

A photograph of a dense fern forest. A wooden boardwalk path made of light-colored planks winds through the center of the forest, curving to the right. The forest is filled with various types of ferns, including large tree ferns with thick trunks and smaller ground ferns. The lighting is soft and dappled, creating a vibrant green atmosphere.

Sustainability of Road Industry – working group

RPF 12 November 2008

Elzbieta Sadzik -Jakuszko

RPF resolution

RPF working group be established under the leadership of Benoit Verhaeghe to develop guidelines for environmentally sustainable practices in construction and maintenance of road pavements

Sustainability Working Group

Participants:

- 1 Benoit Verhaeghe - CSIR
- 2 Roger Purchase – TPA Cons. Eng.
- 3 Johan Muller – SASOL Group
- 4 Trevor Distin – SABITA
- 5 Rob Lindsey – KZN DoT
- 6 Nico Pienaar – ASPASA, SARMA
- 7 Mpati Makoia – SANRAL
- 8 Gary Theodosiou – C&CI
- 9 Mannie Levin – Africon Cons. Eng
- 10 Basil Jonsson – Total
- 11 John Noakes – contractor
- 12 Elzbieta Sadzik – ESJ Con. Eng.

Sustainability Working Group

1st meeting on 6 October 2008

- Background
 - Climate change and its consequences
 - What is sustainability?
 - Kyoto Protocol
- SA status quo
- International actions
- Way forward



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Climate change and its consequences (Based on Stern Report “The Economics of Climate Change”, UK Government, 2007)

- BAU scenario: concentration of GHG will treble by 2100 and temp will increase 5° C (we are now 5° C warmer than in the last ice age)
- On current trends temp will increase by 2-3° C within the next 50 years



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Climate change and its consequences

- As the permafrost melts, trees lose their footing in the soil. This is happening all over Arctic and Siberia



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Climate change and its consequences

- Every day Greenland ice is falling into the see



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Consequences of global warming

- **Malting glaciers will increase flood risk**



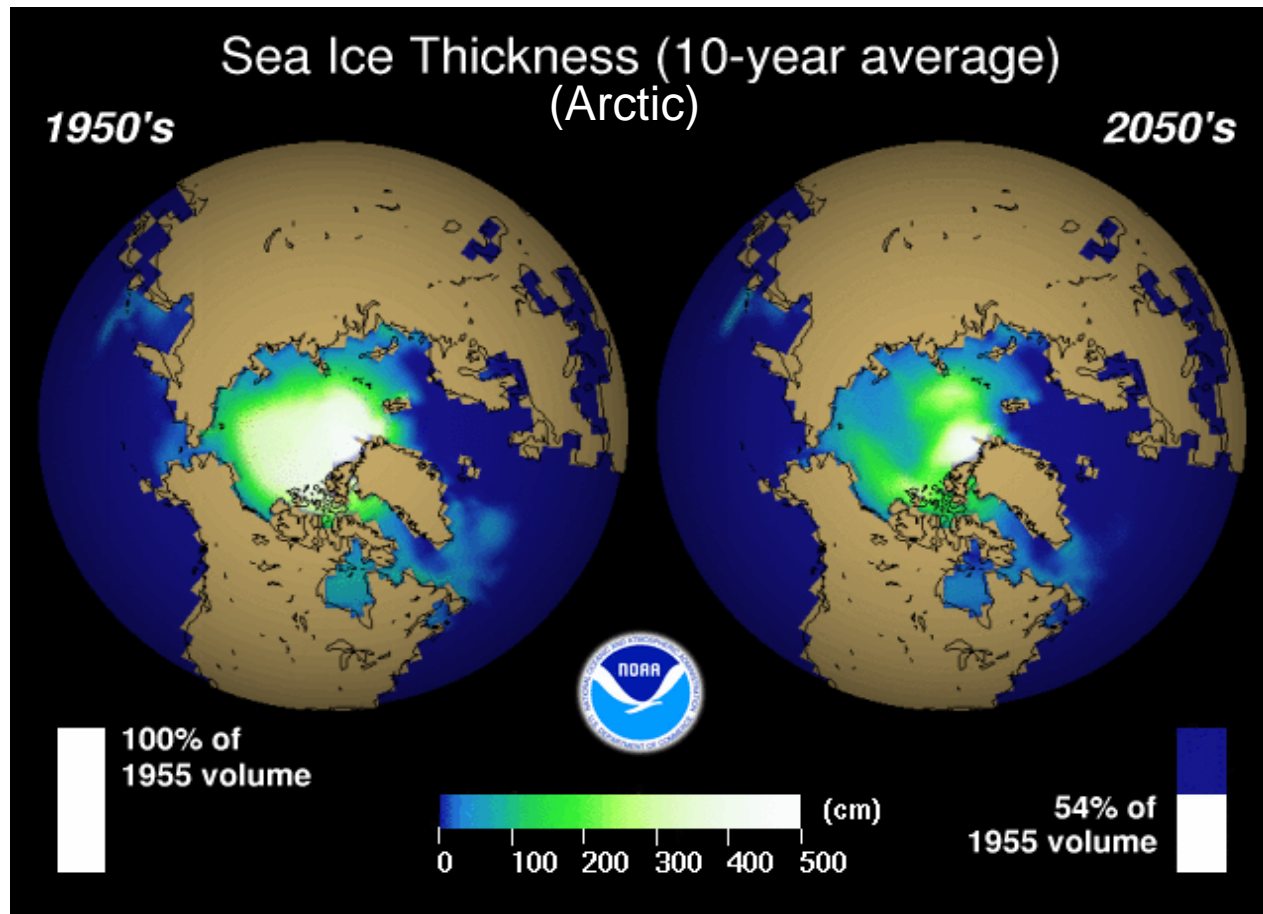
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Climate change and its consequences



