

Climate change awareness is a key to climate change mitigation and adaptation

Piia Post Institute of Physics,
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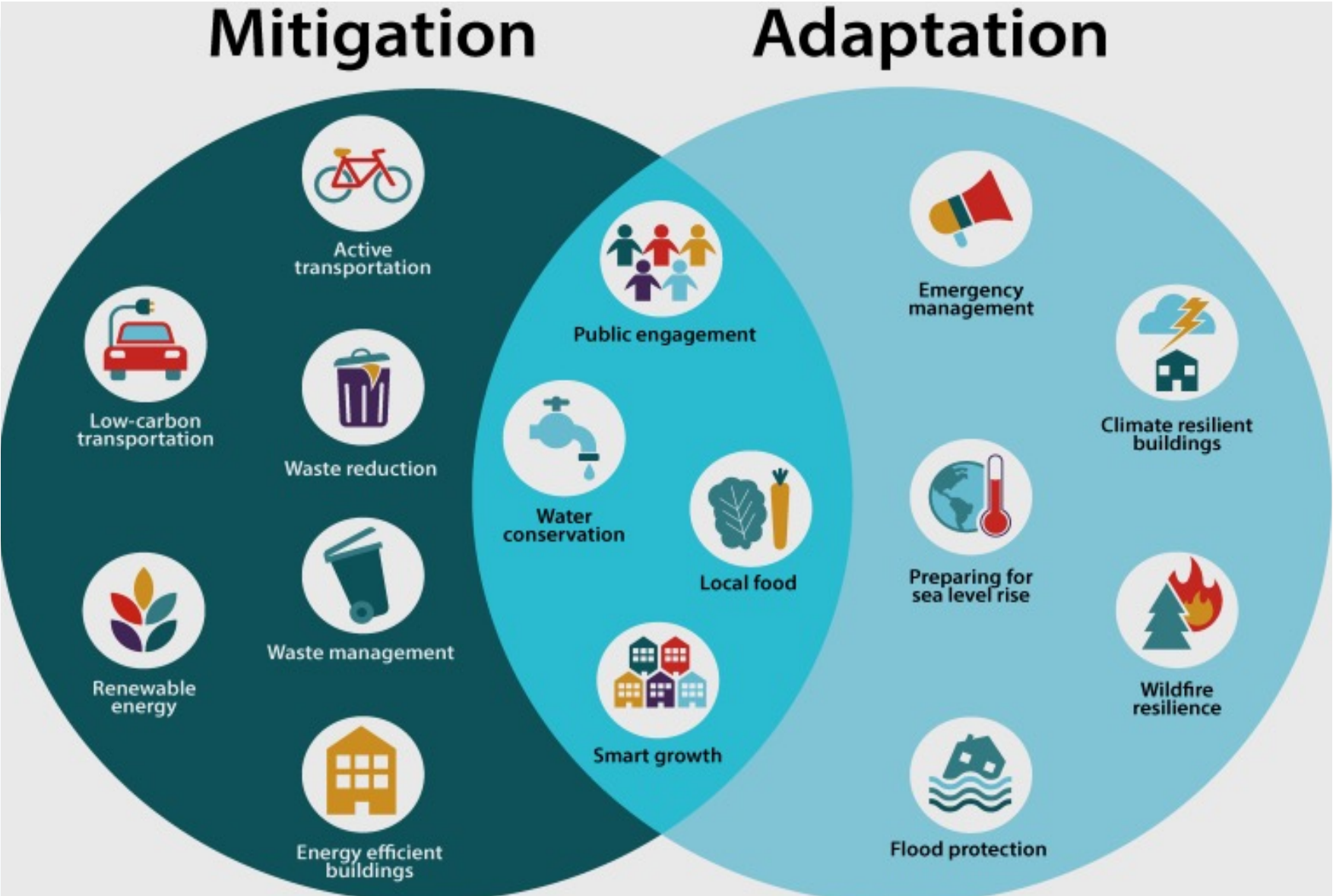
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Terms

Climate Change

“a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods” (UN, 1992, p7; (see United Nations Framework Convention on Climate Change).

Climate Action

Climate action is a term that brings together climate mitigation (or the efforts to reduce greenhouse gas emissions) and climate adaptation.

Terms

Climate Change Adaptation/ Climate Adaptation

efforts to strengthen resilience and increase capacities of systems, individuals, communities, and organizations to adjust to actual or expected climate changes and associated effects in ways that moderate harm and/or use beneficial opportunities.

