Ministry of Energy of the Kyrgyz Republic


# Development of the Renewable Energy Sector in the Kyrgyz Republic

RETA 7485: Effective Deployment of Small Wind Systems in Asian Rural Areas
The 2nd Meeting of the Energy for All Partnership Working Group on Wind Power

Kubanychbek Djusupov, Deputy Minister

12-14 March 2010
Beijing

# General Information about Kyrgyzstan

Population – 5,2 Mln. Inhabitants (Bishkek:1 Mln.)

Area: 200.000 km² (95% consists of mountains )

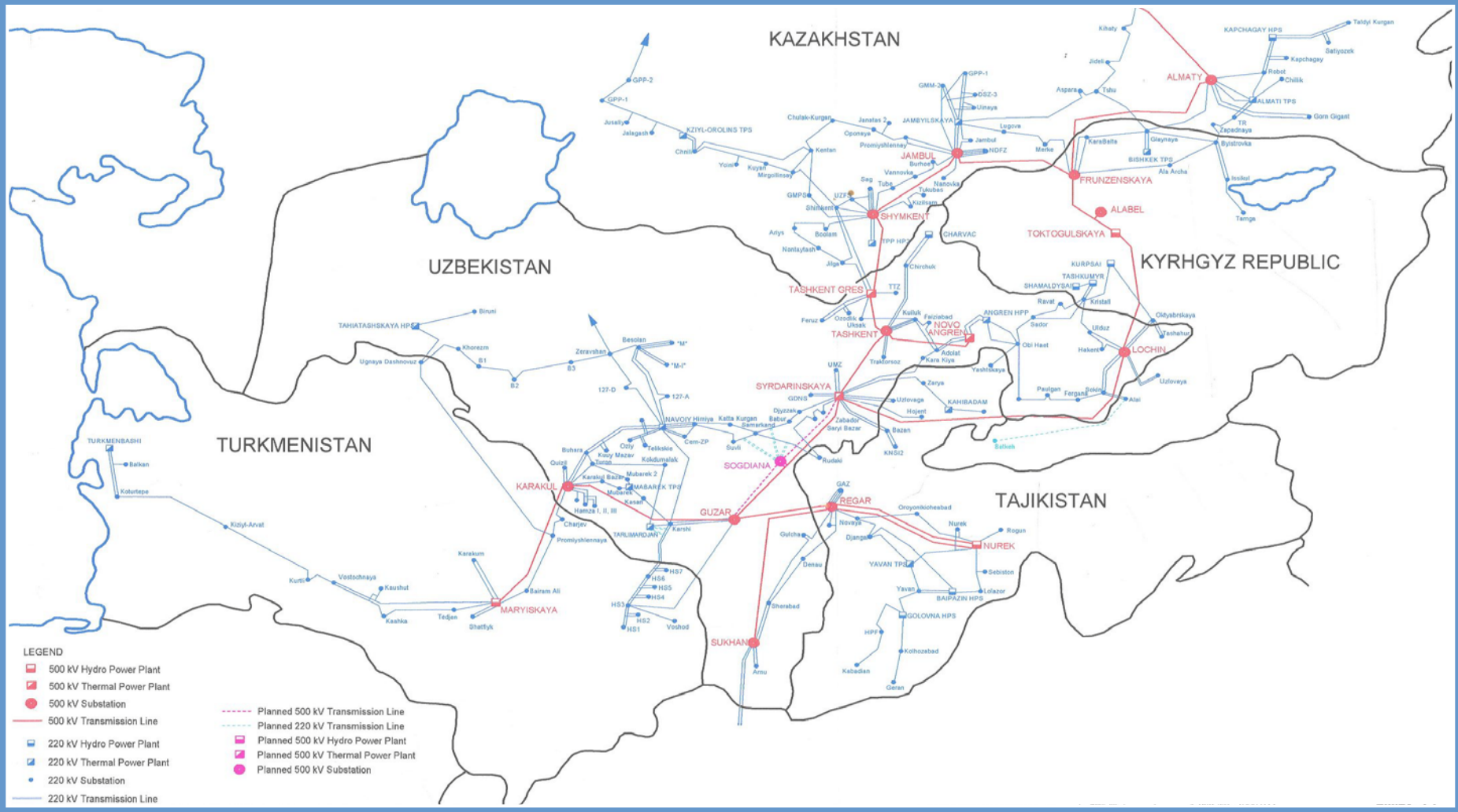
**Bishkek -capital of Kyrgyzstan**

# KGZ Power Sector

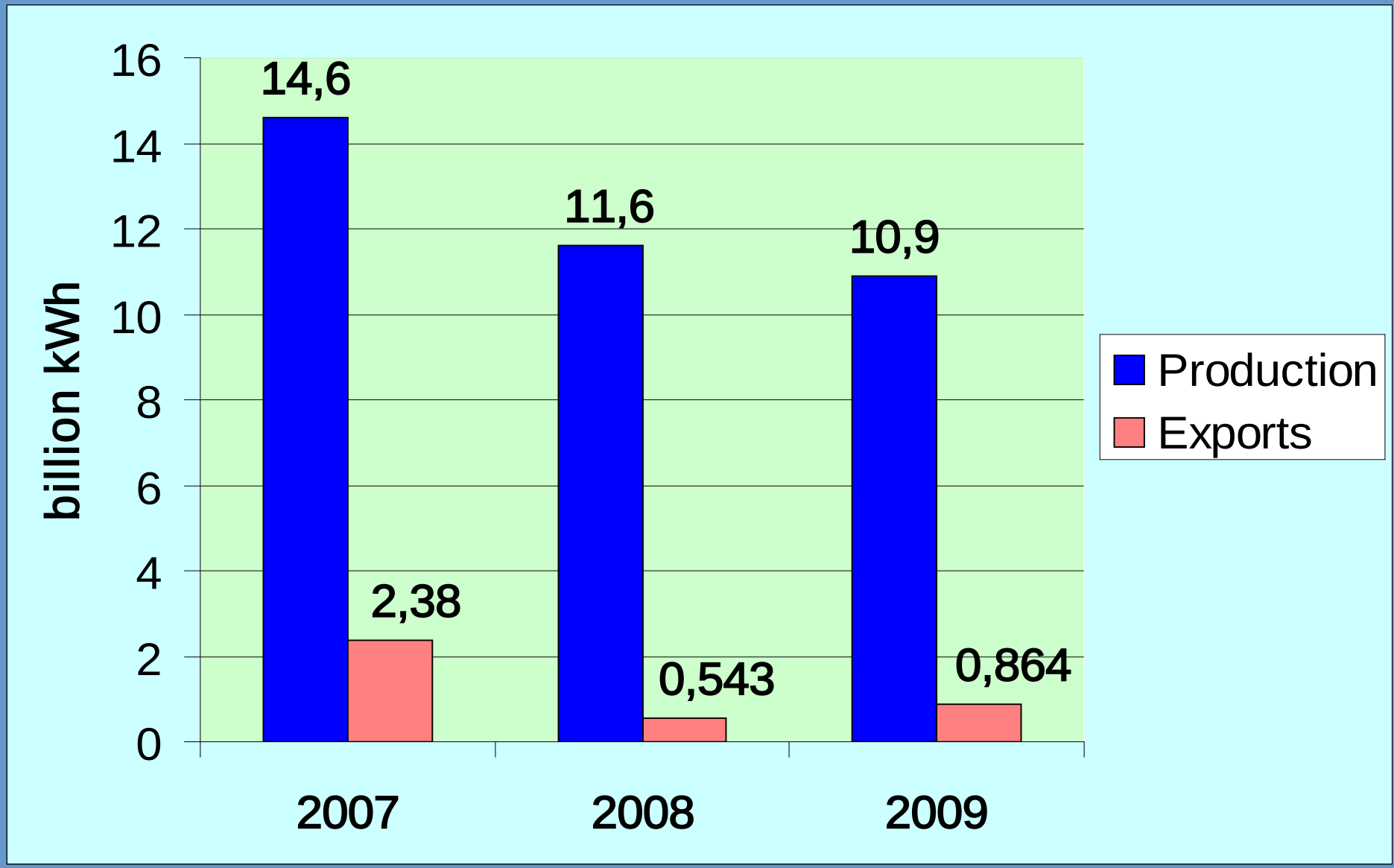
- Installed Capacity: 3,666 MW
  - Hydropower: 2,950 MW (80%)
  - Thermal: 716 MW (20%)
- Annual Energy: 10,961 GWh (2009)
  - Hydropower: 9,997 GWh (91%)
  - Thermal: 964 GWh (9%)
- Resources
  - Hydropower: 18,500 MW
  - Coal (recoverable): 1,3 billion tons
  - Hydrocarbons (gas, oil): 145-260 million tons

