



**LATVIJAS
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ANNO 1919

“Nacionālā klimata politika”

„Kapacitātes celšana pētījumiem un pasākumiem
sabiedrības zināšanu uzlabošanai par klimata
pārmaiņām un to radītajām sekām”

Jānis Zaļoksnis

LU docents

Jūrmala, 27.05.2014.



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UN children's painting competition





The Swedish chemist **Svante Arrhenius** calculated already in 1896 the effects carbon dioxide from combustion of fossil coal, oil and gas on the greenhouse effect and temperature on Earth with good precision.

In 1988 climate scientists from the whole world joined in the Intergovernmental Panel for Climate Change (IPCC) under the World Meteorological Organisation, WMO, and UNEP, the United Nations Environmental Programme.

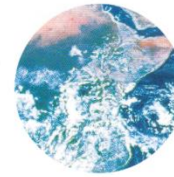
At the 1992 United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro 150 countries signed the UN Framework Convention on Climate Change, FCCC.



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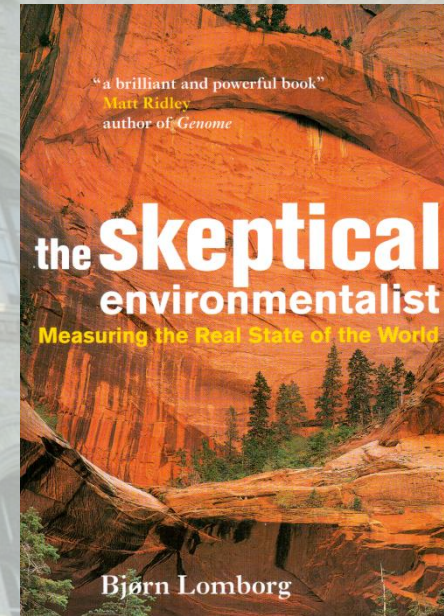
NOW A MAJOR MOTION PICTURE

an inconvenient truth
THE PLANETARY EMERGENCY OF GLOBAL WARMING AND WHAT WE CAN DO ABOUT IT
AL GORE



NEĒRTĀ
PATIESĪBA
ALS GORS

PLANĒTAS APDRAUDĒJUMS GLOBĀLĀS SASILŠANAS DĒĻ, UN MŪSU IESPĒJAS TO NOVERST

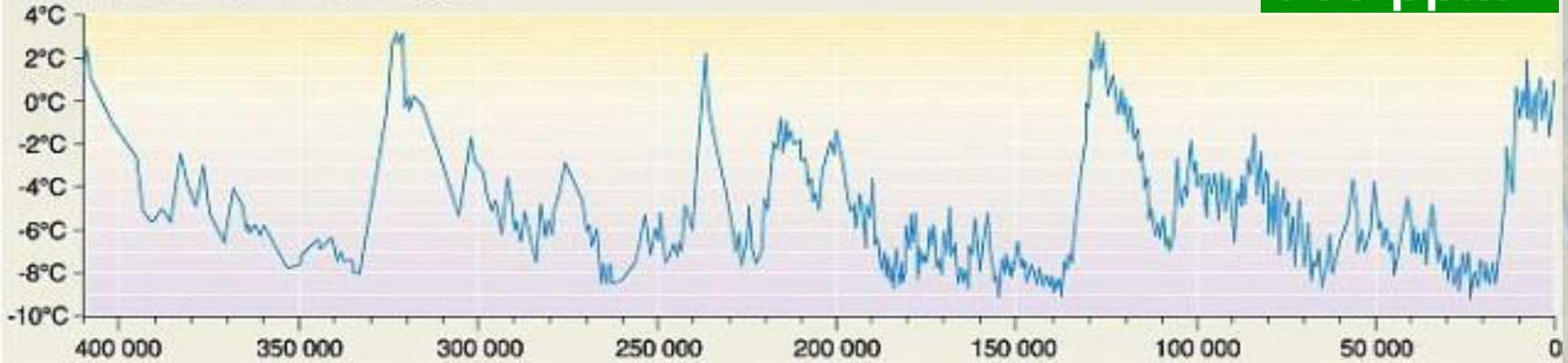




Global temperature vs CO₂ concentration

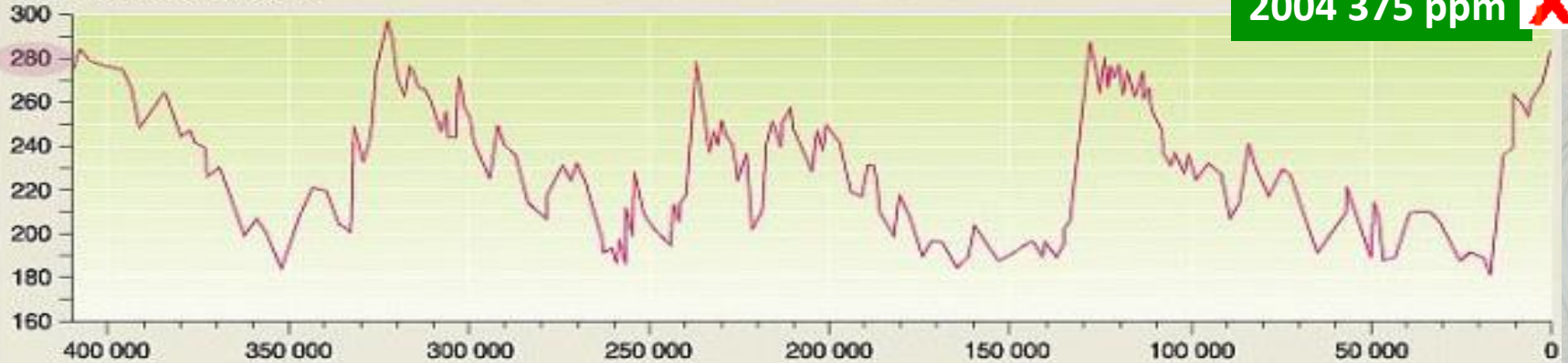
Year 2100
700 ppm

Temperature change from present, °C



(from the VOSTOK ice core)

