
| 5. | *Gender Equality:* Achieve gender equality and empower all women and girls. |
| 6. | *Clean Water and Sanitation:* Ensure availability and sustainable management of water and sanitation for all. |
| 7. | *Affordable and Clean Energy:* Ensure access to affordable, reliable, sustainable and clean energy for all. |
| 8. | *Decent Work and Economic Growth:* Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all. |
| 9. | *Industry, innovation and Infrastructure:* Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation. |
| 10. | *Reduced inequalities:* Reduce inequality within and among countries. |
| 11. | *Sustainable Cities and Communities:* Make cities and human settlements inclusive, safe, resilient and sustainable. |
| 12. | *Responsible Consumption and Production:* Ensure sustainable consumption and productive pattern. |
| 13. | *Climate Action:* Take urgent action to combat climate change and its impacts. |
| 14. | *Life Below Water:* Conserve and sustainably use the oceans, seas and marine resources for sustainable development. |
| 15. | *Life on Land:* Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and habit biodiversity loss. |
| 16. | *Peace, Justice and Strong Institutions:* Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels. |
| 17. | *Partnership for the Goals:* Strengthen the means of implementation and revitalize the global partnership for sustainable development. |

**Source:** *http://www.un.org/sustainabledevelopment/sustainable-development-goals*.

Adoption of the SDGs was sequel to the deliberations of UN member states at the UN Conference on sustainable development held in Rio de Janeiro, Brazil in June, 2012. The conference, among other important guidelines, outlined some principles and strategies for achieving sustainable development (UN, 2012) which provided a good foundation for the SDGs.

**The Commonwealth Curriculum Framework for Achievement of the SDGs**
At the Conference of Commonwealth Education Ministers (CCEM) held in the Bahamas in June, 2015, the Ministers further harped on the centrality of education in mobilizing all class of citizens globally towards their effective participation in achieving the 17 SDGs. In the light of this and other recommendations by the CCEM, the Health and Education Unit of the Commonwealth Secretariat developed a Curriculum Framework to support member countries in addressing all the 17 SDGs through education and learning. In a Foreword to the Curriculum Framework, the then Deputy Secretary General of the Commonwealth Secretariat provides some important information relevant to the focus of this paper as follows (Ojiambo, 2017, p. iii):

> *The framework aims to ensure that citizens develop the knowledge, skills, values and attitudes to flourish in life, learning and work environments, and to appreciate their place in a diverse world, while building and strengthening pathways to peace and tolerance.... (It) allows for a high degree of flexibility through the non-prescriptive nature of its content. It is hoped that this framework will serve as a guide for countries to conceptualize, review or further develop their national curricula and ensure that education is integral to any strategy to create a resilient generation that will advocate for action and the attainment of the SDGs in a holistic, integrated manner. It will provide conceptual support for teacher training, adult learning and community development. It also reaffirms the centrality of education to the multiple dimensions of sustainable development.*

In brief, the Curriculum Framework serves as a guiding pedestal for inclusion of knowledge and skills considered necessary for sustainable development in different circumstances. Such knowledge and skills are holistically referred to in the Framework as "Core Competencies" (Osman *et al.*, 2017: 8).

The Commonwealth Curriculum Framework has also prescribed how to integrate new competencies with the already identified ones for achievement of the SDGs. Specifically, the framework provides for accommodation of additional competencies within the three forms of education/learning (formal, non-formal and informal). It also suggests a matrix for mapping the competences within the three learning forms. Figs 1, 2 and 3 below provide images for integration of both prescribed and additional competencies.

**Fig. 1: Key Competencies in the Curriculum Framework**

| Knowledge and understanding | Skills and applications | Values and attitudes |
|---|---|---|
| • Understanding of key social, environmental and economic challenges and complexities<br>• Understanding of local, national and global challenges and complexities<br>• Knowledge to respond to these challenges and complexities<br>• Multiple literacies<br>• Lifeskills<br>• Understanding of key socio-political challenges and conflicts<br>• Differential and multiscalar understanding<br>• Systems theory and reflexivity | • Analysis<br>• Factfinding<br>• Listening, observing and problem solving<br>• Independent learning and critical thinking<br>• Goal-setting skills<br>• Planning and decision-making<br>• Ability to identify and solve problems, and to set goals<br>• Effective communication and social integration skills<br>• Capacity to think independently<br>• Self-reflective and reflective skills | • Sense of purpose and hope<br>• Committment to justice<br>• Confidence, resilience and adaptability<br>• Openess, respect for diversity<br>• Communication, engagement and integration<br>• Responsible, active, productive and engaged citizens<br>• Duty bearers<br>• Commitment to community engagement for constructive responses to societal issues<br>• Self-esteem, self-understanding and clearer sense of identity |

