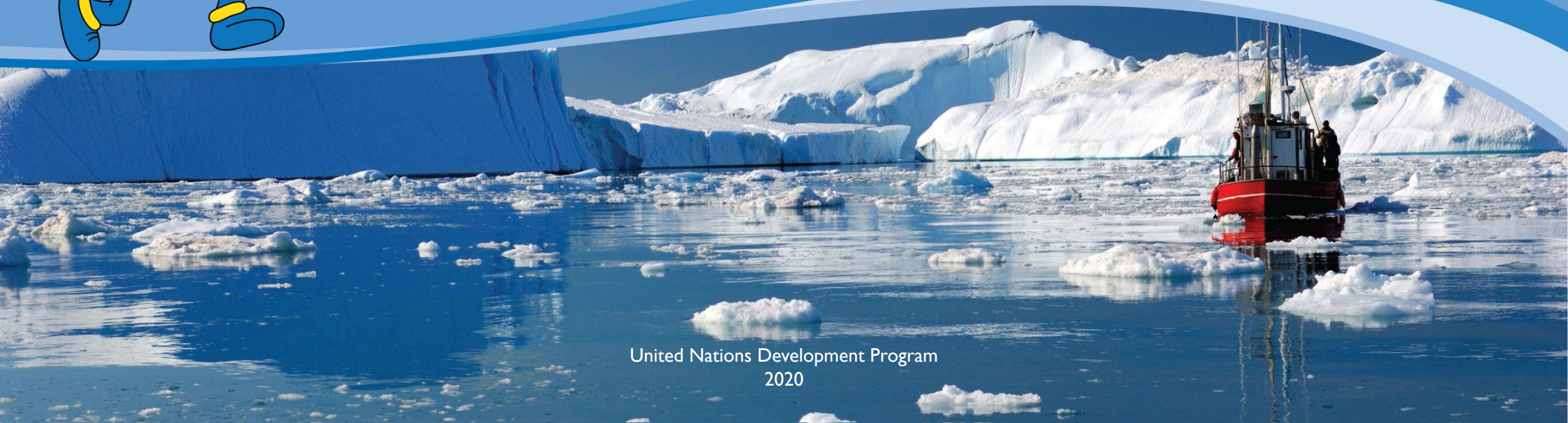
Climate Box

Module 1. Basic course on climate change.

Section 1.1. Climate Box: Climate Education and Awareness Program for Schools.

With the financial support of the Russian Federation

Empowered lives. Resilient nations.

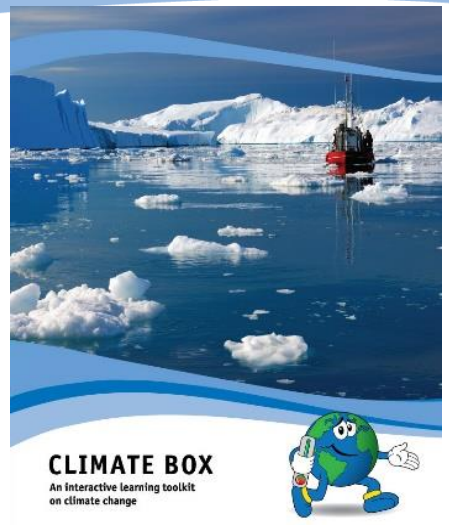


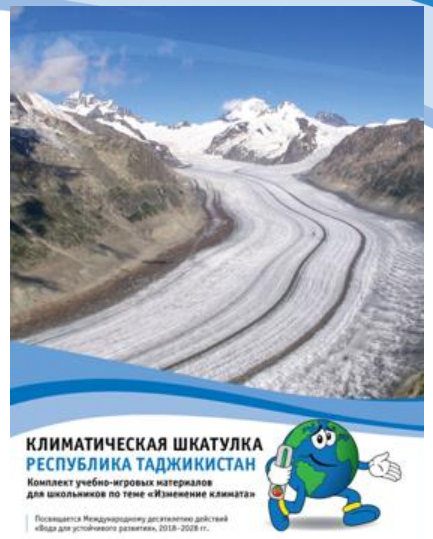
United Nations Development Program
2020

Climate Box Program

What is Climate Box?