# Central Asian Power System (CAPS)

- Largest Net Exporter

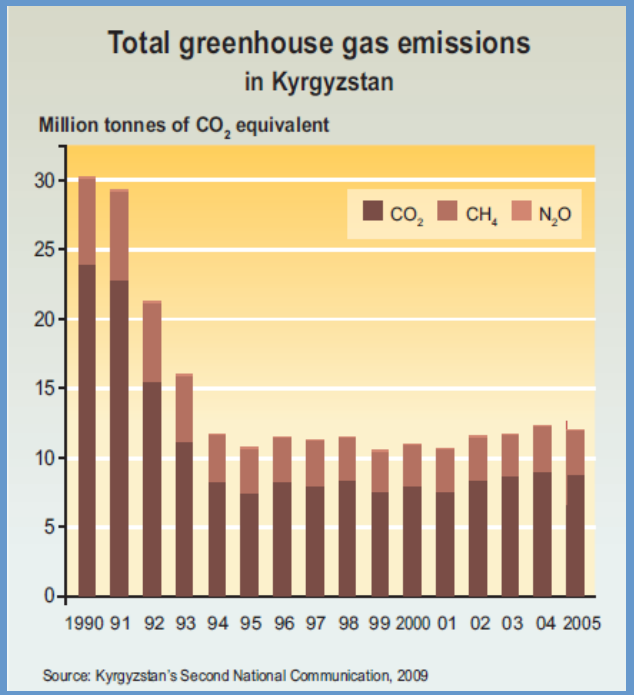


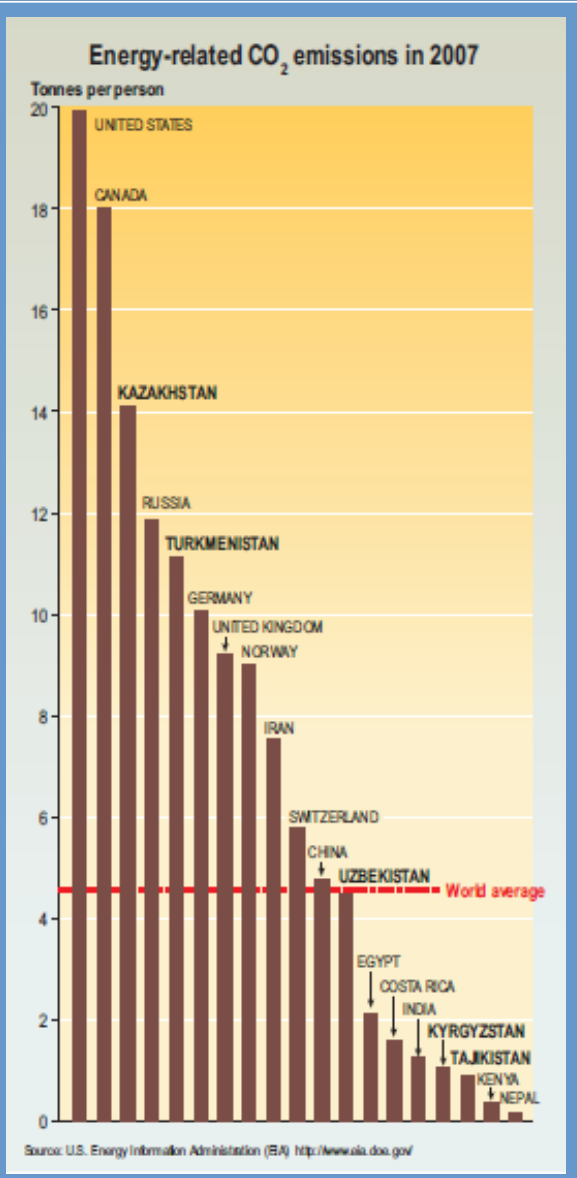
# Electricity production and exports in 2007-2009



# Climate Change

- KGZ has little contribution to climate change
- 12 million t-$CO_2$ equivalent (2005)
- 2005 emission 250% below 1990