CO₂ concentration, ppmv



2004 375 ppm



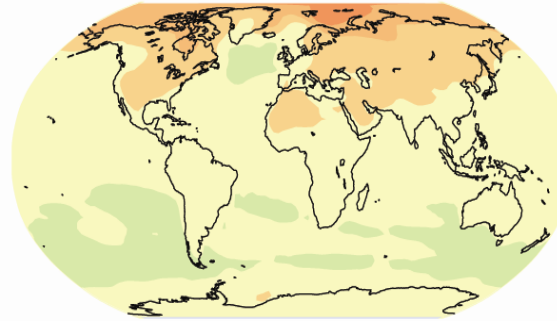
POSSIBLE CLIMATE CHANGES IN FUTURE

Sustainable
development
scenario

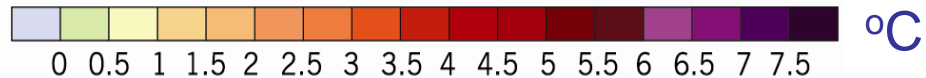
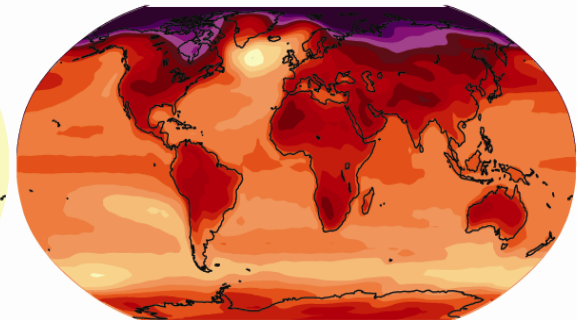
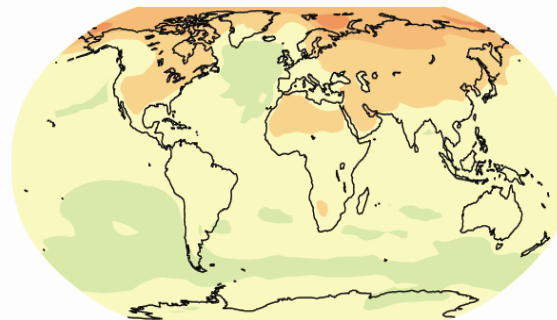
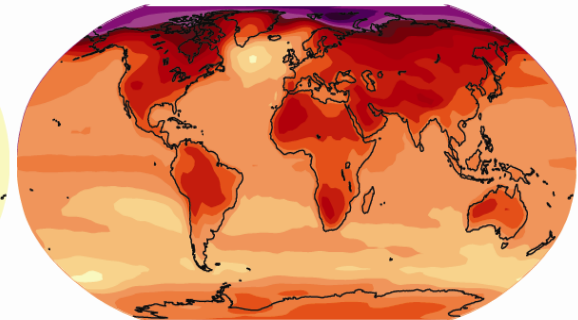
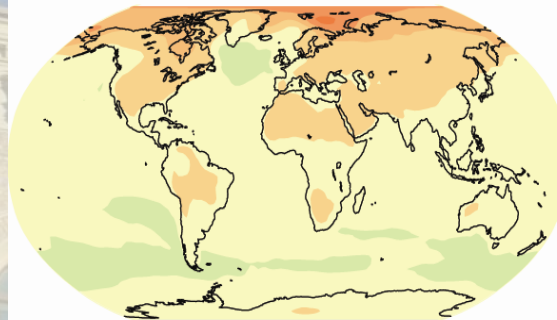
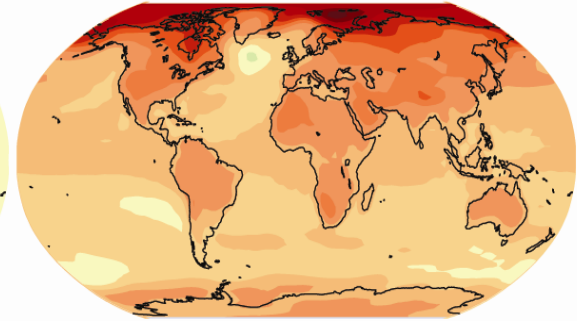
Technological
progress
scenario