A climate education & awareness program that raises awareness of climate change and encourages youth to lead environmentally-friendly lives together with their families, friends, and local communities.





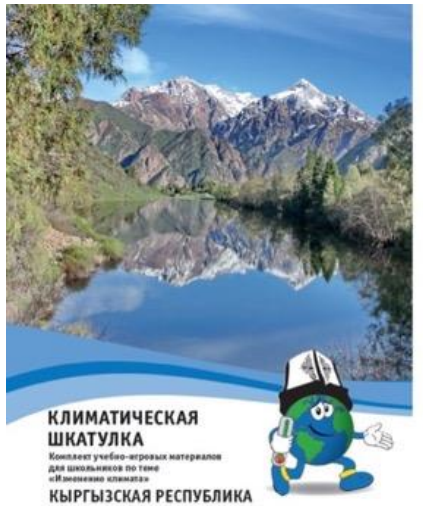
How did the programme evolve?

❖**2014-2015 -** A set of educational and game materials for schoolchildren 'Climate Box' was developed by UNDP in Russia with the support of the Coca-Cola company, the Global Environmental Fund and the Ministry of Natural Resources of Russia.

❖ **2016-2017 -** Adaptation of the 'Climate Box' for three pilot countries of Central Asia: Kyrgyzstan, Kazakhstan and Tajikistan with the support of local partners.

❖ **2018-2019 -** Armenia, Moldova, Turkmenistan and Uzbekistan joined the program. Moscow and the Yamalo-Nenets Autonomous District of the Russian Federation produced their own 'Boxes'.

❖**2020 -** Belarus and Serbia joined.



Climate Box Program

| Who is Climate Box Curricular for?

✓ **Youth:** learn about the global climate change through interacting, playing, and implementing projects; acquire skills for responsible lifestyle, energy saving and sustainable consumption

✓ **Teachers, educators, NGOs:** access to scientifically sound, up-to-date information on climate change tailored to the national context; receive guidance how to present climate agenda to the youth and public

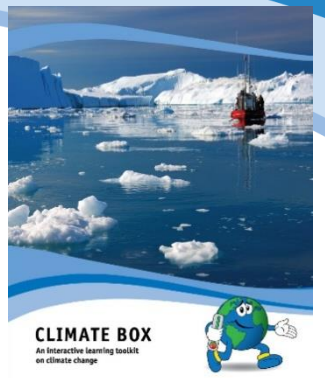
✓ **General public:** improve knowledge on climate change through participating in the programme activities

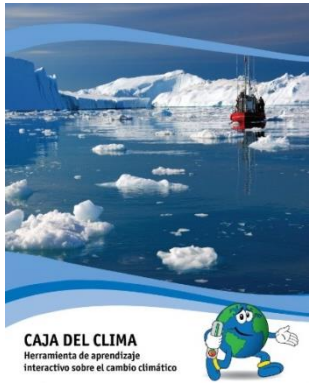
✓ **Governments**: an effective tool to raise public awareness and encourage climate action at the local level

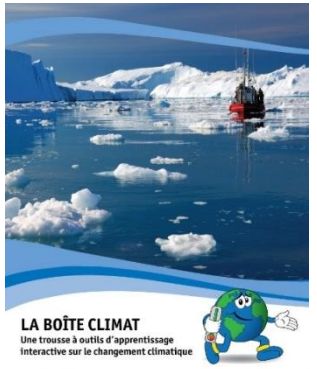
Climate Box Program

| What makes Climate Box unique?