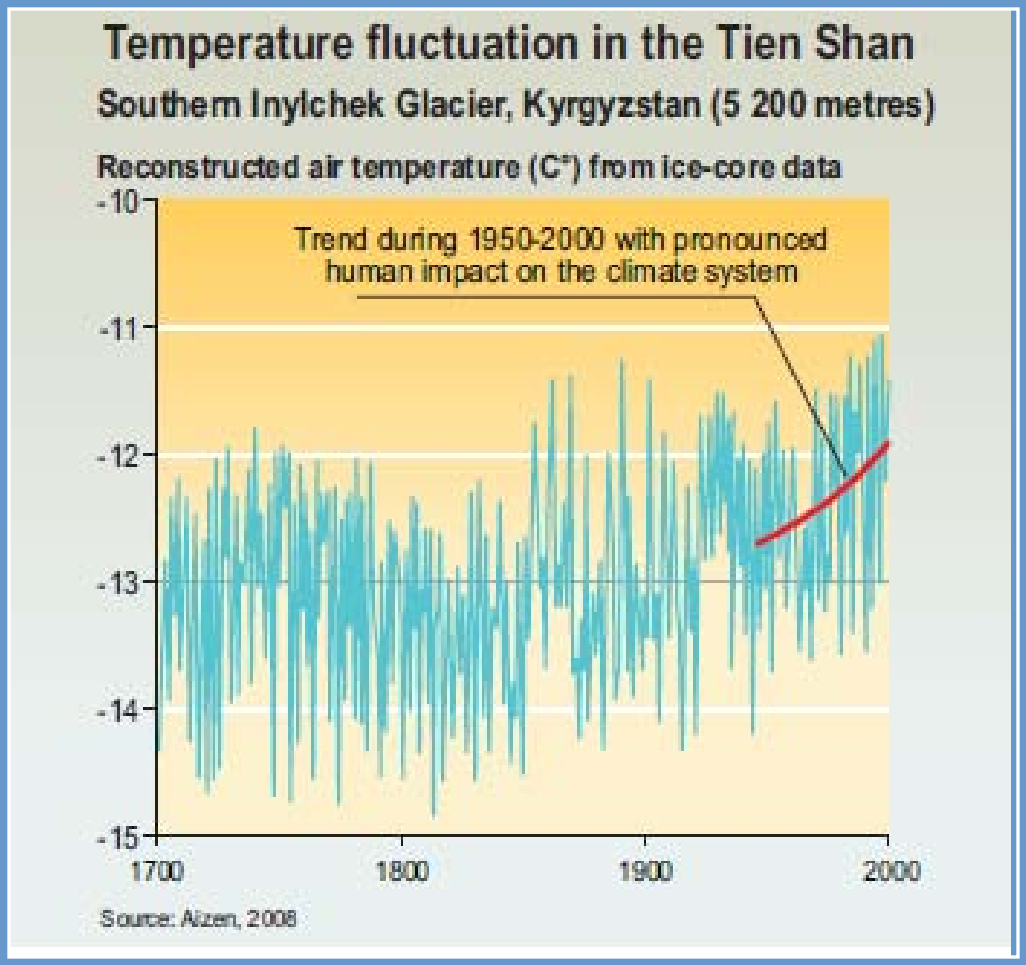


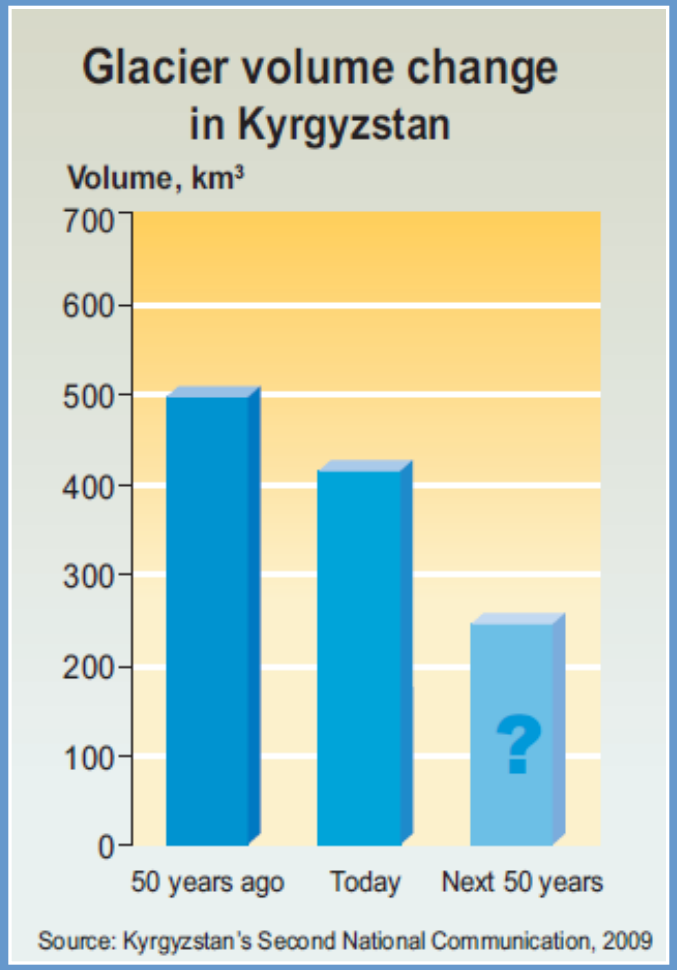




Source: Climate Change in Central Asia – A Visual Synthesis, Zoï Environment Network, 2009

