

# TAIEX/ECRAN Multi-beneficiary Workshop

## "The economics of climate change adaptation measures under WFD, MSFD and ICZM"

### Case study Bosnia and Herzegovina

Istanbul, Turkey  
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#### Informations and facts

<b>Geography:</b>	Bosnia and Herzegovina (BiH) has a total surface area of 51,209.2 km <sup>2</sup> , consisting of 51,197 km <sup>2</sup> of land and 12.2 km <sup>2</sup> of sea. Of the total land area, 5% is lowlands, 24% hills, 42% mountains, and 29% karst regions. BiH has common borders with the Republic of Croatia (931 km), the Republic of Serbia (375 km) and the Republic of Montenegro (249 km).
<b>Climate:</b>	The climate varies from a temperate continental climate in the northern Pannonian lowlands along the Sava River and in the foothill zone, to an alpine climate in the mountain regions, and a Mediterranean climate in the coastal and lowland area of the Herzegovina region in the south and southeast.
<b>Institutional framework:</b>	BiH is a sovereign state with a decentralized political and administrative structure. It consists of two Entities: the Federation of Bosnia and Herzegovina (FBiH) and the Republic of Srpska (RS) and Brčko District. The Federation of Bosnia and Herzegovina is sub-divided into 10 Cantons. Decision-making involves the Council of Ministers, the two Entities and Brčko District.
<b>Population:</b>	Estimated BiH population size is 3,839,737 (2011), with approximately 37% in the Republic of Srpska, 61% in the Federation of Bosnia and Herzegovina and 2% in Brčko District.
<b>Economy:</b>	GDP – KM 24,564 million; GDP per capita – 6,397 KM <sup>2</sup> (2010)
<b>Industry</b>	Processing industries are prevalent in BiH, producing 78.3% of the total value of industrial product sales (2011)
<b>Energy</b>	Total electricity generation in BiH in 2011 was 14,049 GWh
<b>Transport:</b>	BiH has 22,744.30 km of roads; 1,031 km of railways; 4 international airports; and no seaport. The Sava River is the main navigable river.
<b>Agriculture:</b>	2.3 million ha (44% of the territory) is suitable for agriculture, which comprises 6.25% of GDP (2010) and more than 19% of the employed workforce.
<b>Forestry:</b>	2.7 million ha (53% of the territory) is occupied by forests and forest land, with approximately 1.3 million ha of forests that can be managed economically
<b>Waste management:</b>	68% of the population utilises municipal waste disposal services; the average amount of municipal waste generated is 1.08 kg per capita per day (2010)
<b>Water management:</b>	BiH has two main river basins: the Sava River basin (38,719 km <sup>2</sup> ), with average annual discharge of 722 m <sup>3</sup> /s, and the Adriatic Sea basin (12,410 km <sup>2</sup> ) with discharge of 433 m <sup>3</sup> /s. Water intake totals 325,554,000 m <sup>3</sup> (2011)
<b>Health:</b>	The leading cause of death is cardiovascular disease (2011)
<b>International cooperation:</b>	Ratified conventions: UNFCCC, the UN Convention of Biological Diversity, the UN Convention to Combat Desertification, the Vienna Convention for the Protection of the Ozone Layer, the Convention on Long-range Transboundary Air Pollution Potential candidate for EU membership (Stabilisation and Association Agreement signed in 2008)

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Institutions:

- According to the Dayton Agreement, the implementation of the environmental policy in Bosnia and Herzegovina (BiH) is within the competence of the Entities and the District Government in Brčko District. The BiH Coordinating Committee for Environment was established in 1998 by the decisions of the Entity Governments. It had the task of harmonizing and coordinating environment policy at the level of Bosnia and Herzegovina,
- Ministry of Foreign Trade and Economics Relations is responsible, along with the entity level Ministries - Ministry of Physical Planning, Civil Engineering and Ecology RS and Ministry for environment and tourism FBiH and Department for Communal Works in Brčko District, for the international obligation of BiH in the field of environment protection,
- Responsibility for obligation under the UNFCCC (UN Framework Convention of Climate Change) and development of the INC (Initial National Communication) rests with the UNFCCC Focal point – Ministry of Physical Planning, Civil Engineering and Ecology RS.

