The environmental, economic and social impact of climate change in Greece

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BANK OF GREECE
EUROSYSTEM

CLIMATE CHANGE IMPACTS STUDY COMMITTEE

The first phase of work

- teams from different scientific disciplines; physicists of the atmosphere, climatologists and geophysicists, experts in agriculture, forestry and fisheries, as well as experts on water resources, tourism, the built environment and energy, as well as economists and sociologists
- 19 studies

The output

- Greece was divided into 13 climatic regions for which climatic projections up to 2100 were evaluated
- The sectoral studies on biophysical aspects and the direct economic impact
- General equilibrium model (**GEM**) for the Greek economy estimated the cost for the scenarios of:
  - inaction
  - adaptation
  - mitigation

Climate change projections for Greece by 2100 (A1B)

		Presently	By 2100
Temperature (°C)	Winter	9,1	12,3 (+3,2 ° C)
	Summer	24,6	28,8 (+4,2 ° C)
Rainfall (mm)	East and south Greece	450-650	370-550 (-17%)
	Western Greece	900-1100	700-870 (-22%)

Biophysical and economic impact assessments of climate change

- water reserves
- sea level elevation
- fisheries and aquaculture
- agriculture and agricultural land
- forests and forest habitats
- biodiversity and ecosystems
- tourism
- the built environment
- transportation
- health
- mining

Forests (€ million)

BIOM 3	Present value/annum		1% Discount rate 2011-2100		3% Discount rate 2011-2100	
Scenarios	B2	A2	B2	A2	B2	A2
Relocation of forest area and species	3	5	47	95	15	30
Forest fires	40	80	721	1.462	231	471
Sea level elevation	6	13	117	237	37	76
Wood and grass biomass	173	412	3.154	7.301	1.014	2.320
Usable water	13	21	235	378	75	121
TOTAL	235	532	4.274	9.472	1.373	3.018

General Equilibrium Model, cost comparison (in billion Euros)		2011 – 2100	cost saving compared to inaction	2011 – 2100	cost saving compared to inaction
		0% discount rate		2% discount rate	
inaction		**€701**		€202	
adaptation	**total cost**	**€578**	**€123**	€177	€24
	adaptation measures	€67		€28	
	other impacts	€510		€149	
mitigation	**total cost**	**€436**	**€265**	€156	€46
	mitigation measures	€142		€73	
	other impacts	€294		€83	

** Total cumulative costs at 2008 constant prices, expressed as a loss of GDP relative to base year 2008.*

The symptosis

- environmental crisis & economic crisis
- economic crisis constrains financing of adaptation and mitigation policies
- adaptation policies could be an opportunity for new lines of economic activity and growth, part of the strategy for an exit from the crisis
- social dimensions of climate change impact need to be explored further
  - increase in poverty and migration
  - lower income population groups, lack resources to meet adaptation challenges

The second phase of work

- Climate Change National Adaptation Strategy (CCNAS)
  - In line with the European Strategy for Adaptation
  - Enhance and delineate the work of the first phase
  - Prioritize the climate vulnerable sectors
  - Address the potential synergies between development and climate strategies
  - Evaluate investment choices for best adaptation options
  - Policy proposals for meeting adaptation targets

The CCISC on the web

- CCISC webpage
  http://www.bankofgreece.gr/pages/en/klima
  (shortcut banner on the homepage **www.bankofgreece.gr**)
- the report "The environmental, economic and social impacts of climate change in Greece", available on the webpage
- for more information and copies of the report please contact us at:
  - nastis@auth.gr
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Conclusions

- By 2100 temperature will rise by 4,2°C and rainfall will decrease by 17% - 22% in Greece
- Almost all productive activities will be curtailed
- The cost of inaction will total up to €701 billion
- The cost of adaptation €578 billion
- The cost of mitigation €436 billion
- Social impact needs to be further explored (poverty, migration, low income … adaptation)

Thank you for your attention