“Business as
usual” scenario

2020–2029

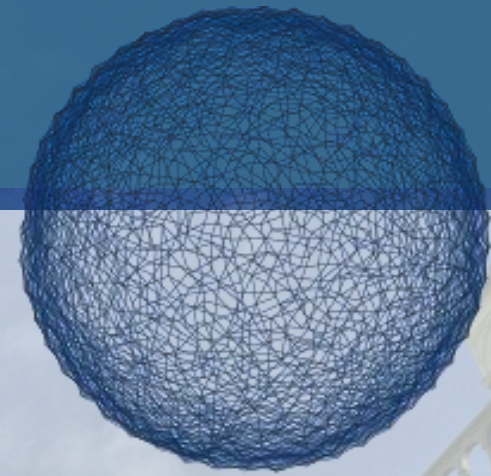


2090–2099





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**COP15
COPENHAGEN**
UN CLIMATE CHANGE CONFERENCE 2009



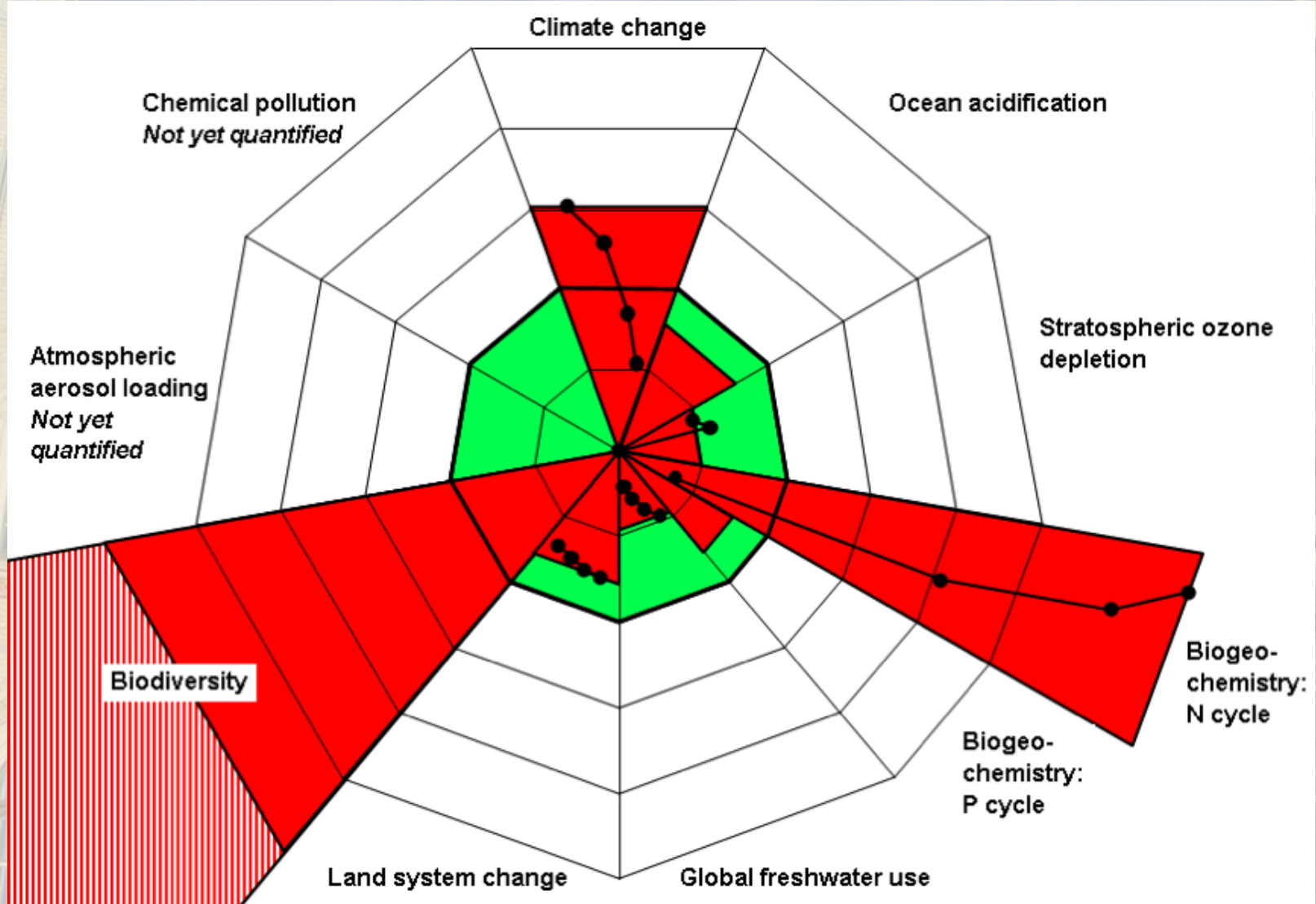


Climate change is a symptom of un-sustainable development

1. Climate change is a symptom of a more fundamental problem in our societies: The basic question is about sustainable development, or rather the lack of such a development.
2. There are many more symptoms of un-sustainability. These include a catastrophic loss of biological diversity, over-fishing of the oceans, eutrophication of the world's coastal areas, the ozone hole. Nine of them has been studied in a project of planetary boundaries, the limits we should not cross to live safely on our planet.
3. The basic problem is the overuse of the worlds resources. Today the world uses about 50 % more resources than what the planet produces each year. Dependency on non-renewable resources such as coal, oil and gas is not sustainable, as they will at some day end.



Planetary boundaries



What to do in face of large-scale climate change

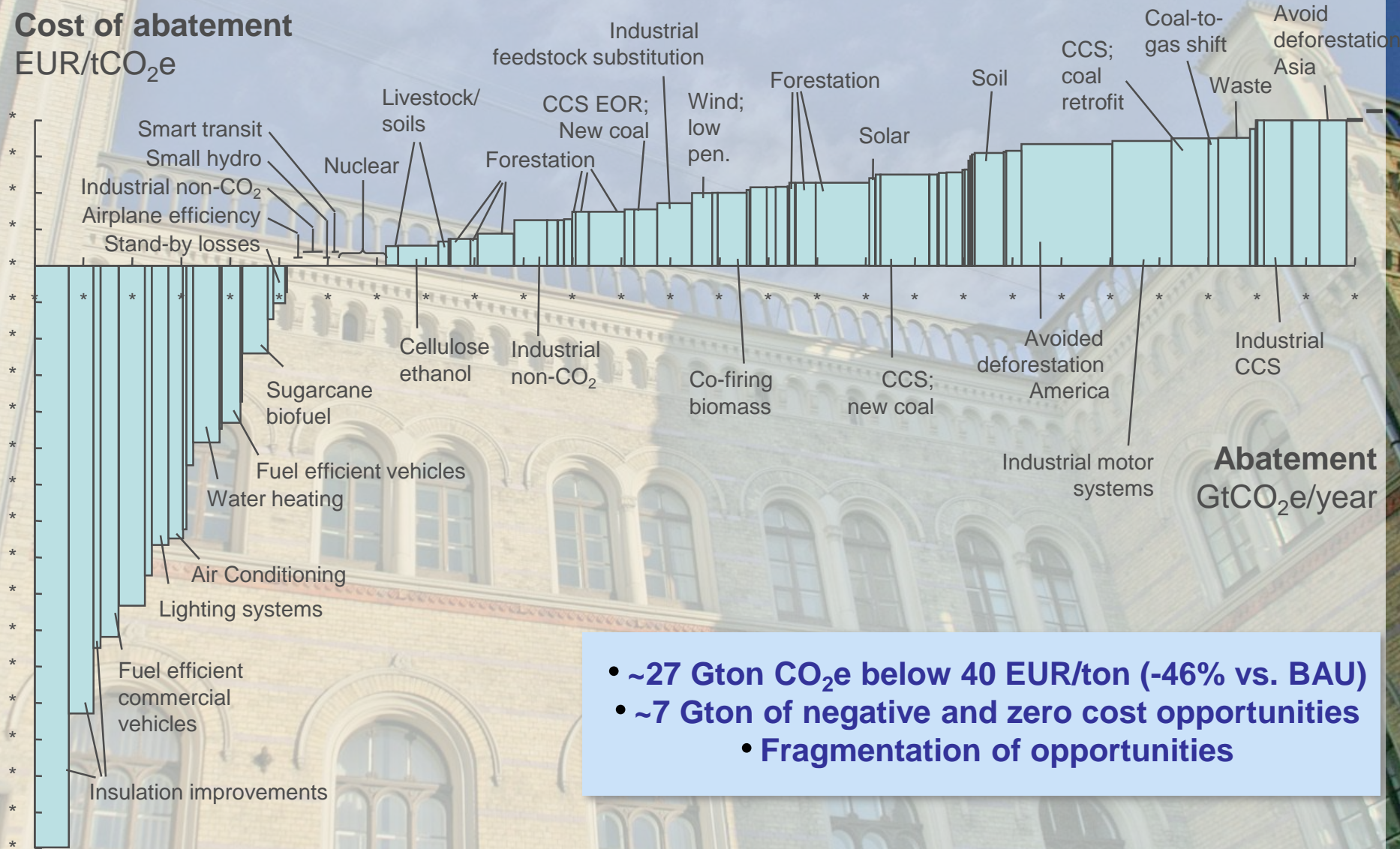
There are only three options:

1. **Mitigation** which means measures to reduce human-caused climate change, in particular the reduction of carbon dioxide emissions.
2. **Adaptation** which means measures to reduce the impact of climate change as it happens, such as developing crops which grow in drier and hotter climate, building dams to protect from floods etc.
3. **Suffering** that is bearing the unavoidable consequences of climate change.

