Education for Sustainable Development in Priority Education Zones

A Planning-Oriented Framework for Resource-Constrained Schools in Sub-Saharan Africa

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***Abstract*—Education for sustainable development (ESD) is widely presented as a driver of the 2030 Agenda, yet its implementation remains uneven in schools operating under severe resource constraints. This paper examines how ESD can be planned and delivered in priority education zones, understood here as areas where schools face large enrolments, limited infrastructure, scarce teaching materials and harsh climatic conditions. Drawing on a structured review of international policy documents and of the scholarly literature on ESD, educational planning and contextualised pedagogy, the study identifies four recurrent obstacles: material and infrastructural deficits, overcrowded and thermally stressful classrooms, curriculum overload combined with limited teacher preparation, and weak links between schools and their communities. In response, the paper proposes a five-pillar framework that combines contextualised content, low-cost active pedagogy, a whole-school approach, sustained teacher capacity building, and participatory governance with simple monitoring indicators. The framework is intended to help planners and deschool leaders prioritise actions that are feasible within limited budgets. The paper concludes that ESD in priority zones should be treated as an organising principle of educational planning rather than as an additional subject, and it outlines an agenda for empirical validation.**

Keywords—education for sustainable development; priority education zones; educational planning; contextualised pedagogy; whole-school approach; sub-Saharan Africa

I. Introduction

This Education for sustainable development (ESD) has moved from the margins to the centre of international education policy. Target 4.7 of the Sustainable Development Goals calls on countries to ensure that all learners acquire the knowledge and skills needed to promote sustainable development [1], and the ESD for 2030 roadmap translates this ambition into priority areas for action by education systems [2]. The underlying idea goes back to the notion of development that meets present needs without compromising those of future generations [3]: education is both a right and a lever for social, economic and environmental change. However, the literature and the guidance documents that shape ESD are largely written with well-resourced institutions in mind. Schools located in priority education zones, which concentrate poverty, demographic pressure and exposure to environmental hazards, are precisely the places where sustainability challenges are felt most directly, yet where the means to teach about them are scarcest. In this paper, the term priority education zone (ZEP, from the French Zone d'Education Prioritaire) is used as a descriptive category rather than an official administrative classification. It refers to areas where schools combine large enrolments, limited infrastructure and teaching materials, and difficult environmental conditions such as persistently high temperatures, which are typical of parts of the Sudano-Sahelian belt of Africa. The central question addressed is the following: how can ESD be planned and delivered in priority education zones in a way that is realistic under tight resource constraints and meaningful for learners and communities? The paper makes three contributions. First, it synthesises the main obstacles reported in the literature. Second, it proposes a five-pillar framework that links pedagogy, school organisation and educational planning. Third, it derives implications for planners and outlines a research agenda. The remainder of the paper is organised as follows. Section II presents the conceptual background, Section III the methodological approach, Section IV the obstacles, Section V the framework, Section VI the planning implications, Section VII the limitations and future research, and Section VIII the conclusion.

II. Conceptual Background

A. From Environmental Education to ESD

Early environmental education focused mainly on knowledge about ecosystems and on individual behaviour. ESD broadens this scope by integrating environmental, social, economic and cultural dimensions and by emphasising participation, critical thinking and action. Sterling argues that sustainability requires a change in the way education itself is conceived, and not merely the addition of new content [4]. Vare and Scott make a related distinction between an instrumental form of ESD that promotes pre-defined behaviours and a form that builds the capacity of learners to examine and challenge competing views [5]. The second form is demanding but particularly relevant where local problems have no standard solution.

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Learning objectives for ESD are now commonly expressed as cross-cutting competencies, such as systems thinking, anticipatory thinking, collaboration, critical thinking and integrated problem solving [6]. These competencies are developed through practice rather than through the memorisation of facts, which has direct consequences for pedagogy and for school organisation in contexts where classrooms are crowded and equipment is limited.