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Climate change and its consequences



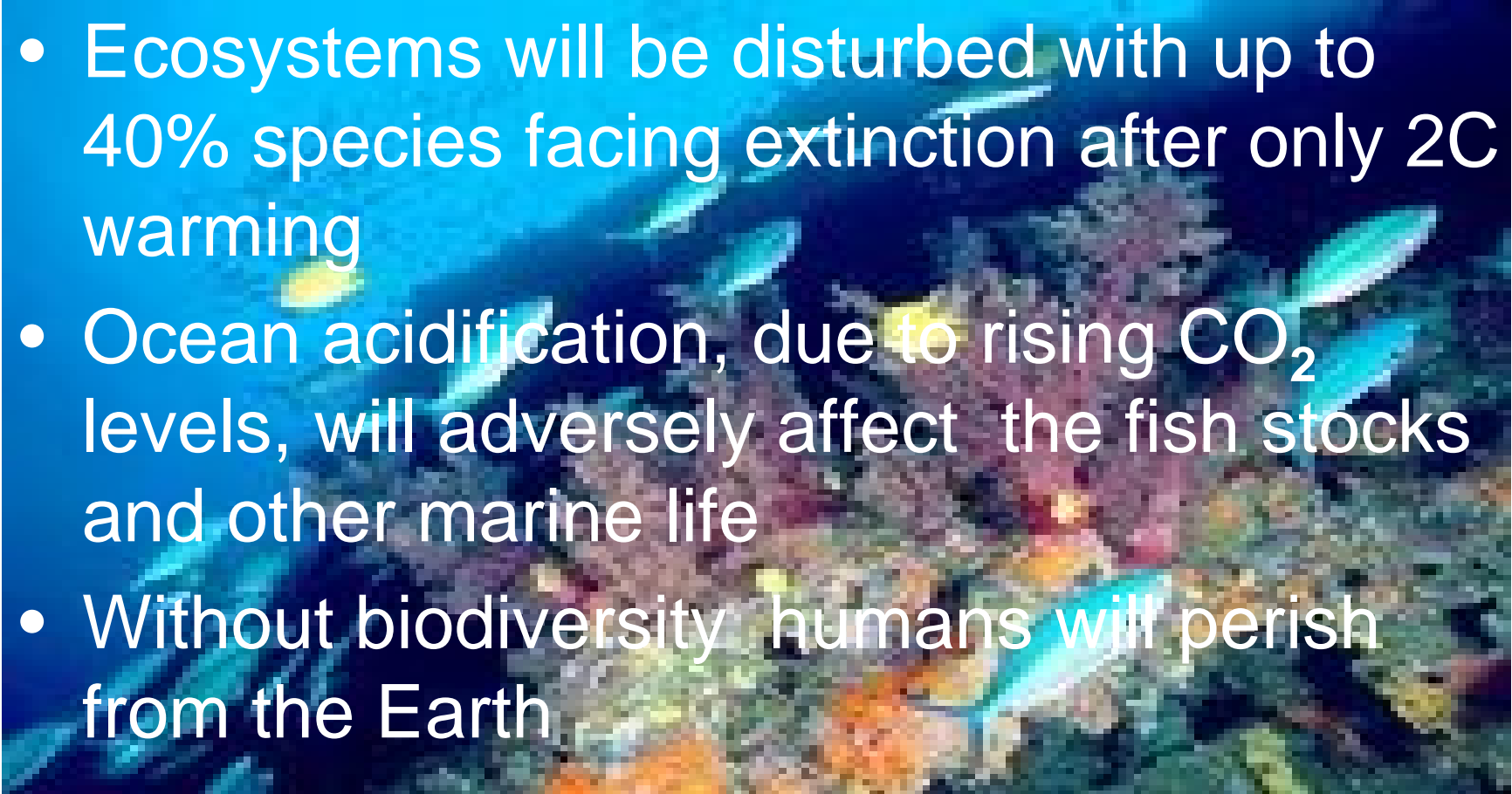
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Climate change and its consequences

