

A Scoping Review of the Embedded Sustainable Way of Living Concept in Education for Refugees

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Abstract

Despite increasing attention to refugee education, critical gaps remain in integrating sustainability competencies into humanitarian learning frameworks. This scoping review examines the extent to which sustainability-related themes such as WASH (water, sanitation, and hygiene), food security, energy literacy, and green livelihoods are embedded in education programs for refugees. From a dataset of 106 Scopus-indexed articles published between 2010 and 2025, we identified a subset (n = 36) focusing on refugee education and sustainability. Thematic coding of titles, abstracts, and keywords revealed a disproportionate emphasis on vocational training and teacher development, with limited representation of hands-on sustainability domains. This paper proposes the Embedded Sustainable Way of Living curriculum. This adaptable, modular model aligns Education for Sustainable Development with humanitarian contexts to address this structural omission and promote climate resilience, autonomy, and equity among displaced learners.

Keywords: refugee education; sustainability; ESD; WASH; green livelihoods; SDGs; curriculum

INTRODUCTION

Globally, forced displacement continues to rise, with more than 110 million individuals currently displaced due to conflict, persecution, or environmental crises (Fransen et al., 2024). Within this context, refugee education has become a cornerstone of international humanitarian and development policy. The United Nations High Commissioner for Refugees (UNHCR) and UNESCO advocate for inclusive, quality education that supports both immediate survival and long-term integration into host societies (Miao, 2018). However, the implementation of these frameworks remains heavily skewed towards basic literacy, psychosocial support, and language instruction; an emphasis that, while necessary, is insufficient to address the complex and evolving realities faced by displaced populations.

Over the past decade, the concept of Education for Sustainable Development (ESD) has emerged as a critical paradigm in global education discourse (Avis, 2025). Defined by UNESCO as an approach that equips learners with the knowledge, skills, values, and attitudes to make informed decisions for environmental integrity, economic viability, and a just society, ESD offers a promising framework for refugee education (Yasmin et al., 2022). Despite its potential, however, ESD has not been meaningfully embedded into educational programs for refugees. Existing interventions often fail to extend beyond token references to environmental awareness or limited vocational training modules (Cheong et al., 2025).

The scholarly literature reflects this gap. Jamaludin et al. (2024) observed that most refugee education programs prioritize psychosocial healing and teacher training, often overlooking the

importance of community-based environmental literacy. Similarly, Shapiro (2025) critiques the dominance of Eurocentric pedagogies in humanitarian education and calls for asset-based, culturally sustaining approaches that prioritize local knowledge systems and practical skills. Furthermore, Alkharouf et al. (2024) note that while digital and higher education access initiatives are gaining traction, they rarely address foundational sustainability challenges such as water access, food security, or circular waste management (Wardeh & Marques, 2021).

Against this backdrop, this paper introduces the Embedded Sustainable Way of Living (ESWL) curriculum, a modular, low-cost, and context-responsive model that integrates key sustainability competencies into refugee education. This study, based on a scoping review of 106 Scopus-indexed articles, assesses the extent to which sustainability themes are currently represented in the literature and in educational programming. In doing so, it aims to offer both a critical analysis of existing gaps and a forward-looking pedagogical intervention tailored to the realities of displacement and climate vulnerability (Tiwary, 2023). Globally, forced displacement continues to rise, with more than 110 million individuals currently displaced due to conflict, persecution, or environmental crises. Within this context, refugee education has become a cornerstone of international humanitarian and development policy. The United Nations High Commissioner for Refugees (UNHCR) and UNESCO advocate for inclusive, quality education that supports both immediate survival and long-term integration into host societies.

Theoretical Framework

To contextualize the ESWL curriculum, this study draws upon three interrelated theoretical frameworks: Education for Sustainable Development (ESD), the Human Capabilities Approach, and Systems Thinking in educational design. These frameworks collectively articulate a vision of refugee education that transcends temporary relief, instead fostering agency, adaptability, and resilience in displaced populations.