Global cost curve of GHG abatement opportunities beyond business as usual

2030

Cost of abatement
EUR/tCO₂e




























- ~27 Gton CO₂e below 40 EUR/ton (-46% vs. BAU)
- ~7 Gton of negative and zero cost opportunities
- Fragmentation of opportunities

CO₂ EMISSIONS

Are the European member states meeting their Kyoto 2012 carbon dioxide(CO₂) emission targets?

Countries in the *green* do well and emit less than their 2012 target. The countries in the *red* emit more than their Kyoto target.

Figures are in Megaton (Mt CO₂-eq).

EU MEMBER STATE	2003	2004	2005	2006	2007	2008	KYOTO TARGET 2012	% UNDER KYOTO TARGET
ESTONIA	21.2	21.2	20.7	19.2	22.0	20.3	40	 49.25 %
LATVIA	10.7	10.7	10.9	11.7	12.1	11.9	23.3	 48.93 %
LITHUANIA	16.7	21.1	22.6	22.8	24.7	24.3	44.1	 44.90 %
ROMANIA	-	160.1	153.7	153.9	152.3	145.9	259.9	 43.86 %
BULGARIA	-	68.9	69.8	71.5	75.7	73.5	127.3	 42.26 %
HUNGARY	83.3	79.5	80.5	78.8	75.9	73.1	114.9	 36.38 %
POLAND	382.5	396.7	399	399.3	398.9	395.6	551.7	 28.29 %
SLOVAKIA	51.1	49.5	48.7	49.0	47.0	48.8	67.2	 27.38 %
CZECH REPUBLIC	147.5	147.1	145.6	149.1	150.8	141.4	180.6	 21.71 %
SWEDEN	70.9	69.7	67	66.9	65.4	64.0	75.2	 14.89 %
GREECE	137.2	137.6	139.2	128.1	131.9	126.9	139.6	 9.10 %
UNITED KINGDOM	658	660.4	657.4	647.9	636.7	628.2	678.3	 7.39 %
FRANCE	560.9	556.1	553.4	541.7	531.1	527.0	564	 6.56 %
BELGIUM	147.6	147.6	143.8	136.6	131.3	133.3	135.9	 1.91 %
GERMANY	1024.4	1025	1001.5	980.0	956.1	958.1	972.9	 1.52 %
FINLAND	85.4	81.2	69.3	79.9	78.3	70.1	71.1	 1.41 %
% ABOVE KYOTO TARGET								
PORTUGAL	83.7	84.6	85.5	84.7	81.8	78.4	77.4	 1.29 %
NETHERLANDS	215.4	218.4	212.1	208.5	207.5	206.9	200.4	 3.24 %
IRELAND	68.4	68.6	69.9	69.7	69.2	67.4	63	 6.98 %
ITALY	577.3	580.5	582.2	563.0	552.8	541.5	485.7	 11.49 %
SLOVENIA	19.7	19.9	20.3	20.5	20.7	21.3	18.6	 14.52 %
DENMARK	73.6	68.2	63.9	71.0	66.6	63.8	54.8	 16.42 %
SPAIN	407.4	425.2	440.6	433.0	442.3	405.7	331.6	 22.35 %
AUSTRIA	92.5	91.2	93.3	91.6	88.0	86.6	68.7	 26.06 %
LUXEMBOURG	11.3	12.8	12.7	13.3	12.9	12.5	9.1	 37.36 %
MALTA	3.1	3.2	3.4	2.9	3.0	3.0	NO TARGET	
CYPRUS	9.2	9.9	9.9	9.9	10.1	10.2	NO TARGET	

WHAT I CAN DO ?

You may act as a voter !

You may act as a customer !

You may choose life style !

You may manage your household !

- 1 Save money by turning off lights and appliances
- 2 Investing in cavity wall and loft insulation
- 3 Energy efficient lights and appliances
- 4 Switching to a green tariff
- 5 Insulating hot water tank and lagging hot water pipes
- 6 Turning down the thermostat by just 1 degree
- 7 Draught-proofing your home and drawing the curtains at night
- 8 Fit a water meter and a flush saver
- 9 Why water the lawn?

