

It is crucial that people learn the values of biodiversity and change their behaviour to ensure the survival of species and the well-being of ecosystems. With knowledge, people can change the negative effects of human activities that have caused severe impacts on the rest of life on Earth.

Education is particularly critical in achieving global sustainability goals. These include the UN Sustainable Development Goals (SDGs), a universal call to action to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity by 2030. The SDGs recognise that development must balance social, economic, and environmental sustainability. All 10 ASEAN Member States are signatories to the SDGs.

Specific to biodiversity, the Convention on Biological Diversity (CBD) highlights the need for biodiversity and healthy ecosystems to achieve the 2030 Agenda for Sustainable Development. Of the 17 SDGs, 14 include targets that directly reflect the important role of biodiversity. Most recently, the Conference of Parties to the CBD just signed the Post-2020 Global Biodiversity Framework, which presents a renewed commitment to safeguarding the future of people and the planet. The Global Biodiversity Framework covers four goals and 23 targets for 2030. These goals include protecting 30 per cent of Earth's lands, oceans, coastal areas, and inland waters; reducing annual harmful government subsidies by USD 500 billion; reducing the loss of areas of high biodiversity importance to near zero; reduce cutting food waste in half; and preventing the introduction of priority invasive alien species, among others.

The ASEAN, in the ASEAN Community Vision 2025, likewise commits to sustainability by ensuring "a sustainable community that promotes social development and environmental protection through effective mechanisms to meet the current and future needs of people."



Photo by Tran Ngoc Anh



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UNESCO emphasised that “education is essential for the equitable and sustainable use of biodiversity and its conservation. It is also crucial for mainstreaming biodiversity. It is therefore vital to integrate biodiversity into education and learning programmes.”

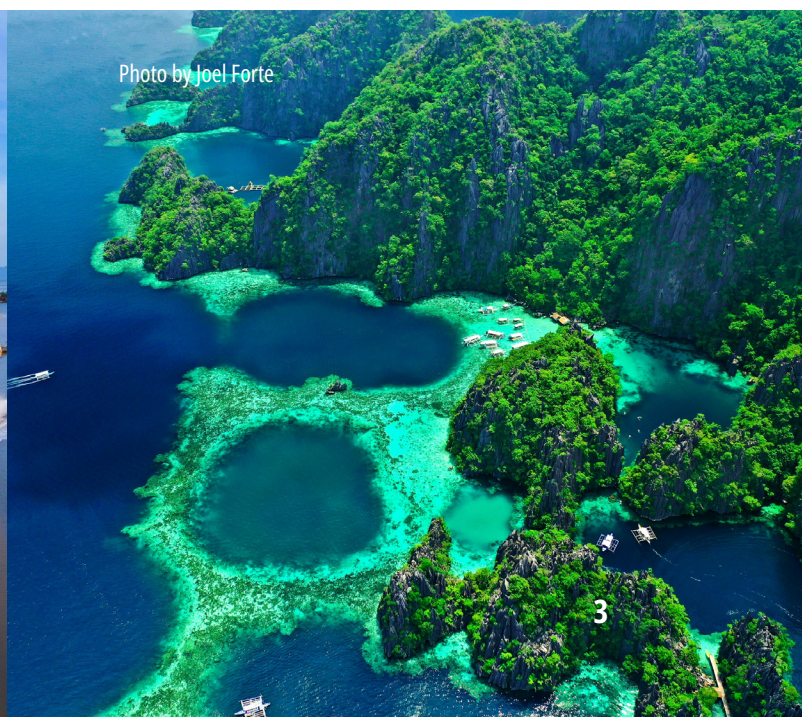
Awareness and Education are Keys to Addressing Environmental Challenges

There is a need to develop and increase the understanding, skills, values, and behaviours of people towards biodiversity conservation in order to engage them in environment-friendly and sustainable development.

UNESCO pointed out that “lack of awareness of biodiversity and its importance is common, with biodiversity sometimes perceived as a resource to be exploited, for example through unsustainable logging or poaching of wild animals.”