**Source:** *Osman et al. (2017: 11)*

**Fig. 2: Different Learning Forms for Incorporation and Dissemination of Competencies**



INFORMAL

NON-FORMAL

FORMAL

"Informal learning is learning that occurs in daily life, in the family, in the workplace, in communities and through interests and activities of individuals."

"Non-formal learning is learning that is acquired in addition or alternatively to formal learning. In some cases, it is also structured according to educational and training arrangements, but more flexible. It usually takes place in community-based settings, the workplace and through the activities of civil society organisations."

"Formal learning takes place in education and training institutions, is recognised by relevant national authorities and leads to diplomas and qualifications. Formal learning is structured according to educational arrangements such as curricula, qualifications, and teaching-learning requirements."

**Source:** *Osman et al. (2017: 8) Fig 2.1*

Fig 3. **Matrix for Mapping of the Curriculum Framework Competencies by Levels, Types of Education and the Various SDGs**



**Adapted from:** *Osman et al. (2017: 12); Fig 2.3*

**Environmental Literacy and the SDGs**
In their paper titled *"Educational Curriculum and Multispecies Relations"*, Mabunda & McKay (2021) have clearly asserted that the focus on environmental literacy is at the heart of the SDGs. This assertion is understandable, especially given the fact that up to 10 out of the 17 SDGs (SDGs 1, 2, 3, 6, 7, 11, 12, 13, 14, 15) are clearly in the environment arena (see *Table 1* above). More light is shed on this in related sub-sections below. The purpose of this paper is to expound the necessity of incorporating requisite competencies (knowledge, skills, attitudes and values) offered by Environmental Literacy with related contents of the Commonwealth Curriculum Framework to address peculiarities in regional or local situations/contexts for achievement of the SDGs. The Sub-Saharan/Rural Africa is used as a reference platform to crystalize the stated purpose.

**The Genesis of this Paper: Results of Related Research Studies**
Conception of this paper arose from a number of research studies already published by the author on the place/applicability of Environmental Literacy Education (ELE) as the solution to some sustainability issues relating to the SDGs among the peoples of Sub-Saharan/Rural Africa. Four of the said studies published recently are insightful and are listed as follows:
a. Eheazu, C, L. (2019a). This study highlights the need for "popular environmental literacy education for the development of sustainable energy mix in Nigeria with special reference to the UN SDG 7 (Provision of Affordable and Clean Energy).
b. Eheazu, C. L. (2019b) on "the Place of Environmental Literacy Education (ELE) in addressing climate change impacts in rural Africa/Nigeria under the UN Education 2030 Agenda". The focus of this study was on SDG 13 (Climate Action).
c. Eheazu, C. L. (2020), was focused on SDGs 2 and 15 (Zero hunger and life on land) examined the role of ELE in the sustainability of Agriculture in Sub-Saharan Africa.

    d.   Eheazu, C. L. & Uzoagu, I. F. (2021). Concentrated on SDG 3 (good health and well being); a study that explored the place of ELE in cancer prevention among rural Nigerian communities.

In their various areas of concentration on the SDGs, the above four studies under reference revealed a number of peculiar socially and economically daunting characteristics in the education and demographic profiles of the peoples and regions/countries studied. These characteristics include

    a.   high population growth among the over 46 African countries in the Sub-Saharan Region (including Nigeria). The region's population is projected to leap from 1.1 billion in 2019 (Statista, 2019) to 2 billion by 2050 (UN Department of Economic and Social Affairs, 2013).

    b.   59% of the total population of Sub-Saharan Africa (SSA) lives in the rural areas (World Bank, 2020). In the specific case of Nigeria, 52% of the country's total population were found in the rural areas as at 2015 (World Bank, 2015) with features which make sustainability of the peoples' livelihoods (farming, fishing, herds keeping and others) rather difficult. These features revolved around high rates of illiteracy and massive dependence on natural resources which resulted in excessive deforestation, overgrazing, land and water pollution, general environmental degradation and, ultimately, poverty.

    c.   in the area of education, it is reported in research paper No (c) above that by 2010, 24% of world illiterate adults were found in Sub-Saharan Africa, second only to the region of South and West Asia with 53%" (UNESCO Institute for Statistics, 2013: 3). In the particular case of Nigeria, 5.3% of the country's 44.6million rural inhabitants were found to be illiterate by 2018 (Indexmundi, 2018).