- Sea levels will rise flooding millions of people
- Declining crop yields especially in Africa
- Diseases such as malaria will become widespread

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Climate change and its consequences

- Ecosystems will be disturbed with up to 40% species facing extinction after only 2C warming
 - Ocean acidification, due to rising CO₂ levels, will adversely affect the fish stocks and other marine life
 - Without biodiversity humans will perish from the Earth
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Future Earth

If we reach 10C above the pre-industrial temp. much of life on Earth will die from drought



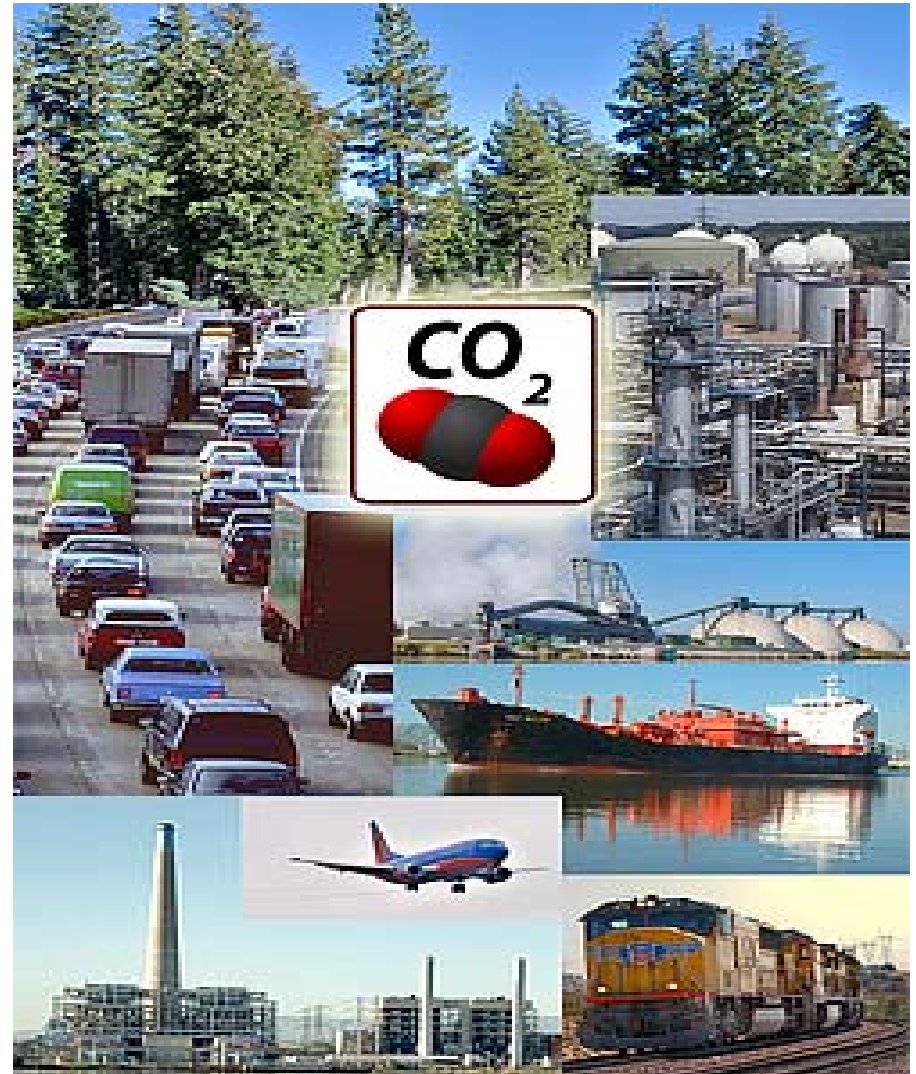
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Consequences of global warming

