



Albania's First National Communication to the United Nations Framework Convention on Climate Change

Presented by:

Ermira FIDA, MBA

Project Manager

Climate Change Enabling Activities

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Content of the presentation

- Albania and UNFCCC
- Organizational chart of the CC Project
- Albania's First National Communication
- National circumstances
- GHG inventory
- GHG abatement
- Vulnerability and Adaptation
- Climate Change Action Plan
- Main problems and Constrains
- Public Awareness, Education
- Lessons Learnt
- Future plans
- Recommendations

Albania and UNFCCC

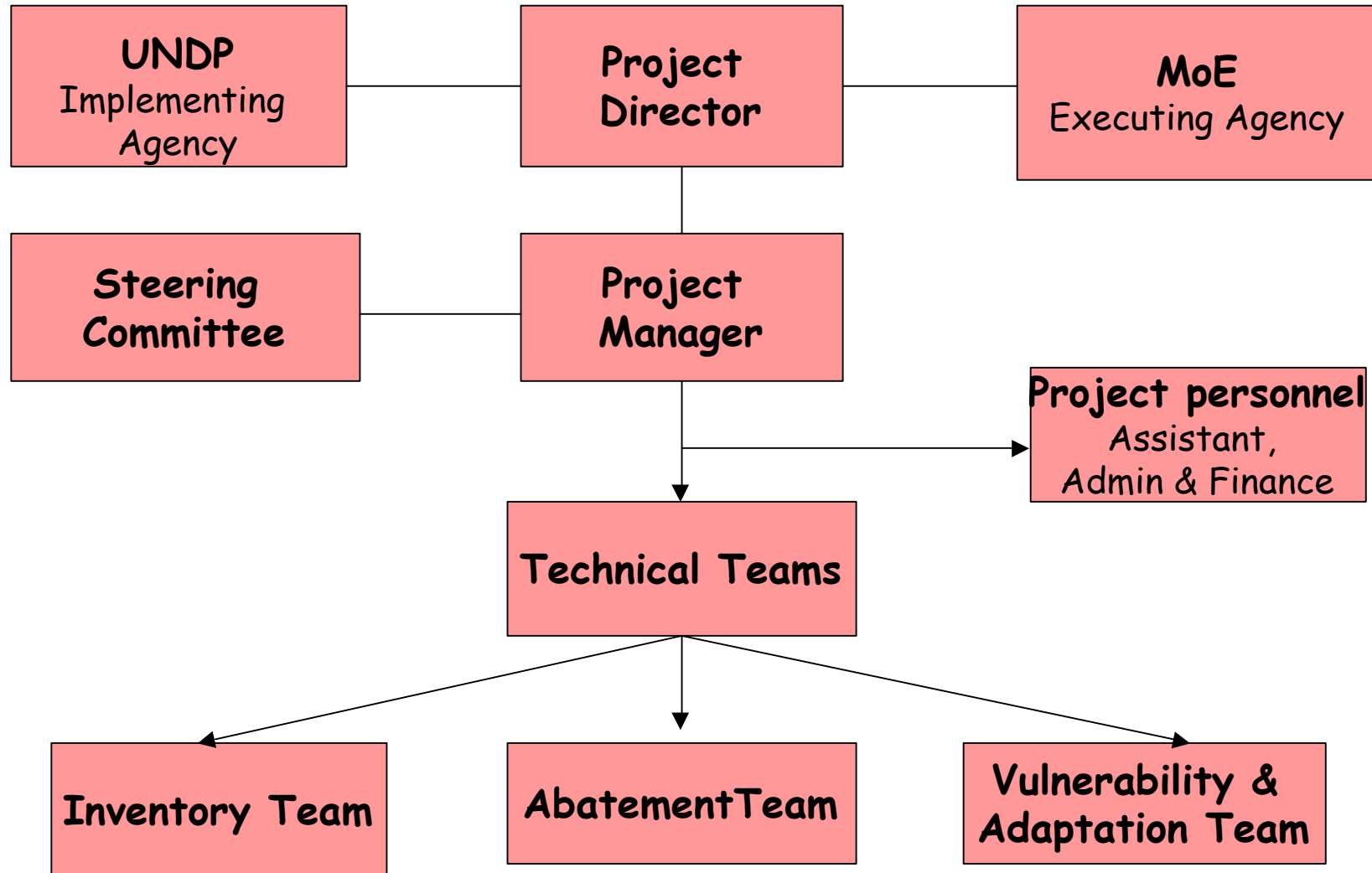
- UNFCCC ratified in 1995
- Non-Annex I Party
- National Focal Point - MoE
- Member of CACAM since 2001
- Climate Change Project launched on October 1998
- The FNC submitted on September 2002
- A National Climate Change Action Plan - developed
- Technology Needs Assessment - started

Commitments under the Convention

Article 4

- ...to develop, periodically update, publish and make available to the COP, **national inventories** of anthropogenic emissions of GHGs...
- ...to formulate, implement publish, and regularly update national and where appropriate, regional programs containing measures to **mitigate climate change** and to facilitate **adaptation to climate change**...
- ...to communicate to the COP, through the Secretariat, the above elements

Organizational Chart of Climate Change Project





REPUBLIC OF ALBANIA
MINISTRY OF ENVIRONMENT

The First National Communication of Albania to the United Nations Framework Convention on Climate Change (UNFCCC)

Photo: Sub-Prefecture, Institute of Albania

TRANA, JULY, 2002

Content of the Albania's FNC

- Executive summary
- National Circumstances
- GHG inventory - 1994
- GHG abatement analysis
- Vulnerability and adaptation
- National Climate Change Action Plan
- Public awareness, education and training
- Problems constraints and needs
- Annexes

National Circumstances

Geographic position



National Circumstances (cont.)

- **Area** - 28,745 Km²
 - Hills and mountains accounts for 77 %
- **Average altitude** - 708 m
- **Length of the state border** - 1, 093 Km²
- **Population** - 3,3 million
- **Capitol** - Tirana
- **Official language** - Albanian
- **Local currency** - Leks
- **GDP per capita (1994)** - 610 \$/capita
- **Shares of GDP (1994)**
 - Agriculture - 54 %
 - Services - 19.8 %
 - Industry - 12.5 %
 - Transport - 3.4 %

National Circumstances (cont.)

Climate profile

- **Subtropical Mediterranean climate**
 - Mild winter with abundant precipitation
 - Hot dry summer
- **A wide variation of the annual mean temperature**
 - 7° C along the mountains
 - 15° C along the coast
- **A negative trend of the mean annual temperatures**
 - The influence of minimum temperatures versus maximum ones
- **Annual precipitation total - 1,485 mm**
 - 70 % recorded during October - March
 - 80-120 rainy days / year
 - Highest precipitation - in Alps, up to 3,000 mm
 - Lowest precipitation total - in southeast, 600 mm

National Circumstances (cont.)

- **Water resources**
 - relatively abundant water resources
 - surface, ground and marine
- **Forests**
 - accounts for 36 % of the territory
 - 83% - natural and semi natural
 - damaged due to illegal cuttings and burning
- **Agriculture**
 - 50% of GDP
 - before 1990 - focused on cereals
 - after 1990 - shifted to animal foodstuffs supply
- **Mining**
 - rich in chromium, copper, iron - nickel
 - after 1990 - production collapsed
 - technology equipment - obsolete

National Circumstances (cont.)

