

# For an evidenced-based climate change education

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# What is the Office for Climate Education?



# What is the Office for Climate Education ?

<https://oce.global>



- Created in 2018 in response to article 12 of the Paris Agreement
- Operational team of 15 persons
- Head Office in Paris – Sorbonne University
- Network of ~ 70 partners in ~ 30 countries

Centre under the auspices of



Co-coordinator of



Observing organisation of



Main French partners

Founding members



# OCE's objectives and missions

## Targets

Primary and secondary schools

France and international



## Professional development and communities of practice

(teachers, trainers, inspectors, etc.)



## Production of pedagogical resources

Research-action programs



## Support to public policies

Expertise

Pilot projects



# Our guiding principles

## Scientific foundation

Based on IPCC reports

## Interdisciplinarity

Climate, biodiversity,  
human and social sciences, arts...

## Active pedagogies

Inquiry-based science education,  
project-based learning

## Cooperation

Empowerment of local actors, UNESCO  
ministries, NGOs...

## Accessibility and relevance

Multilingual, free, open resources  
Adapted to local contexts

## Long term impact

Scale, legacy





Where are we ?

# Global overview of ECC public policies



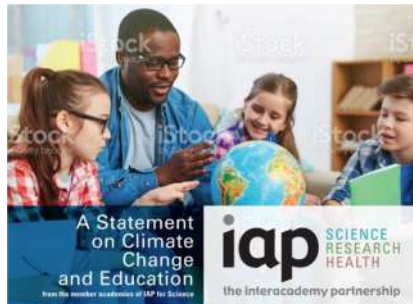




# A favourable international context...



Parties shall cooperate in taking measures, as appropriate, to enhance climate change education, training, public awareness, public participation and public access to information, recognizing the importance of these steps with respect to enhancing actions under this Agreement.



#### Headline messages

- Education, especially science education, must play an essential role in preparing present and future generations to understand climate change and be prepared voluntarily to adapt to, and mitigate its impacts.
- Science-based science education (SBE), grounded over the last two decades, has demonstrated an effective way to teach science principles and secondary school students and also to inspire higher education scientists. It provides a foundation to developing a variety of benefits, including primary climate change education programs.
- Climate change education must consider the need to provide teachers, or developed as well as in developing countries, with up-to-date facts, new and innovative learning resources, new materials for the classroom, and new tools to empower their students in a spirit of change.
- Climate change and associated issues will disproportionately impact the poorest 5 billion of the global population, whose education is often inadequate. Climate justice calls for supporting their schools and their teachers with specific resources.
- International collaborations through the involvement of science communities will greatly enhance the mobilization of educational systems. An 'InterAcademy Panel on Climate Change (IAPCC)' is producing a 'Resource Report', accompanied by 'Summaries for Policy Makers'. The scientific community should use the material from the IAPCC reports to produce 'Resource & Tools for Teachers'.

#### 1. Science education at the forefront

- Member States face a serious climate crisis, which will impact the entire world during the 21<sup>st</sup> century and beyond. Dealing with this crisis will depend heavily on the young people who are today in schools and create tomorrow's agents of change. The international legal framework to tackle climate change, i.e. the United Nations Framework Convention on Climate Change (UNFCCC), the Paris Agreement (PA), and the Paris Agreement (PA), envisaged this point by stating that "The development and implementation of education and training programmes... is essential for developing countries" (UNFCCC, Art. 6.4.3) and "Parties should also cooperate... to enhance climate change education" (Paris Agreement, Art. 12).
- Implementing the Paris Agreement, the impact of greenhouse gas emissions on the system, as well as preparing the strategies for mitigation, fighting against the current and future climate change with the effect's from global to local levels, require scientific knowledge and critical thinking. Climate science brings together specific issues that are currently not widely recognized by science curricula in schools and universities.
- Provision of traditional disciplines, such as physics, chemistry, Earth sciences, life sciences, mathematics, social sciences and economics, are crucial underpinnings in an interdisciplinary manner to address these issues across the curriculum, over of the elementary level. In addition, there is a need to understand how these complex interactions between natural and societal systems (e.g. sea level management) connect local actions with global consequences.