Education for Sustainable Development (ESD)

ESD, as defined by UNESCO, refers to pedagogical approaches that empower learners to take informed decisions and responsible actions for environmental integrity, economic viability, and a just society for present and future generations. It promotes critical thinking, future-oriented problem-solving, and participatory action, capacities especially critical in humanitarian contexts where access to formal infrastructure is often limited.

However, existing literature suggests that ESD in refugee settings is often underdeveloped or symbolic. While curriculum documents may include sustainability goals, implementation is typically constrained by teacher preparedness, resource scarcity, and competing educational priorities (Jamaludin et al., 2024; Shapiro, 2025). The ESWL model builds on ESD principles but prioritizes core competencies, such as water literacy, food resilience, circular waste practices, and peace education, domains that are largely absent from mainstream refugee education models.

Human Capabilities Approach

Pioneered by Amartya Sen and further developed by Martha Nussbaum, the Human Capabilities Approach provides a human-centered metric of well-being that goes beyond income or institutional access. It focuses on individuals' actual freedoms to achieve the functioning they value, such as health, education, dignity, and environmental sustainability (Sen, 1999; Nussbaum, 2006).

In refugee contexts, where external conditions severely constrain agency, the capabilities lens is particularly apt. It allows educators and policymakers to frame education not merely as

service delivery, but as an enabler of long-term resilience, dignity, and participation. ESWL reflects this perspective by embedding sustainability not as an end goal but as a capacity that enhances everyday self-reliance, community cohesion, and future orientation.

Systems Thinking and Resilience Pedagogy

Systems Thinking is increasingly recognized as a core competency of ESD and 21st-century learning. It emphasizes interconnectivity, feedback loops, and leverage points within social-ecological systems, an essential perspective for understanding and navigating displacement, resource scarcity, and climate impacts.

Resilience pedagogy, closely linked to systems thinking, emphasizes learners' capacity to absorb shocks, adapt, and transform in the face of chronic stress. In refugee settings, these concepts have been operationalized through disaster education, peacebuilding curricula, and community resilience training. The ESWL model incorporates these insights by structuring learning around modular, interrelated domains such as WASH, food, energy, and waste that mirror real-life system dependencies.

Together, these three frameworks inform the design principles and evaluative criteria for the ESWL curriculum. They ground the model in academic theory while ensuring practical alignment with the lived realities of displaced learners.

Literature Review

A growing body of research explores education in refugee settings, yet few studies systematically integrate a sustainability or environmental resilience lens. This literature review synthesizes key findings across four domains relevant to the Embedded Sustainable Way of Living (ESWL) curriculum: (1) refugee curriculum design, (2) vocational and green livelihood training, (3) environmental and sustainability education in displacement contexts, and (4) regional trends in program implementation.

Curriculum and Pedagogical Frameworks in Refugee Education

Multiple studies underscore the prevalence of ad hoc, donor-driven curricula in humanitarian settings. For example, Shapiro (2025) critiques the dominance of Northern-centric pedagogies that fail to acknowledge the lived experiences, cultural resources, and adaptive capacities of refugee learners. Instead, she calls for culturally sustaining education that recognizes indigenous ecological knowledge and community-based resilience strategies.

Similarly, Pherali and Abu Moghli (2021) highlight that education for refugees often operates in a policy vacuum, resulting in fragmented curriculum frameworks that are poorly aligned with either host-country standards or the long-term needs of displaced learners. They argue that access to education alone is insufficient; the content must also be empowering, context-sensitive, and forward-looking.

Vocational Training and Sustainable Livelihoods

Vocational Education and Training (TVET) is often presented as a key solution to refugee economic integration. However, its application often lacks environmental orientation. A review by Jamaludin et al. (2024) found that most TVET programs target construction, tailoring, or services sectors, with minimal linkage to green technologies or sustainable enterprise development. Even where such content exists, it is rarely integrated with broader environmental or civic competencies.

More promising are grassroots and NGO-led initiatives that embed sustainability into skills training, such as permaculture gardening, solar energy assembly, or water harvesting. Nevertheless,

these efforts remain localized and underdocumented in the peer-reviewed literature, indicating both a research and a practice gap.