B. *Priority Education Zones as a Planning Category*

The notion of priority zones rests on a compensatory logic: additional attention and resources are directed to areas where educational disadvantage is concentrated. From a planning perspective, such zones are characterised by (i) high pupil-teacher ratios, (ii) deficits in classrooms, water, sanitation and energy, (iii) shortages of qualified teachers and teaching materials, and (iv) exposure to climatic stress. The Global Education Monitoring Report 2016 argues that education systems must place sustainability at the heart of their mission and that inequalities in access and quality hold this ambition back [7]. Priority zones therefore constitute a test case for the credibility of ESD policies.

C. *Pedagogical Foundations*

Two traditions are particularly useful for low-resource settings. Experiential learning theory describes learning as a cycle of concrete experience, reflection, conceptualisation and experimentation [8]; it supports activities that use the school environment as a learning resource. Problem-posing education, as developed by Freire, treats learners as active participants who analyse the realities of their own community [9]. Both traditions lend themselves to ESD activities that require more organisation and imagination than money.

III. Methodological Approach

This is a conceptual paper based on a structured documentary review. Sources were selected for their relevance to three themes: the definition and goals of ESD, educational planning in disadvantaged contexts, and contextualised or low-cost pedagogy. They include international policy documents issued by the United Nations and UNESCO as well as academic books and articles on ESD. The material was coded and grouped into recurring themes following the logic of thematic analysis [10], which produced the four obstacles presented in Section IV and the five pillars presented in Section V. The analysis is also informed by the author's professional familiarity with schools operating in a hot, resource-constrained environment.

No primary data were collected for this paper. The framework should therefore be read as a proposition to be tested, and not as an empirically validated model.

IV. Obstacles to ESD in Priority Education Zones

A. *Material and Infrastructural Deficits*

Many schools in priority zones lack reliable access to water, sanitation, electricity, libraries and laboratories. This limits the range of demonstrations and projects that teachers can organise and creates a mismatch between what is taught and what learners observe. When a school has no waste management, no shade and no safe water, its hidden curriculum conveys a message that contradicts the official one. Expert reviews of ESD insist that learning processes and the way an institution operates must be coherent with the values being taught [11].

B. *Large Classes and Thermal Stress*

Participatory methods are harder to apply when a single teacher is responsible for very large groups. In hot climates the problem is amplified: classrooms with poor ventilation and metal roofing become uncomfortable during the hottest hours, which is widely reported to reduce attention and effective learning time. Teachers then tend to fall back on dictation and copying, the least suitable modes for developing the competencies listed above. Any ESD strategy for these zones must therefore address the physical and organisational conditions of teaching, and not only its content.

C. *Curriculum Overload and Teacher Preparation*

ESD is frequently added to already crowded curricula as a theme or a subject, without time, materials or assessment arrangements. Teachers are typically trained to transmit disciplinary content and receive little preparation in interdisciplinary, participatory and community-based approaches. The review of the United Nations Decade of ESD concluded that transforming teacher education is a condition for lasting change [12]. Where in-service training is scarce, as is often the case in priority zones, teachers have few opportunities to develop these skills.

D. *Weak School–Community Links*

Sustainability problems such as water scarcity, soil degradation, waste, health risks and livelihoods are experienced daily in the community. Yet schools often treat these issues in abstract terms and sometimes in a language that is not the learners' home language. Local knowledge about land, water, seasons and health is seldom recognised as a legitimate source of learning. This weakens relevance and reduces the support that parents and local leaders could give to school initiatives.

V. A Five-Pillar Framework

The framework consists of five interdependent pillars, summarised in Table. It is designed to be implemented incrementally, starting with actions that cost little and building progressively towards structural changes. It builds on the priority action areas of the Global Action Programme on ESD, notably the emphasis on whole-institution approaches, educators and local communities [13].