# From ESD to ECC



# A strong demand for CCE, but still very little implementation

- Public awareness preferred to education (UNESCO, 2019)

Only 27% of countries have a budget for CCE

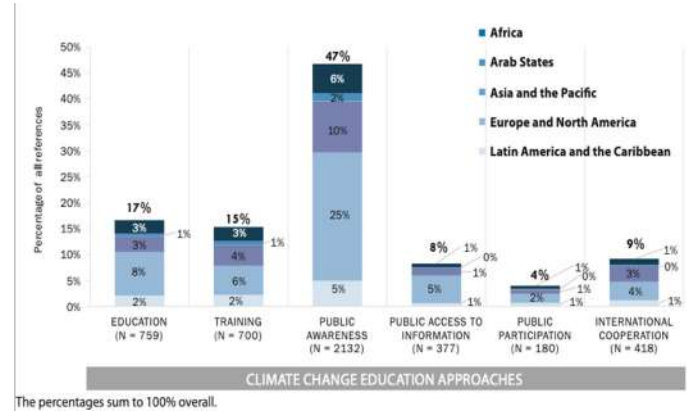
- Teacher's needs (UNESCO, 2021)

Very low or no integration of CC in curricula

95 % of teachers believe that CCE is important

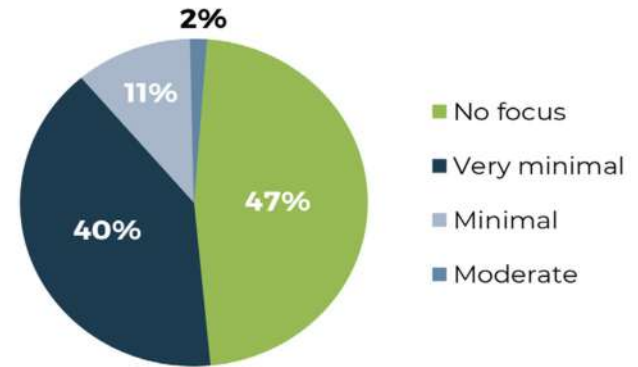
Less than 30% feel able to explain the effects of CC in their region / country

Only 2% of Ecoschools implement CCE (FEE, 2021)



UNESCO (2019)

Percentage of documents by extent of climate change focus



UNESCO (2021)





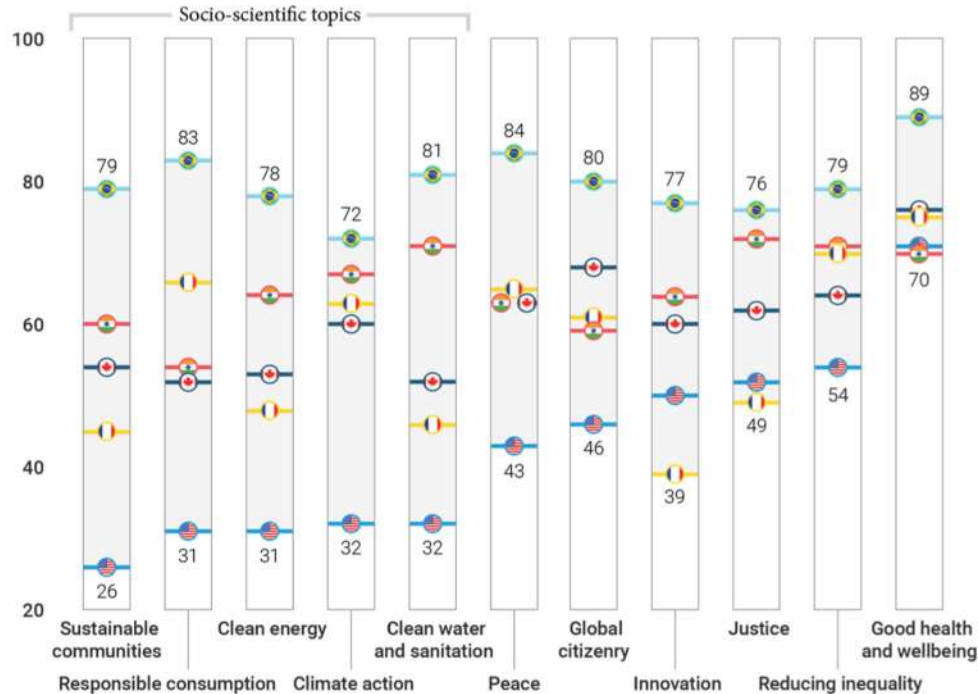
# A strong difference between institutional's and teacher's points of view

## Inclusion of Sustainable Development Topics in Curricula Across Five Countries

Please indicate the extent to which each of the following is included in your school or district curriculum.