Energy

- Energy consumption
 - Electricity - 60 % of total consumption in urban area
 - Electricity - 30 % of total consumption in rural area
 - Fuel wood - 60 % of total consumption in rural area
 - LPG and kerosene - the rest
- Energy supply
 - Electricity: HPP - 94%, TPP - 6%
 - After 1990 - frequent electricity cuttings due to:
 - Overuse
 - Lack of other alternatives

Transport

- After 1990, a rapid expansion of private cars

Environment

- MoE - established on October 2001
- A package of environmental laws and by laws - adopted
- An updated NEAP - adopted
- Environmental monitoring - a weak point

GHG Inventory

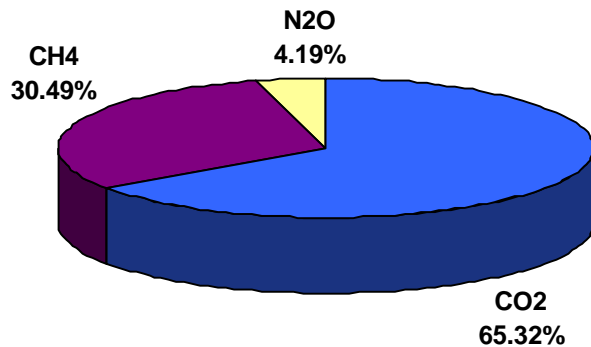
- Report on **direct GHG emissions** in 1994
 - Carbon Dioxide (CO_2), Methane (CH_4), Nitrogen oxide (N_2O)
- Report on **indirect GHG emissions** in 1994
 - Carbon Monoxide (CO), Nitrogen oxides (NO_x), (NMVOC).
- Report on emissions by **sectors/sub-sectors**
 - Energy, Agriculture, Industry, Forests, Waste, Solvents
 - Bunker fuels (separate reporting)
- Analyze **CO_2 emissions from energy sector for 1990-1994**
- Analyze main **GHG indicators**
 - CO_2 / GDP; CO_2 / capita
- Report on **key sources**
- Report on **data gaps**
- Assess the **uncertainties**

GHG Inventory

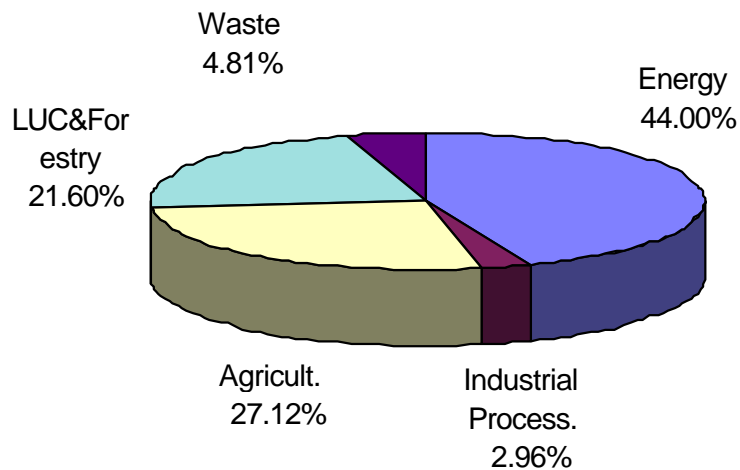
- **Base year**
 - 1994
 - 1990-1994, CO₂ from energy sector
- **Methodology**
 - Revised 1996 IPCC guidelines
 - Top -down
 - Bottom - up
 - CORINAIR
 - Classification of Solvents
 - IPCC default Emission Factors
 - Country specific
 - EF(wood stoves, industrial boilers)
 - classification of fruit trees
 - IPCC Good Practice Guidance

GHG inventory (cont)

Main findings, 1994

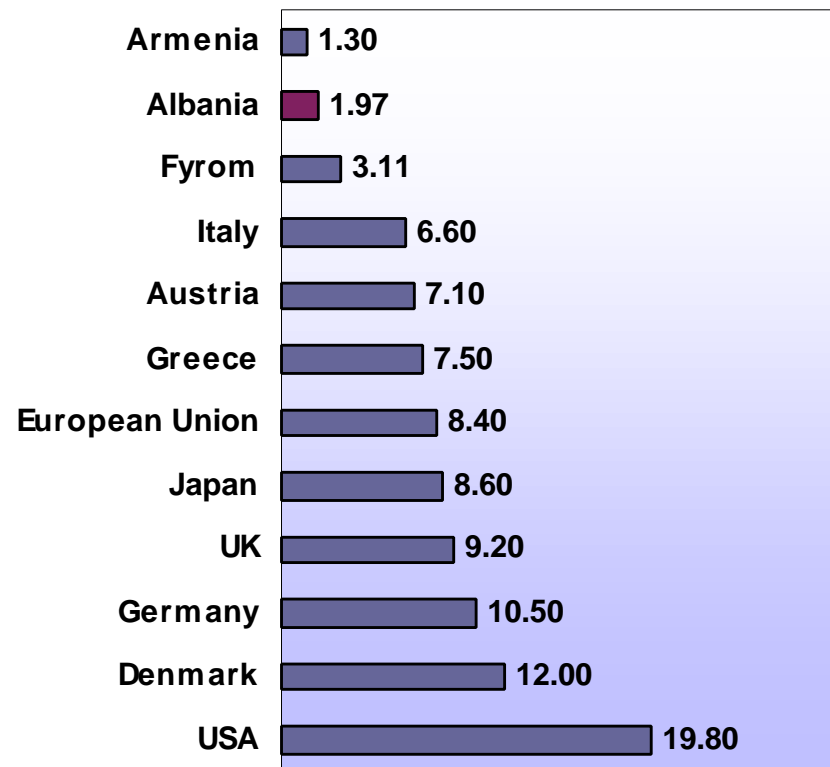


- [7061.45 Gg] CO₂ eqv emissions total



- CO₂ - the main GHG
- Energy sector - the main source category

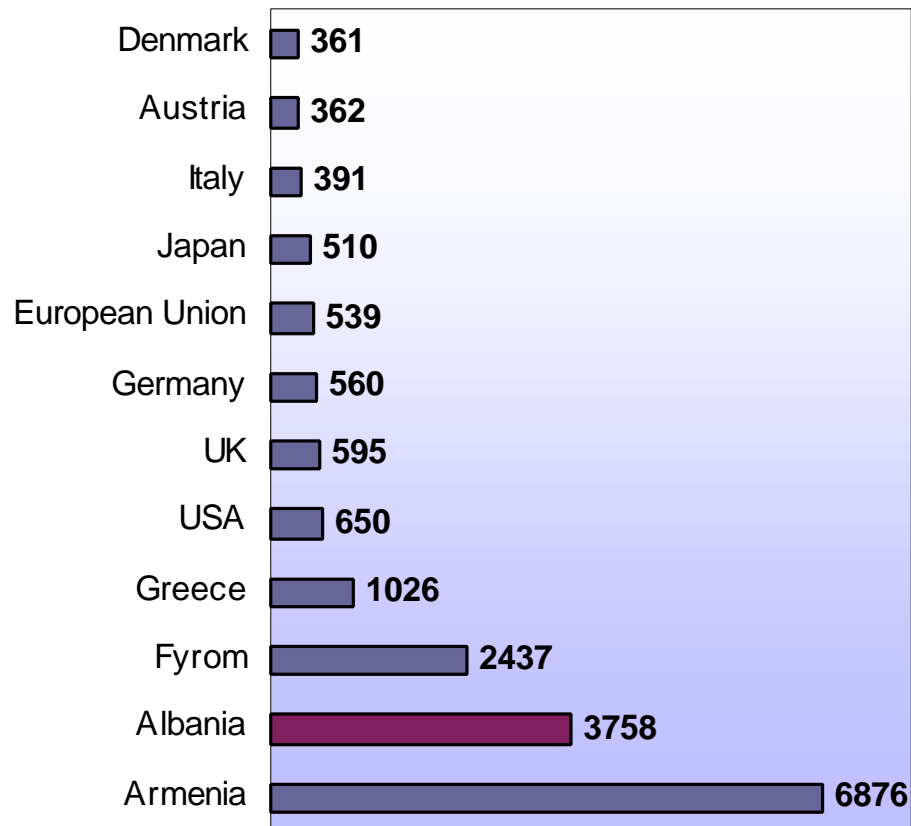
GHG inventory - CO₂ /capita



1,97 ton/capita

- Energy consumption - low compared to the selected countries
- 94% of electricity - hydro
- Residential sector consumes about 60% of electricity
- Industry went down (energy consumption) after 1990.