# Climate Change

- Climate change affects KGZ

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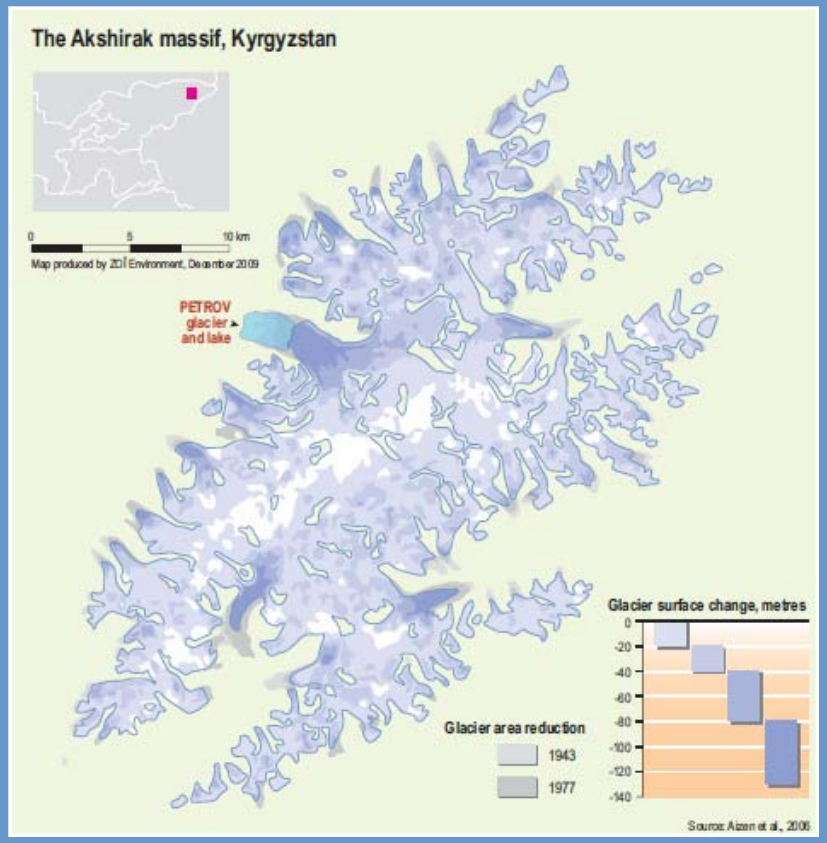
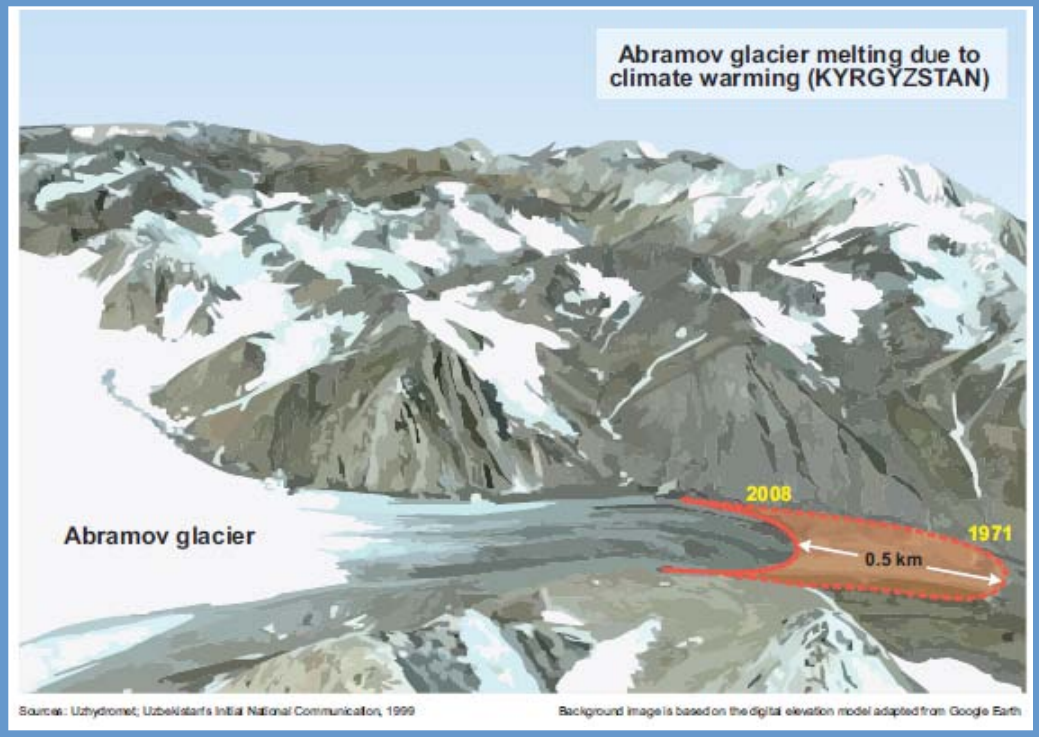
# Climate Change