- **The first comprehensive school toolkit on climate change for the youth** available in the main UN languages and in national languages of the participating countries
- **Attractive format** for learning and playing
- **An excellent multidisciplinary team of authors -** leading experts, scientists, teachers, professional kids' writers (international and local)
- **Wide thematic scope** that can be applied in different curriculum lessons and for different ages
- **Guidelines for teachers** on curricular and extracurricular activities
- **Global scope and local content:** examples from all over the world that will be of interest for school kids from different countries as well as local content and examples in each localized version
- **A range of program activities:** support in coordination with the national/local ministries and departments of education, training and experience exchange, international youth contests and other events for the participants.







Climate Box Toolkit

What is inside the box?

Each standard Climate Box toolkit includes:

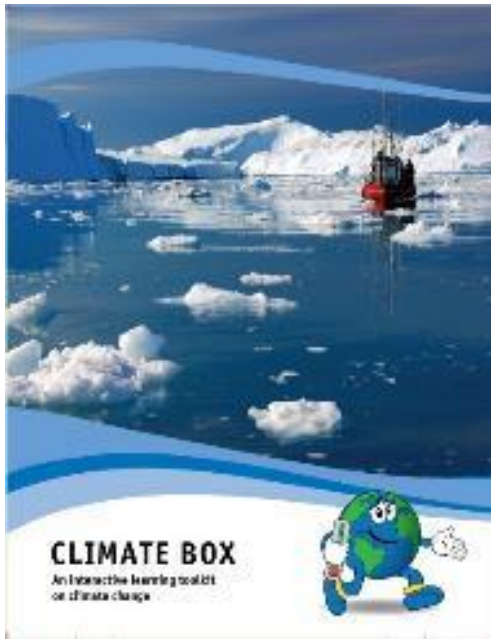
1. **Text-book** for kids and teachers that includes information materials, tasks, questions and games as well as guidelines for teachers on how to use the materials at lessons and off-curricula

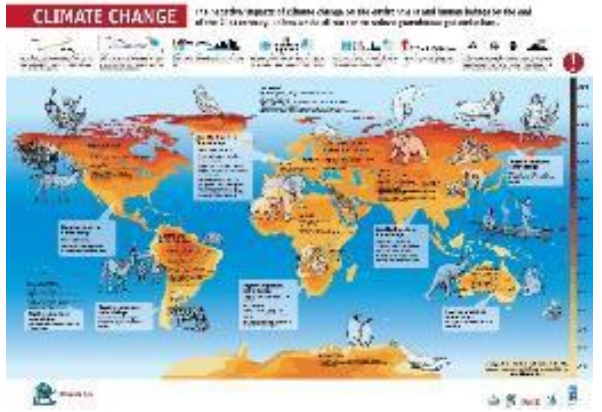
2. **Climate Quiz** - cards with multiple-choice questions

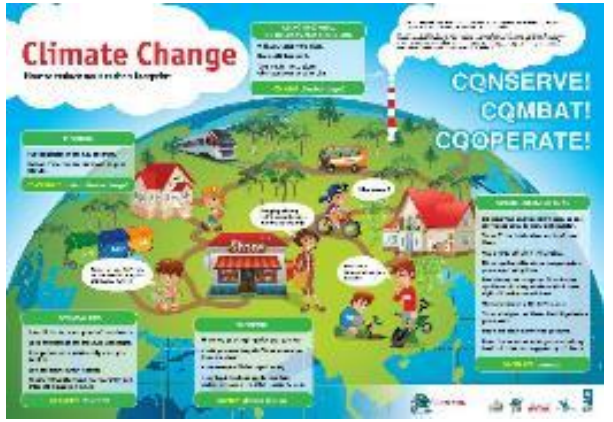
3. **A wall map** 'Climate change consequences by the end of XXI century if the world nations are not taking urgent measures to reduce GHG emissions'