GHG inventory - CO₂/GDP

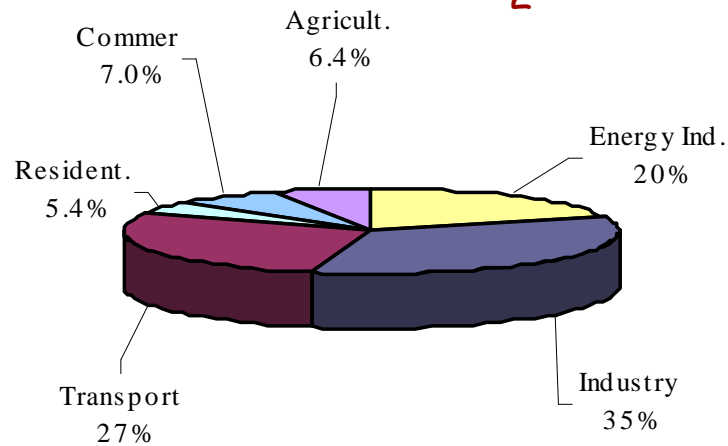


3,758 ton/Mill.USD

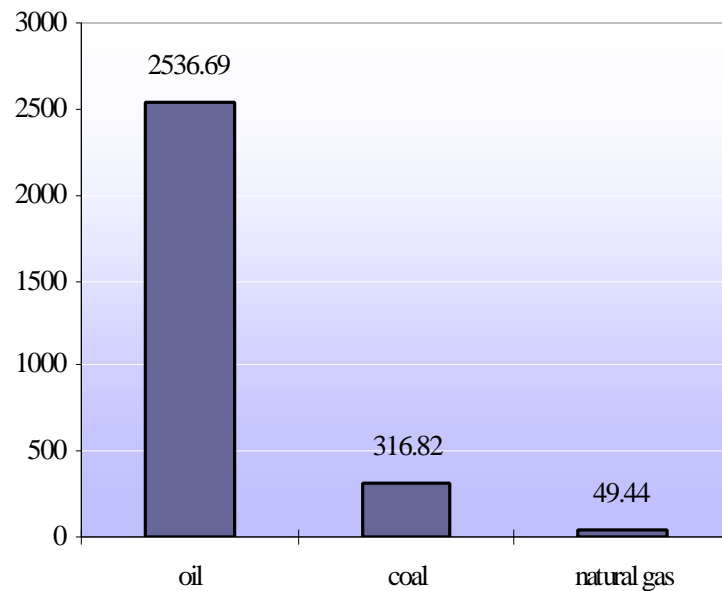
- Albania's **technology** is very **old**;
- **Productivity** of society is **low** compared to other countries
- A **large share** of energy is used in **residential** sector (not in industrial sector to produce higher value of GDP)

GHG inventory

Energy CO₂ from fuel combustion



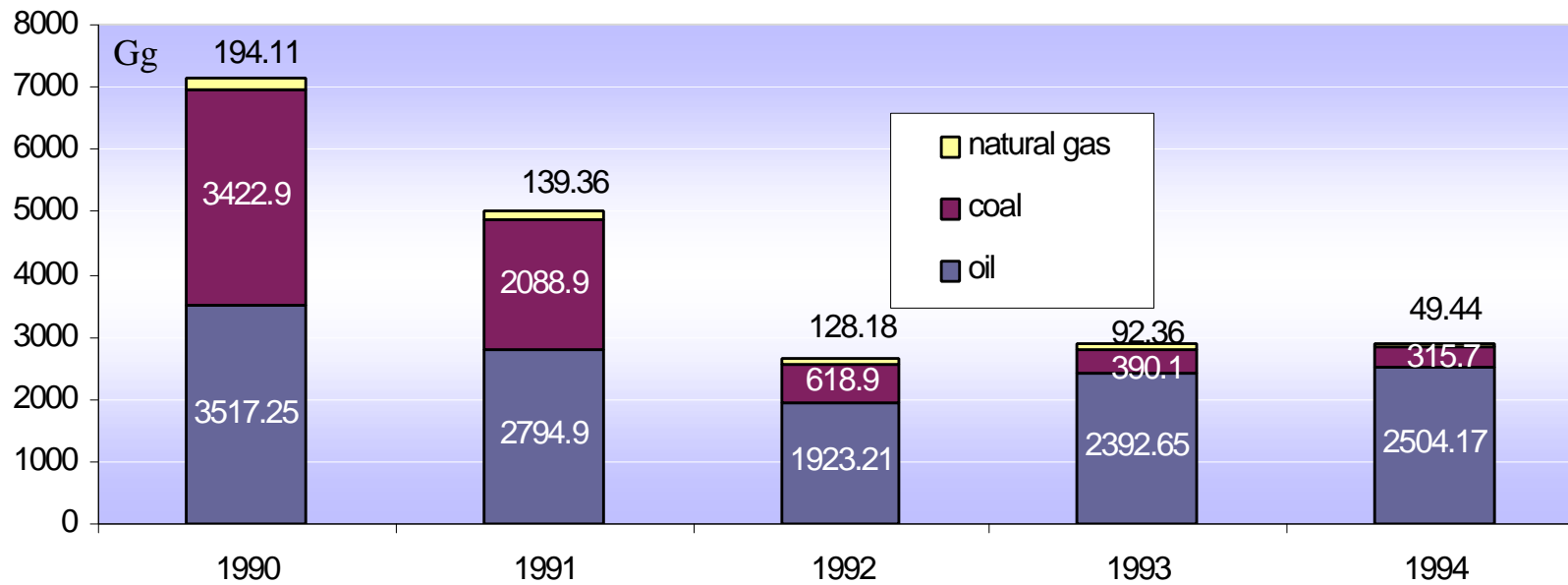
- Industry (35%)
 - manufacturing
 - construction
- Transport (27%)
 - Road



- Oil (87%)
- Coal (11%)

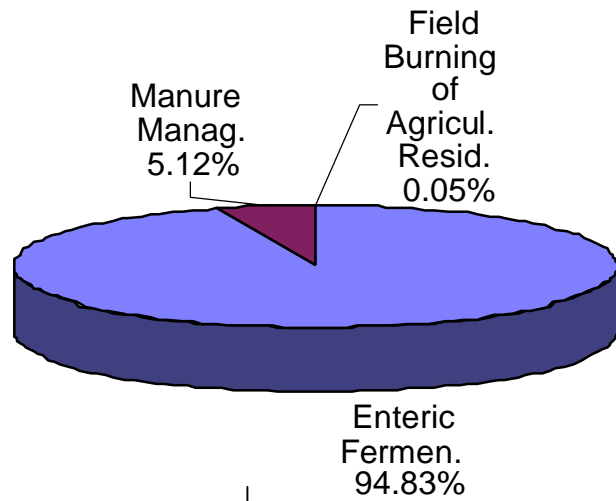
GHG inventory

CO₂ from fuel combustion (1990-1994)

