

Aligning Policy Action on Education and Climate Change

An Analysis of National Curriculum Frameworks and Nationally Determined Contributions

Summary

This research brief shares results of an analysis of greening education content in two types of high-level policy: 1) National Curriculum Frameworks (NCFs)¹ from 131 countries were analyzed for greening content, and 2) Nationally Determined Contributions (NDCs)² from 193 countries were analyzed for education/training content. The NCF data are from [Sustainable Development Goal Global Indicator 4.7.1b](#), which tracks country progress towards greening NCFs and science and social science subject curriculum for grades 3, 6, and 9.

- The findings on NCFs suggest that countries can make greater strides to green their curricula, particularly by including climate change and biodiversity content.^{3,4}
- The findings on NDCs suggest that inclusion of education/training content is relatively shallow, with most having no or low content on specific education/training types and actions.^{5,6} Achievement of the Paris Agreement will require countries to include more specific, ambitious education/training plans in NDCs.

Policies Analysed

- **National Curriculum Frameworks (NCFs)** from 131 countries were analyzed to provide information on the extent to which countries are greening their national curricula.
- **Nationally Determined Contributions (NDCs)** from 166 countries and the EU (representing 27 countries) were analyzed to provide information on the extent to which countries are addressing education and training in their commitments under the UNFCCC process.

Methods

- **Keyword searches** identified **greening content** in NCFs and **education/training content** in NDCs.⁷ Greening content was grouped into thematic clusters of environment/sustainability, climate change, and biodiversity.⁸ Education content was grouped into thematic clusters of general education, pre-primary to secondary education, higher education, general training, TVET, and teacher training.⁹
- The **keyword counts** were standardized to account for different document lengths.

Table 1. Value ranges used for greening education content

Extent of Content Category	Range of Values Used in Category
Significant inclusion	75+
Moderate inclusion	50-74
Low inclusion	25-49
Very low inclusion	1-24
No content	0

¹ NCFs are national policy documents which provide a vision and guidelines for the country's education system. In particular, NCFs provide guidance on the curriculum being implemented in the classroom.

² NDCs are climate action plans with targets for achieving the Paris Agreement, which countries submit to the UNFCCC every five years.

³ UNESCO. (2021a). [Learn for the planet: A global review of how environmental issues are integrated in education](#). UNESCO, Paris.

⁴ UNESCO. (2021b). [Getting every school climate-ready: How countries are integrating climate issues in education](#). UNESCO, Paris.

⁵ UNESCO. (2019). [Country progress on climate change: A comparative analysis of 366 national submissions to the UNFCCC](#). UNESCO/UNFCCC.

⁶ McKenzie, M. (2021). Climate change education and communication in global review: tracking progress through national submissions to the UNFCCC Secretariat. *Environmental Education Research*, 27(5), 631–651. <https://doi.org/10.1080/13504622.2021.1903838>

⁷ A specialized Python-based analysis tool was used to identify content using keywords in 40 languages.

⁸ The keywords were developed to avoid including non-greening content. For example, to avoid identifying content about 'learning environments,' 'environmental' was used and not 'environment.' For this reason, 'carbon' was not included in this analysis despite being a keyword in prior studies.

⁹ The general education category includes keywords such as curriculum, education, education policy, learning, and teaching, which refer to the education sector generally. The general training category includes the keyword training.

- The NCFs and NDCs were classified using a **scale of 0 to 100**.¹⁰
- The documents were then classified according to the **extent of inclusion** of greening or education/training content, with a value of 0 indicating no content, and a value of 75+ indicating a significant amount of content. Table 1 above shows the ranges used to indicate the relative extent of content in the analyzed documents.

This uses the same methods as the new SDG Global Indicator 4.7.1b, which was collaboratively developed by the MECCE Project, the Global Education Monitoring Report, and the UNESCO Institute for Statistics.¹¹

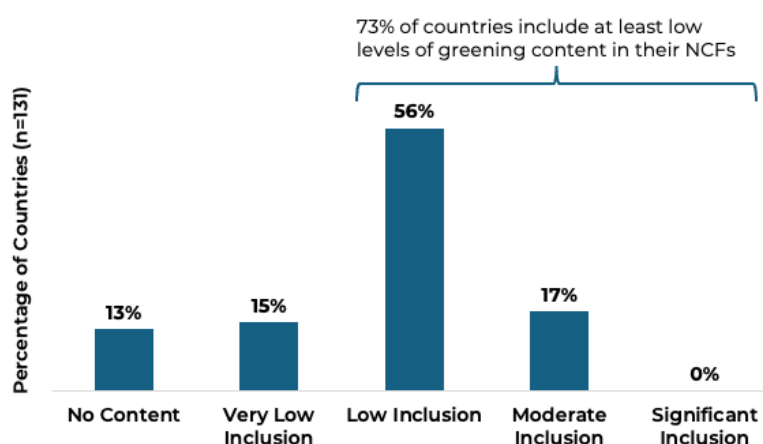
Key Findings

Greening in Education: National Curriculum Framework Results

Key Finding #1. While most countries are taking steps to green their National Curriculum Frameworks, the extent of greening content remains low.