TABLE. Five Pillars of ESD Implementation in Priority Education Zones

Pillar	Key actions	Example indicator
1. Contextualised content	Link learning outcomes to local problems such as water, waste, heat	Share of units built on a local case

	and food	
2. Low-cost active pedagogy	Group work with assigned roles; shaded outdoor sessions; local materials	Sessions per term using group or project work
3. Whole-school approach	Waste sorting, school garden, tree planting, water saving	Number of operational sustainability practices
4. Teacher capacity building	School-cluster learning circles; short practical modules; peer observation	Teachers taking part each year
5. Participatory governance and monitoring	School–community committee; annual review; simple indicator set	Annual review held (yes or no)

A. Contextualised Content

Content should start from problems that learners recognise: access to drinking water, waste, heat, deforestation, food security and health. Anchoring teaching in these issues makes abstract notions such as interdependence or intergenerational equity concrete. Local resource persons, such as farmers, health workers and artisans, can contribute at no additional cost, and the use of home languages for discussion helps to include all learners.

B. Low-Cost Active Pedagogy

Active methods do not require expensive equipment. In large classes, learners can be organised in groups of fixed size with rotating roles (reporter, timekeeper, materials manager), which allows one teacher to supervise many simultaneous discussions. Short observation tasks, mapping of the school grounds, simple household surveys and project-based work build the competencies identified in the literature [6]. To cope with heat, the most demanding activities can be scheduled early in the day, and outdoor sessions can take place in shaded areas, with classroom time kept for consolidation.

C. Whole-School Approach

Following the whole-institution logic [13], the school itself becomes a learning environment: waste sorting and composting, a school garden watered with recovered water, tree planting to provide shade, and simple maintenance routines managed by pupil committees. These practices improve conditions, give learners real responsibility and align the hidden curriculum with the official one.

D. Teacher Capacity Building

Training should be practical, short and repeated, rather than one-off and theoretical. Learning circles organised at school-cluster level, peer observation and the sharing of locally produced teaching resources are low-cost ways to sustain professional development. Teacher training institutions should integrate ESD competencies into initial programmes so that the next generation of teachers arrives better prepared [12].

E. Participatory Governance and Monitoring

A school–community committee that includes head teachers, teachers, parents, pupils and local leaders can set priorities, mobilise local support and oversee activities. Monitoring should rely on a small number of simple indicators that schools can collect themselves, such as those in Table, complemented by a yearly review meeting. This keeps the administrative burden low while creating accountability.

VI. Implications for Educational Planning

For planners, the framework implies that ESD should be integrated into the core planning cycle instead of being managed as a separate project. Five implications stand out.

- Sector diagnosis: include ESD-relevant information, such as access to water, sanitation, shade and energy and the effect of climatic stress on school operation, in school maps and statistical yearbooks.
- Norms and budgets: set minimum infrastructure norms for ventilation, shade and water points, and earmark modest budget lines for school gardens, small equipment and teacher learning circles.
- Curriculum: reduce overload by embedding ESD in existing subjects through cross-curricular competencies instead of adding a new subject.
- Human resources: plan the deployment and training of teachers and supervisors so as to include ESD competencies, and use inspectors and pedagogical advisers as facilitators.
- Monitoring and evaluation: adopt a minimal indicator set, publish results at zone level and use them for adjustment.

A phased approach is advisable. In the short term, low-cost pedagogical and organisational measures can be launched immediately. In the medium term, infrastructure norms and training programmes can be adjusted. In the long term, curriculum revision and the reform of teacher education consolidate the changes.

VII. Limitations and Future Research

The main limitation is the absence of primary data: the framework is derived from documentary sources and professional insight, and its feasibility and effects remain to be demonstrated. Further research could proceed in three directions. First, qualitative case studies based on interviews with teachers, head teachers and community members would test the relevance of the obstacles and pillars in specific zones. Second, small-scale pilots comparing schools that adopt the framework with comparable schools would assess effects on learners' competencies, school practices and teacher confidence. Third, cost analyses would verify the assumption that the proposed measures are affordable within existing education budgets.

VIII. Conclusion

ESD cannot remain the privilege of well-equipped schools. This paper has argued that, in priority education zones, it should be treated as an organising principle of educational planning that links content, pedagogy, school life and community engagement.

The proposed five-pillar framework offers planners and school leaders a pragmatic route that starts from local problems, relies on low-cost active methods and builds capacity progressively. Its value will depend on empirical testing and adaptation to each context, but it provides a structured starting point for making sustainability education both feasible and meaningful where it is most needed.

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