It is defined by the UNFCCC as “human-driven adjustments in ecological, social or economic systems or policy processes, in response to actual or expected climate stimuli and their effects or impacts (LEG, 2011).



Climate Services

“information and products that enhance users’ knowledge and understanding about the impacts of climate change and/or climate variability so as to aid decision-making of individuals and organizations and enable preparedness and early climate change action.” (see IPCC Glossary)



- Climate Science Literacy is an understanding of the climate's influence on you and society and your influence on climate

<https://www.climate.gov/teaching/climate>

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WHAT IS CLIMATE SCIENCE LITERACY?

Climate Science Literacy is an understanding of your influence on climate and climate's influence on you and society.

A climate-literate person:

- understands the essential principles of Earth's climate system,
- knows how to assess scientifically credible information about climate,
- communicates about climate and climate change in a meaningful way, and
- is able to make informed and responsible decisions with regard to actions that may affect climate.

CLIMATE LITERACY: The Essential Principles of Climate Science (NOAA)

- The Sun is the primary source of energy for Earth's climate system.
- Climate is regulated by complex interactions among components of the Earth system.
- Life on Earth depends on, is shaped by, and affects climate.
- Climate varies over space and time through both natural and man-made processes.
- Our understanding of the climate system is improved through studies, and modeling.
- Human activities are impacting the climate system
- Climate change will have consequences for the Earth system and human lives.

<https://www.climate.gov/teaching/climate>



What and how?

KLIIIMATEADLIK -

Climate change education to promote climate action



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- Institute of Physics,
- Centre of science education
(Institute of Ecology and Earth Sciences),
- Tartu Observatory
- School of Teacher Education,
- Narva College and
- Johann Skytte Institute



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Purpose

Increase the climate awareness of Estonian society through systematic climate education at all levels of education.

- Climate education shapes climate-friendly values, supporting the creation of a climate-proof and climate-friendly society that values sustainable development.
- We create a climate education program that addresses the causes of global warming and the effects of climate change on nature and human society and develops skills to mitigate climate change and adapt to its effects.
- We create climate education strategies and modern science-based learning materials and support the implementation of climate education in educational institutions.

The current status

- The most climate sceptic nation in the Baltic Sea region
- Teachers consider climate change issues to be important or very important but they complain about the lack of teaching materials
- The topics of climate change are only in the curricula of natural sciences, but even here, the textbooks miss up-to-date concepts
- The human role in climate change is rarely mentioned and discussed

Teachers' survey



Question: Is climate change an important or unimportant issue for you? Please explain.

- 87% of respondents consider climate change to be important or very important

Question: What has prevented the topic of climate change from being addressed in your academic subject? Give examples.

- Time-consuming curriculum and lack of time
- The lack of attractive, factual, up-to-date, compact, simplified, relevant learning materials.
- Limited coverage in textbooks and outdated textbooks
- Difficult to connect with one's subject
- Insufficient knowledge
- Language barrier

Teachers' survey

Question: What type of teaching aids would you like to use in your lesson on climate change?

- Learning videos (80%)
- Integrated tasks and materials across different subjects (66%)
- Learning games (60%)
- Worksheets (59%)
- Practical work (54%)
- Group work (52%)
- Online supplementary materials (52%)
- Problem solving tasks (45%)
- Outdoor activities (44%)
- Project days (40%)
- Reading materials (38%)
- Tests (29%)
- Short-term project-based learning materials (16%)




Discovery Trail

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Our approach

1. Creating learning materials aimed at students and assessing their effectiveness while considering two areas of knowledge:

1.1 supporting concept development

1.2 promoting students' autonomous motivation in the subject matter.

2. Supporting and evaluating teachers in three key areas:

2.1 a substantive understanding of climate change issues,

2.2 skills to support students' critical thinking in the context of climate change,

2.3 skills to promote students' autonomous motivation in learning about climate change.

Our approach

Transferable skills

- see cause-and-effect links,
- enhance problem-solving skills,
- develop decision-making skills,
- acting in high-uncertainty conditions,
- use models and modelling,
- search for and critically evaluate information,
- develop skills in identifying misinformation;
- develop attitudes and beliefs about climate change;

Our approach

- To promote people's awareness of climate change, special attention should be paid to young children's teaching to avoid their later „**re-education**“ throughout the school.
- All learning materials and teaching activities in Pre- and Primary School are connected to **integrating different subjects and fields and implementing digital tools.**
- Narva College is responsible for **translating materials into the Russian language**; the cooperation with educational institutions helps increase the outreach of the project results to include Russian-speaking minority teachers.