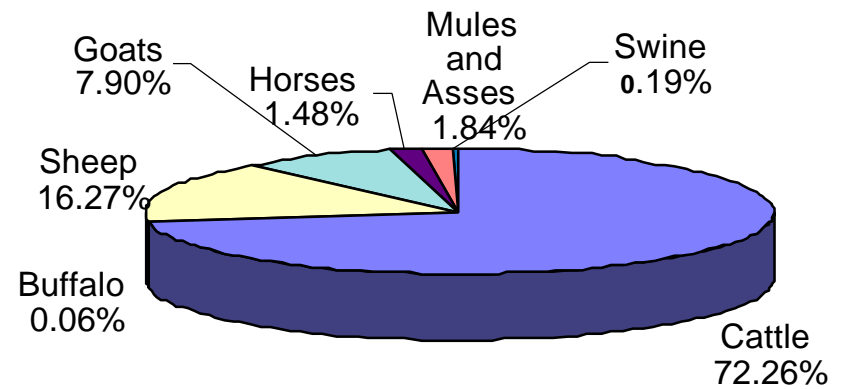


GHG inventory

Agriculture



CH₄ from agriculture

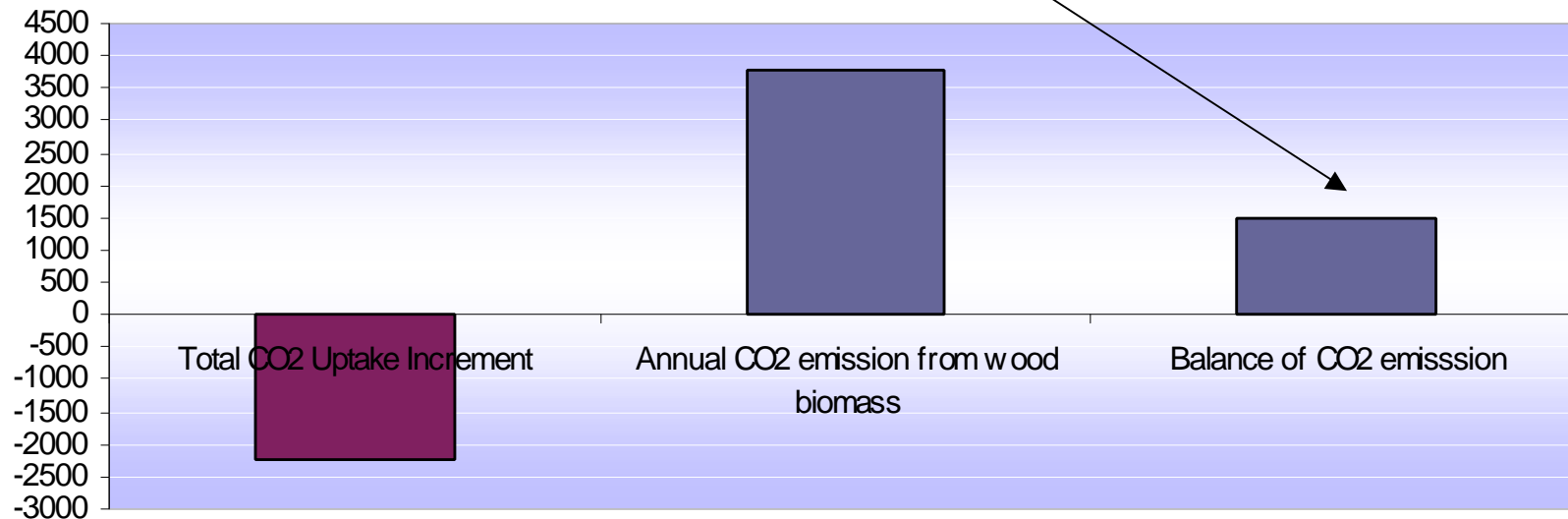


CH₄ from enteric fermentation

GHG inventory

Forests

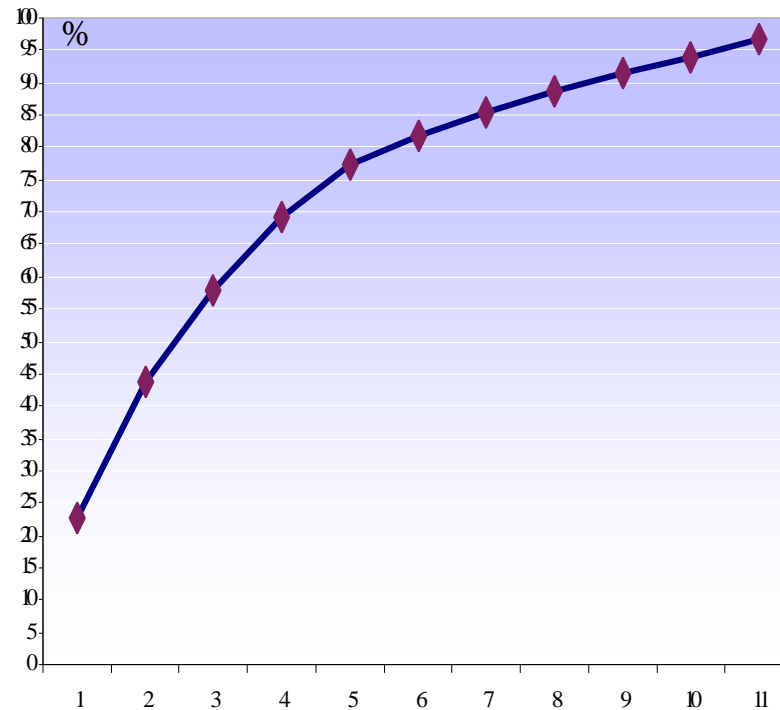
In 1994, forests are a **source** of emissions, **not a sink**.



GHG inventory

Key sources

- CH_4 emissions from enteric fermentation with 22.49%,
- CO_2 emissions from woody biomass burned for energy with 21.40%,
- CO_2 emissions from fuel combustion in industry with 11.24%,
- CO_2 fuel combustion, energy and transformation industries with 8.15%, and



GHG inventory

Uncertainty assessment

- Difference between top-down and bottom up approach - 3.01%
- The total combined uncertainty (CO_2) - 19.4%
 - Significant contributor - LUCF with 95.6%
- The total combined uncertainty (CH_4) - 55.8%
 - Significant contributor - enteric fermentation with 47%
- The total combined uncertainty (N_2O) - 391%
 - Significant contributor - stationary fuel combustion, energy manufacturing and construction industries, with 353%
- Overall uncertainty of GHG inventory 19.2%
 - Significant contributor - fuel wood with 79.2%

GHG abatement analysis

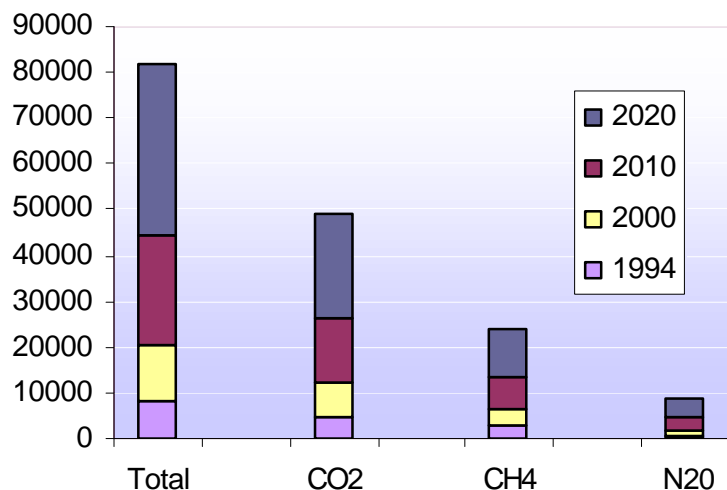
- Time horizon
 - 1994-2020
- Methodology
 - Baseline scenario
 - LEAP, version 95.0 for Energy and Transport
 - Revised 1996 IPCC Guidelines for other sectors
 - Abatement scenario
 - GACMO for Energy and Transport
 - Expert judgment for other sectors