% It is standalone (independent lessons or units explore this topic directly) or incorporated into other subjects, among teachers

United States France Canada India Brazil



## Themes chosen by Eco-schools in France (2020)



Waste 38%



Biodiversity 27%



Food 10%



Water 8%



Solidarity 6%



Health 5%



Energy 4%



Climate 2%

Teragir & Foundation for Environmental Education (2021)



## Consequences on students

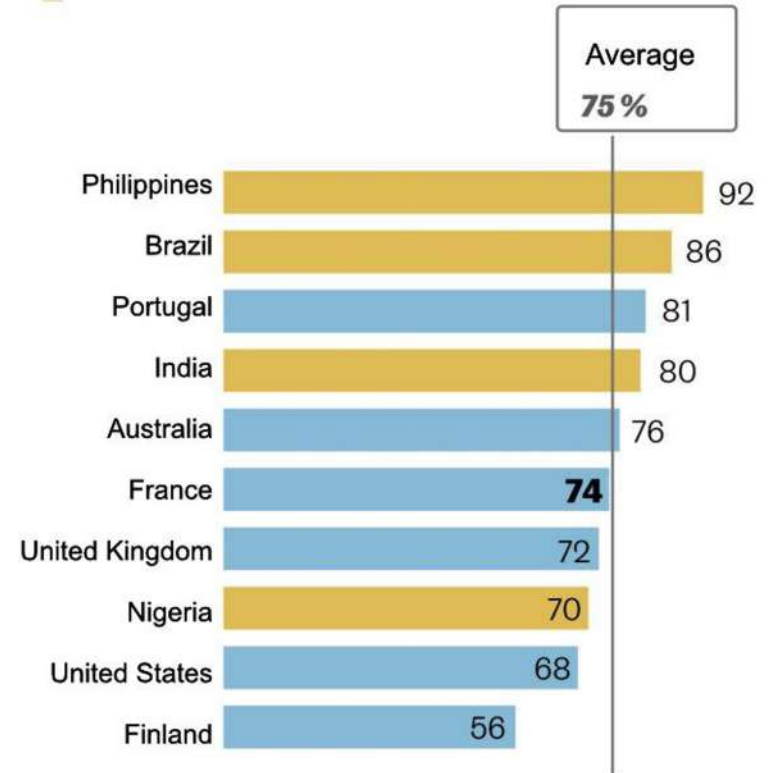
- 70% of the Youth **cannot explain CC**

(UNESCO, 2022)

- 75% of teenagers and young adults suffer from **eco-anxiety**

(Hickman et al. 2021)

Fraction of Youth suffering from eco-anxiety  
(Hickman et al., 2021)





## Climate education as part of climate adaptation

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***“Education is the most transformational  
climate adaptation action”***

***Stefania Giannini***

*Assistant-Director General for Education, UNESCO*

***COP27, Sharm El Sheik***



The **Greening Education Partnership** is a global initiative that takes a whole-of-system approach to support countries to tackle climate crisis by harnessing the critical role of **education**.



## GREENING SCHOOLS



From early childhood through adult education, work to ensure that all schools achieve green school accreditation, including teacher training and higher education institutions.



## GREENING CURRICULUM

Embrace a life-long learning approach that integrates climate education into school curricula, technical and vocational education, workplace skills development, teaching materials, pedagogy, and assessment.

### HERE'S HOW YOU CAN COMMIT

Countries and organizations are encouraged to join the Greening Education Partnership, expressing their interest in at least one of the four action areas.

Strengthen education systems to be climate-smart with adequate measures, and ensure teachers and policymakers are trained.