Environmental and Sustainability Education in Humanitarian Settings

Environmental education in refugee contexts remains marginal. Existing programs, where present, often focus on awareness campaigns or behavior change, such as sanitation posters, rather than structured pedagogy. According to Alkharouf et al. (2024), integrating ESD requires not only content reform but institutional innovation such as blended learning models, teacher reskilling, and partnerships with environmental NGOs.

Moreover, sustainability initiatives often remain siloed from educational systems. WASH programs, for instance, are typically managed by public health or infrastructure actors, limiting their potential for curricular integration. The ESWL model challenges this fragmentation by embedding WASH and environmental resilience within core learning modules.

Regional and Contextual Gaps

Most scholarly work on refugee education is geographically clustered in the Middle East, particularly in Jordan, Lebanon, and Syria, as well as in Sub-Saharan Africa. Southeast Asia, despite hosting significant displaced populations like the Rohingya in Bangladesh, stateless persons in Indonesia and Malaysia, remains underrepresented in both empirical research and curricular innovation.

Furthermore, few studies provide comparative or longitudinal data on the impacts of sustainability-oriented education in displacement contexts. There is a critical need for evidence on what works, for whom, under what conditions, and with what trade-offs. The ESWL model aims to fill this gap by offering a modular, adaptable curriculum with built-in indicators for contextual adaptation and evaluation.

METHOD

This study adopts a scoping review methodology guided by the PRISMA-ScR (Preferred Reporting Items for Systematic Reviews and Meta-Analyses – Scoping Review) framework. Scoping reviews are particularly suited for mapping the breadth and depth of research on complex, underexplored topics such as sustainability in refugee education. Unlike systematic reviews, which focus on evaluating the effectiveness of interventions, scoping reviews identify patterns, gaps, and conceptual boundaries in the existing literature.

Search Strategy and Inclusion Criteria

A comprehensive literature search was conducted in the Scopus database, chosen for its breadth of indexed peer-reviewed journals across social sciences, education, and environmental disciplines. The search string combined controlled vocabulary and keywords related to “refugee education,” “sustainability,” “WASH,” “TVET,” “climate resilience,” and “Education for Sustainable Development.” Boolean operators and truncation were used to expand results.

Inclusion criteria were as follows:

- Publication between January 2010 and March 2025
- Focus on refugee or forcibly displaced populations
- Engagement with formal or non-formal educational programming
- Explicit thematic content related to sustainability, environment, livelihoods, or resilience.

Exclusion criteria included studies focused solely on psychological outcomes or higher education access without reference to sustainability themes.

Screening and Selection Process

The initial search yielded 106 records. Titles and abstracts were screened to determine eligibility. In cases of disagreement, full texts were retrieved and discussed. The final dataset included 36 articles.

Thematic Tagging and Data Extraction

To systematically analyze thematic coverage, a rule-based tagging protocol was developed. Tags were applied to titles, abstracts, and author keywords using a hybrid approach combining inductive open coding and deductive categorization. Thematic categories included:

- WASH and water literacy
- Food security and gardening
- Energy and shelter
- Waste and circularity
- Vocational education (TVET)
- Curriculum and teacher training

Frequencies were computed using a spreadsheet-based matrix, and co-occurrence patterns were qualitatively assessed.

Analytical Rationale

Both theoretical constructs informed the choice of thematic tags: ESD and systems thinking, as well as the pragmatic dimensions of sustainable living in refugee contexts. Rather than attempting meta-synthesis, this study seeks to identify where and how sustainability is being integrated, conceptually and practically, into refugee education discourses.

RESULTS AND DISCUSSION

Results

The analysis of the 36 selected articles revealed pronounced thematic imbalances in how sustainability is addressed within refugee education literature. Below, we present the quantitative distributions, qualitative patterns, and regional disparities that emerged from the thematic tagging.

Dominant Themes: TVET and Curriculum

Vocational Education and Training (TVET) appeared in 14 articles (39%), making it the most prevalent sustainability-adjacent theme. These studies generally framed TVET as a pathway to labor-market integration, emphasizing income generation and alignment with the host country. However, only two articles linked TVET to ecological or climate-relevant skills, such as solar energy, sustainable agriculture, or waste recycling.