GHG abatement analysis

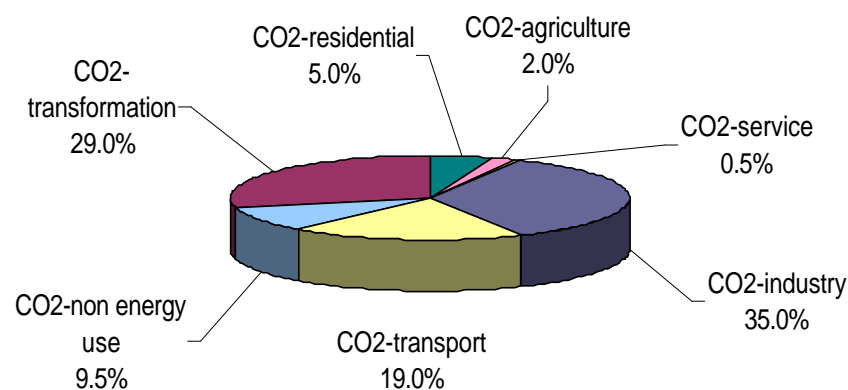
- Focus on
 - quantified analysis for energy sector
 - qualitative analysis for non-energy sectors
- Analysis of examined measures by sector
 - Industry
 - Residential (Households)
 - Services
 - Agriculture
 - Transport
 - Waste
 - Power generation
- Comparative analysis of measures by
 - Cost
 - GHG abatement potential

GHG abatement analysis

Baseline projections up to 2020



- **[37,653 Gg]** - CO₂ eqv emissions total
- **[24,000 Gg]** - energy & transport (83%)
- CO₂ - the main GHG



Industry - 35%
Energy transform. - 29%

CO₂ non biogenic

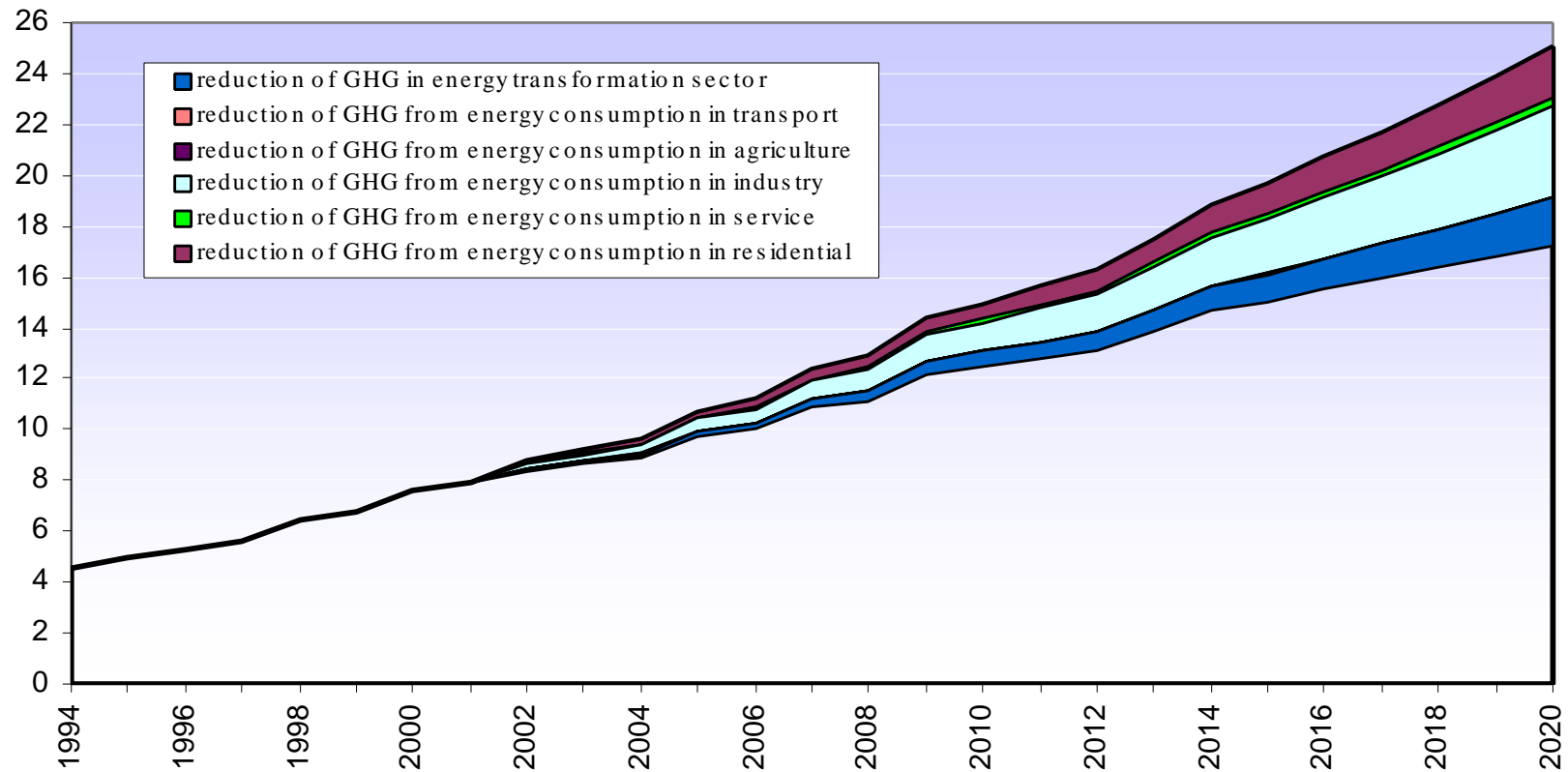
GHG abatement analysis

Key measures

- Power generation - hydro instead of diesel
- Power generation - natural gas instead of diesel
- Waste - waste management measures
- Industrial sector - efficient boilers
- Transport - gas taxis
- Residential sector - prepaid metres
- Residential sector - efficient lamps
- Residential sector - thermostats switches in electric heaters
- Residential sector - thermo insulation
- Residential sector - solar collectors