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Observed and projected climate change impact on water sector:

- Considerable water resources,
- Two mayor river basins: Sava and Adratic basin,
- Water sector suffers from poor and degraded infrastructure and lack of investment
- Predicted changes in rainfall volumes and distribution (both spatial and seasonal), combined with rises in temperature and evaporation, more extreme events (floods and droughts), lead to less water during summer period.

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Documents:

- Laws – Water Laws, Environment protection Laws, other
  - Second National Communication of BiH under the United Nation Framework Convention on Climate Change, 2013,
  - Climate change adaptation and low-emission development strategy for BiH, 2013,
  - ICPDR: Danube Study – Climate Change Adaptation, 2010-2012,
  - Strategy of Integrated Water Management in RS and Strategy of Water Management in FBiH,
  - Sava Commission: Sava River Management Plan,
  - River Basin Management Plan for River Sava District – in procedure of public consultation,
  - others
- 
- BiH ratified the UNFCCC in 2000. Following the ratification, BiH has made a serious effort to establish appropriate political, institutional and legal frameworks to meet the commitments of the convention,
  - BiH ratified the Kyoto Protocol in 2007.
  - 2010. submitted its Initial National Communication under the UN Framework Convention on Climate Change to the UNFCCC Secretariat,
  - others

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Adaptive capacity of Water Sector:

- Lack of hydrological modelling, which makes it very difficult to determine to potential implication of climate change for uses such as energy, drinking water, irrigation and detailed vulnerability assessments, maps and risk charts of the treat of flooding using GIS techniques,
- Lack of high-water early warning systems for flooding based on comprehensive, real-time data,
- Lack of investments in water supply systems, resulting in high levels of leaks and losses,
- Lack of flood protection measures,
- Generally – climate change issues are not adequat integrated into water sector policies and programs,

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Adaptation approaches in water sector

Outputs	Indicators	Indicative Cost BAM	Indicative Timeframe
<b>Water resources:</b>			
Strengthened system of water quality monitoring in rural areas; technical assistance on water quality monitoring in rural areas; education in rural areas on water quality in wells and local water supply systems.	Water quality monitoring programme for rural areas	150,000	2014-2018
Functioning river basin management plans (Sava river basin and south Adriatic basin) (multi-sectoral management plans with adaptation approaches as central objective).	2 river basin management plans	500,000	2014-2016
Effective hydrological information systems developed (guidance, cost-benefit analysis and prioritisation).	2 databases for hydrological information system	300,000	2014-2020
Functioning early warning system (modelling software, and mechanism for communication, e.g. website/alerts to media).	1 early warning system	300,000	2014-2025
Dam and accumulation reservoirs facilitate better water management (feasibility study).	1 feasibility study	300,000	2013-2018
Awareness raised among stakeholders on the efficient use of water resources (awareness-raising campaign – website, TV, media. Incentive programme).	1 awareness raising campaign	200,000	2013-2020
Development of hydrology models, in line with climate models.	Hydrology models	100,000	2013-2016
Develop curriculum support materials in conjunction with universities, schools and teacher training institutions.	1 multi-media training pack	50,000	2013-2014

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Funds for implementation Climate change adaptation and low-emission development strategy for BiH:

- Private sector,
- Co-financing,
- Public-private partnership,
- Donor assistance and loans
- Budgets

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Constraints:

- Institutional: absence of both vertical and horizontal cooperation and coordination among competent institutions,
- Financial: lack of utilisation of financial instruments for environment protection,
- Human resources: shortage of personnel educated in the field of environment protection