In the author's effort to determine the role and applicability of Environmental Literacy Education towards the achievement of sustainable energy mix, addressing climate change impacts, sustainability of rural agriculture and prevention of cancer among rural communities in Nigeria, the above characteristics of the SSA people and region were found to demand the injection of special competencies of ELE beyond what is provided in the extant Commonwealth Curriculum Framework for achievement of the SDGs. This, obviously, provides the rationale for the present paper. Details of the requisite contents of ELE are discussed in the relevant sections of the paper below.

**Components and Competencies Offered by Environmental Literacy Education**
*The Concept and Content/Components of Environmental Literacy (EL)*
As the author pointed out elsewhere (Eheazu, 2017), the term literacy has over time expanded in meaning beyond its original recognition as the ability to read and write and enumerate in any language using printed symbols. This has arisen from the need to internalize and apply the plethora of developments in human knowledge, science, technology and real-life experiences. Thus, there are today notions of literacies like computer literacy, adult literacy, financial literacy and so on. Environmental Literacy (EL) has also emerged as an important dimension of these literacies.

The notion of environmental literacy has been and continues to be promoted through creative and intensive discuss from a diversity of perspectives. In all, however, environmental literacy comprises an awareness of and concern about the environment and its associated problems, as well as the knowledge, skills and motivations to work towards providing solution to the current problems and the prevention of new ones (NAAEE, 2011). Roth (1992: 16) succinctly described the content of Environmental Literacy (EL) as consisting of

> *… a set of understandings, skills, attitude and habits of mind that empowers individuals to relate to their environment in a positive fashion and to take day-to-day and long term actions to maintain or restore sustainable relationship with other people and the biosphere … The essence of EL is the way we respond to the questions we learn to ask about our world and our relationship with it; the ways we seek and find answers to those questions; and the ways we use the answers we have found.*

Roth further capsulised the above content in three levels of EL. These are:
  i.   Environmental Literacy Level One (ELL$_1$)
  ii.  Environmental Literacy Level Two (ELL$_2$)
  iii. Environmental Literacy Level Three (ELL$_3$)

These levels Roth called *nominal, functional,* and *operational* respectively, showing an ascending expansion from basic understanding through a broader knowledge and interaction to a higher level of understandings and skills in dealing with the environment and its problems.
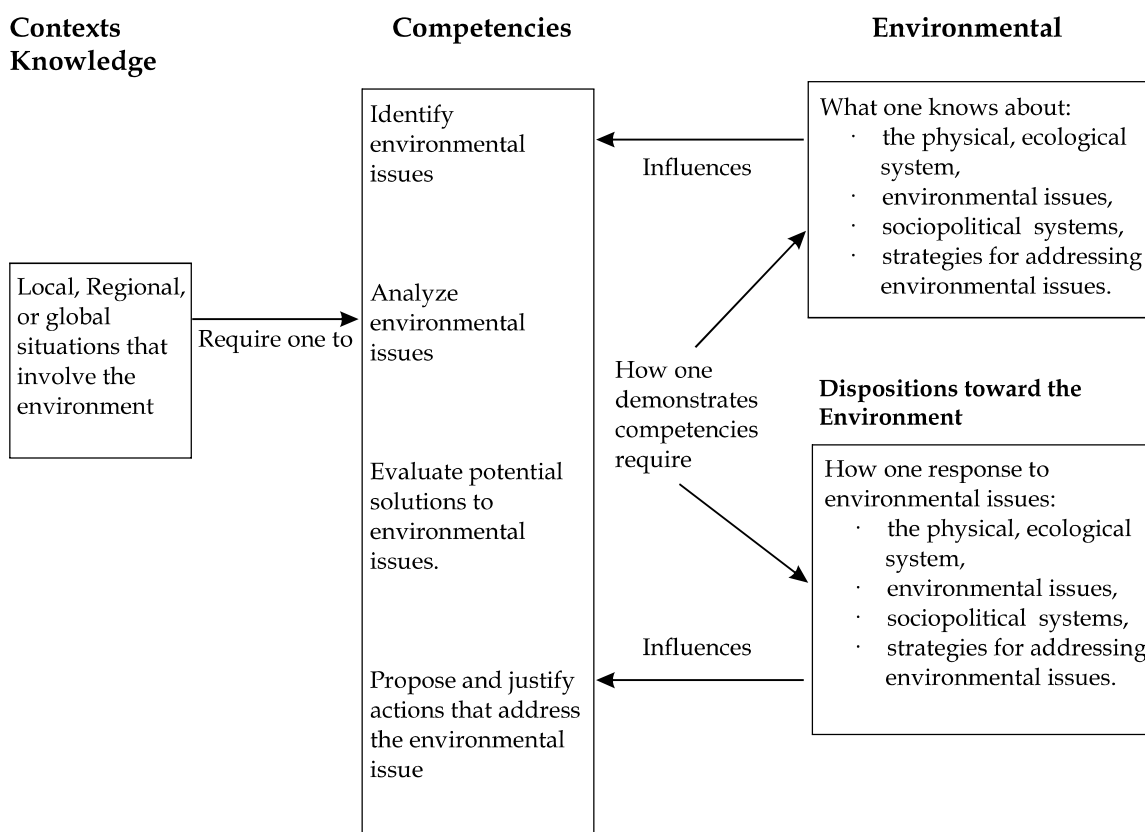
### Competencies Offered by Environmental Literacy (EL)

