CLIMATE BOX

Climate Change Education and Awareness Program

Training Module for Teachers

Introduction to the Climate Change Issues and the Practical Application of the 'Climate Box' Interactive Learning Toolkit in Educational Organizations

United Nations Development Program

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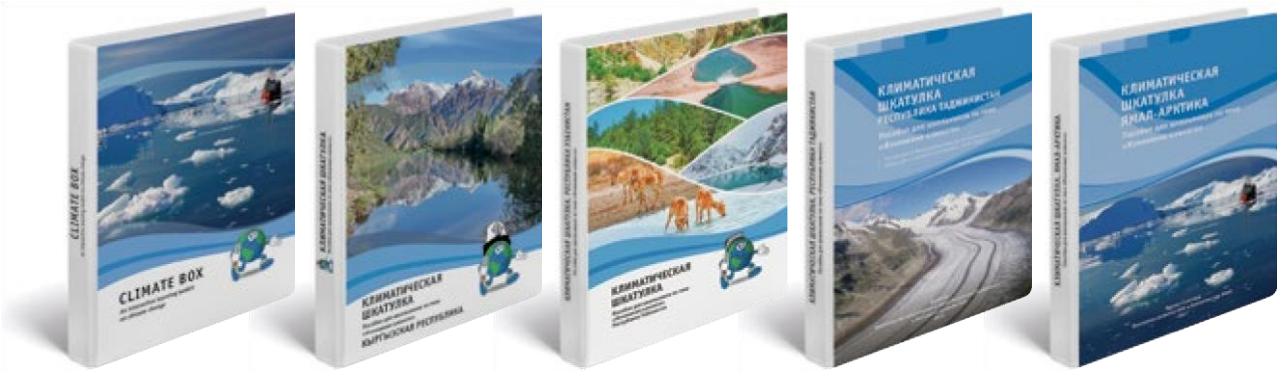
Introduction

Education and raising public awareness play an important role in building overall capacity for climate change mitigation and adaptation, empowering people to make informed decisions. Education is a critical element in the global response to climate change. It helps young people understand the causes and consequences of climate change, contributes to changes in their attitudes and behavior, helps to adapt to trends associated with climate change and the transition to a low carbon economy and allows them to form more sustainable lifestyle habits.

To this end, in 2014–2015, the United Nations Development Program (UNDP) developed and piloted in Russia the Climate Box, an innovative interactive educational toolkit on climate change, designed to attract the attention of the youth and introduce them to the science behind climate change, inform how climate change affects people and ecosystems, and how each person can contribute to global efforts to combat climate change. The Climate Box also provides guidance for teachers on how to incorporate its materials into school curriculum and extracurricular activities. From 2016 to 2020, UNDP, with the financial assistance from the Russian Federation, supported the replication of the Climate Box project in countries of Eastern Europe and Central Asia – Armenia, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Turkmenistan and Uzbekistan. In 2020, Serbia also joined the program, becoming the first country outside the Commonwealth of Independent States (CIS) region participating in the program. In addition to the interactive learning toolkit, the program provided for organizing trainings for teachers on the toolkit application, regional conferences for the educational sector representatives to exchange experience in piloting the Climate Box, as well as various events for school children.

The participants of the Climate Box program identified the need for a standardized module to build capacity of teachers in climate education, which countries could use as part of a formal qualification system for education experts.



The introduction of this training module will contribute to both raising the general awareness of teachers in climate change issues, and attracting attention to the scaled-up application of the Climate Box interactive learning toolkit in educational organizations and society.

The use of the module will contribute to the achievement of the Sustainable Development Goal (SDG) 13 “Climate Action”, target 13.3 “to improve education, raise awareness and human and institutional capacity in the field of climate change mitigation, adaptation, reducing its impact and

early warning". The module will also contribute to the achievement of SDG 4 "Quality Education" and task 4.7 "by 2030, ensure that all students acquire the knowledge and skills necessary to promote sustainable development ..." and 4.c "by 2030, substantially increase the supply of qualified teachers, including through international cooperation in teacher training ..."

The module shows examples of various national approaches to climate change education, adaptation projects and successful examples of reduction of the carbon footprint from the countries participating in the Climate Box program.

Recommendations on application of the training module consider the peculiarities of national education systems in different countries.

2.| Objectives of the Training Module


1. Raising climate awareness among school teachers to facilitate the introduction of climate education in primary, secondary and high schools.
2. Assisting teachers in practical application of the Climate Box toolkit to facilitate incorporation of the climate change topic into the school curriculum, extracurricular activities and further education.
3. Encouraging innovative pedagogical approaches to integrating climate change education into school education and raising awareness of climate change.