## GREENING TEACHER TRAINING AND EDUCATION SYSTEMS' CAPACITIES



## GREENING COMMUNITIES

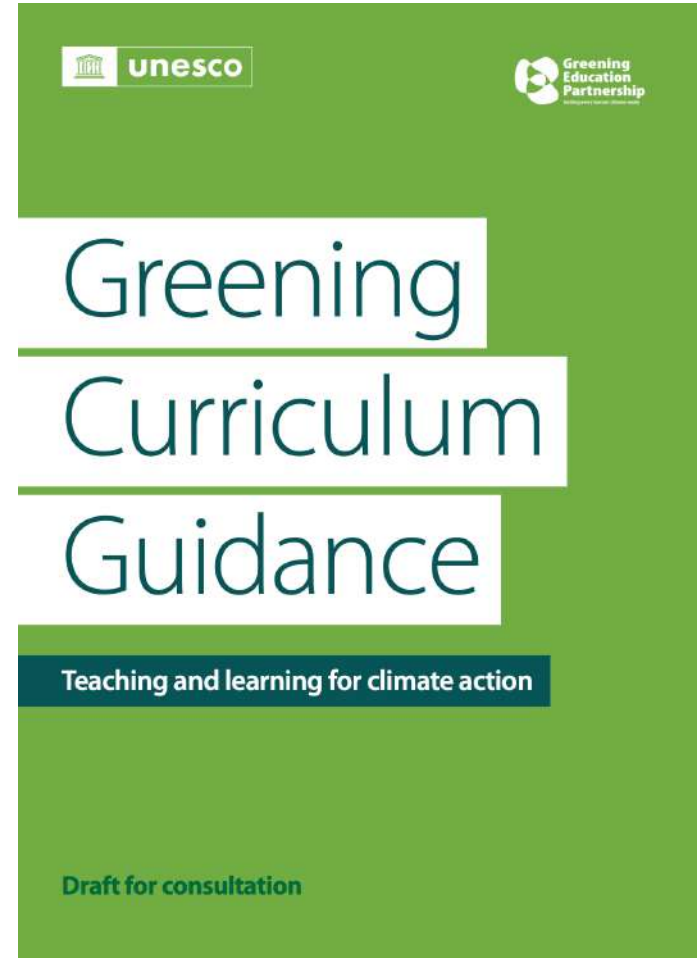
Engage communities by integrating climate education in life-long learning, in particular through community learning centres and learning cities.

Co-coordinated by



# UN's Greening Education Partnership

- Curriculum guidance (on-going)
- Published: yesterday!
- OCE roles : take part in writing + general overview



# Objectives of Climate change education

- Be a core curriculum component in every country  
(primary school, middle school, high school)
- Focus equally on knowledge, attitudes and skills  
(« head, heart and hand »)
- Develop a systemic and interdisciplinary vision
- Understanding complexity
- Develop critical thinking
- Develop ethic and empathy
- Act individually and collectively



# UNESCO's New Recommendation on Education for Peace, Human Rights and Sustainable Development

1974 recommendation updated in 2023

Now integrates CCE

OCE role: take part in the revision process



United Nations  
Educational, Scientific  
and Cultural Organization  
Organisation  
des Nations Unies  
pour l'éducation,  
la science et la culture  
Organización  
de las Naciones Unidas  
para la Educación,  
la Ciencia y la Cultura  
Организация  
Объединённых Наций по  
вопросам образования,  
науки и культуры  
التربية  
العلمية والثقافية  
联合国教育、  
科学及文化组织

# 42 C

**General Conference**  
42nd session, Paris 2023

42 C/40  
22 September 2023  
Original: English

Item 7.10 of the provisional agenda

**DRAFT REVISED 1974 RECOMMENDATION CONCERNING EDUCATION FOR INTERNATIONAL UNDERSTANDING, COOPERATION AND PEACE AND EDUCATION RELATING TO HUMAN RIGHTS AND FUNDAMENTAL FREEDOMS**


**OUTLINE**

**Source:** 41 C/Resolution 17.

**Background:** By 41 C/Resolution 17, the General Conference invited the Director-General to submit at its 42nd session, a draft revised Recommendation concerning Education for International Understanding, Cooperation and Peace and Education relating to Human Rights and Fundamental Freedoms in accordance with the Rules of Procedure concerning recommendations to Member States and international conventions covered by the terms of Article IV, paragraph 4, of the Constitution.

**Purpose:** This document presents the draft text of the revised Recommendation concerning Education for International Understanding, Cooperation and Peace and Education relating to Human Rights and Fundamental Freedoms for consideration and possible adoption by the General Conference.