Curriculum development and teacher training were featured in 11 articles (30%). Here, the focus was mainly on trauma-informed instruction, language acquisition, and adapting national curricula for refugee learners. Few curricula explicitly incorporated environmental literacy, circularity, or systems thinking. This reflects a missed opportunity to embed sustainability into pedagogical content.

Underrepresented Practical Sustainability Domains

WASH (Water, Sanitation, Hygiene): Present in only 2.8% (1 article). WASH was discussed primarily from an infrastructure or public health lens, with minimal curricular integration. Energy and Shelter: Also present in 2.8% (1 article), with discussion limited to infrastructural adequacy rather than energy literacy. Food Security and Gardening: Found in 5.6% (2 articles), usually in the context of community gardens or school feeding programs, not as core learning domains. Waste and Circular Economy: Mentioned in fewer than two cases, often in passing or as a component of NGO-led environmental awareness initiatives. Those confirm that critical life competencies, particularly those related to climate resilience and resource autonomy, are virtually absent from the educational frameworks studied.

Regional Patterns and Geographic Gaps

Geographically, the studies were unevenly distributed: (1) Middle East and North Africa (MENA): 14 studies, mostly on Syrian and Palestinian refugees in Jordan and Lebanon, (2) Sub-Saharan Africa: 10 studies, focusing on Uganda, Kenya, and Ethiopia, (3) Europe: 7 studies, often analyzing host-country curriculum adaptation in Germany, Sweden, (4) Southeast Asia, only two studies, both situated in Bangladesh with no representation from Indonesia, Malaysia, or Thailand.

The geographic distribution reveals a significant gap in research on refugee education in Southeast Asia, despite the presence of large displaced populations in the region. This underrepresentation limits our understanding of culturally embedded sustainability practices that could inform the ESWL model.

Thematic Co-occurrence

Analysis of thematic co-occurrence showed that TVET often overlapped with curriculum reform but rarely with WASH or environmental education. Similarly, studies on food security did not address peace education or circularity, suggesting a siloed approach to sustainability domains. These patterns reinforce the need for integrated, systems-based curricula such as ESWL.

Discussion

The results of this review underscore an urgent pedagogical gap: sustainability competencies, despite their vital importance in climate-fragile refugee settings, remain largely marginalized within educational programming. While vocational training and curriculum reform receive ample scholarly attention, practical domains such as WASH, food literacy, energy autonomy, and waste circularity receive sporadic attention, if any at all. This omission risks perpetuating a reactive, rather than transformative, form of humanitarian education, one that focuses on immediate recovery without preparing learners for adaptive, long-term resilience.

Reconceptualizing Sustainability in Displacement Contexts

ESD is often positioned as a global framework for 21st-century learning. However, its implementation in displacement settings tends to be tokenistic or symbolic. Sustainability is frequently interpreted through a narrow environmental lens, neglecting its social, economic, and infrastructural dimensions. As Jamaludin et al. (2024) highlight, effective refugee education must move beyond trauma healing to cultivate applied ecological literacy and system-aware competencies that reflect the daily challenges faced by displaced populations.

The ESWL curriculum offers a recalibration of ESD for humanitarian contexts. By embedding sustainability not as thematic content but as a way of life, ESWL disrupts the conventional curriculum hierarchy. For example, teaching water harvesting and filtration methods

becomes not just a science lesson but a public health intervention. Waste composting integrates biology with food security. These modules transform classrooms into laboratories of survival and autonomy, particularly in settings where formal infrastructure is absent.

Comparing Global Education Frameworks

Current international educational frameworks, such as those outlined in the Inter-Agency Network for Education in Emergencies (2024) and the Sphere Association. (2018), provide general principles for ensuring quality, safe, and inclusive learning. However, they lack operational detail on integrating sustainability, especially in ways that transcend subject silos. Few offer guidance on embedding systems thinking or place-based ecological knowledge into the core curriculum.