3.| Application of the Training Module

- ✓ Training sessions within the existing system of professional development for teachers of primary, secondary and high school.
- ✓ Training and seminars in the field of education and awareness raising on climate change and sustainable development.
- ✓ Preparing and delivering lessons, extracurricular activities and further education classes on climate change issues in educational organizations using the Climate Box toolkit.
- ✓ Self-study of the climate change topic.


4.| Target Audience

- ✓ School teachers, educators, tutors, developers of educational programs, school principals;
- ✓ Government authorities: ministries of education and local education authorities;
- ✓ Organizations providing further education;
- ✓ Youth and non-governmental organizations (NGOs) working on environmental issues, nature conservation, climate change, energy efficiency, renewable energy, sustainable development and related topics. NGOs usually have the technical capacity, experience and willingness to raise public awareness and build capacity to address these issues.
- ✓ A wide range of people interested in the climate change topic.

5.| Structure of the Training Module

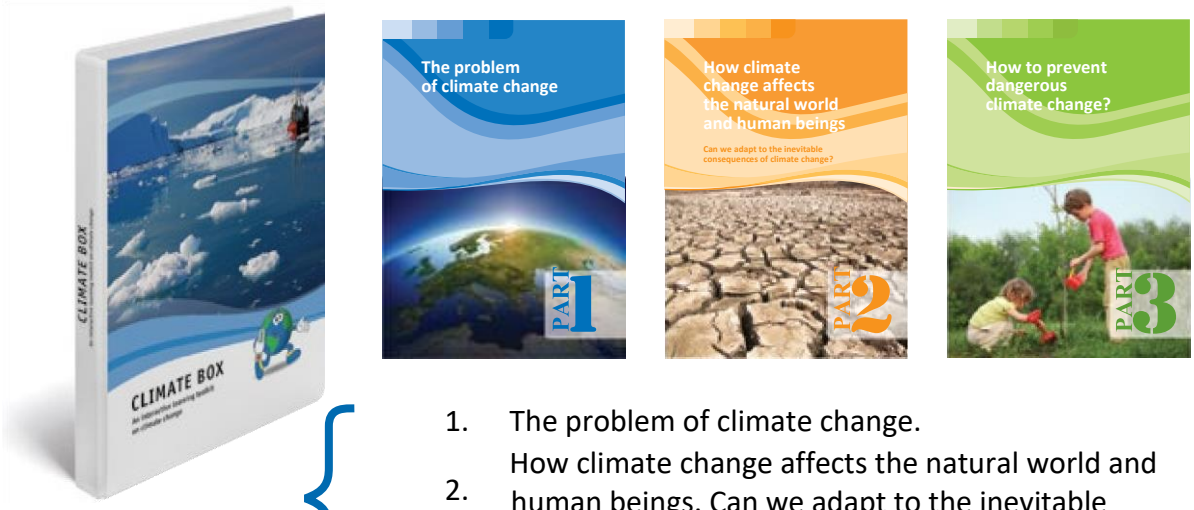
The training module "Introduction to the Climate Change Issues and the Practical Application of the 'Climate Box' Interactive Learning Toolkit in Educational Organizations" consists of two modules.

The recommended number of learning hours for the full course is 16.

Module 1. |
Basic Course on Climate Change

The module contains materials for educators and trainers to help raise awareness about climate change, its impacts, as well as climate change mitigation and adaptation measures.

The scientific content of Module 1 consists of three topics, corresponding to the three main parts of the Climate Box textbook:



1. The problem of climate change.
2. How climate change affects the natural world and human beings. Can we adapt to the inevitable consequences of climate change?
3. How to prevent dangerous climate change?

The module explains the scientific basis of the climate change problem in an easy-to-understand manner, and also offers examples of the climate change impacts and measures to solve the problem from different countries.

In addition, Module 1 includes:

- an introduction about the role of climate education for youth and a presentation of the UNDP Climate Box toolkit and the climate change education and awareness program for schools. The presentation covers the structure and content of the Climate Box toolkit and the main recommendations for its application, as well as the history of the development of the program, the geography of participants, the process of creating adapted national versions of the toolkit and disseminating climate education

in the countries participating in the program. It also explains the principles of an integrated approach to development of climate education and presents key results of the program to date and future plans.