Opinion about climate change

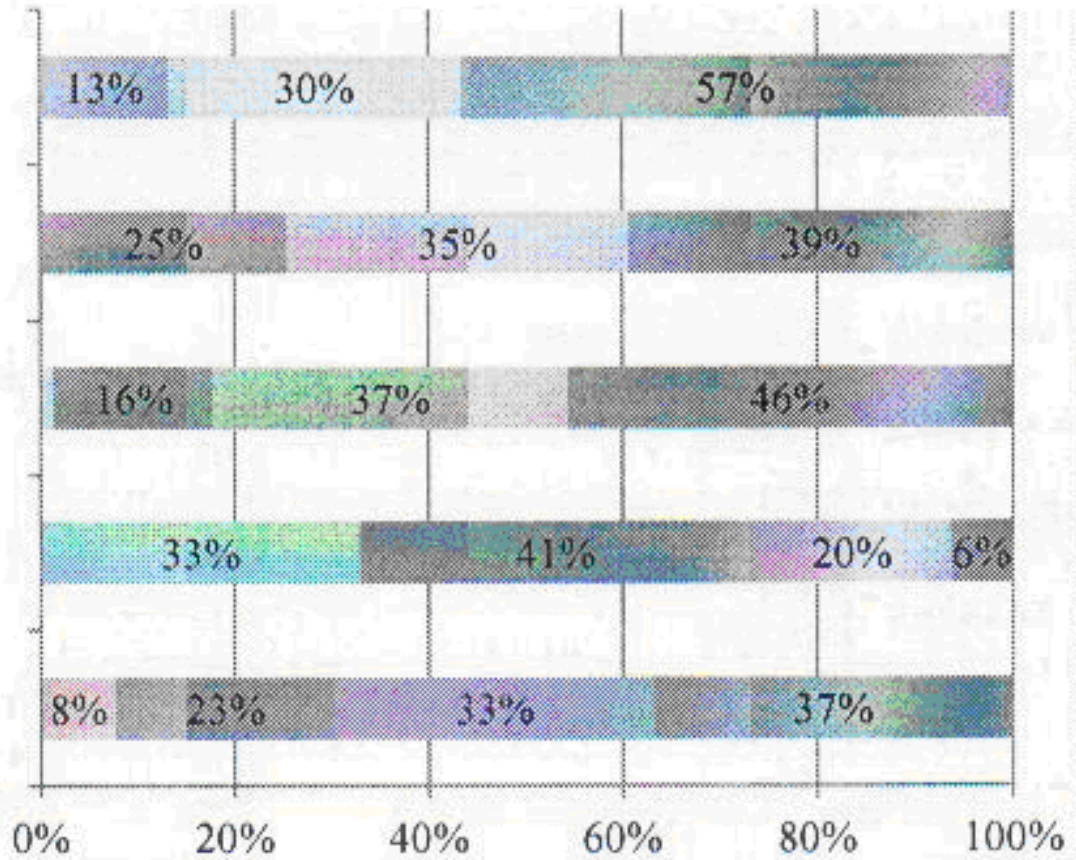
Climate changes take place just now

Climate change is provoking by human beings

Climate change is serious problem

Scientists has common view about climate change causes and consequences

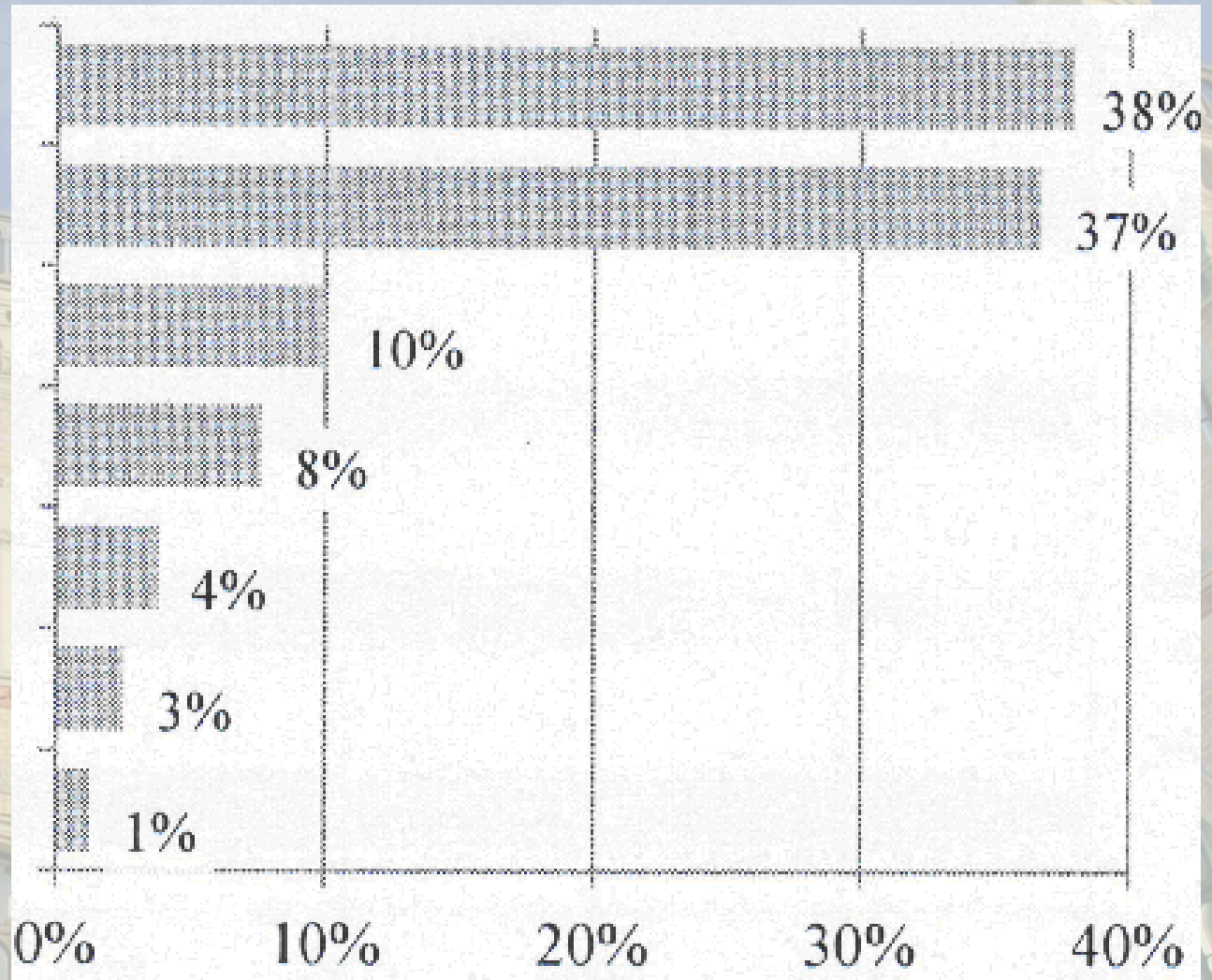
If nothing will be done in near future, World will face substantial problems



■ Pavisam nepiekrītu **absolutely disagree**
■ Drīzāk nepiekrītu **rather disagree**
■ Drīzāk piekrītu **rather agree**
■ Pilnībā piekrītu **absolutely agree**