**Decision required:** paragraph 13.





# Education: a growing interest at the COP

1st meeting of the ministries of education + environment



UN CLIMATE  
CHANGE  
CONFERENCE  
UK 2020



1st Teachers' COP

UNESCO survey on Youth  
demand for CCE  
+ Launch of the GEP



COP27  
SHARM EL-SHEIKH  
EGYPT 2022



2nd Teachers' COP



COP28  
UAE

1<sup>st</sup> Education pavilion  
+ agenda of official  
negotiations



3rd Teachers' COP  
20+ side events

# What does science tell us about Climate Change Education (CCE) ?



## Some references on this question (research papers)

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Sandhu et al. (2022) [Centring indigenous worldviews in environmental education](#)

Li et al. (2022) [Effectiveness Evaluation of a Primary School-Based Intervention against Heatwaves in China](#)

Wang et al.(2022) [Fear emotion reduces reported mitigation behavior in adolescents subject to climate change education.](#)

Hickman et al. (2021) [Climate anxiety in children and young people and their beliefs about government responses to CC: a global survey](#)

Barrable et al. (2021) [Enhancing Nature Connection and Positive Affect in Children through Mindful Engagement with Natural Environments](#)

Bhattacharya et al. (2020) [Empirical research on K-16 climate education: A systematic review of the literature](#)

Trott et al. (2020) [Science Education for Sustainability: Strengthening Children's Science Engagement through Climate Change Learning and Action](#)

Monroe et al. (2019) [Identifying effective climate change education strategies: a systematic review of the research](#)

Murphy et al (2019) [A Starting Point: Provide Children with Opportunities to Engage with Scientific Inquiry and Nature of Science](#)

Williams et al. (2017) [As the climate changes: Intergenerational action-based learning in relation to flood education](#)

Learning policy institute (2017) [Effective Teacher Professional Development](#)

Hu et al. (2016) [Place-based inter-generational communication on local climate improves adolescents' perceptions and willingness to mitigate climate change](#)

Ojala, M. (2012) [Hope and climate change : The importance of hope for environmental engagement among young people](#)



## Some references on this question (reports)

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JustEd (2023) [Advancing climate action, justice and equity goals through environmental education: Lessons for policy and practice from the JustEd study](#)

Smithsonian Science Education Centre (2023) [Educating for Sustainable Development, perspectives of U.S. and Global Educators](#)

AFD (2023) [Worldwide effects of climate change education on the cognitions, attitudes, and behaviors of schoolchildren and their entourage](#)

UNESCO (2022) [Youth demands for quality climate change education](#)

UNESCO (2021) [Getting every school climate-ready : how countries are integrating climate change issues in education](#)

ALLEA (2020) [A snapshot of climate change education initiatives in Europe](#)

UNESCO (2019) [Country progress on Climate Change Education, Training and Public Awareness](#)





Does it work?

## NO! (most of the time)

“Environmental education in schools is not improving learners’ skills, attitudes or behaviours as they relate to climate change”

(JustEd 2023)

- **Barrier 1:** content is decontextualized from learners’ daily lives
- **Barrier 2:** misrepresentation of individual actions for reducing carbon emissions
- **Barrier 3:** shallow pedagogies which prevent learners from engaging in critical thinking, analysis and evaluation
- **Barrier 4:** does not recognise the rights of nature itself to survive and thrive



## YES, it works! (when it is done properly)

- CCE leads to improvement of knowledge, attitude and skills for students

(AFD 2023, Li et al. 2022, Trott et al. 2020, Monroe et al. 2019, Hu et al. 2016)

- As well as for parents and grandparents

(Li et al., 2022, Parth et al. 2020, Williams et al. 2017, Hu et al. 2016)

Intergenerational learning effect (children educate their parents) for knowledge and mitigation/adaptation behavioral intentions

This effect is stronger with girls



What works?



# CCE must build on strong science education (active pedagogies)

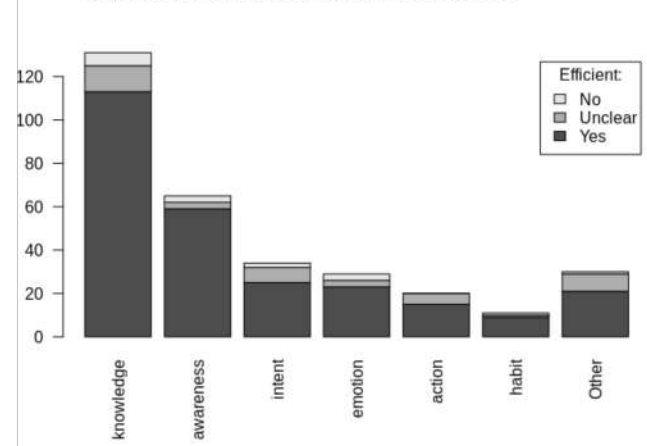
- Climate science is universal
- Misconceptions about CC are similar everywhere and often perpetuated by incorrect schoolbooks  
(Bonilla et al. 2023, AFD 2023, Bhattacharya et al. 2020, Choi 2015)
  - Confusion between climate/weather
  - GG/atmospheric pollution
  - GHE / ozone layer
  - natural/anthropogenic...
  - Base on solid science -> IPCC reports!
- Debunking misconceptions and practicing science activities is key
- Active pedagogies are more efficient  
(Olsson et al 2022, ALLEA 2020, Murphy 2019, Karpudewan et al. 2017)
  - Inquiry-based pedagogy
  - Nature of science