- national content from localized versions of the Climate Box toolkit related to climate change impacts, examples of adaptation measures and the implementation of effective solutions to reduce the carbon footprint from different countries. These materials were included in the adapted national versions of the Climate Box toolkit and can serve as guidance for the development of localized toolkits in other countries.

Recommended number of learning hours: Eight

Format: presentation materials and practical exercises that are also suitable for self-study.

Module 2. |
Resources and Approaches to Climate Education

This module provides practical guidance on various approaches to education of schoolchildren and youth on the topic of climate change, including how to use the UNDP Climate Box toolkit and other resources. Module 2 consists of three sections.

2.1. A course on the practical application of the Climate Box toolkit to raise awareness of schoolchildren on climate change issues, for responsible behavior and attitude leading towards a low carbon and climate resilient future.


This section contains the following materials:

- integration of climate education in:
  - school subject lessons
  - extracurricular activities
  - further education;

- engagement of schoolchildren and the youth in project activities on climate change;
- creation of an effective climate education system through networks and interagency cooperation and promotion of social activities of the youth to engage local communities and scale up climate change mitigation and adaptation efforts.

2.2. Good practices for the delivery of climate at school using the Climate Box toolkit.

This section presents examples of thematic lessons, and game activities based on the Climate Box interactive learning

2.3. Monitoring and evaluation of the effectiveness of climate education, awareness and capacity building activities.

The section includes:

- recommended monitoring and evaluation system to track effectiveness of climate education and awareness, including the main components of the system, benchmarks and indicators of the educational and climate impacts , methods of collecting information, analytical examples used in the Climate Box educational program;
- evaluation materials – tests, tasks, assignments that can be used to monitor and evaluate the improvement of the level of climate change knowledge of students.

Recommended number of learning hours: Eight- four hours for section 2.1, three hours for section 2.2 and one hour for section 2.3.

Format: lectures and practical exercises.

6.| Content of the Training Module

№	Section	Topics
Module 1| Basic Course on Climate Change		
1.1	Introduction: the importance of climate education of the youth and presentation of the UNDP Climate Box climate education and awareness program for schools.	
1.2	Scientific content of the module. Presentation and training materials to improve knowledge about climate change issues and possible response measures and to develop capacities for its practical application.	**1.2.1.** Scientific basis of the climate change problem. **1.2.2.** How climate change affects the natural world and human beings.Can we adapt to the inevitable consequences of climate change? **1.2.3.** How to prevent dangerous climate change?

1.3	National climate-related content from the localized versions of the Climate Box toolkit [1].	
Module 2| Resources and Approaches to Climate Education		
2.1	Course on the practical application of the Climate Box toolkit to raise awareness of schoolchildren on climate change issues, form responsible behavior and attitude leading towards a low carbon and climate resilient future.	**2.1.1.** Forming understanding among schoolchildren about climate change, its causes and consequences, ways of adaptation, as well as measures to reduce the carbon footprint. **2.1.2.** The project activity method as a way of involving schoolchildren and the youth and developing their creative thinking and capacities for taking practical actions and conducting social activities aimed to combat climate change. **2.1.3.** Creating an effective climate education system through networks and interagency cooperation.
2.2	Good practices for the delivery of climate education at school using the Climate Box toolkit.	**2.2.1.** Examples of thematic lessons on climate change using the Climate Box toolkit. **2.2.2.** Examples of climate education games.
2.3	Monitoring and evaluation of the effectiveness of climate education, awareness and capacity building activities.	**2.3.1.** System for monitoring and evaluation of the effectiveness of climate education and application of the Climate box toolkit. **2.3.2.** Examples of materials to measure improvement in students' knowledge on climate change, adaptation measures and ways to reduce the carbon footprint – tests, tasks, assignments.

7.| Recommendations for Integration of the Module into Training Programs

In order for a wide range of teachers in each country to gain a deeper understanding of the climate change topic, as well as to teach it as part of formal and non-formal education, using the Climate Box materials, the most effective way is to include this Module in the existing training programs for school teachers.

For instance, attending regular training or refresher programs is a mandatory requirement for all teachers in Eastern Europe and Central Asia. Frequency of such mandatory training courses can vary depending on the regulations of the local education authorities – as a rule, it is at least 76 learning hours.

[1] Countries can use their own national content of the Climate Box toolkit instead of the suggested materials in this section of the Module.

Professional development programs for teachers are delivered by state and commercial organizations licensed to provide educational services under further professional education programs.