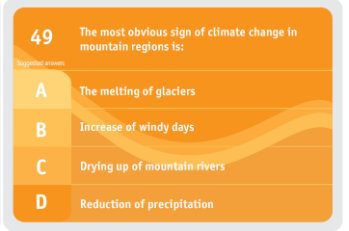
4. **A poster** 'How to reduce your carbon footprint'

5. **A flash drive or CD** with the electronic materials as well as access to the Climate Box website: www.climate-box.com



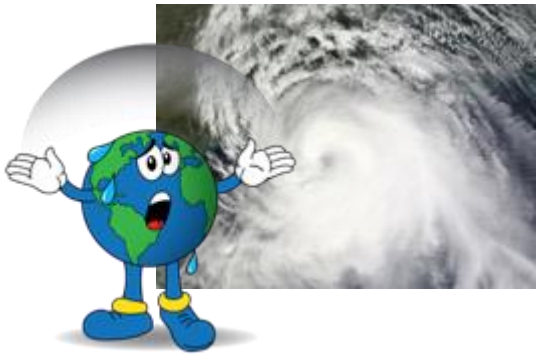






If desired, countries can contribute their own additional materials to the kit (for example, additional games, sample lessons to help educators).

| Textbook: three thematic chapters



1.Climate change. How and why the climate has been changing back in the history and today.

2.How the climate change has been affecting nature and people across different regions? Whether we can adapt to the inevitable consequences?

- Extreme weather events
- Flora, fauna, forests
- Agriculture and water resources
- Coastal regions
- Mountain regions
- Arctic regions
- Cities, human health and other social aspects

3. How can we mitigate climate change?

- «Green» energy sources
- Energy efficiency and energy saving
- How to reduce your individual carbon footprint
- Global cooperation on climate change

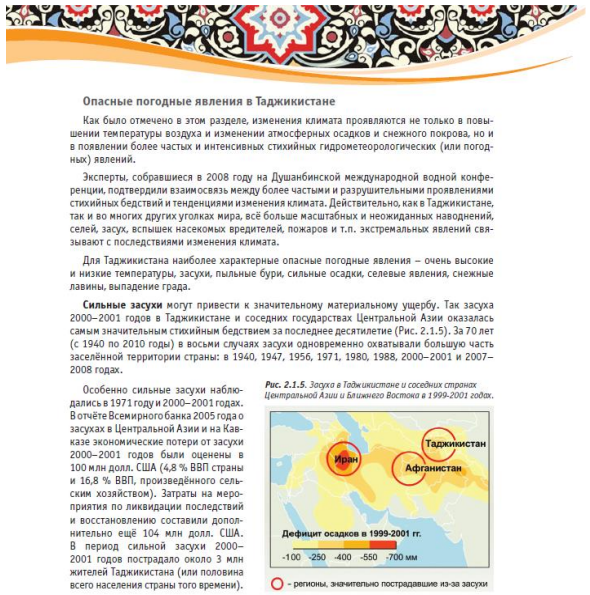
Each chapter has both general and local content.

Textbook: structure of chapters

Each chapter of sub-chapter includes:

- Text materials with general information and examples from different countries
- Local content and case-studies
- Visual materials (maps, graphs, tables)
- Boxes with additional information and terminology
- Questions
- Tasks, experiments

Example of a local content page, Tajikistan



Опасные погодные явления в Таджикистане

Как было отмечено в этом разделе, изменения климата проявляются не только в повышении температуры воздуха и изменении атмосферных осадков и снежного покрова, но и в появлении более частых и интенсивных стихийных гидрометеорологических (или погодных) явлений.

Эксперты, собравшиеся в 2008 году на Душанбинской международной водной конференции, подтвердили взаимосвязь между более частыми и разрушительными проявлениями стихийных бедствий и тенденциями изменения климата. Действительно, как в Таджикистане, так и во многих других уголках мира, всё больше масштабных и неожиданных наводнений, селей, засух, вспышек насекомых вредителей, пожаров и т.п. экстремальных явлений связывают с последствиями изменения климата.