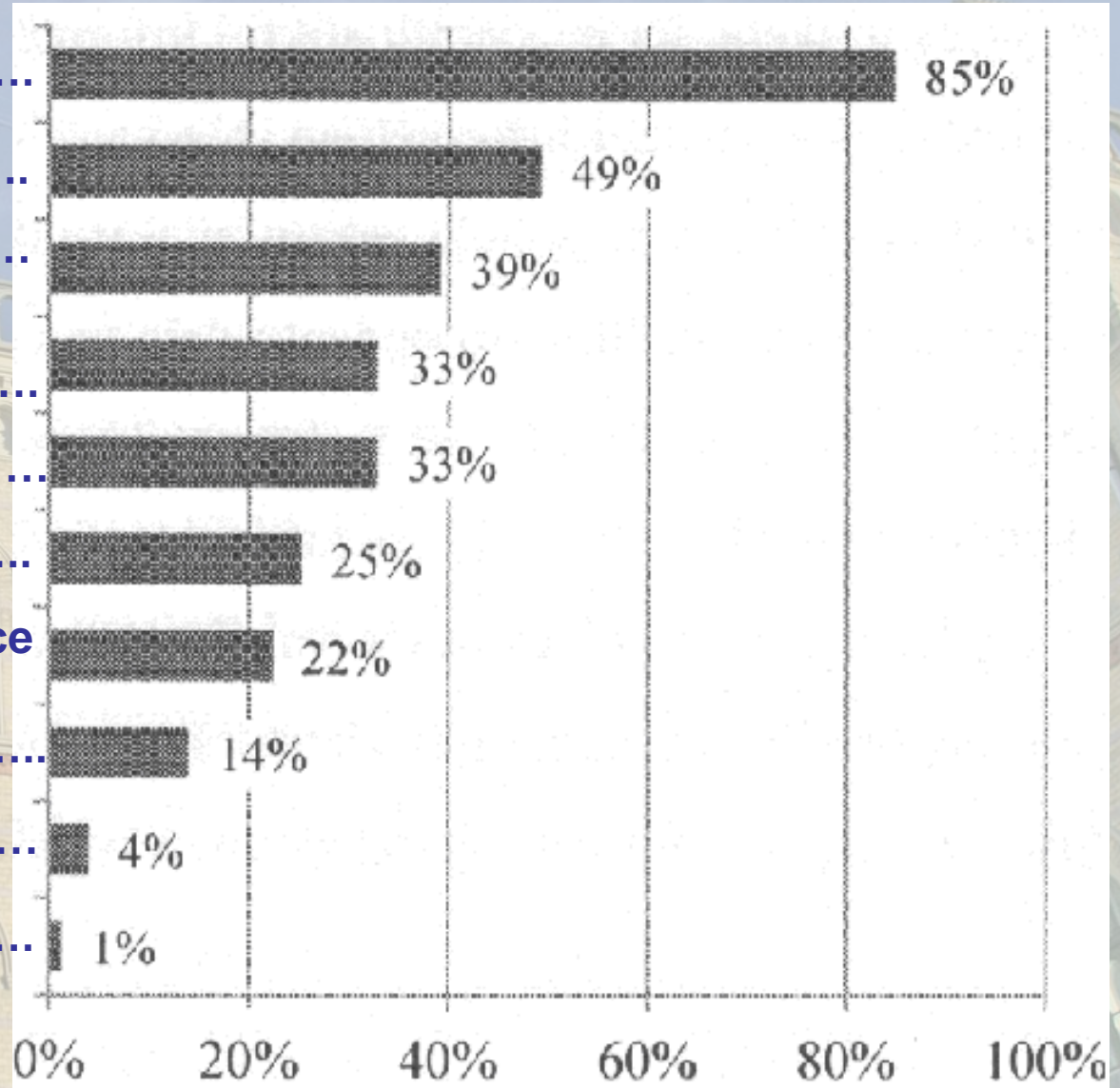
Necessary action level needed to reduce negative impact of climate change

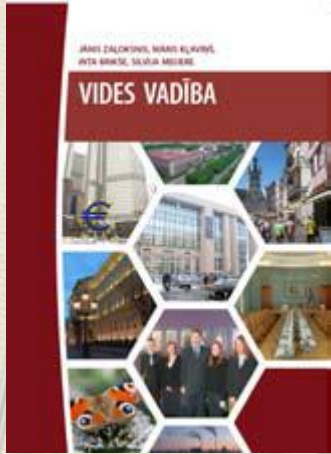
Global.....
All levels together.....
Not opinion.....
Individual.....
Regional.....
Local.....
National.....



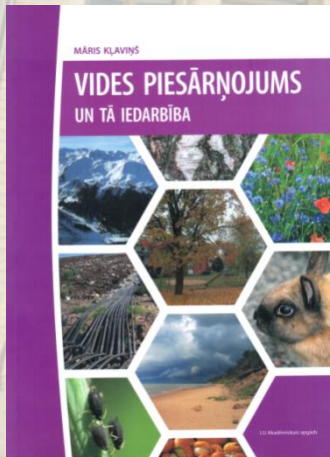
Informational sources about climate change

- Internet.....
- TV.....
- Everyday personal observations.....
- Radio.....
- Relatives or friends.....
- Newspapers or journals.....
- Working or educational place.....
- Difficult to answer.....
- Special literature.....
- Other.....





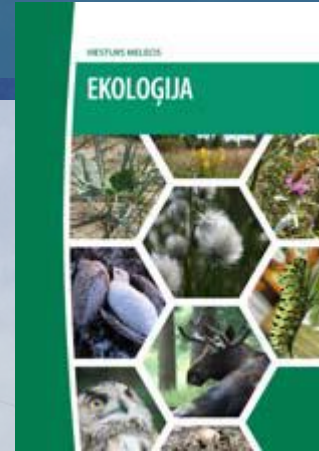
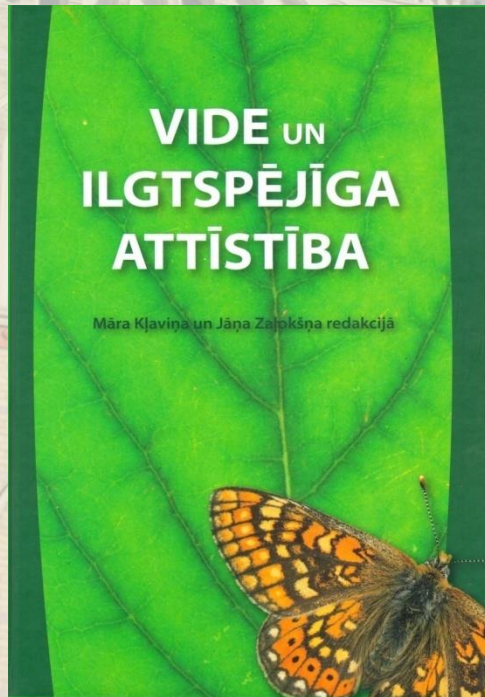
“Environmental Management”