Courses and modules used in the professional development programs are approved by educational organizations themselves.

Every year, such programs are adjusted taking into account innovations in the country's educational system, the science and technology development, introducing new forms and methods of teaching. In this regard, materials of this Training Module on climate change can be integrated into such professional development programs for teachers as part of the next update round.

Local education authorities can support integration of the Module in professional development programs by sending a letter of recommendation to the relevant teacher training organizations.

In recent years, online training programs have become more widespread. Such programs are either posted on the websites of organizations engaged in course preparation for self-study, or lectured online. This Training Module on climate education provides such an opportunity: basic presentation materials have supplementary text description. This allows, if necessary, to record video lectures. The tests offered in the module can also be carried out remotely at the end of the course to assess the knowledge improvement.

8.| Promotion of the Training Module

Numerous actors, including but not limited to youth, non-governmental organizations (NGOs) dealing with educational advancement, environmental protection, nature conservation, climate change, energy efficiency, renewable energy sources, sustainable development and related topics can provide assistance and support in promoting the Module and organizing activities on climate change education among educational specialists.

Using workshops with teachers, UNDP regional and country offices could assist in organizing such climate education activities and attracting environmental organizations.

9.| Assessment of the Training Module's Effectiveness

Section 2.3 of the Module offers an already developed system for monitoring and evaluation of the increased level of knowledge among schoolchildren and teachers on climate change issues. The tests and questionnaires offered in the section can also be used to assess the improved knowledge of trainees after passing this Module.

The effectiveness of the Training Module for teachers "Introduction to the Climate Change Issues and the Practical Application of the 'Climate Box' Interactive Learning Toolkit in Educational Organizations" will be assessed based on the results of teachers' educational activities. The main criterion for such an assessment will be an increase in the knowledge level of schoolchildren and young people on climate change issues and building their capacities in adaptation to climate change and reduction of their carbon footprint.

APPENDIX

Description of Materials
of the Training Module

Module 1. |
Basic Course on Climate Change

The module contains materials for teachers, educators and developers of educational programs aimed at raising their awareness of climate change, its impacts and possible response options through adaptation to climate change impacts and reduction of carbon footprint.

Section 1.1. Introduction: the importance of climate education for youth and presentation of the UNDP's Climate Box - Climate Education and Awareness Program for Schools

The section presents the UNDP's 'Climate Box': climate education and awareness program for schools and an interactive learning toolkit on climate change under the same name. It provides information on the structure and content of the Climate Box toolkit, the main recommendations for its use, as well as the history of the program development, the geography of its participants, the process of creating national versions of the toolkit and disseminating climate education in the countries participating in the program. It also explains the principles of an integrated approach to development of climate education, presenting key results of the program to date and future plans.

№	Materials of Section 1.1.	Format
1.1.	Climate Box: Climate Education and Awareness Program for Schools.	Presentation

Section 1.2. Scientific content of the Module.

The scientific basis of the climate change problem is presented in an easy-to-understand manner, with examples of climate change impacts on nature and human beings and measures to solve the problem from different countries and regions of the world. This section will help to better understand the climate change issues, main causes and consequences, as well as what can be done at a country, city, school, family and individual level to reduce human impacts on climate and adapt to the inevitable impacts.

The section consists of three topics, corresponding to the three main parts of the Climate Box textbook.

Topic 1.2.1. Scientific basis of the climate change problem.

This presentation gives an overview of the first part of the Climate Box textbook related to the scientific foundations of the climate change problem. It explains the differences between climate and weather, gives descriptions of the climate types and climatic zones, provides the reasons for climatic changes in the past and current trends, and explains the concepts of "greenhouse effect" and "greenhouse gases" and their role in exacerbating the natural climatic changes.

Topic 1.2.2. How climate change affects the natural world and human beings. Can we adapt to the inevitable consequences of climate change?

This topic corresponds to the second part of the Climate Box toolkit. It gives an in-depth explanation of how climate change impacts nature, humans and economic activities with examples from different regions of the world. Moreover, the potential adaptation measures to the inevitable consequences of climate change are also proposed. The topic covers issues related to climate change impacts on weather, biodiversity, forests, water resources, agriculture, coastal regions, mountain regions, Arctic regions, cities and social problems.

Topic 1.2.3. How to prevent dangerous climate change?