# How to bridge the Knowledge – behaviour gap?

- Important to go beyond the “knowledge only” approach (Wang et al. 2022)
  - Creates anxiety
  - Does not lead to action
- Work on solutions and develop self-efficacy
  - Project-based pedagogy (DeWaters et al. 2014)
  - Role playing games (Meya et al. 2018)
  - Outdoor activities (Khadka et al. 2021, Barrable et al. 2021)
  - Intergenerational contact (Hu et al. 2016)

Number of studies with outcomes of knowledge, awareness, intent, emotion, action, habit, and Other



AFD (2023)



# Be modest: CCE projects must remain education projects!

- o Self-efficacy (DeWaters et al., 2014, Ojala, 2012)

Each small success reinforces the positive perception that success is possible

Failing to implement action will limit or annul otherwise effective interventions

- o A personal experience...

- o Vital role of local and personally relevant climate issues

reduces psychological distance

motivates students

develop of sense of responsibility

inspire action



## Importance of indigenous cultures



Integrating Indigenous cultures and knowledges into CCE offers  
(Sandhu et al. 2022)

- a different perspective on the relationship between nature and human beings
- a way to develop climate justice
- A motivation to act



# How to provide teachers with effective professional development?

## Effective teacher education for CCE...

ALLEA (2020), Monroe et al. (2019), Learning policy institute (2017)  
+ OCE's experience (ALEC project since 2020)

- Is content focused
- Incorporates active learning
- Supports collaboration
- Uses models of effective practice
- Provides coaching and expert support
- Offers feedback and reflection
- Is of sustained duration (~ 50-80 hours)



Useful resources

OCE resources: <https://oce.global/>

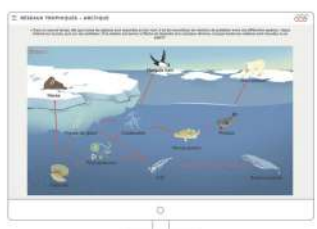
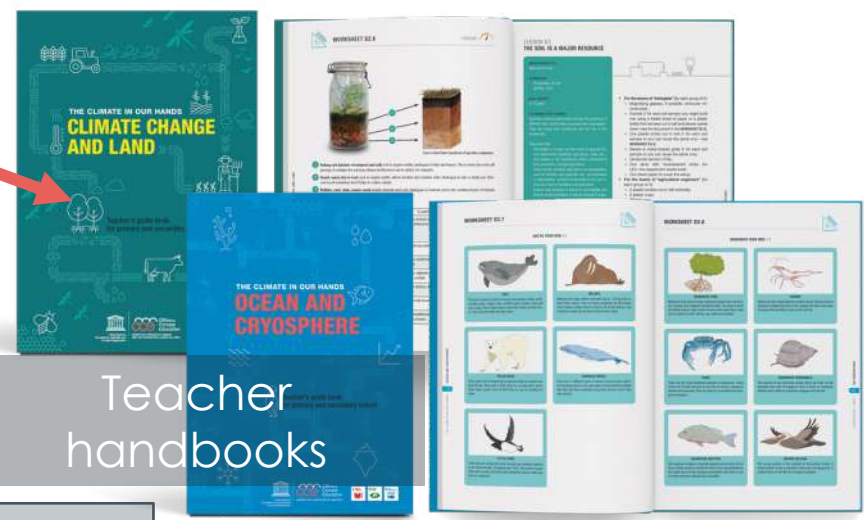
Summaries for teachers