As such, it is important for young people and students to recognise the relationship between biodiversity and human well-being, and exemplify behaviour towards its conservation in everyday life. In the Strategic Plan for Biodiversity 2011–2020, Aichi Biodiversity Target 1 aimed that by 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably. The GBF reiterated the significance of awareness in Target 21, which is to “ensure that the best available data, information and knowledge, are accessible to decision makers, practitioners and the public to guide effective and equitable governance, integrated and participatory management of biodiversity, and to strengthen communication, awareness-raising, education, monitoring, research and knowledge management...”

Governments then need to develop coherent, strategic, and sustained communication, education, and public awareness activities to achieve this target.



Integrating Biodiversity Content in the National Education Curriculum

Mainstreaming biodiversity in education can be defined as inclusion of biodiversity topics and learning outcomes, including the development of appropriate skills, attitudes, and behaviours in the general education curriculum.

Biodiversity in the education system in ASEAN

The Biodiversity Mainstreaming in Education Scoping Study conducted by the ASEAN Centre for Biodiversity (ACB) found that many ASEAN Member States (AMS) teach a reasonable amount of biodiversity-related content. However, the topic mainly happens in science subjects and is not integrated in broader learning domains. The subjects that teach biodiversity mainly focus on technical knowledge and skills, rather than conservation-focused attitudes and behaviours, with some exceptions.

Only select AMS integrate biodiversity more broadly across the learning domains, incorporating biodiversity topics into social science such as citizenship, language, arts, and social studies. Biodiversity needs to be integrated into each country's national curriculum throughout all learning domains for students to acquire understanding and appreciation of and skills associated with all aspects of biodiversity.

Countries have varied education systems (e.g., more centralised against less centralised) and differences in the curriculum frameworks (e.g., content-based curriculum against outcomes and competencies-based curriculum). However, the basic structure of formal education system is similar among AMS and can be expected to have the interrelated components shown in the simple form in Figure 1.

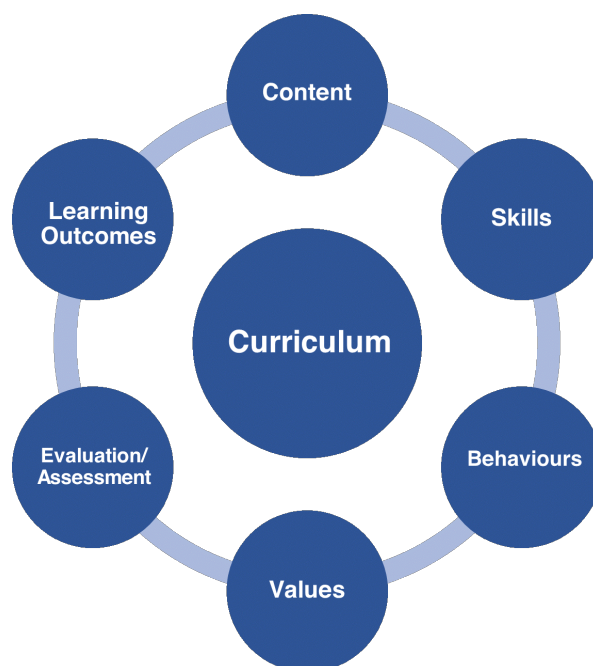


Figure 1. Typical curriculum components in a formal education system

When a ministry of education selects a theme such as biodiversity for mainstreaming, it needs to be integrated into the curriculum. However, this is insufficient. Biodiversity needs to be similarly integrated into the other components such as pre-service teacher evaluation. Teachers need to undergo professional development training, such that they can teach the topics more effectively. Biodiversity needs to be integrated into all the common components illustrated in Figure 2.