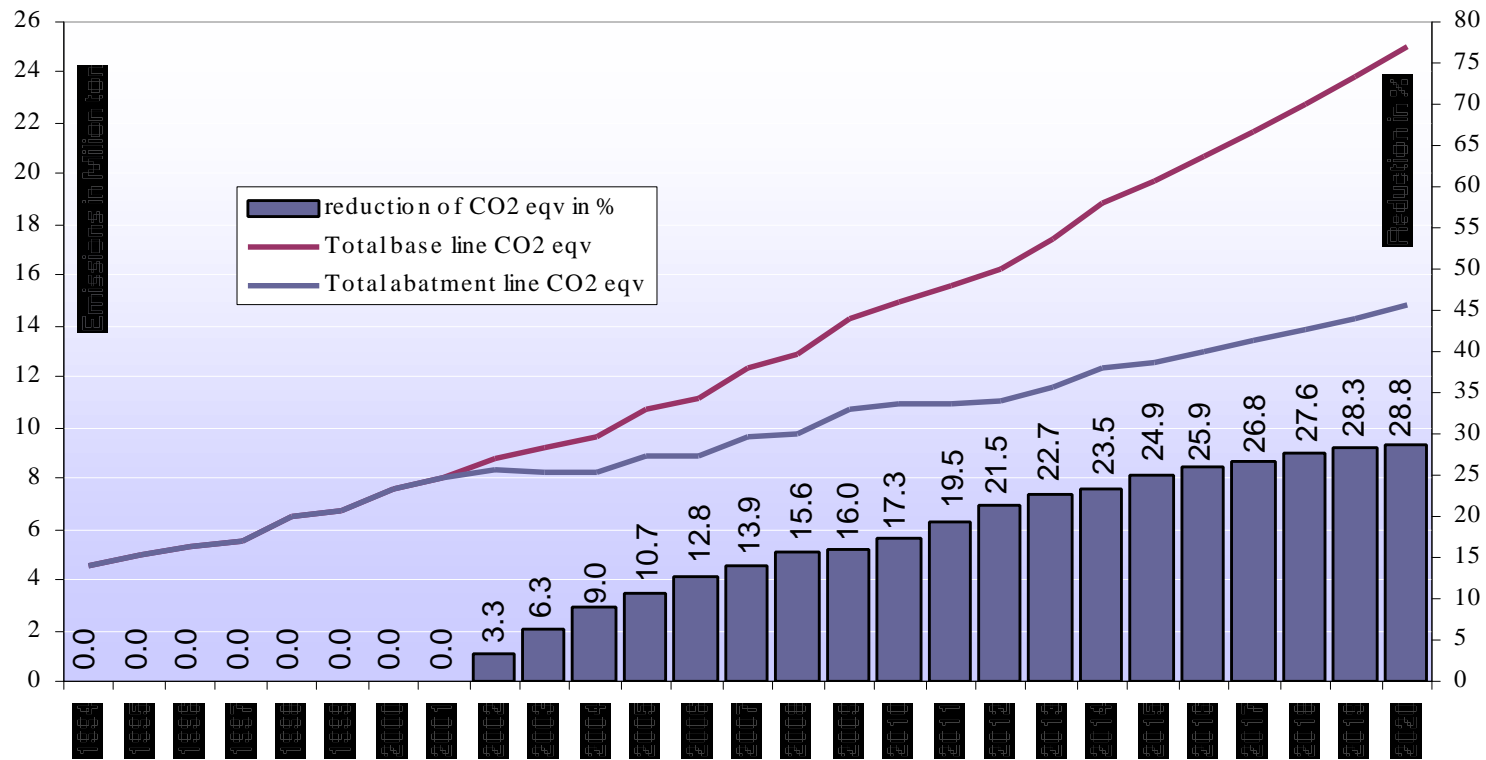
GHG abatement analysis

Overall potential for GHG abatement Energy and transport



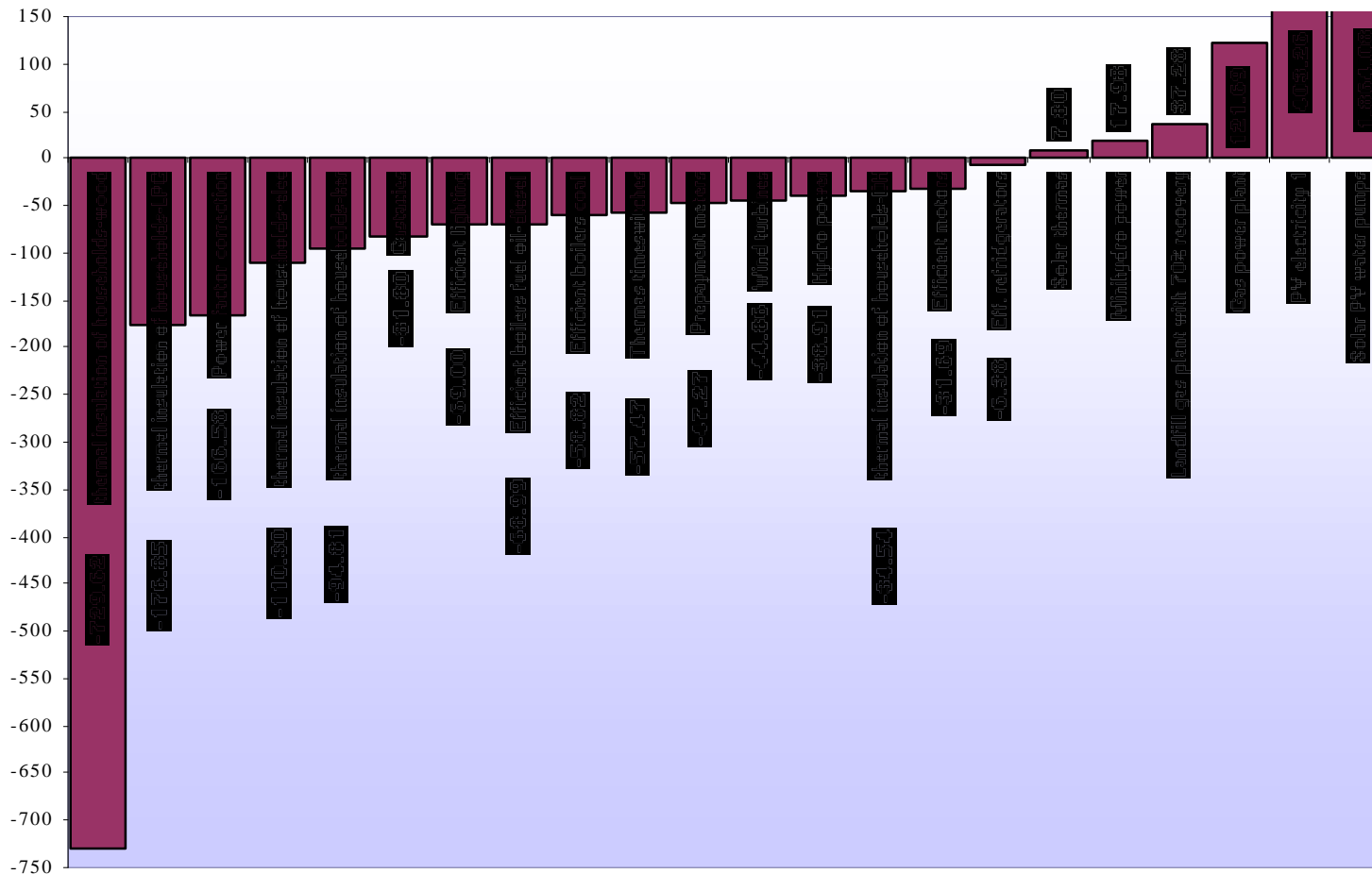
GHG Abatement Scenario

overall reduction potential



GHG abatement analysis

Ranking according to specific cost of measures



Vulnerability and adaptation

- **Time horizons for CC Scenarios**
 - 2025, 2050, 2100
- **Methodology**
 - MAGIC/SCENGEN software for CC scenarios
 - IPCC technical guidelines for assessing CC Impacts and adaptations, 1994
 - LEAP for impacts on Energy sector
 - Statistical models, expert judgment, regional analogies for other sectors
- **Scope of assessment**
 - Hydrosphere, natural ecosystems, managed ecosystems, energy, industry, transport, health, population, tourism.
- **Focus on**
 - Evaluation of current climate situation
 - Expected climate changes
 - Expected impacts of climate changes
 - Measures for adaptation

