

POLICYBRIEF

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Embedding Education for Sustainable Development

Lessons from the Whole School Approach in Yokohama, Japan

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Highlights

Education for sustainable development (ESD) too often depends on the enthusiasm of individual teachers, reaching some learners inconsistently and never at the scale needed to address climate change and biodiversity loss. Evidence from Yokohama, Japan, suggests that whether ESD takes hold depends less on individual teacher expertise than on whether schools embed it in curricula, leadership and culture. The whole school approach empowers teachers by integrating sustainability into every dimension of a school's operations.

Recommendations:

- Embed ESD formally in national curriculum frameworks and school-level management plans.
- Invest in professional development for teachers, focused on global sustainability and ESD pedagogy.
- Secure dedicated teacher planning time and provide accessible ESD resources.
- Adapt ESD frameworks to local cultural and institutional contexts to ensure community ownership and relevance.

Schools and the Global Sustainability Transition

Target 4.7 of SDG 4 (quality education) calls on all countries to ensure that learners acquire the knowledge and skills needed to promote sustainable development. Despite decades of international commitment, a critical implementation gap persists: education for sustainable development (ESD) remains inconsistently integrated into school systems, depending heavily on individual teacher effort, school leadership and the availability of institutional resources. This approach cannot equip all learners, at scale, with the capacities needed to respond to climate change, biodiversity loss, inequality and other linked sustainability challenges. When ESD is left to individual champions, most learners never receive it, even in systems formally committed to it.

Studies across regions consistently document structural barriers to ESD implementation (Sasaki et al. 2024; European Commission 2021; Verhelst et al. 2020). Overcrowded curricula leave little space for sustainability education, while many teachers lack sufficient training in content related to global sustainability issues.

The whole school approach (WSA), or whole institution approach (WIA), offers a compelling response. Rather than

treating ESD as an add-on subject, it integrates sustainability into every dimension of a school's operations, including curriculum design, teaching practices, leadership structures, community engagement and institutional culture (Leicht et al. 2018). UNESCO has identified WIA as a cornerstone of the ESD for 2030 framework, calling for Member States to transform schools so that learners "learn what they live and live what they learn" (UNESCO 2020). The UNESCO Greening Education Partnership builds on similar principles and aims to make at least 50 per cent of schools in every country green schools by 2030 (UNESCO 2024).

This policy brief offers practical guidance for education ministries and municipal authorities across Asia and beyond on translating ESD commitments into consistent educational practice. It draws insights from the ESD Promotion Schools initiative in Yokohama, Japan — a government designated network in which municipal education authorities formally mandate and resource the whole school approach. The designated schools show policymakers how deliberate policy design can institutionalize ESD at scale. This example highlights a set of policy instruments that other systems can adapt.

Unlocking ESD's Full Potential

One of the persistent barriers to effective ESD implementation worldwide is its marginalization within formal school structures. When ESD is not included in curriculum frameworks, school management plans or teacher evaluation criteria, its delivery is inconsistent and dependent on individual educators' motivation. Even in Japan, where the 2017 Course of Study (the national curriculum standard issued by the Ministry of Education) explicitly endorses ESD, implementation varies significantly across schools, driven by school-level institutional commitment, which complements individual teacher capacity (Sasaki et al. 2024; MEXT 2017). This mirrors findings across European Union member states, where integration of ESD into formal curricula and school management plans has been identified as an enabling condition for consistent ESD practices among teachers (European Commission 2021).

The professional competency of teachers is another bottleneck for ESD implementation. Research in Yokohama City, Japan (see Note) reveals that while teachers are generally comfortable facilitating dialogue and respecting student diversity, they report noticeably lower confidence in teaching complex global sustainability issues, including climate change, economic inequality and links between the environment, society and the economy (Kitamura 2021).

This gap is common across the region; the UNESCO-supported Asian Teacher Educators for Climate Change Education (ATECCE) Network was established to address it (Okayama University ESD Promotion Centre 2025). The low confidence levels of teachers indicate a clear need for targeted professional development in this area.

Fragmented school culture can also limit collective ESD action. ESD is most effective when the entire school is engaged in its promotion. In Yokohama, schools with a supportive WSA environment — including school-wide commitment, active community partnerships and integrated curriculum planning — tend to adopt stronger teacher ESD practices on sustainability-related topics (Sasaki et al. 2024). The WIA has also been linked to student learning outcomes, correlating positively with higher levels of motivation, empowerment and sustainable behaviour (Holst et al. 2024). Verhelst et al. (2020) identify key characteristics of an ESD-effective school organization, including sustainable leadership, school resources, supportive relations and shared vision.

The WSA Policy Pathway

The WSA is a promising policy response to the barriers faced in ESD implementation. A recent UNESCO study across more than 10 countries reaches a similar conclusion — that WIA drives sustainability in education by embedding it across all dimensions of a school or institution, such as teaching and learning, research, governance, operations, community engagement and organizational culture (Kohl et al. 2026).

