

Qualitative vulnerability assessment in water sector for Albania

Presenter:

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Zagreb, date, 03.06.2015

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Are water resources vulnerable to climate change in Albania?

- According to First National Communication to UNFCCC . (2003), the expected climate change will modify:
 - rainfall
 - evaporation and soil moisture storage,
 - leading to an increase in the irrigation requirements
 - and a decrease in the capacity of reservoirs and irrigation distribution systems.
- More over in Second National Communication to UNFCCC. (2009).
 - The changing patterns of water resources are broadly similar to the change in annual precipitation: increases in high altitudes but decreases in mid-altitudes.

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Vulnerable area



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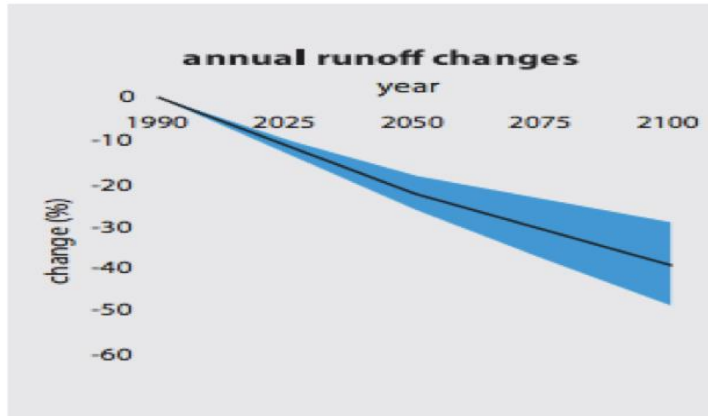
Climate change scenarios for Albania

Table 1–2: Climate change scenarios for Albania					
Scenarios for Albania			Time horizon		
			2025	2050	2100
Annual	temperature (°C)	↑	0.8 to 1.1	1.7 to 2.3	2.9 to 5.3
	precipitation (%)	↓	–3.4 to –2.6	–6.9 to –5.3	–16.2 to –8.8
Winter	temperature (°C)	↑	0.7 to 0.9	1.5 to 1.9	2.4 to 4.5
	precipitation (%)	↓	–1.8 to –1.3	–3.6 to –2.8	–8.4 to –4.6
Spring	temperature (°C)	↑	0.7 to 0.9	1.4 to 1.8	2.3 to 4.2
	precipitation (%)	↓	–1.2 to –0.9	–2.5 to –1.9	–5.8 to –3.2
Summer	temperature (°C)	↑	1.2 to 1.5	2.4 to 3.1	4.0 to 7.3
	precipitation (%)	↓	–11.5 to –8.7	–23.2 to –17.8	–54.1 to –29.5
Autumn	temperature (°C)	↑	0.8 to 1.1	1.7 to 2.2	2.9 to 5.2
	precipitation (%)	↓	–3.0 to –2.3	–6.1 to –4.7	–14.2 to –7.7

Source: Second National Communication to UNFCCC. (2009).

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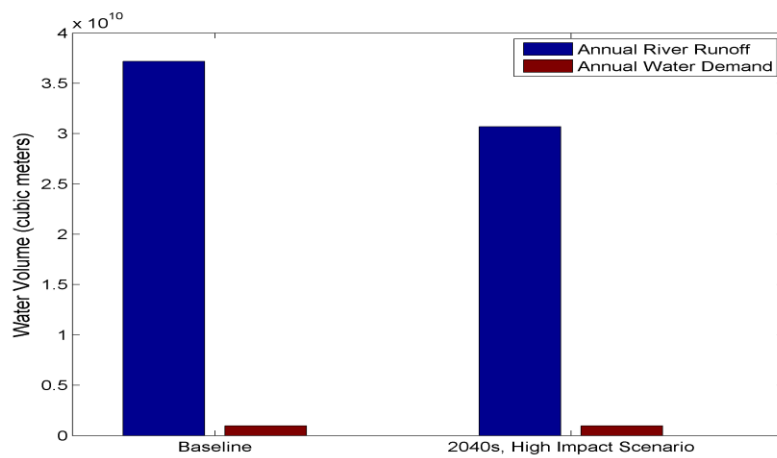
Annual runoff changes.



Source: Second National Communication to UNFCCC. (2009).

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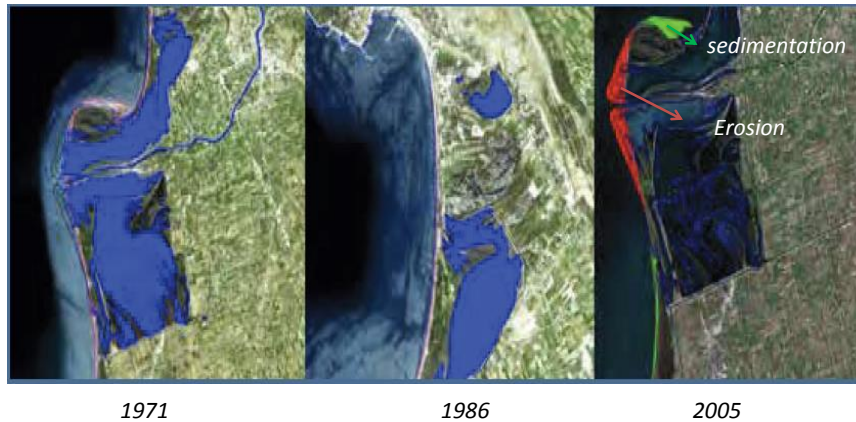
Total annual water availability versus demand



Source: Sutton et al. (2009) WB, IEC.

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Coastline changes and sea erosion (Drini River in Lezha).



Source: Martin Le Tissier et al. (2013).

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Changes in groundwater

- Groundwater storage in the Lezha region is abundant with a good distribution and quality but changing precipitation patterns together with increased evapotranspiration, linked to increased temperatures, will affect groundwater recharge rates and the depths of groundwater tables. Martin Le Tissier et al. (2013).

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Wetland losses

According to Martin Le Tissier et al. (2013):

- In the DMRD area, water supply and fresh water reserves are projected to decline during the next century through a reduction of the rainfall up to 15.5% by the year 2100 as well as salinization of the ground and underground fresh water as a result of sea level rise and sea floods.

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Thank you for your attention!

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