Vulnerability and adaptation

Climate Change Scenario

Annual **temperature** increase

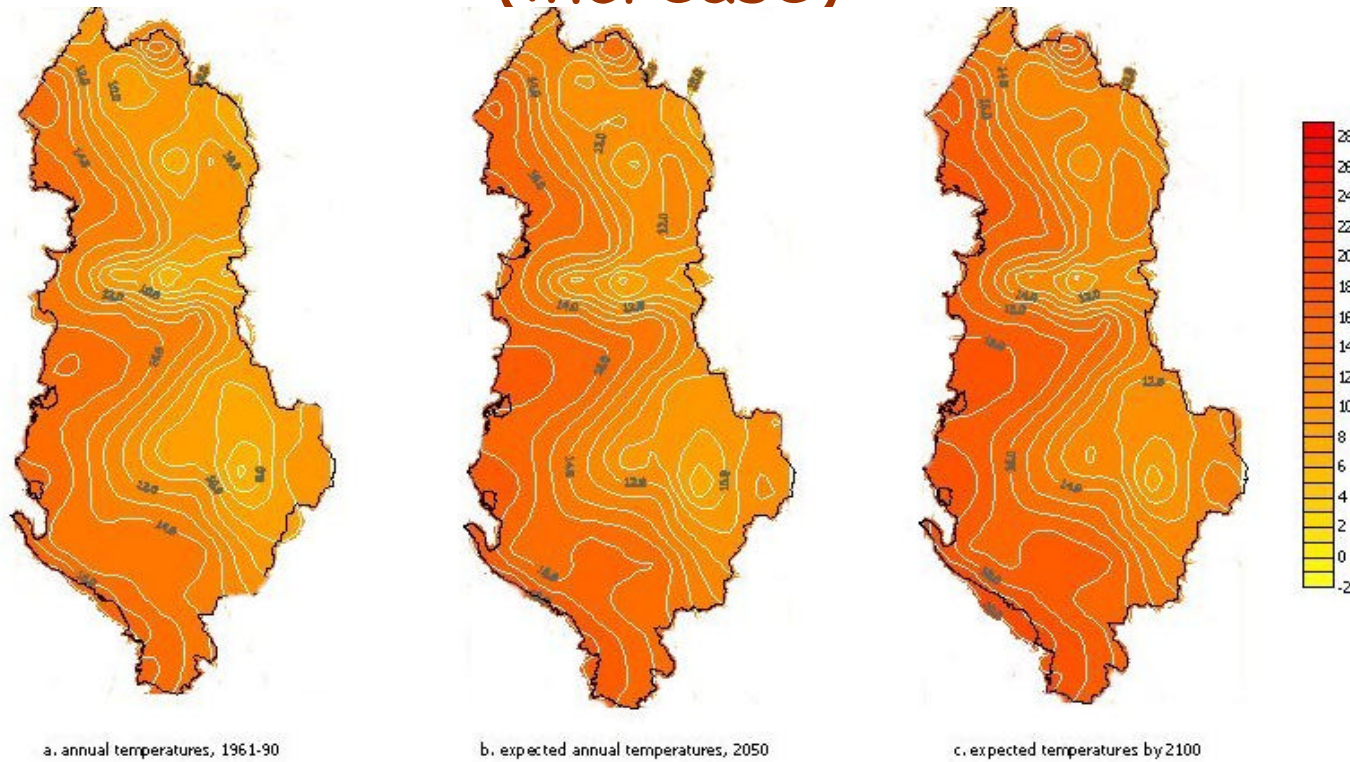
up to 1 °C, 1.8 °C, 3.6 °C respectively by 2025,
2050, 2100

Annual **precipitation** decrease

up to -3.8%, -6.1%, -12.5% respectively by 2025,
2050, 2100

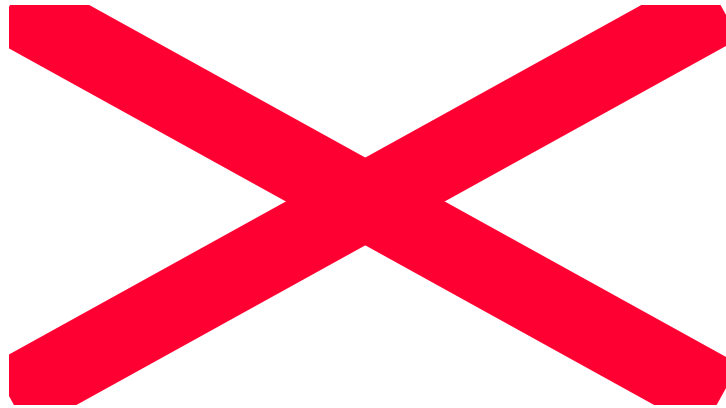
Vulnerability and adaptation

Expected annual temperature changes
(increase)



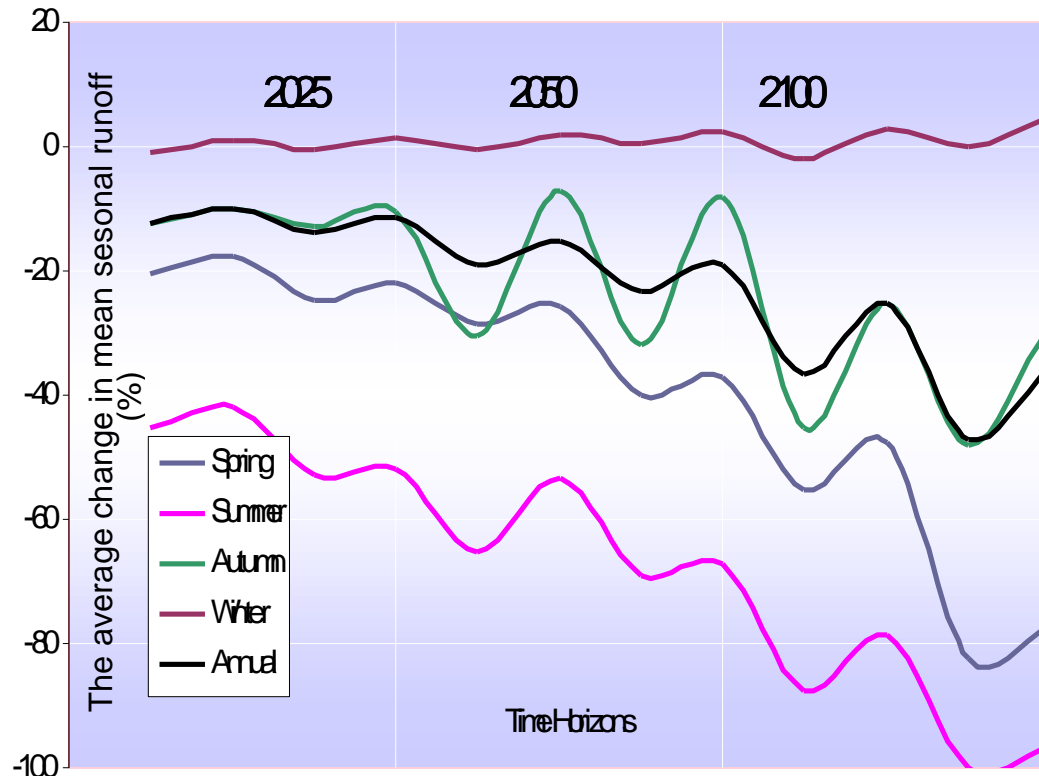
Vulnerability and adaptation

Expected annual precipitation changes
(decrease)



Vulnerability and adaptation

Impacts on water resources



- Reduction of the amount of surface water flow
- Decrease of water storage used by HPPs for energy production
- Reduction of the quality of drinking water
- High potential of flooding risk
- Increase of salinity of aquifers (CZ)

Vulnerability and adaptation

Impacts on Agriculture

- **Up to 2025**
 - No considerable impacts in crops' yields
 - The potential citrus and olive growing area will be adopted in higher elevations (about 150 m) and will be enlarged.
- **2050-2100**
 - Reduction of the extend of the arable land due to soil erosion and alteration
 - Changes in growth cycles, harvest time and quality of agricultural production (especially in CZ, due to intrusion of salt water in soil)
 - Cultivation of early products in the open air or greenhouses , due to an increase of temperatures in winter