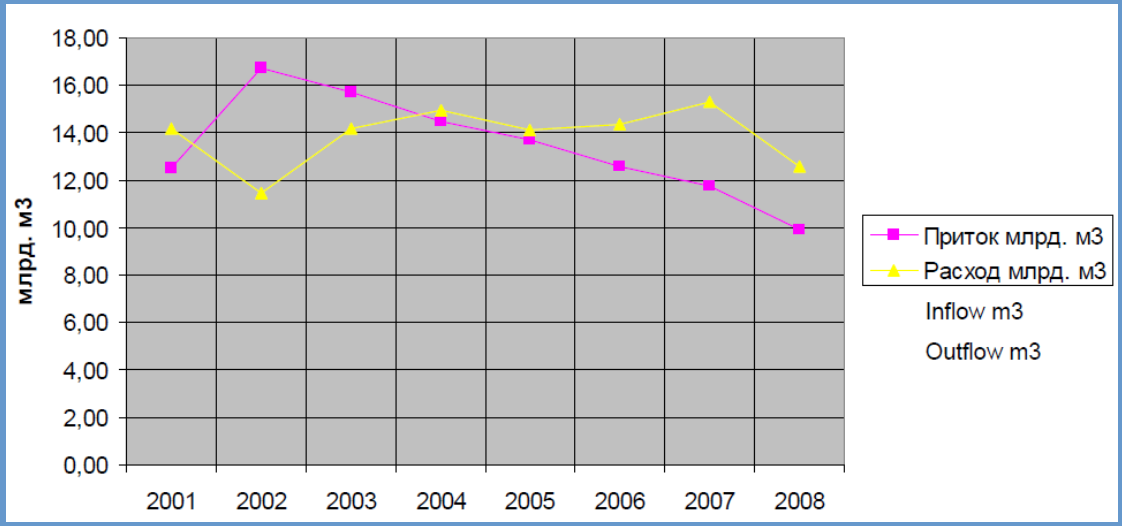


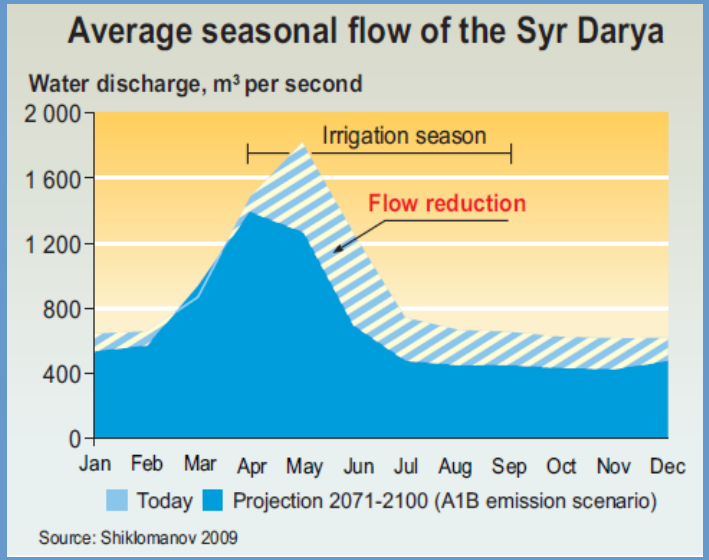

Source: Climate Change in Central Asia – A Visual Synthesis, Zoï Environment Network, 2009

# Climate Change

- Inflow reduction to Toktogul Reservoir already experienced.




- Further reduction expected in long-term.