The competencies derivable from EL could be seen from the attributes of an environmentally literate person. Alongside Roth's (1992) definition of EL cited above, the North American Association for Environmental Education (NAAEE) has defined an environmentally literate person as "someone who, both individually and together with others, makes informed decisions concerning the environment, is willing to act on these decisions to improve the wellbeing of other individuals, societies, and the global environment; and participates in civil life" (NAAEE, 2011: 2-3). The Association further adds that those who are environmentally literate possess, to varying degrees four attributes namely

  a. knowledge and understanding of a wide range of environmental concepts, problems, and issues;
  b. a set of cognitive and affective dispositions;
  c. a set of cognitive skills and abilities; and
  d. appropriate behavioural strategies to apply the acquired knowledge and understanding in order to make sound and effective decisions in a range of environmental contexts.

Accordingly, NAAEE has identified four interrelated components of EL acquisition as *Competencies* (abilities), *Knowledge, Dispositions* and *Environmentally Responsible Behaviour*. The Association has also identified contexts (from local to global) within which these components of EL acquisition are manifested as shown in **Fig. 4** below.

**Figure 4: Contexts and Competencies Offered by Environmental Literacy (EL)**

**Contexts**
**Knowledge** | **Competencies** | **Environmental**

| Contexts | Competencies | Environmental |
|---|---|---|
| Local, Regional, or global situations that involve the environment — Require one to → | Identify environmental issues

Analyze environmental issues

Evaluate potential solutions to environmental issues.

Propose and justify actions that address the environmental issue | What one knows about:
· the physical, ecological system,
· environmental issues,
· sociopolitical systems,
· strategies for addressing environmental issues. |

← Influences (What one knows → Identify environmental issues)

How one demonstrates competencies require

**Dispositions toward the Environment**

How one response to environmental issues:
· the physical, ecological system,
· environmental issues,
· sociopolitical systems,
· strategies for addressing environmental issues.

← Influences (Dispositions → Propose and justify actions)

**Source:** *Adapted from: NAAEE (2011:6)*

*Process and Outcomes of Environmental Literacy Education (ELE)*

Environmental Literacy Education (ELE) could be defined as the process of disseminating the above components and competencies of EL in order to develop in beneficiaries environmental responsible behaviour expected of environmentally literate persons, which Hungerford *et al* (1994) have identified to include

i.   belief in their ability, both individually and collectively, to influence decisions on environmental problems and issues; such as mitigation of the impact of climate change on agriculture;

ii.   assumption of responsibility for personal actions that would positively influence or avert environmental disaster;

iii.   personal and/or Group involvement (inclusiveness) in environmentally responsible behaviours; such as tree planting to minimize the environmental effects on deforestation; and

iv.   persuasion – e.g. using informal discussion to encourage one another to support a positive environmental position; such as adoption of farming methods that would minimize anthropogenic land and general environmental degradation.