- Warming will affect weather patterns and cause extreme condition like monsoons, hurricanes, heavy storms and droughts
- Climate change will affect the economic growth. 1% GDP required to be invested in combating global warming otherwise the GDP may be lower by 20% (Stern report)

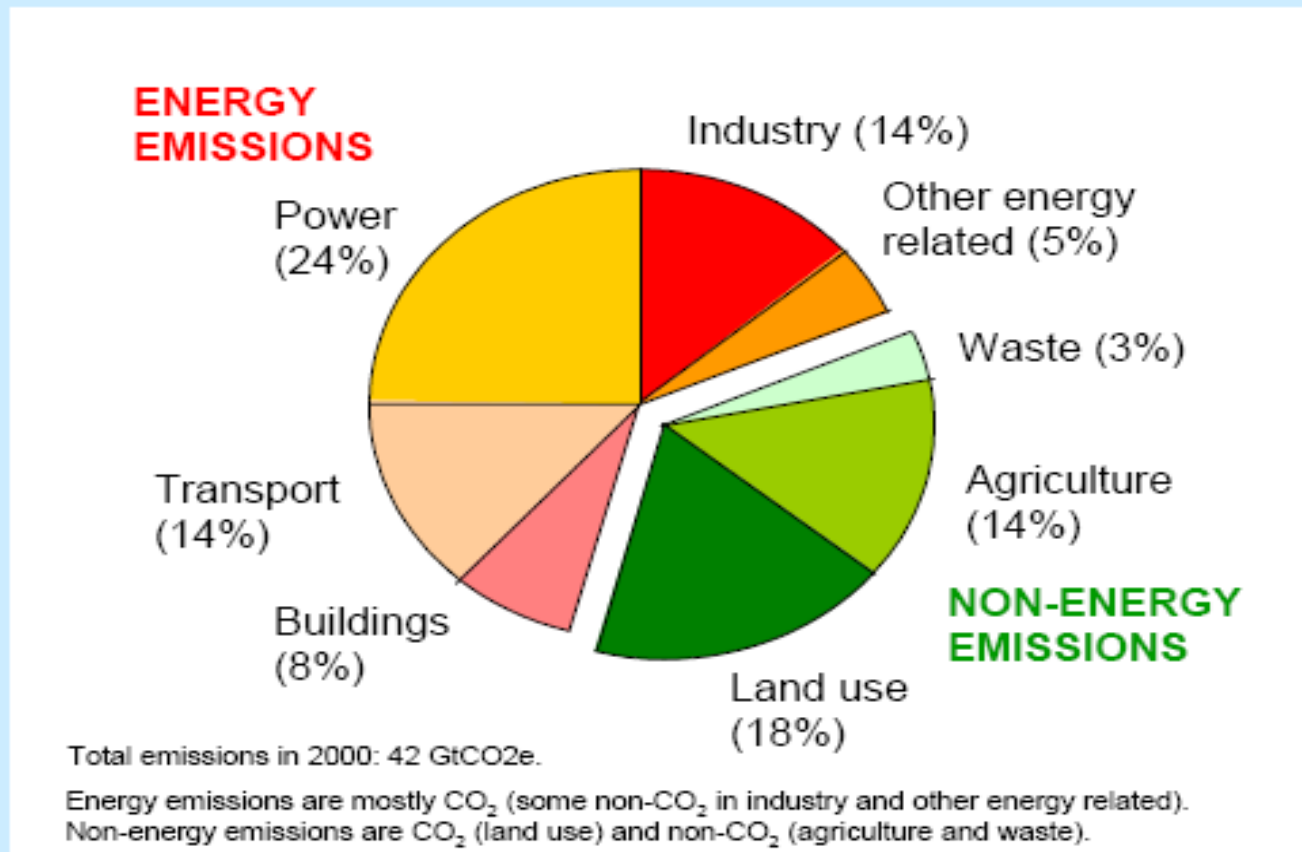
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Clear relationship
between GHG
emission and
increase in average
temperature