Для Таджикистана наиболее характерные опасные погодные явления – очень высокие и низкие температуры, засухи, пыльные бури, сильные осадки, селевые явления, снежные лавины, выпадение града.

Сильные засухи могут привести к значительному материальному ущербу. Так засуха 2000–2001 годов в Таджикистане и соседних государствах Центральной Азии оказалась самым значительным стихийным бедствием за последнее десятилетие (Рис. 2.1.5). За 70 лет (с 1940 по 2010 годы) в восьми случаях засухи одновременно охватывали большую часть заселённой территории страны: в 1940, 1947, 1956, 1971, 1980, 1988, 2000–2001 и 2007–2008 годах.

Особенно сильные засухи наблюдались в 1971 году и 2000–2001 годах. В отчёте Всемирного банка 2005 года о засухах в Центральной Азии и на Кавказе экономические потери от засухи 2000–2001 годов были оценены в 100 млн долл. США (4,8 % ВВП страны и 16,8 % ВВП, произведённого сельским хозяйством). Затраты на мероприятия по ликвидации последствий и восстановлению составили дополнительно ещё 104 млн долл. США. В период сильной засухи 2000–2001 годов пострадало около 3 млн жителей Таджикистана (или половина всего населения страны того времени).

Рис. 2.1.5. Засуха в Таджикистане и соседних странах Центральной Азии и ближнего Востока в 1999-2001 годах.

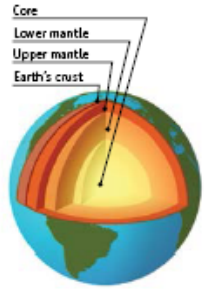
Biodiversity *is all the various species of plants and animals, fungi and micro-organisms, as well as the many combinations of environments (landscapes) and the huge number of variants between the genes of similar organisms. In other words, biodiversity is the multiplicity of the forms and manifestations of life on Earth.*

1.3.1. | Causes of climate change: millions of years

Seeking to explain the major changes of the Earth's climate that have occurred in the past half a billion years, scientists have looked at various geological, astronomical, biological, geomagnetic and cosmic factors. They even considered the possibility of visitors from other planets, who might have used some sort of climate weapons. But scientists found no trace of action by aliens. What they found was that the temperature on our planet in the last few hundred million years was determined by the location of the continents on the Globe!

Moving continents

Fig. 1.3.3. What's inside Earth?



The Earth's crust is only the thin top layer of our planet (Fig. 1.3.3). Beneath it begins the mantle, which is the main part of the planet and which becomes a very hot and sticky liquid deeper down. The crust and top layers of the mantle consist of relatively hard ('lithospheric') plates, which can crack, move apart or come together, shifting just a few centimetres each year, but covering thousands of kilometers over millions of years! This is called 'continental drift'. The single, ancient continent of Pangaea gradually divided into separate continents, which moved apart and collided with one another (Fig. 1.3.4). If you look at the western side of Africa and the eastern side of South America, you can see that they fit together like pieces of a jigsaw puzzle, and the reason for this is that they were once part of one single continent that split apart.

Continents that are close to the equator do not accumulate ice, but if they are close to the poles, then they are soon buried under the glaciers (ice masses) that we now see in Antarctica and Greenland. The white surface of ice and snow reflects solar radiation back into space, ensuring that the ice and snow remain cold, while the dark surfaces of earth or water almost completely absorb solar radiation and therefore heat up.

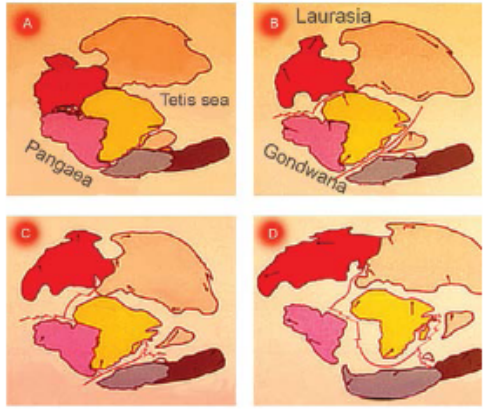


Fig. 1.3.4. Continental drift over the past 500 million years.