IPCC REPORTS

Teacher handbooks

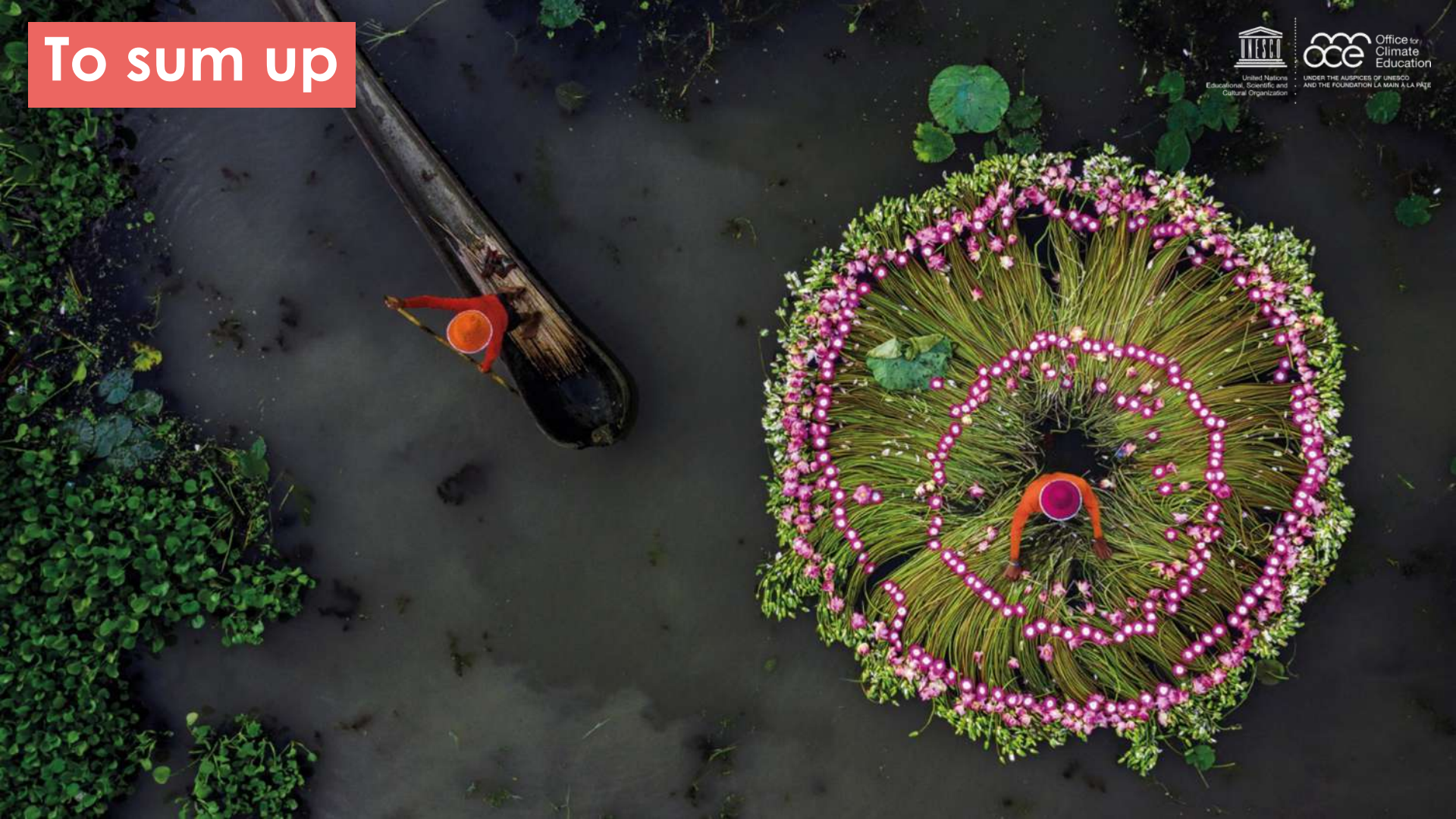
Teacher training protocols

Videos & multimedia animations





To sum up





# Climate change education: global opportunities, local challenges

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- Exciting times for CCE
- Central role of science education
- Active pedagogies (Inquiry-based, NoS, Project-based, role-playing games...)
- From anxiety to agency (self-efficacy)
- Curricula, systemic view, all disciplines, school & community approach
- Teachers need
  - Quality education materials
  - Quality professional development
  - Field support
- Requires political leadership for success



United Nations  
Educational, Scientific and  
Cultural Organization



Office for  
Climate  
Education

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AND THE FOUNDATION LA MAIN À LA PÂTE

## Founding members



## With the support of