- Of the 131 countries in the study, 73% have at least low levels of greening content in their NCFs.
- Countries are most likely to have low inclusion of greening content, with 56% of countries falling in this category.
- No countries have significant inclusion of greening content.

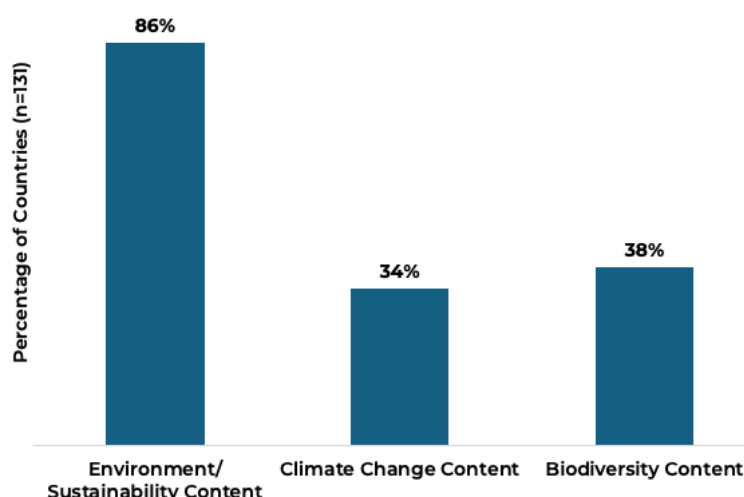
Figure 1. Percentage of countries with greening content in National Curriculum Frameworks, by levels of extent



Key Finding #2. Greening content in National Curriculum Frameworks is primarily general environment/sustainability content.

- A total of 86% of countries have general content on environment/sustainability in their NCFs.
- Only 34% of countries have content specifically on climate change.
- Only 38% of countries have content specifically on biodiversity.

Figure 2. Percentage of countries with greening content in National Curriculum Frameworks, by theme



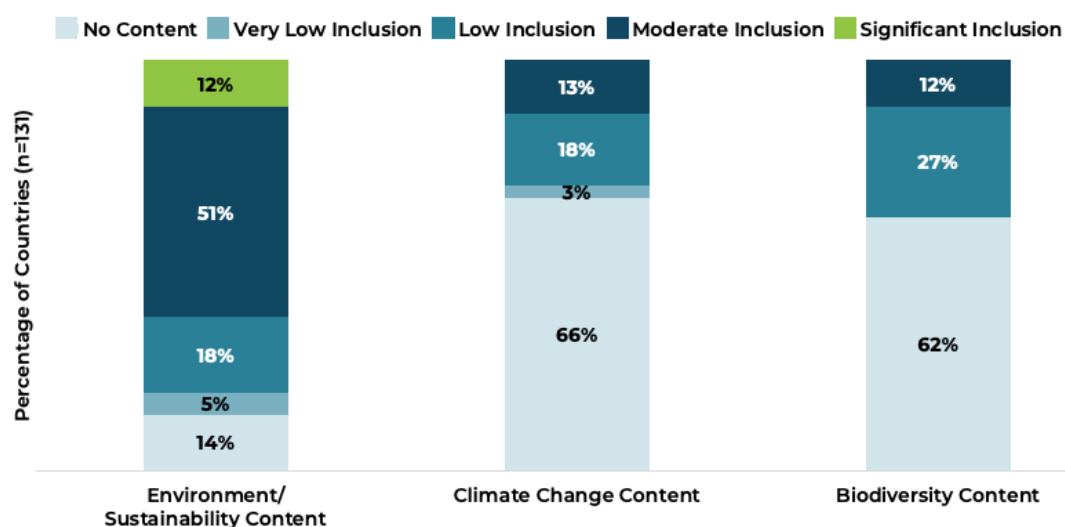
¹⁰ Under each thematic cluster, a standardized total number of keywords compared to document length was used to account for document length. Standardized references per million words are log-transformed and each country assigned a score from 0-100.

¹¹ Find more on the analysis methods, python program used to analyze the data, and research team at mecce.ca/data-platform/indicators.

Key Finding #3. Comparing levels of extent within each theme, the environment/sustainability theme has more significant and moderate amounts of content than the climate change and biodiversity themes.

- For environment/sustainability content, 12% of countries have significant inclusion and 51% have moderate inclusion. The countries with significant inclusion of environment/sustainability content are Afghanistan, Australia, Austria, Costa Rica, Fiji, Indonesia, Liechtenstein, Lesotho, Norway, South Africa, South Sudan, Sri Lanka, Syrian Arab Republic, The Gambia, and Tuvalu.
- For climate change content, 13% of countries have moderate levels, 18% have low levels, and 3% have very low levels.
- For biodiversity content, 12% of countries have moderate levels and 27% have low levels.
- No countries have significant amounts of climate change or biodiversity content.