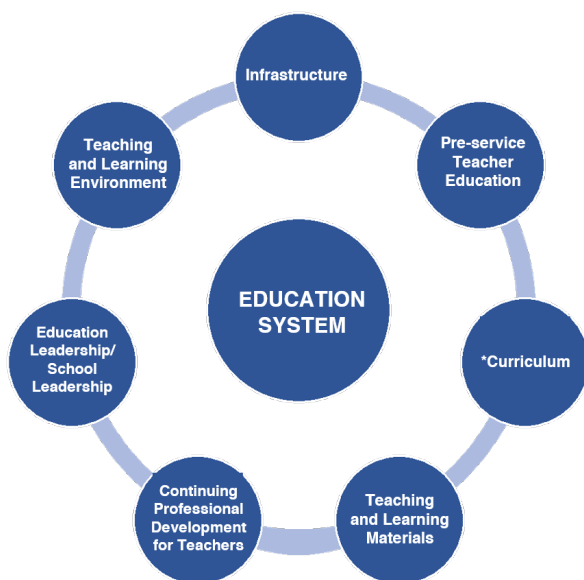


Figure 2. Structure of an education system

Note: * Indicates where biodiversity mainstreaming in education needs to start.

In addition to curriculum, priority areas are pre-service teacher education, teaching and learning materials, and teachers' continuous professional development. In relation to other components, for example, infrastructure can provide ICT resources for biodiversity learning; education leadership must be aware of the value of biodiversity mainstreaming to champion and promote it; and the whole teaching and learning environment must be conducive to the inclusion of biodiversity.



Challenges in integrating biodiversity in education

Challenges in integrating biodiversity in education

Stakeholder	Challenge
Teachers	Lack of training in biodiversity among non-science teachers and lack of skills in adapting materials or using student-centred approach
	Lack of technology and ICT skills
	Lack of biodiversity teaching materials
	Insufficient resources in local language
Ministries of Education	Full or overloaded curricula such that curriculum departments struggle to incorporate all the 21st century skills the governments expect young people to acquire within the time available; but then governments are reluctant to add additional hours to the school days
	Lack of resources: budget, ministry staff, teaching and learning materials, teacher support
Ministries of Education Ministries of Environment	Lack of awareness and working definition of mainstreaming biodiversity in education, and lack of intersectoral understanding of the context and priorities of education and environment sectors
	Lack of intersectoral collaboration
	Lack of understanding of what practical activities can take place at the regional and national levels
Ministries of Education, Ministries of Environment Teachers	Different understanding of biodiversity and biodiversity mainstreaming
ASEAN	Relevant sectoral bodies are fully scheduled to implement the activities under their own action plans; thus, they need to explore potential opportunities to build biodiversity mainstreaming objectives into their action plans

Ways Forward

The following recommendations were made to mainstream biodiversity in education:

1. Develop cooperation among relevant ASEAN bodies to understand the priorities and how biodiversity can fit within the framework of existing programmes.
2. Provide legislative support that promotes biodiversity mainstreaming in education.
3. Promote intersectoral collaboration to address the cross-sectoral nature of the issues and challenges in building adequate and effective mainstreaming of biodiversity in education.
4. Create a common understanding of the importance of biodiversity and biodiversity mainstreaming in education among education and environment officials.
5. Utilise environmental and biodiversity expertise when developing the biodiversity curriculum.
6. Incorporate biodiversity topics more broadly across the learning domains, such as language, arts, social science, and other subjects, including the interconnectedness of all sustainability issues rather than focusing on isolated topics such as biodiversity.
7. Explore the learning outcomes and teaching methods attached to biodiversity topics more deeply to comprehensively assess the effectiveness of mainstreaming biodiversity in education.
8. Complement biodiversity learning with extra-curricular and community activities such as green schools and eco-schools, which could represent a path for integrating biodiversity into the formal curriculum.
9. Create active learning and student-centred learning activities and methods for teaching biodiversity.
10. Conduct teachers' biodiversity training and develop learning materials.

***“Biodiversity is essential
for sustainable development
and human well-being.”***

— Convention on Biological Diversity

This paper is based on the study *Biodiversity Mainstreaming in Education Scoping Study* conducted under the Biodiversity Conservation and Management of Protected Areas in ASEAN Project (BCAMP) of the ASEAN Centre for Biodiversity (ACB), with the support of the European Union (EU).

Disclaimer: The content of this article is the sole responsibility of the author and does not necessarily reflect the views of either the ACB or the EU.

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