A – the formation of Pangaea;

B – the division of Pangaea, formation of Laurasia and Gondwana;

C – the splitting of Gondwana, formation of Hindustan, Australia and Antarctica;

D – the formation of South America, beginning of the division of Laurasia.

Climate Box Toolkit

| Textbook: guidelines for teachers

Teacher's Guide is adapted to the national curriculum in each country

Chapter 4. Guidelines for teachers on the use of the Climate Box toolkit in schools

Compiled in the form of tables, where the topics of all parts are projected on the educational programs of the school. The guidelines are adapted for the school curriculum in that country in each national Climate Box.

Examples of tables from Section 4 of the Climate Box manual for Russia (left) and Belarus (right).

SECONDARY EDUCATION						
Section in the Climate Box textbook	Natural Science	Geography	Biology	Chemistry	Physics	Environment, Health and Safety
Part 1. The problem of climate change						
1.1. Climate and weather	Class 5 • Theme: Weather (main features of weather). Climate	Class 6 • Theme: The heating of air and air temperature • Theme: The dependence of temperature on latitude • Theme: Moisture in the atmosphere. Water vapour and humidity • Theme: Precipitation • Theme: Atmospheric pressure. Measuring atmospheric pressure • Theme: Weather. Components of weather. Air masses • Theme: Climate. Climate maps	–	–	Class 7 • Theme: Atmospheric pressure	–
1.2 Climate types and climate zones	–	Class 7 • Theme: The Earth's atmosphere and the climate • Theme: Climate zones and typical weather for each continent: Africa, Australia, South America, North America, Antarctica, Eurasia Class 8 • Theme: Climate and climate resources	–	–	–	–
1.3. How and why the climate changed in the past	–	Class 6 • Theme: Sea currents. Their causes and impact on the natural world. Interaction with atmosphere and land • Theme: The stone shell of Earth • Theme: Movement of lithospheric plates Class 7 • Theme: The oceans Class 8 • Theme: Geological structure	Class 9 • Theme: How life appeared and developed in ancient epochs	–	Class 11 • Theme: Elements of astronomy	–

ОБЩЕЕ СРЕДНЕЕ ОБРАЗОВАНИЕ							
Название раздела пособия «Климатическая шкатулка»	5 класс	6 класс	7 класс	8 класс	9 класс	10 класс	11 класс
Часть 1. Проблема изменения климата							
1.1. Климат и погода	**Человек и мир** • Тема «Науки о природе»	**География** • Тема «Температура воздуха. Тепловые пояса» • Тема «Погода и метеорологические явления» • Тема «Климат и климатообразующие факторы»	**Физика** • Тема «Атмосферное давление»	–	**Иностранный язык** • Тема «Погода и климат»	**Факультативные занятия** • «Географические исследования Беларуси» (по учебному предмету «География»)	**Факультативные занятия** • «Геоэкология Беларуси» (по учебному предмету «География»)
		Факультатыўныя заняткі • «Краязнаўства»	**Факультативные занятия** • «Путешествия по географической карте» (по учебному предмету «География»)		**География. География Беларуси** • Тема «Климат и климатические пояса»		**Факультативные занятия** • «Географические исследования Беларуси» (по учебному предмету «География»)
1.2. Типы климатов и климатические пояса	**Человек и мир** • Тема «Изменение температуры воздуха»	**География** • Тема «Влажность воздуха Атмосферные осадки» • Тема «Климат и климатообразующие факторы»	**География** • Тема «Климатические пояса Земли» • Тема «Климат Африки» • Тема «Климат и внутренние воды Австралии и Океании» • Тема «Тектоническое строение, рельеф и климат Антарктиды»	–	**Иностранный язык** • Тема «Погода и климат»	**Биология** • Тема «Факторы среды и их классификация»	–