Figure 3. Extent of inclusion of greening content in National Curriculum Frameworks, by theme

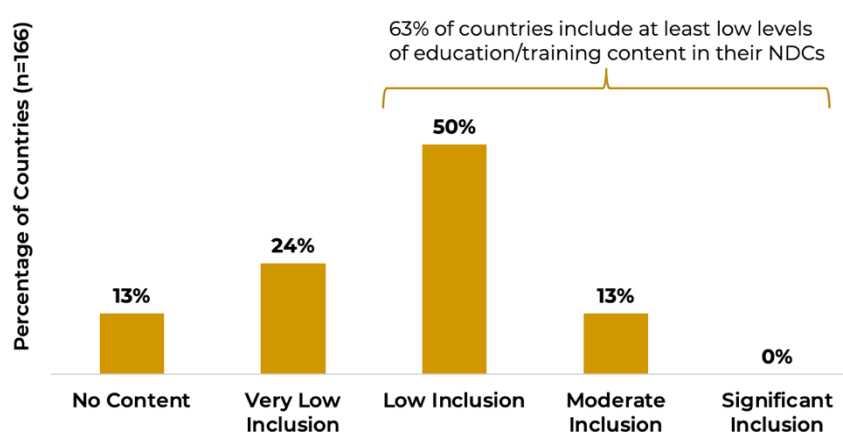


Education in Climate Change Policy: Nationally Determined Contributions Results

Key Finding #4. Most countries are including education/training in their Nationally Determined Contributions to a low extent.

- Of the 166 countries in the study, 63% have at least low levels of education/training content in their NDCs.¹²
- Countries most often have low inclusion of education/training content, with 50% of countries falling in this category.
- 13% of countries make no reference to education/training.
- No countries have significant inclusion of education/training content.
- The EU NDC has low inclusion of any education/training content.

Figure 4. Percentage of countries with education/training content in Nationally Determined Contributions, by levels of extent

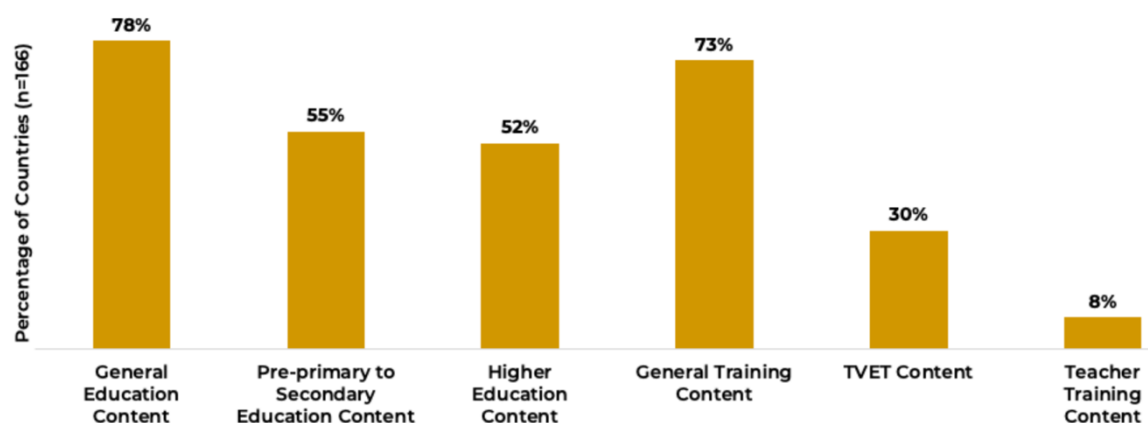


¹² The 27 countries in the European Union submit a single shared NDC. The EU countries are not included in the 166 ones which submit their own NDCs and will be reported separately here.

Key Finding #5. Countries are more likely to discuss the education and training sectors generally in their Nationally Determined Contributions. When specific types of education/training are included, countries tend to focus most on pre-primary to secondary education and higher education.

- 78% of countries have general education content and 73% have general training content in their NDCs.
- 55% of countries have content related to pre-primary to secondary education and 52% of countries have content related to higher education. By comparison, only 30% of countries have TVET content.
- Only 8% have content related to teacher training.
- The EU NDC has general education, general training, and TVET content.

Figure 5. Percentage of countries with education/training content in Nationally Determined Contributions, by theme



Key Finding #6. Comparing levels of extent within each theme, the general education and training themes have more significant and moderate amounts of content than the themes of pre-primary to secondary education, higher education, TVET, and teacher training.

- For general education content, 5% have significant levels and 49% of countries have moderate levels in their NDCs.
- For general training content, 2% have significant levels and 42% of countries have moderate levels.
- For pre-primary to secondary education content, 6% of countries have significant content, 26% have moderate content, 23% have low content.
- For higher education content, countries most commonly have moderate or low levels of content, with 21% of countries falling in the moderate category and 28% in the low category.
- Most countries do not have TVET content, and nearly all countries do not have teacher training content.
- The EU has moderate levels of general education, low levels of general training content, and low levels of TVET content.

Figure 6. Extent of inclusion of education/training content in Nationally Determined Contributions, by theme