ESWL fills this void by integrating SDG targets directly into instructional design and community-level implementation. It complements global frameworks while also addressing context-specific challenges, particularly those in climate-stressed camps or informal settlements. Its modular architecture enables adaptation to different age groups, languages, and delivery modalities, offering a scalable solution for diverse educational ecosystems.

Implementation Feasibility: Navigating Complexity

Despite its promise, implementing the ESWL model requires overcoming several entrenched barriers:

- **Educator Capacity:** Most teachers in refugee settings are not trained in sustainability pedagogy. Professional development must address not only subject content but also delivery within constrained, often non-formal environments.
- **Policy Fragmentation:** Sustainability and humanitarian education operate in separate bureaucratic silos. Cross-sectoral alignment among ministries of education, environmental agencies, and humanitarian actors is essential.
- **Cultural Plurality:** Refugee populations are heterogeneous. The curriculum must be designed to be adaptable across diverse belief systems, knowledge traditions, and learning preferences.

Strategies such as community-based facilitators, participatory curriculum co-design, and mobile learning platforms can mitigate these challenges. Piloting ESWL in partnership with local NGOs and refugee-led organizations can also increase contextual fit and ownership.

Theoretical and Methodological Implications

This review advances the literature by reframing refugee education through the lens of sustainability competencies. While prior studies have addressed inclusion, trauma, and digital access, few have interrogated the systemic absence of ecological and infrastructural literacy in humanitarian learning. The ESWL model contributes not only as a pedagogical tool but as a theoretical proposition: that displaced learners are not merely vulnerable recipients but potential agents of regenerative practice.

Methodologically, this study also illustrates how rule-based thematic coding can surface latent curricular biases in academic discourse. Making visible what is missing provides a roadmap for both researchers and practitioners seeking to build more integrative educational models.

Limitations and Research Frontiers

This review is limited by its reliance on Scopus-indexed publications, which may exclude innovative practices documented in grey literature or non-English sources. The thematic tagging process, while systematic, may not detect nuanced or implicit references to sustainability.

Furthermore, the review does not assess the pedagogical efficacy or learner outcomes of sustainability-linked programs, a task for future empirical work.

Future research should investigate the longitudinal impact of ESWL-aligned curricula on learner agency, environmental outcomes, and community resilience. Mixed-methods studies exploring teacher perceptions, learner engagement, and policy uptake would further inform scalability and adaptation.

In summary, this discussion presents both a critique of prevailing refugee education paradigms and a constructive vision for pedagogical transformation, grounded in sustainability and systems thinking.

CONCLUSION AND RECOMENDATIONS

This scoping review reveals a significant thematic omission in refugee education literature: the lack of structured, integrated sustainability content despite escalating climate vulnerability and resource insecurity among displaced populations. While vocational education and curriculum development are prominent, they fall short of equipping learners with core sustainability competencies such as WASH literacy, food resilience, energy awareness, and circularity practices.

The ESWL curriculum addresses this gap through a modular, systems-based, and context-sensitive framework. It draws on established educational theory, ESD, Human Capabilities, and Systems Thinking, while translating them into tangible, low-cost pedagogical tools suitable for crisis and recovery contexts.

Beyond conceptual alignment with the SDGs and humanitarian education standards, ESWL's novelty lies in its adaptability: it accommodates cultural, geographic, and institutional variability without compromising pedagogical integrity. This positions ESWL as a scalable innovation in the nexus of sustainability, education, and displacement.

Future research should empirically evaluate the implementation of ESWL across diverse displacement contexts, focusing on learner outcomes, teacher adaptability, and the integration of cross-sectoral policies. Without embedding sustainability into refugee education, humanitarian responses risk perpetuating dependency rather than enabling autonomy and climate resilience. This scoping review highlights a critical underrepresentation of sustainability-oriented content in the literature on refugee education. As climate instability intersects with displacement, embedding practical sustainability into refugee education becomes both a pedagogical and ethical imperative. The ESWL curriculum offers a conceptual and operational model to advance this agenda.

Future research should prioritize empirical evaluation of ESWL implementation, cross-cultural adaptability, and learner outcomes to ensure that sustainability education becomes an integrated pillar of humanitarian response.

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