Stern Review on the economics of climate change

Figure 1 Greenhouse-gas emissions in 2000, by source



Source: Prepared by Stern Review, from data drawn from World Resources Institute Climate Analysis Indicators Tool (CAIT) on-line database version 3.0.

Worst CO₂ emitters



Southern Company's Plant Bowen in Cartersville, Georgia is seen in this aerial photograph in Cartersville in this file photo taken September 4, 2007. A dozen power plants in the United States were singled out as the "worst" CO₂ emitters; six of which are located in just three states – Georgia, Texas, and Indiana. All 12 are coal-fired plants. (Chris Baltimore/Reuters)

What is sustainability?



Sustainable Development

“development that meets the needs of the present without compromising the ability of future generations to meet their needs”

The Brundtland Report 1987

Sustainable development

Legal basis

- Earth Summit in Rio de Janeiro (Agenda 21) – 1992
- UN Framework Convention on Climate Change – stabilise GHG concentration in 1994
- Montreal Protocol
- Kyoto Protocol became international law in 2005

Sustainable development

Kyoto Protocol

- Reduce worldwide emission of six GHG by an average of 5.2% below their 1990 levels by 2012



Sustainable development

SA initiatives

- DEAT developed National Framework For Sustainable Development in 2006 - approved by cabinet in 2008
- Implementation strategy to be developed



Sustainable development

SA contribution into global warming

- SA contribution into global warming 1.2% - within top 10 countries in 1990
- CO₂ emission rate pppy in SA~10 t – average global 7t pppy

Sustainable development

Suggested plan of action

- GHG inventory (Life cycle)
- Mitigation
- Vulnerability and adaptation to climate change
- Policies and measures
- Systematic observation and research
- Education, training and awareness

Sustainable development

GHG inventory

- Measure CO₂ emission for different materials and technologies
- Calculate carbon footprint to enable ranking
- Use the carbon footprint for the optimisation of design and tender adjudication
- Prepare targets for future reduced emissions
- Prepare guidelines for industry

Sustainable development

Mitigation

- Reduce GHG emission through
 - Energy saving e.g warm asphalt mixes
 - Use of recycled materials
 - Use of renewable energy sources e.g bio-fuels
 - Use of innovative material e.g. waste and renewable materials
 - Enable uninterrupted traffic flow

Sustainable development

Recommendations by Stern report on mitigation

- Policies are required to support the development of low-carbon and high-efficiency technologies on an urgent timescale

Sustainability Working Group

Decisions of 1st meeting on 6 October 2008

- Road Industry is committed to sustainable development
- Accept Stern's plan of actions
- Develop inventory of CO₂ for each sector of industry by end of February 2009
- Invite representatives of DoT and Metros to participate in the working group
- Prepare a letter of intent for the NDoT/ Minister of Transport

Sustainability Working Group

Decisions of 1st meeting on 6 October 2008

- Organise awareness campaign through
 - SAT seminars
 - Road Coordinating Board meetings
 - COTO RMC
- Include in the sustainability plan not only GHG emission and energy saving but also:
 - Water management
 - Waste management

Thank you