This topic provides answers to the question of what can be done to avoid the unavoidable effects of climate change and how to reduce greenhouse gas emissions, in accordance with the third part of the Climate Box textbook. The materials examine in detail how the use of fossil fuels exacerbates climate change and the possibility of the climate change mitigation through the transition to low carbon and “green” energy sources and transport modes, energy efficiency and energy saving, sustainable waste management, changes in the food production and consumption systems, as well as through projects aimed at restoring and protecting forests. The topic also explains what a “carbon footprint” is, what factors of production and human activity affect its size and suggests ways to reduce the carbon footprint at household, regional and global levels.

№	Materials of Section 1.2.	Format
1.2.1.	Scientific basis of the climate change problem.	Presentation
1.2.2.	How climate change affects the natural world and human beings. Can we adapt to the inevitable consequences of climate change?	Presentation
1.2.3.	How to prevent dangerous climate change?	Presentation

Section 1.3. National content of the Climate Box.

This section is based on locally developed materials by some of the participating countries - Armenia, Belarus and Kazakhstan - in the Climate Box program suggesting examples of how climate change affects the countries, national approaches to solving the climate change problem, including adaptation and mitigation measures. These materials can serve as guidance for the development of localized toolkits in other countries. In this section of the Module, each country can use its own materials.

№	Materials of Section 1.3.	Format
1.3.	National climate-related content from the localized versions of the Climate Box toolkit.	Presentation

Module 2. |
Resources and Approaches to Climate Education

Section 2.1. Course on the practical application of the Climate Box toolkit to raise climate awareness among schoolchildren and encourage them to help combat climate change

Topic 2.1.1. Enhancing understanding among schoolchildren about climate change, its causes and consequences, ways of adaptation, as well as measures to reduce the carbon footprint.

The topic provides recommendations on how to use the Climate Box interactive learning toolkit for climate education in school curriculum, extracurricular activities and further education. This section is extracted from the fourth part of the Climate Box textbook that addresses methodological recommendations for teachers on how to integrate Climate Box

content into educational programs of primary, secondary and high schools and in various school subjects.

In order to form new habits and attitudes, knowledge alone is not enough, it is necessary to teach the new generation how to use the knowledge they have gained in order to instill the right habits and to develop a culture of sustainable and climate-friendly behavior, wherein everyone's actions will be decisive for the future of our planet. Therefore, climate education will be the most effective when it combines dif-ferent means – formal school education, extracurricular activities, and further, non-formal education, among others.

The materials in this topic share experience gained from countries already participating in the Climate Box program in presenting climate change issues in primary school, in secondary and high school at natural science and humanitarian subject lessons, as well as in further education and extracurricular activities.

№	Materials of Topic 2.1.1.	Format
2.1.1.1.	Methodological recommendations for teachers on how to use the Climate Box toolkit in a classroom.	Presentation
2.1.1.2.	Methodological recommendations on how to use the Climate Box toolkit in extracurricular activities and further education.	Presentation

Topic 2.1.2. Climate projects as means to enhance creative thinking and capacity of schoolchildren and youth for taking actions at individual, household and community level for combating climate change.

Implementation of youth climate projects is a pragmatic method of climate education. This topic provides guidelines and describes in detail the main stages of planning successful climate projects, using experience gained from youth projects that were prepared as part of the Climate Box program. The main elements of climate project activities covered in this topic include:

- building clear motivation of project participants to solve climate problems;
- the project entry point: how the options proposed by each student to reduce greenhouse gas emissions and adapt to climate change can be applied in practice by students individually or within the framework of a family, class, school, community or any other social unit;
- what is the “project outcome”;
- what is the difference between a climate change project and research work;
- the choice of the project type (individual or collaborative).

The topic also suggests key themes for youth climate projects that are relevant and feasible for schoolchildren, explains main requirements for the projects’ content, deliverables and the final presentation of results.

In addition, the topic gives detailed recommendations on how to organize climate projects competitions for schoolchildren and youth at different levels (school, city, region, country), including structuring of the competition, necessary documentation, role and responsibilities of the organizing committee and evaluation panel, criteria for evaluation of projects, and ways to present projects, examples of evaluation sheets, etc.

№	Materials of Topic 2.1.2.	Format
2.1.2.1.	Methodological recommendations for climate change projects developed by schoolchildren.	Presentation Article
2.1.2.2.	Methodological recommendations for the organization of competitions of the climate change projects of schoolchildren.	Presentation Article

Topic 2.1.3. Creating an effective climate education system through networks and interagency cooperation.

Education is a critical element in the global response to climate change. Networking and interagency collaboration allow us to consolidate all available resources of ministries, public organizations, businesses, and individuals – experts, volunteers, eco-leaders – to promote awareness among citizens, and especially young people, on climate change issues.