Vulnerability and adaptation

Impacts on Energy

Energy consumption

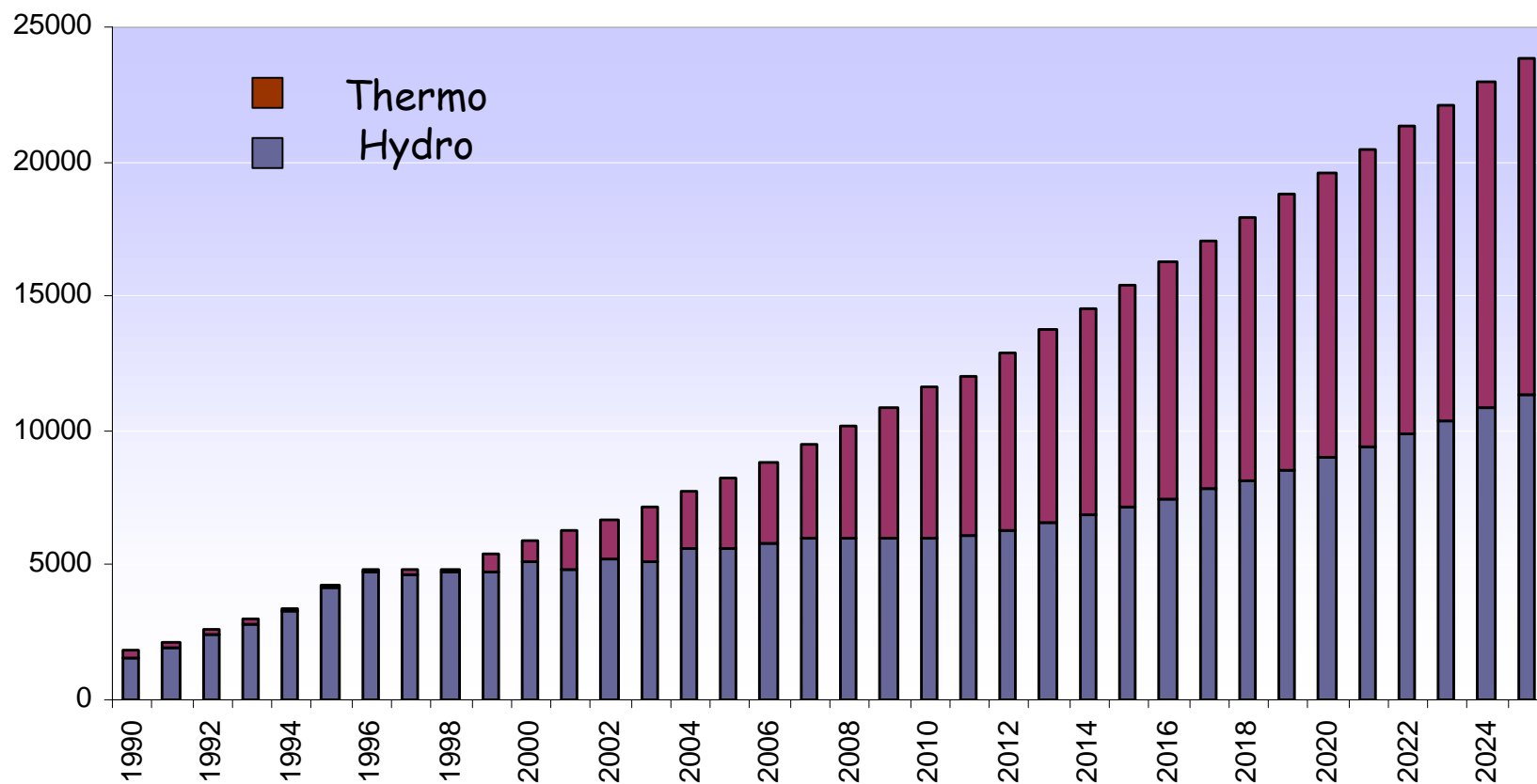
- An expected decrease in heating degree days
- An expected increase in cooling degree days
- An expected increased demand for energy for space cooling during summer
- An expected decreased demand for energy for space heating during winter

Energy production

- New Energy Scenario which consider Climate Change
 - From 94% (hydro) versus 6%(thermo) - 47.7% (hydro) versus 52.3% (thermo)
 - Expected energy generation in 2025 - 23,816 GWh compared to 1,795 GWh in 1990.

Vulnerability and adaptation

Electricity generation - alternative scenario



Adaptation options

Water

- Modification / construction of physical infrastructure
- Pollution control
- Improvement systems of monitoring and forecasting of flooding and drought
- Drafting & adoption new legislation for water use
- Setting a real consumption fee
- Implementation of the integrated coastal Zone Management

Energy

- Consider expected change in runoff / water flow in integrated resource planning, TPP and HPP design.
- Invest in energy conservation systems for space cooling
- Reduce energy subsidies
- Use solar and wind energy

Agriculture

- Significant improvement of irrigation sector
- Afforestation and setting up barriers for protection of arable land
- Cultivation of xerophilic crops

National Climate Change Action Plan

NCCAP - part of the revised NEAP

Focused on:

- Potentials to abate *GHG* emissions
- Potentials for adaptation to *CC*

Expected outcomes:

- Reduction of the rates of *GHG* emissions (no targets)
- Reduction of the vulnerability and adaptation
- Promotion of the sustainable development
- Poverty reduction
- Protection of environment / implement the convention
- Institutional strengthening
- Capacity building and enhancement
- Raise of public awareness in climate change issues

National Climate Change Action Plan

- The main responsibility for implementation of the NCCAP:
 - Ministry of Environment
- Period covered
 - up to 2020
- Revision according to:
 - New development plans and goals
 - Changes in legal framework
 - State-of-the-art data on climate change
 - National environmental strategy
 - Further developments in UNFCCC negotiations
 - Eligibility of funds under convention mechanisms and other sources
 - Status of Albania under the Convention
 - Amount of funds allocated by the Government
 - Level of public awareness

Public awareness, education on CC

- The level of public awareness on CC is **relatively low**
- Prior the start up of the project on NC, **no public awareness activities** have been held
 - The project on NC has **positively contributed** on awareness raising
- Two national **workshops** organized:
 - Initiation workshop for project on NC
 - Workshop on FNC
- Posters, newspaper articles, web page.
- The level of **education on CC is low**, even for environmental issues.
- Some **tendencies** to introduce environmental education into **school curricula**

Main problems and constraints

Institutional

- Lack of legal framework for data reporting
- Inflexibility of NEX modality
- Low level of awareness on CC

Technical

- Variability, reliability, availability of activity data
- Inconsistency of data to the reporting format
- Lack of country specific/regional EFs
- Lack of adopted strategies for some sectors
- Lack of future scenarios for different sectors
- Lack of regular climate monitoring
- Lack of finer resolution for climate modeling
- Lack of training

Methodological

- Lack of guidelines on abatement and V&A
- Lack of IPCC methodology for solvents, open dumps or burning wastes

Lessons learnt

We recognize the importance of :

- The **selection** of the most qualified national experts in NC process
- The **sustainability and maintenance** of the teams
 - Training of trainers
- Close **collaboration** of inventory and abatement teams
- **Exchange of information and experience** at national, regional, international level
 - Technical support provided by NCSP, UNFCCC Sec
- Working in **relationship with similar** enabling activities in the region/country
- **Peer review** of inventory, abatement and V&A studies
- **Raising public awareness** among policy makers

Recommendations

- Establishment of permanent mechanism for National Communications to serve as a national Secretariat for UNFCCC
- Maintenance and enhancement of national capacities built in the area of Climate Change
- Strengthening of regional cooperation
- Improvement of the existing guidelines for preparation of the NCs from NAI Parties
- Making funds available for the preparation of the SNC from NAI Parties
- Assist NAI Parties for the preparation of the SNC
 - NCSP, UNFCCC Sec.
- Establishment of a regional center for CC