Source: Climate Change in Central Asia – A Visual Synthesis, Zoï Environment Network, 2009

# The potential of renewable energy in the Kyrgyz Republic

1. Solar energy (heat) – 490 MWh
2. Solar energy (electric) – 22,5 MWh
3. Wind energy – 44,5 MWh
4. Small streams - 3 billion kWh
5. Biomass – 1300 MWh

**Practical use of renewable energy in the Kyrgyz Republic is less than 1%**

# The legal framework for the development of renewable energy

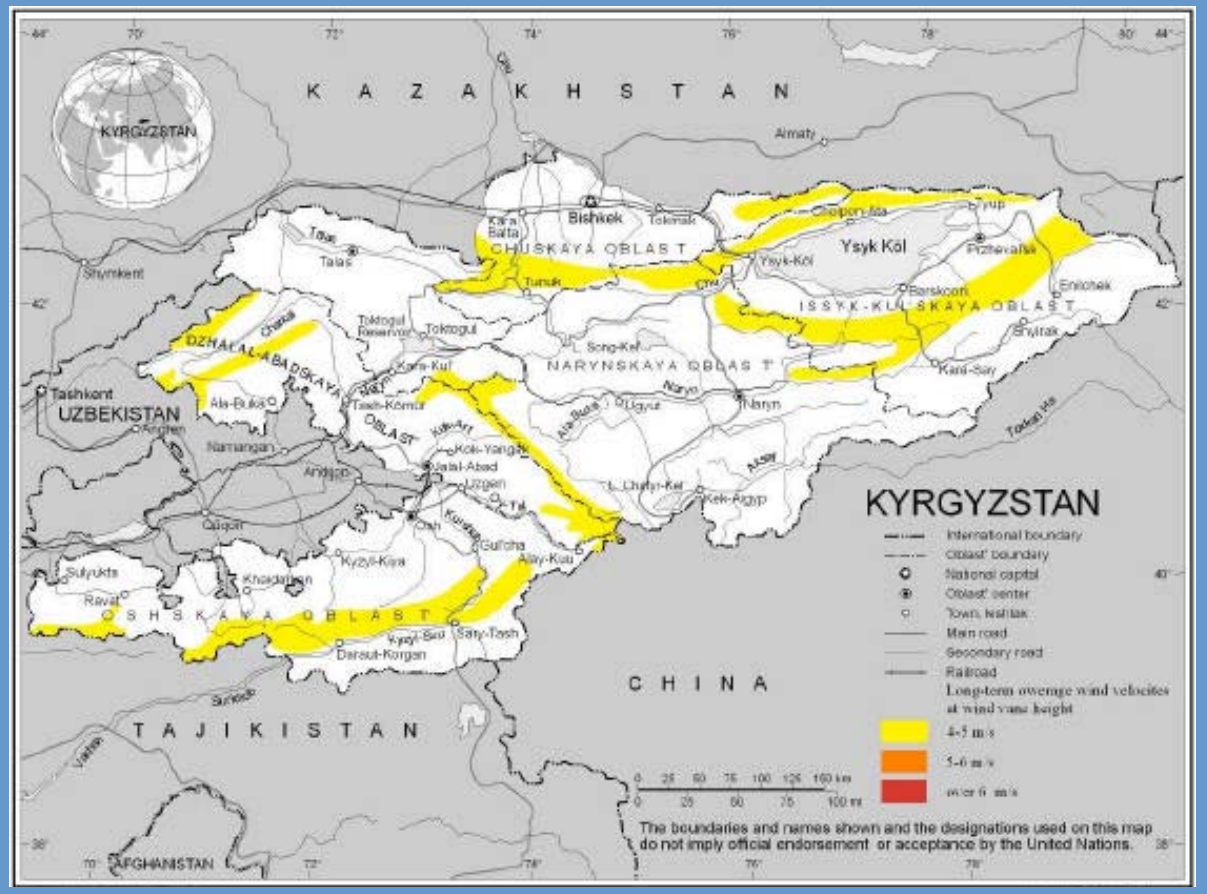
- The Law «On Renewable Energy» adopted December 31, 2008
- Law "On Energy"
- Law "On Electric Power Industry"
- Law "On Energy Saving"
- National Energy Program of the Kyrgyz Republic for 2008-2010 and development strategy of fuel and energy sector until 2025
- The medium-term tariff policy for electricity and thermal energy for 2010-2012

# Wind Power - General

- No wind power development yet.
- Only limited resource data.
- 4 - 5 m/s (30 m)
- Wind potential reported highest in winter when:

  - demand is high

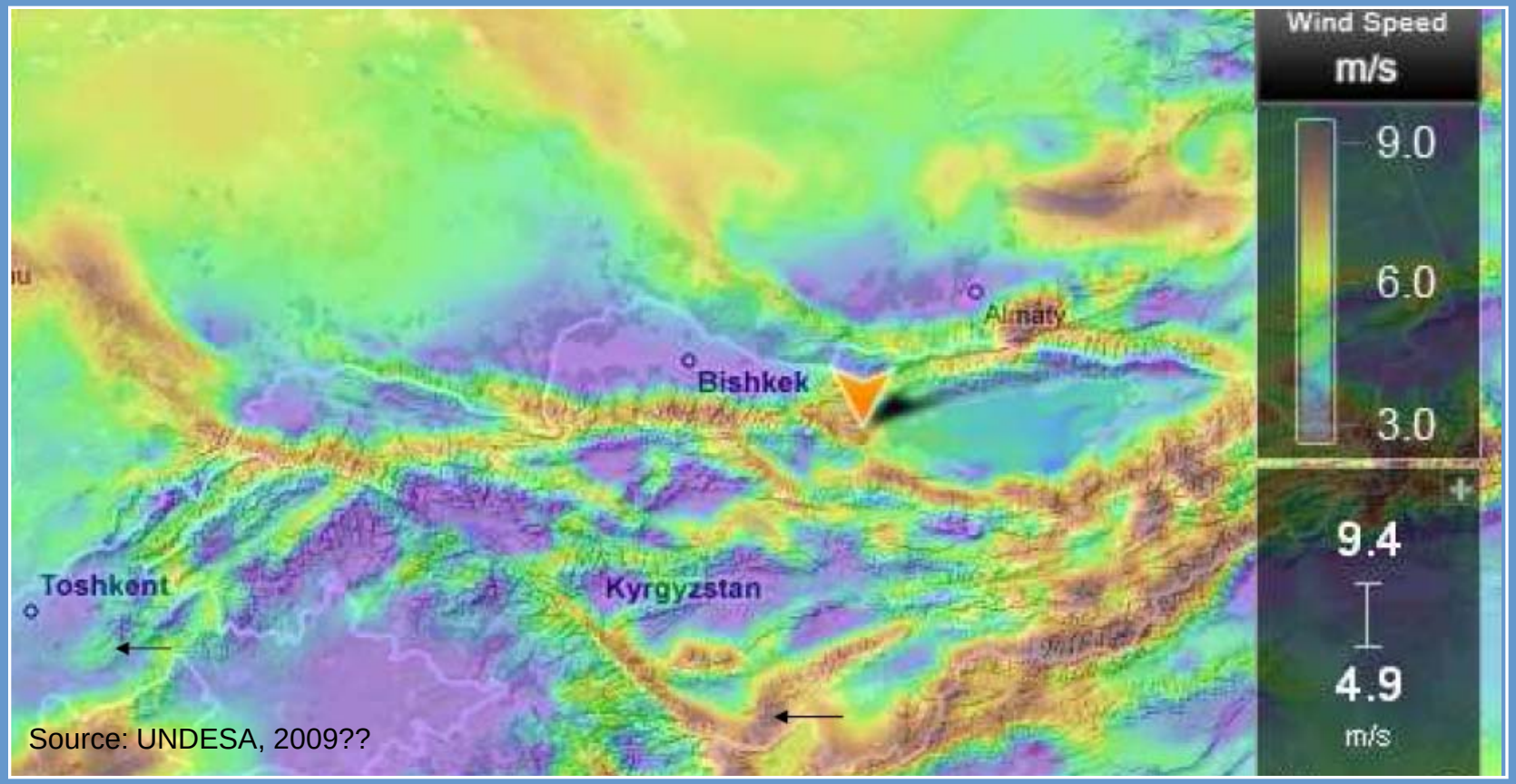
  - river flow is low.




Source: Master Plan of Wind Power Development of the USSR till 2010", 1989

# Wind Power – Specific Site

- Recent desk study by United Nations Department of Economic and Social Affairs identified Balikchi (east of Issyk-kul Lake) as potential site.



# What could the wind

- Possibilities of windmills in the central network (Shamaldysay, Alai plateau, Susamyr, Barskoun Gorge)
- Cover up to 5-7% of energy needs of rural population
- Provide additional irrigation of farmland (wind turbines as pumps)
- To provide electricity to domestic consumers

# Barriers to the use of renewable energy

- 1. Institutional barriers:

- Lack of public agencies (Agency for Renewable Energy) is responsible for this trend;
- Imperfect legislation in the field of renewable energy;
- Lack of qualified specialists in the field of renewable energy.

- 2. Financial barriers (weak mechanisms for financial support).

- 3. Poor information support for renewable energy. Low awareness of population, government agencies, organizations and agencies about the benefits of using renewable energy.

# What steps should be taken

- Improving the legislative framework for the development of renewable energy resources in the country (Develop and implement a program to develop renewable energy resources in the Kyrgyz Republic)
- Financial support mechanisms for renewable energy in order to implement these technologies (through the establishment of a revolving fund)
- Raising awareness of the potential of renewable energy resources and technologies and training in the field of renewable energy resources

# THANK YOU FOR YOUR ATTENTION !!!