Цветовые обозначения учебных предметов

Биология	География	Иностранный язык	История	Обществоведение	ОБЖ	Факультативные занятия	Физика	Химия	Человек и мир

Climate Box Toolkit

| Localized toolkits

- Translation into national language
- The participation of a local team of experts and educational methodologists in the development
- Local examples of climate change impacts and responses
- Special country info boxes, new cover and logo
- Seminars for teachers on the use of the kit and methodological recommendations for introducing the kit into the curriculum (according to the results of discussions at the seminar)

Climate Box: Program Activities

| Partnerships and collaboration: comprehensive approach

- ✓ Engagement with ministries and departments of education
- ✓ Training-of-trainers (TOT workshops)
- ✓ Training workshops for teachers
- ✓ Teacher's guide adapted to national curricular
- ✓ Support and oversight during piloting phase
- ✓ Regional teachers' conferences

Climate Box: Key Achievements by 2020

- ✓ 10 countries, 14 languages
- ✓ 3,000 school-teachers from 2,000 schools
- ✓ 60,000 school students
- ✓ 2 regional climate education conferences
- ✓ 26 best climate projects presented in the finals of the international youth contest

Climate Box: Key Achievements by 2020

‘Climate Box’ Climate Curriculum has already reached 60,000 students

Taking climate action from a classroom to local communities







Climate Box: User Guide

| User Guide:
How to Implement Climate Box Program?

- **10 basic steps - stages of the program.** The sequence may vary
- **Practical recommendations for each step** for those who already participate in the program.
- **Real examples** of program implementation in different countries, tips and lessons on mistakes
- **Contact information** of teams from other countries

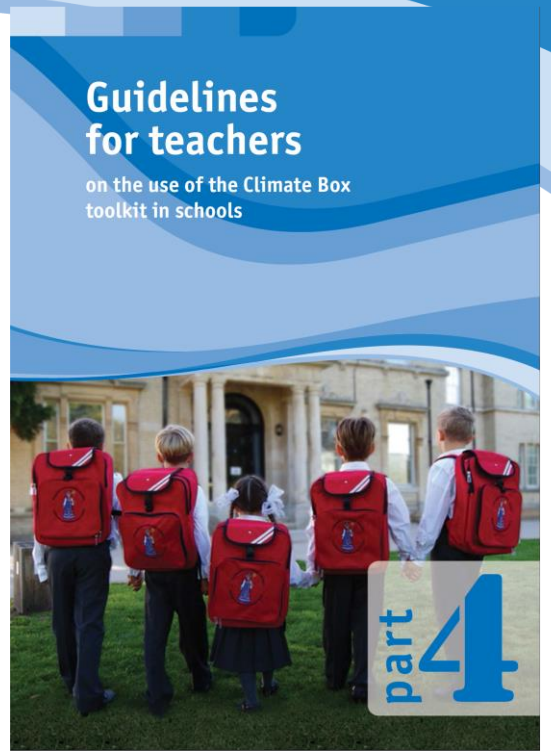
Get started today - download Climate Box here:

https://www.eurasia.undp.org/content/rbec/en/home/library/environment_energy/climate-box.html

Training Module on Climate Change for Teachers

Training module for teachers

- **Use**: vocational training/refresher courses for teachers; additional learning materials
  - **Structure:**
    - (50%) Introduction to climate change (general and country specific)
    - (25%) Delivery of climate curricular in school: (1) use of Climate Box toolkit; (2) promoting climate action through school projects; (3) engaging communities and CSOs in creative learning about climate
    - (25%) Best practices, sample lessons and projects on climate, interactive teaching methods…



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Resilient nations.