This topic suggests possible ways and examples of using such interaction as an effective tool for expanding the possibilities of climate education and awareness within a country or local community. It provides recommendations and case-studies of successful engagement of society in the implementation of climate change projects and activities from the Climate Box participating countries.

№	Materials of Topic 2.1.3.	Format
2.1.3.	Methodical recommendations for creating an effective climate education system through networks and interagency cooperation.	Article

Section 2.2. Good Practices for the Delivery of Climate Education at School Using the Climate Box Toolkit.

Topic 2.2.1. Examples of Thematic Lessons on Climate Change using the Climate Box Toolkit.

Topic 2.2.2. Examples of Climate Education Games.

Scenarios (plans) of thematic lessons, classroom and out-of-school game activities to solidify the knowledge gained by schoolchildren and build their capacities on climate change mitigation and adaptation are presented in this section.

№	Materials of Section 2.2.	Format
2.2.1.	**Examples of thematic lessons on climate change issues using the Climate Box toolkit:** Biology lesson "Biodiversity as the result of organic evolution"; Geography lesson "Human Migration"; Natural science lesson "Can buildings not waste energy?"	Presentations
2.2.2.	Examples of climate education games.	Presentation

Section 2.3. Monitoring and evaluation of the effectiveness of climate education, awareness and capacity building activities.

Topic 2.3.1. System for monitoring and evaluation of the effectiveness of climate education and application of the Climate Box toolkit.

The monitoring and evaluation system has two main objectives:

- regular assessment of the effectiveness of the climate change education program and the results achieved in relation to the set goals, objectives and expected results;
- assessment of the improved knowledge of students (and teachers) and how their climate activities and projects contribute to reducing the carbon footprint or vulnerability to climate change impacts at the household level, school level or within local communities.

This topic provides a description of the main approaches to develop a monitoring and evaluation system for a climate program and offers monitoring and evaluation tools for educators (tests, questionnaires, etc.).

№	Materials of Topic 2.3.1.	Format
2.3.1.	System for monitoring and evaluation of the effectiveness of climate education and application of the Climate box toolkit.	Presentation

Topic 2.3.2. Examples of materials to measure improvement in students' knowledge and awareness on climate change, adaptation measures and ways to reduce the carbon footprint.

The developed materials can be used to enhance the assimilation of the learned materials, assess the competencies and behavioral attitudes aimed at mitigating the impacts on climate change, and increase resistance to its negative manifestations, thereby help to monitor the effectiveness of climate education and also to assess the efficacy of using the Climate box kit.

The test materials are grouped into sections of the Climate Box kit and can be used both after completing a specific section and also after completing the course. Several options for test tasks are offered, a description of their delivery, keys (answers), a method for calculating points and an assessment of the knowledge level corresponding to the points scored.

Energy efficiency assignments involve performing calculations, homework with parents' involvement and other forms.

When developing assessment materials at the regional level, it is recommended, along with general climate change issues, to include issues of local importance, as is done in the assignments of Armenia, Belarus, Kazakhstan.

№	Materials of Topic 2.3.2.	Format
2.3.2.	**Examples of materials to measure improvement in students' knowledge and awareness on climate change, adaptation measures and ways to reduce the carbon footprint:** ● Tests and assignments to analyze the level of knowledge of schoolchildren on the topics of energy efficiency and energy saving.	Presentations

Training Module for Teachers: Introduction to the Climate Change Issues and the Practical Application of the 'Climate Box' Interactive Learning Toolkit in Educational Organizations"/ E. Malts, Y. Dobrolyubova. United Nations Development Program, 2020.

The training module complements the Climate Box interactive learning toolkit for schoolchildren on climate change issues developed by the United Nations Development Program (UNDP) with the financial support from the Government of the Russian Federation. The training module is aimed at increasing the awareness and competence of teachers and educational experts in the field of climate education. This module is intended for teachers, educators, tutors, employees of further education organizations, non-governmental and youth organizations, developers of educational programs, as well as a wider range of educational specialists and other stakeholders in different countries to gain a deeper understanding of the climate change topic to be able to teach this topic as part of formal and non-formal education using the materials of the Climate Box toolkit.

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Illustrations:

Photos and illustrations used in the module were taken from the Climate Box toolkit (see the list of illustrations at the end of the Climate Box textbook) or provided by the program participants. Cover photo: A. Bezlepkin.

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