”Environmental Pollution and Its Impact”



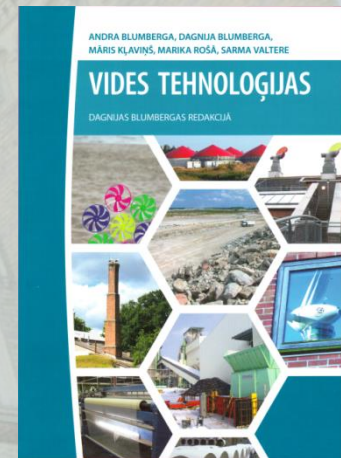
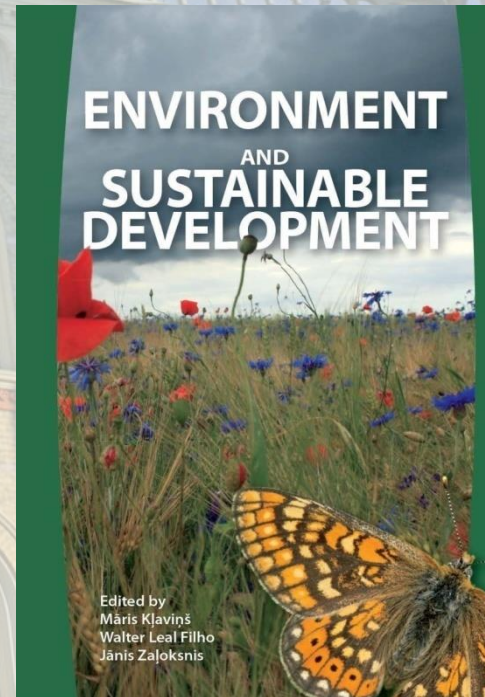
“Environment and Economics”



“Ecology”



“Nature Protection”



“Environmental Technologies”

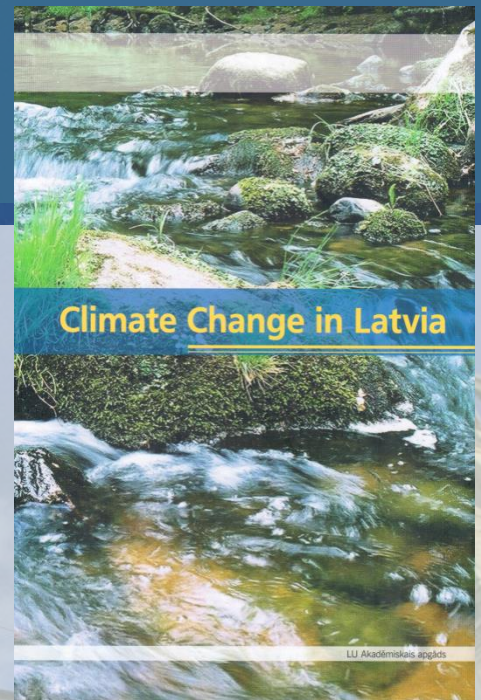


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● Globālā
● sasilšana
un
Latvija