From the attributes of an environmentally literate person and the components of EL discussed above, it stands clear that development of environmental literacy is a multi-faceted process which begins with basic environmental knowledge inculcation and acquisition. This basic knowledge component is predicated on the idea that before an individual can act on an environmental problem, that individual must first understand the problem (Pooley & O'Connor, 2000). The next step is training of the individual towards the application of the acquired knowledge to investigate and evaluate environmental issues and apply appropriate solutions. Finally, the individual must be equipped to be able to choose which course of action is best in a given situation. The said multi-faceted process is applicable, if appropriately designed, at every level of education - basic, formal, non-formal and informal as well as higher education. This makes it convenient to integrate the components/competencies in EL with the key competencies offered in the Commonwealth Curriculum Framework (**Fig. 1**) and in line with the different learning forms (**Fig. 2**), thereby achieving an "integrated problem solving competency" (UNESCO, 2017: 10).

**Modalities for Enhancement of Environmental Literacy Education (ELE) Content in the Commonwealth Curriculum Framework**

In its 2017 publication cited above, UNESCO identifies learning objectives, suggests topics and learning activities for each SDG and describes implementation at different levels from course design to national strategies, with the aim " to support policy-makers, curriculum developers and educators in designing strategies, curricula and courses to promote learning for the SDGs" (UNESCO, 2017: 8). Accordingly, and in consonance with relevant clarifications so far in this paper, the necessary enhancement of Environmental Literacy Education (ELE) content in the Curriculum Framework for the SDGs would involve the following modalities:

    i.   Identification of a sustainability issue within a given region or geographical entity (like Sub-Saharan/Rural Africa);

    ii.   Identification of the particular SDG(s) which relate(s) to the sustainability issue;

    iii.   Selection from the Commonwealth Curriculum Framework/UNESCO Guidelines of appropriate learning objectives and key competencies for achieving the SDG(s);

    iv.   Identification of the overall literacy level and other relevant demographics of the target human beneficiaries/participants with special concern for their potentials to impact adversely on the environment;

    v.   Specification of the requisite EL content/competencies to match with the compatible others provided in the Commonwealth Framework and UNESCO Guidelines for the relevant SDG(s); and

    vi.   Integration/infusion of the requisite ELE competencies (as in **Fig. 4** above) with the compatible provisions of the relevant SDG(s), using the mapping matrix provided by the curriculum framework (**Fig. 3** of this paper).

Ultimately, the EL competencies would fall under the different learning forms for dissemination (**Fig. 2** above), specifying what methods/strategies would be appropriate to effectively transmit needed knowledge, skills and values to the target beneficiaries/participants through the different modes (formal, non-formal and informal) and levels of education (early childhood, primary, secondary, tertiary and technical education as

shown in **Fig. 3** above). The four published research papers listed above as informing the present paper (namely, Eheazu, 2019a, 2019b, 2020 and Eheazu and Uzoagu, 2021) amply crystalized these processes/modalities, as can be seen in the case of Sub-Saharan/Rural Africa.

## Conclusion

This paper has highlighted the origin and aims of the Commonwealth Curriculum Framework for the achievement of the 17 Sustainable Development Goals (SDGs) adopted in 2015 by the UN General Assembly to address key systemic barriers that pose challenges to the survival of humanity. Highlighted also are the provisions of the Curriculum Framework on the core competencies (knowledge, skills, attitudes and values) it covers and its openness for inclusion of additional competencies relevant to specific circumstances and issues. Sub-Saharan/Rural Africa is used by the author to illustrate such circumstances and issues. In the light of these exposés and other published research references on the competencies of Environmental Literacy Education relevant to achievement of the SDGs, the paper concludes that there is indeed great need to enhance Environmental Literacy Education content in the Curriculum Framework for the SDGs. The paper has also gone further to suggest modalities for effecting the enhancement along lines of integration provided in the Framework.

## Suggestions

In view of the detailed discussions and references on the paper and the conclusion arrived at, it becomes evidently pertinent to suggest the enhancement of the Environmental Literacy Education content in the Commonwealth Curriculum Framework to achieve desirable sustainability on issues relating to the environment and the learning programme(s) of appropriate UN Sustainable Development Goal(s).

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