Yokohama's ESD Promotion Schools provide an instructive example. By designating specific schools with formal WSA mandates and support from the city's Board of Education, the programme has created conditions in which teachers feel more empowered and accountable for ESD. Other education systems could adapt this network model to their own governance structures, resources and cultural contexts. In practice, schools join the network by application instead of assignment, and the Yokohama City Board of Education supports them through dispatched supervisors, in-school lesson studies and an ESD consortium that links designated schools with the community, businesses and non-profit organizations (Yokohama City Board of Education 2026). Because of this application-based model, the observed effect may partly reflect the schools' prior commitment; the study is best read as a positive-deviance case (Sasaki et al. 2024). Scaling from a designated network towards all schools would therefore require extending this support to schools that do not yet have it.

Policy Recommendations

The following recommendations offer practical policy pathways grounded in evidence from Japan and supported by comparable findings from other regions.

1. Formally embed ESD into curricula and school management plans.

Education ministries, school boards and principals should explicitly incorporate ESD in national curriculum frameworks, annual teaching plans and school-level management policies, with clear learning objectives. The 2017 Course of Study developed by Japan (MEXT 2017) offers a strong model. Schools can further support implementation by setting annual ESD goals, appointing dedicated ESD coordinators and developing open-access digital repositories of teaching materials. In resource-constrained settings, integrating ESD within existing education reform cycles can reduce implementation burdens. Research across Asia, the EU and North America finds that formal curriculum integration is repeatedly identified as an important condition for consistent ESD practice (European Commission 2021; Müller et al. 2021).

2. Invest in sustained ESD professional development.

Ministries of education, teacher training institutions and school leaders should build teachers' knowledge of global sustainability issues and strengthen ESD-specific pedagogies by funding structured, ongoing professional development. Pre-service and in-service teacher training programmes should include dedicated ESD modules that foster pedagogical competencies addressing the cognitive, socio-emotional and behavioural dimensions of learning.

These initiatives must go beyond one-off workshops; sustained peer learning and practice-based support is needed. The lesson study model from Japan provides an effective, locally adaptable peer-learning approach (Kitamura et al. 2019). In this model, teachers observe each other's classroom lessons, collaboratively reflect on teaching practices and learning outcomes, and apply shared insights to improve future lessons. The Global Schools Program, a Sustainable Development Solutions Network initiative that helps schools worldwide embed the SDGs through teacher training, ready-to-use curriculum resources and international peer networks, is an example of an internationally scalable model. Peer coaching and digital platforms are scalable options in contexts where infrastructure is limited.

3. Secure the time, resources and structures that enable ESD practice.

Teachers consistently identify the lack of dedicated planning

time as a key barrier. School boards, principals and ESD coordinators should build ESD planning periods into school timetables, provide easy access to centrally curated digital repositories and establish formal ESD working groups with clear reporting lines to leadership. Time, resources and coordination should be treated as policy instruments rather than informal expectations placed on already-stretched teachers. Incorporating ESD expectations into job descriptions, performance reviews and school inspections can further institutionalize support (Sasaki et al. 2024). In the Yokohama data, protected time, teaching materials and room for teachers to shape practice showed a clearer effect on ESD practice than formal management systems alone (Sasaki et al. 2024). As such, this complements recommendation 1: formal embedding sets the mandate, while enabling working conditions realize the practice in the classroom.

At the municipal level, Yokohama City's ESD Promotion Schools network offers a practical, replicable mechanism for concentrating resources and generating evidence for wider policy adoption. Similar enabling conditions have proven valuable across Europe and the Asia-Pacific region (Mathie & Wals 2022; Verhelst et al. 2020).

4. Adapt ESD to local cultural and institutional contexts.

ESD integration should follow a participatory approach that involves teachers, students, parents and community members to identify relevant local sustainability issues and foster ownership. ESD can also be integrated into existing cultural and educational practices through lesson study or community-oriented activities, as implemented in many African, Asian and Indigenous contexts (Kitamura et al. 2019). Strengthening formal partnerships with local governments, civil society organizations and businesses can further deepen engagement. UNESCO ESD for 2030 framework emphasizes that meaningful local adaptation is essential for ESD to be effective (UNESCO 2020). Policymakers should promote structured local adaptation, in which education systems apply WSA principles and tailor governance, partnerships and classroom practice to their own institutional and cultural norms.

The applicability of these recommendations will depend on the context. Several conditions that enabled the Yokohama model — such as strong municipal governance, an established lesson-study tradition and a national ESD curriculum mandate — may be weaker or absent elsewhere. In more resource-constrained systems, a minimal version of the approach could begin with a small, designated network, a named ESD coordinator for each school, and protected collaboration time that is expanded as capacity and evidence grow.

NOTE

This brief draws on a survey of 21 ESD Promotion Schools in Yokohama, Japan, conducted with the Yokohama City Board of Education in 2020 and reported in full in Kitamura (2021). Multilevel models suggested that school-level WSA commitment was among the primary drivers of effective ESD implementation (Sasaki et al. 2024). Statements in this brief about teachers' practice and confidence rest on the teacher-survey multilevel models published in Sasaki et al. (2024), which drew on 185 teachers across 21 schools, while references to student knowledge and attitudes draw on the wider monitoring dataset in Kitamura (2021).

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