Our approach

- The issue of climate change can be effectively integrated into various subjects and taught to students across different levels of education.
- Raising awareness about certain aspects that may not appear to be directly related to climate change.
- Understanding the potential impact of our lifestyles on matter cycles, ecosystems, etc; considering both local and global scale.
- Understanding the impact of climate change on the past, present, and future development of human society.
- Analyzing the impact of different economic models on environmental change, food and water security, and other related areas such as the current economic model, circular economy, doughnut economy, degrowth, and regenerative economy.



Our actions and principles

Our aim is to develop new climate education programs based on already available materials and put them into new contexts, that can be integrated into different subjects at all school levels, with the addition of teacher's books.

Climate Change ABC

A Reasons

B Impacts

C Solutions



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Climate Change ABC

- Covers the current scientific understanding of climate change and its causes, as well as climate change mitigation and adaptation to its impacts.
- The set includes methodological materials that make you think about these questions.
- It is aimed at teachers of all educational institutions to conduct general training.
- The materials will also be freely available to everybody as e-learning materials after the end of the project.

Main messages of the course

1. Climate is warming
2. Climate change harms nature and society
3. Warming is anthropogenic
4. A significant reduction in emissions is required in order to mitigate the effects of global warming
5. We also have to adapt to climate change



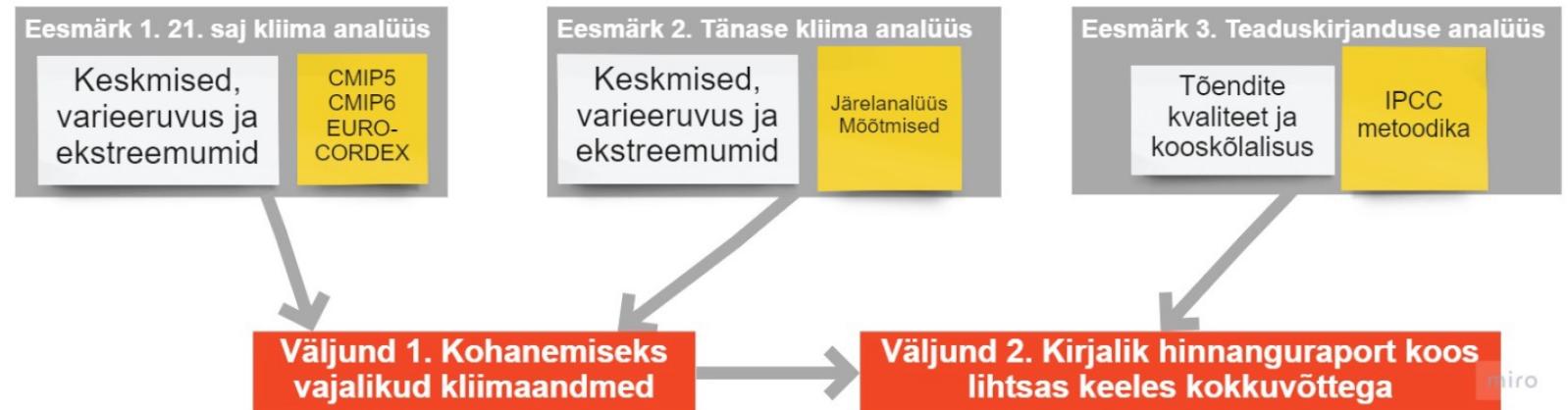
LIFE IP „Implementation of national climate change adaptation activities in Estonia “