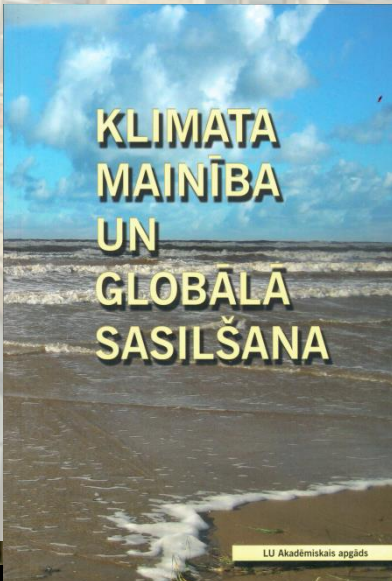
**KLIMATA MAINĪBA
LATVIJĀ:
AKTUALITĀTES UN
PIEMĒROŠANĀS
PASAKUMI**



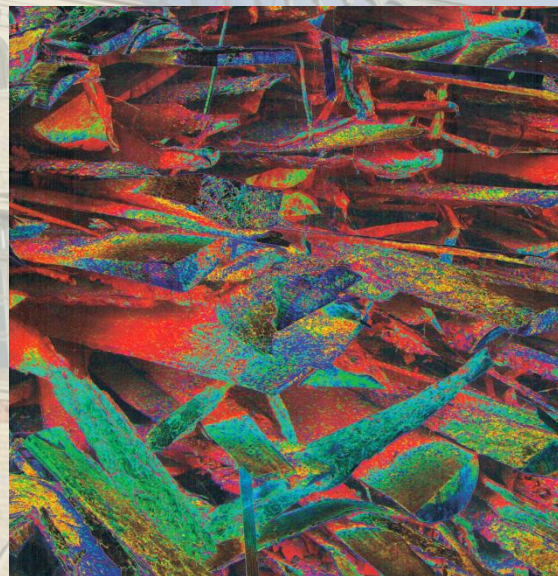
Climate Change in Latvia

LU Akadēmiskais apgāds

**KLIMATA
MAINĪBA
UN
GLOBĀLĀ
SASILŠANA**



LU Akadēmiskais apgāds



**Klimata pārmaiņas:
izaicinājumi Latvijai starptautiskajā vide**

STRATĒGISKAS
ANALĪZES
KOMISIJA

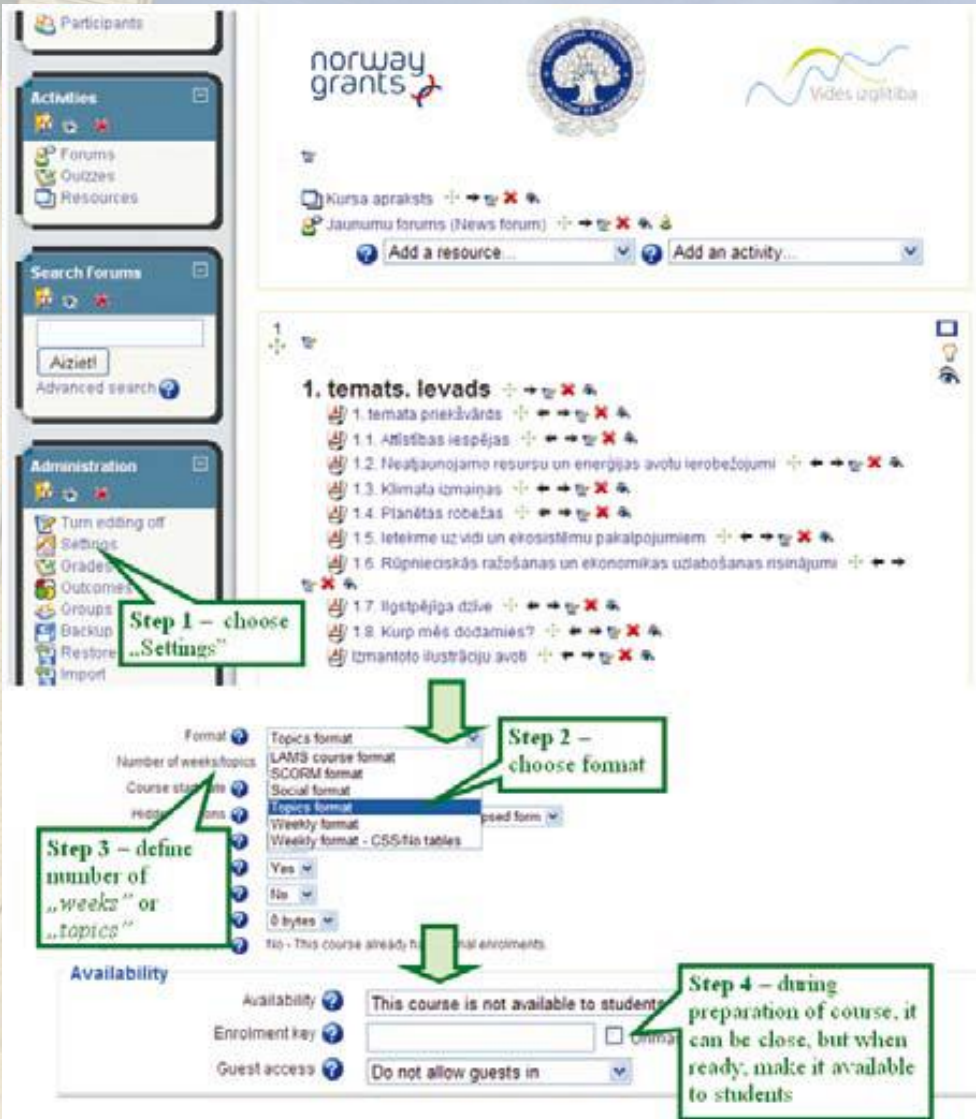


KALME

NACIONĀLĀ PĒTĪBŪ PROJEKTA
CLIMATE CHANGE IMPACT ON THE WATER ENVIRONMENT IN LATVIA

KLIMATS, ADAPTĀCIJA, LĪDZSVARS, MAINĪBA, EKOSISTĒMAS
CLIMATE, ADAPTATION, BALANCE, CHANGE, ECOSYSTEMS

E-study course "Environment and Sustainable Development"



The screenshot shows the Moodle course creation process. The interface includes a sidebar with navigation options like 'Participants', 'Activities', 'Search forums', and 'Administration'. The main content area displays course details for '1. temats. levads' (1. topic. introduction) with a list of 17 sub-topics. Four steps are highlighted with green boxes and arrows:

- Step 1 – choose „Settings“**: Points to the 'Administration' menu in the sidebar.
- Step 2 – choose format**: Points to the 'Format' dropdown menu, which is set to 'Topics format'.
- Step 3 – define number of „weeks“ or „topics“**: Points to the 'Number of weeks/topics' field, which is set to '1'.
- Step 4 – during preparation of course, it can be close, but when ready, make it available to students**: Points to the 'Availability' section, where the 'This course is not available to students' checkbox is checked.

The e-study course "Environment and sustainable development" was made in the *Moodle* virtual learning environment devised at the University of Latvia. It contains lecture materials on 27 themes structured in detail, provides options of tests and self-tests, course organisation calendar, e-mail and forum for students and teachers. The virtual learning environment provides ample opportunity to develop the study course in the future. It helps to learn the study course; furthermore, it is a place for virtual meetings and exchange of ideas.

Our proposal for project and cooperation

Work-out basic study material “Climate change” for local authorities, with possible modifications for students, teachers and public (~ 300 pp.).

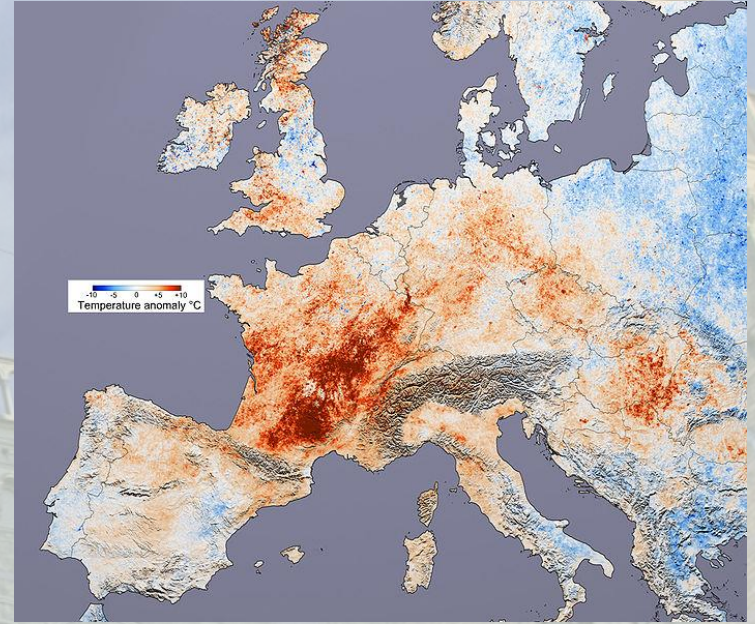
Prepare e-learning study course “Climate change” for responsible civil servants, office-workers and employees in order to rise their qualification, which will be weigh up and certified.

Publish extended, but easy reading summary from study material “Climate change” for wide use in municipalities.

Organise forums at five Planning regions in Latvia with wide involvement of local authorities to share best available practice for implementation of Climate adoption programme in Latvia.

Establish long living INTERNET portal “Climate change”.

Regularly publish in central and local mass media information concerning climate change issues.



Heat waves



Late frost





**Take
care !**