LIFE21-IPC-EE-LIFE-SIP AdaptEst/101069566

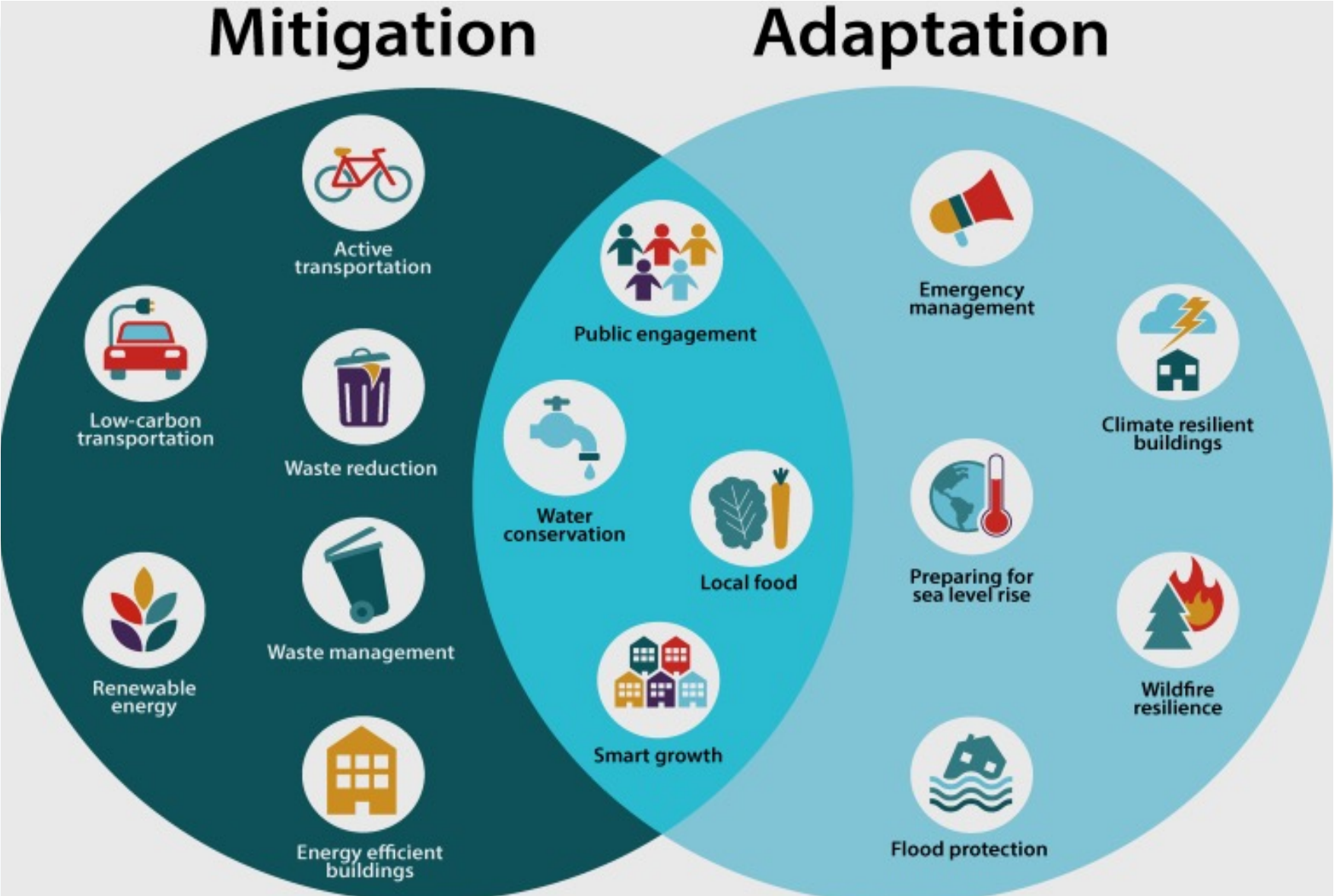
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- creates projections of atmospheric climate;
- participates in the implementation of a fire hazard map;
- researches the carbon sequestration potential of former mining areas;
- tries to capture Atlantic salmon for restocking.

Eesti kliima projektsioonid kliima muutustega kohanemiseks



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We invite submissions for a special issue of the *Estonian Journal of Education (Eesti Haridusteaduste Ajakiri)*, Vol. 12, No. 2, scheduled to be published in November 2024.

The special issue will focus on promoting **climate awareness in education and society**.

The editors of the special issue are Piia Post (Associate Professor of Meteorology and Climatology) and Krista Uibu (Professor of Primary Education) from the University of Tartu, and Jaanus Terasmaa (Professor of Ecohydrology) from Tallinn University.

Author(s) should send the topic of the article(s), accompanied by an abstract in Estonian, to **Piia Post** (piia.post@ut.ee). The abstract of no more than 200 words should summarise the research theory, the objective(s), the methodology, and the (expected) outcomes of the study by **20 September 2023**.

More information <https://eha.ut.ee/>



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